T**U**ning Journal
for Higher Education

Student and Teacher
perceptions and
experiences: How
do they align?

Tuning Journal
for Higher Education

Tuning Journal for Higher Education is included in:

Tuning Journal for Higher Education

Student and Teacher perceptions and experiences: How do they align?

Student and Teacher perceptions and experiences: How do they align?

Christel Hanne	University of Chile, Chile
Alan Hegarty	University of Limmerick, Ireland
Katherine Isaacs	University of Pisa, Italy
Sérgio Kieling	University of Rio Grande Do Sul, Brazil
Matete Madiba	University of Pretoria, South Africa
Patrick McCabe	Trinity College Dublin, Ireland
Daniel J. McInerney	Utah State University, United States
Samo Pavlin	University of Ljubljana, Slovenia
Joaquim Ramos de Carvalho	University of Coimbra, Portugal
Ricardo Reich Albertz	Ministry of Education, Chile
Margret Schermutzki	Higher Education and Tuning Expert, Germany
Constantin Spiridonidis	Aristotle University of Thessaloniki, Greece
Christian Tauch	German Rector's Conference (HRK), Germany
Samuel Velez	Pontifical Bolivarian University, Colombia
Maria Yarosh	Tuning Academy, University of Groningen, The Netherlands
Cristina Zaggia	University of Padova, Italy
Pavel Zgaga	University of Ljubljana, Slovenia

Tuning Journal for Higher Education (TJHE)

Student and Teacher perceptions and experiences: How do they align?

Contents

Editorial

Student and Teacher perceptions and experiences: How do they align?

Editorial

Mary Gobbi

Editor

E-published: May 2023

> *"Just because you are right, does not mean, I am wrong. You just haven't seen life from my side."*

Anonymous

Our last editorial debated the importance of viewing the world from different points of view and engaging with a range of stakeholders. This theme is continued by considering the issues related to the perceptual alignment of students and their teachers/supervisors in the day-to-day working of the institution/programme of studies. Of particular interest is managing the alignment during times of crisis or challenge. The first question is when, and whether, we would normally expect such alignment to occur. Programme designers speak specifically about curricula alignment, the alignment between programme mission/vision, pedagogy, assessment, competences, and outcomes for example. Significant attention has been paid to the concept of the 'hidden' curriculum and how students may experience something different to the espoused curriculum. It is also expected that available resources should be deployed in alignment with the mission, priorities, policies, and procedures of the institution or programme. These factors may be considered as forms of structural alignment, namely the visible and invisible signs and signifiers of the educational endeavour. However, we are also aware, as the quotation above points out, that students and teachers may not have exposed their respective '*life from my side*'. Consequently, there may be untold influences upon the experience of both: these may then determine not only their current and subsequent experiences, but also their interpretations and actions.

Many papers in this edition, like their predecessors, explore student/ teacher experience and expectations. In so doing, they elicit perceptual differences and gaps. From a learning perspective, we are aware that perception changes, or is influenced by, culture, time, knowledge, experience, capabilities (intellectual, psychomotor, and sensory), attitudes, values, beliefs and conscious or unconscious bias. What has been evident in the papers investigating forms of online or virtual learning during the pandemic, and the transitions that are now emerging through hybrid learning, is that the domestic realities of learning and studying at home can cause new misalignments and inequities: raising questions about the deployment of resources for those with impoverished digital access for example.

Educational evaluation frequently captures the perhaps inevitable differences of perception from students at various stages of their programme. Academics may similarly be on a novice to expert trajectory with respect to their roles in education, research, and leadership. '*Life from my side*' becomes a new reality with development over time - whether as student or staff- particularly when acquiring new responsibilities. Our challenge is how to interpret and respond to the qualitative and quantitative data that emerge from satisfaction surveys, educational evaluations, audit, quality assurance and research. For example, is it reasonable to expect 'alignment' of perspective when the trajectories of students and teachers are perhaps inevitably not aligned? Furthermore, as we now reflect critically on the organizational and educational responses to the pandemic, then perhaps we should look for guidance from implementation science. One example is Normalization theory which has been applied to complex situations. Earlier studies, summarized in a systematic review by May et al.,[1] focused on health care interventions; but recently developments by Wood have taken place in education and the model may offer some potential for planned change in complex educational situations.[2] However, as we remarked earlier, the programme team or institution, still needs to discern when to be concerned about a lack of alignment between student and teachers, and more importantly, what actions to take to prevent unnecessary misalignment and to mitigate inevitable perception differences.

---

[1] Carl R. May, Amanda Cummings, Melissa Girling, Mike Bracher, Frances S. Mair, Christine M. May, Elizabeth Murray, Michelle Myall, Tim Rapley, and Tracy Finch, "Using Normalization Process Theory in feasibility studies and process evaluations of complex healthcare interventions: a systematic review," *Implementation Science* 13, no. 1 (June 2018): 80, https://doi.org/10.1186/s13012-018-0758-1.

[2] Phil Wood, "Overcoming the problem of embedding change in educational organizations: A perspective from Normalization Process Theory," *Management in Education* 31, no. 1 (2017): 33–38, https://doi.org/10.1177/0892020616685286.

The next edition in November 2023 is our tenth anniversary edition. In addition to the usual ten or so articles, there will be some commissioned papers reviewing the Tuning developments over the past ten years, with a guest editorial from my predecessors Paul Ryan and Luigi Filippo Donà dalle Rose. It is an exciting time as our new century engages on its recovery from the COVID-19 pandemic, with many learning points for the future. While the virus is still very much with us, let us emulate the caterpillar, perhaps it is our time to emerge from the chrysalis and become the beautiful butterfly.

Let us look forward to the second decade of the Journal and 2033 with a sense of hope and optimism.

Editorial Team
May 2023

Introduction

Student and Teacher perceptions and experiences: How do they align?

Introduction

Mary Gobbi

Editor

E-published: May 2023

Abstract: The papers in this Edition of the Journal comprise nine papers, of which three are related to the COVID-19 pandemic. Together, the papers address the perceptions and experiences of students and their teachers, demonstrating where the views/conceptual understandings of students and their teachers align, where they do not and where stress factors have had an impact. The papers reflect a varied range of participant countries both in terms of the authors, but perhaps more importantly the study sites (Cuba, The Czech Republic, Germany, India, Mexico, Philippines, Slovakia, Spain, and Turkey). Similarly, the programmes of study included Engineering, Mathematics, Tourism, foreign languages, social sciences, and education.

Consequently, the methodologies and methods are appropriately diverse, ranging from social network theory, mixed methods, qualitative research complex statistical analyses, evaluation scales like COPE, Hedperf, student evaluations of teaching, student engagement, and Sojkin's instrument to evaluate the influences upon first- and second-generation university students. The authors have also generated some very informative literature reviews outlining the evidence base and the related conceptual and theoretical issues in their respective fields. While some studies had small samples, their findings may have important feedback for local educational service improvement, even if generalizability could not be claimed, readers may find utility in face validity. The papers also remind us that educational research is challenging, whether in the handling of small cohorts, the complexity of the issues under study or the application of sophisticated measuring tools. None the less, evaluation, audit, practitioner research or large scale studies are all necessary activities if we are to improve our understandings of (1) ourselves as educators/researchers; (2) our students with their motivations, interests and capabilities; (3) the system infrastructures that hinder or support the educational endeavours; and of

course, (4) the efficacy of the pedagogies for a given cohort, in a specific programme in a cultural context.

Keywords: COVID-19; teacher education; evaluation metrics; student perceptions; mixed methods.

Our first paper *'Measuring students' coping with the Brief COPE: An investigation testing different factor structures across two contexts of university education'* by Fabian Pels, Alina Schäfer-Pels, and Birte von Haaren-Mack is essentially a methodological paper to establish whether the Brief COPE scale (1997) could reliably and effectively measure the stress and coping capacities experienced by university students. The importance of having a sound reliable measure of stress and coping capacities in university students is critical so the efficacy of any interventions, designed to support students through their university experience, can be evaluated. In the background section of the paper, readers will find not only a helpful critique of various instruments used by educational psychologists to measure an individual's capacity to cope with a range of stressors, but also a summary of the adaptive and maladaptive responses to stress and their connection to health and wellbeing. At the heart of this empirical study was a focus on the implications for future research and the practical application of the Brief Cope scales.

Carver et al.[1] designed the original sixty item COPE inventory scale before adapting this to the shorter Brief COPE' questionnaire. However, as Pels et al. noted, concerns regarding the Brief COPE scale had been identified in the literature including inconsistencies in the factor structure. These were thought to be related to (1) a lack of theoretical foundation underpinning previous Brief COPE factor structures; (2) the different contexts in which the tool had been deployed; and (3) "methodological characteristics" like translation and statistical challenges. It was to address these concerns that the empirical component of the paper was designed.

The study was situated in a German Sports University with primarily first year students at bachelors or masters level (15% sample) studying sports science or physical education. The existing German language translation of the Brief Cope was deployed with 508 students. The students were invited to

---

[1] Charles S. Carver, "You Want to Measure Coping but Your Protocol's Too Long: Consider the Brief COPE," *International Journal of Behavioral Medicine* 4, no. 1 (1997), https://doi.org/10.1207/s15327558ijbm0401_6.

Charles S. Carver, M. F. Scheier, and J. K. Weintraub, "Assessing Coping Strategies: A Theoretically Based Approach," *Journal of Personality and Social Psychology* 56, no. 2 (1989).

respond to the scale in two contexts of university education (during university lessons and outside of university lessons). The analysis of the data requires a sound statistical understanding and is well described in the paper.

The authors concluded that while some partial limitations were found regarding the psychometric item characteristics of the Brief COPE, the findings support the applicability of the situational version of the Brief COPE in research and practice from a content-related point of view. The paper details how the tool can be used to measure themes associated with stress and coping and offers recommendations concerning the tool's future use and development.

From this focus on the importance of measuring stress and coping so as to be able to provide evidence based support to university students, our second paper takes us into other student experiences and perceptions that also may be associated with stress and coping, namely *'The assessment of service quality effect in higher education sector on satisfaction, suggestion, and behavioral intention of university students: The case of Turkey'* by Esen Gürbüz and Muhammet Bayraktar. Like Pels et al. (in this Edition), the authors here are investigating the applicability of a tool to a national context (Turkey). In this case, the tool is the Hedperf scale that measures service quality at universities. The construct validity of the Hedperf scale was investigated according to the student perceptions at a university in Turkey, it was found with exploratory factor analysis (EFA) that service quality dimensions were classified into four dimensions - *academic, non-academic, reputation*, and *access*. As well as investigating the Hedperf scale, the authors sought to ascertain which quality dimensions had an impact upon students' satisfaction, their intention for recommending university to potential students (suggestion), and visiting after graduation (behavioural intention). The authors provide an extensive discussion concerning the measures of quality used in Higher Education, and the relative merits of various instruments and their connection with deployment contexts and conditions.

The empirical study was conducted in one site using a face-to-face survey method and quota sampling method. 1112 questionnaires were evaluated with nearly 51% being female and across the different academic years of the programme. The results demonstrated that in the Turkish context, four dimensions were determined in the quality of the services namely, *academic, non-academic, reputation* and *access*. The finding that these dimensions have an impact on the students' intention to recommend the university to others may affect the sense of belonging positively. The authors recommend that from a marketing perspective, resources could be prioritized according to the results from analysing the respective quality dimensions.

In our next paper *'Major increases in teachers' performance evaluations: Evidence from student evaluation of teaching surveys'* by Jaime Prieto, Rocío Guede-Cid, Ana I. Cid-Cid, and Santiago Leguey, the extent to which student evaluation of teaching (SET) scores impact upon teacher performance over consecutive years was explored. The data sample comprised 13,052 teacher evaluations and 3,893 teacher observation sessions. The authors offer a fascinating summary of the literature that reveals the sometimes-contentious views held by teachers and administrators concerning the relevance and impact of student evaluations of teaching. This is a thorny issue, raising practice questions about the extent to which academic teachers should take notice of SETs when 'repeating' a course with a subsequent cohort. Prieto et al. debate the merits of different evaluation tools for their content, reliability, and validity. They also raise the issue of bias with respect to student diversity characteristics and what this may mean for data analysis and interpretation. The authors argue for more 'long-term longitudinal studies to track and analyse the ratings of the same cohort of teachers over extended periods'. Their interest was to discover which dimensions may contribute to improvements in teacher performance over time with respect to the feedback received from the SETS: in this case the ten-item tool used by the case study site in Madrid, Spain. Procedurally, this paper presents a good description of the ethical procedures followed to protect students.

This paper is helpful in that it uniquely follows through major increases in teachers' performance evaluations and their immediate impact on next year's score based on evidence from the SET surveys. The key findings are that, for teachers who taught the same course or subject for at least two years in a row, three SET survey items related to aspects of teaching methodology as those most closely related to major increases in teacher evaluations. Hence, as expected student feedback can influence teacher methodology for subsequent courses. The limitations of the study are its context specific SET tool, thus the generalisability for other university educational contexts is not demonstrated.

Another dimension of student and teacher feedback is that associated with flexible learning as our next paper highlights - *'Tourism and hospitality management faculty satisfaction towards flexible learning: A Cross-sectional survey from higher educational institutions in Central Luzon, Philippines'* by John Paul Miranda and Maria Anna D. Cruz. Although the study relates to the COVID-19 pandemic, the findings resonate for more general aspects of flexible learning. The paper offers a substantive review of the literature and the factors known to influence Faculty staff when adapting to the

implementation of flexible learning modes. The switch was required due to the pandemic and the associated Governmental drivers. The authors explored individual staff members' experience and perceived expertise with flexible learning, their personal characteristics, their degree of satisfaction with flexible learning in situ; and the institutional support available. A total of 85 Tourism, Hospitality and Management (THM) faculty across 27 different universities and colleges participated in the study.

Grounded in the data, the authors concluded that faculty staff were generally satisfied with flexible learning despite problems encountered with its delivery. Four themes emerged, namely technical issues, inability to develop student-teacher rapport, academic dishonesty, and integrity, and learning flexibility. Examples of these themes were discovered through the quantitative survey and the open text response questions. The authors noted the importance of investigating these issues longitudinally and specifically to focus upon the concerns related to student- teacher rapport and academic integrity.

When countries expand their Higher Education sector, one emergent issue is the extent to which more first-generation university students can be recruited and provided with access. In this next study, *Exploring the impact of generational differences on university study decisions in Slovakia* (Nikola Šabíková, Kamila Valentová, Radomír Masaryk, Aleš Neusar, and Lenka Sokolová), this topic is explored and the rationale for decision making ascertained. Access to higher education has been extended within Slovakia where university education remains free. While there is international literature concerning university uptake amongst first- and second-generation students, the authors reported scare research on decision-making about university studies among Slovak students. Consequently, there is little evidence about the main factors influencing student choices and whether family tradition plays a role in their decision-making, making it difficult to design appropriate university practices and policies. 'First generation' students is a term that is variously described in the literature, but essentially refers to those students who are the first in their families to go to university. In contrast, second generation students are those who have at least one parent who attended university and obtained a university degree.

Šabíková et al. provide an extensive and interesting literature review summarising the challenges often faced by first- and second-generation students and how their lack of awareness of the nature of university life can have unwanted effects. The authors found little information concerning ways to support these students. Their study therefore was to explore similarities and differences between first- and second-generation students, to establish

447

motivating factors that influence their decision making towards university as well as their information sources.

The authors drew on similar work conducted in Poland[2] where comparable experiences and university expansion took place following the 1989 withdrawal from the Soviet Union. The Sojkin instrument was translated and adapted for contemporary use in Slovakia. 357 Slovak students aged from 18 to 22 from one university participated in an on line survey. The results showed that it was significantly more important for second-generation students, whose parents had university degree experience, to continue the family tradition when deciding to study than for first-generation students. Furthermore, the internet was the most important source of information for both student groups implying that universities need to monitor the presentation impact of their web-based materials.

From Slovakia to Mexico and Cuba returning to tourism studies. The difference here is that Félix Díaz-Pompa, Nadia Vianney Hernández-Carreón, Idevis Lores-Leyva, and Olga Lidia Ortiz-Pérez look at co-operative learning and social cohesion as factors that can enhance the social competence of students (*'Cooperative learning and social cohesion: Study in the 4th year classes of tourism degree of Cuba and Mexico'*). The ability of students to be able to work collaboratively and effectively together as students and then within the employment, leisure and family networks can be enabled through appropriate pedagogies that utilise group settings and tasks. In this study, the authors drew attention to literature that demonstrated the relationship between co-operative learning that enhanced social cohesion and the subsequent improvements in academic performance, productivity, ease of working and motivation. Given the transversal nature of tourism studies, it was argued that the development of social competences skills was a necessary part of the curriculum. However, methodologically it is difficult to measure 'soft' skills like motivation, social cohesion, and collaboration with the added challenge of evaluating impact and effectiveness over time. To address these and other concerns, the authors designed their study with heterogenous groups, fourth year bachelor students from Cuba and Mexico where the tourism industries had similar features although the educational and cultural contexts differed.

Methodologically, the study drew on social network theory to compare the social cohesion of 4th year class groups of the bachelor's degree in

---

[2] 'Sojkin Bogdan, Paweł Bartkowiak, and Agnieszka Skuza, "Determinants of Higher Education Choices and Student Satisfaction: The Case of Poland," *Higher Education* 63, no. 5 (May 2012): 565–81, https://doi.org/10.1007/s10734-011-9459-2.

Tourism in Cuba and Mexico in terms of social cohesion derived from cooperative learning strategies used in their previous years of study. The paper provides a very helpful view of how social network theory, and its analytical tools, can measure social cohesion and dynamics within educational groups. The sample sizes were relatively small with fifty-three students in total. Various student characteristics were collected, and the social networks analysed within the two sites. The data showed greater cohesion within in one site (Cuba), with other factors that inhibited co-operation (e.g., cliques) and enablers (key individuals with extensive networks). The study showed the potential for evaluating the impact of facilitative pedagogies for social cohesions and co-operation as well as revealing factors that might inhibit the social competences of students as they near graduation.

It is well accepted that the development of critical thinking is a key aim of higher education both as a generic competence for all students, but also specifically within the subject areas, where skills are required to critically analyse and reflect within each discipline. In their paper '*Understanding critical thinking: A comparative analysis between university students' and teachers' conception',* María José Bezanilla, Héctor Galindo-Domínguez, Lucía Campo, Donna Fernández-Nogueira, and Manuel Poblete Ruiz sought to understand whether students and teachers held similar understandings concerning the nature of critical thinking. Their paper presents the various interpretations of the concept from the literature which is, as they say, a 'complex and multidimensional concept'. Fostering the skills of critical thinking presumes an understanding of the concept, but as their study showed from the empirical work, there were differences between the student perceptions and those of their teachers. 263 Spanish Education university students (from the social sciences) formed the convenience sample for the study spread between different subject areas and years of study. The results were compared with a previous study of the authors where the perspectives of teachers had been elicited. Building on the university teacher study, a questionnaire was administered where the students were asked to rank the top three items that best represented their understanding of the concept of critical thinking. The students favoured from highest to lowest order, reasoning/arguing, questioning/asking oneself and then analysing / organizing.

Following their statistical analysis and dividing the teacher group into those from the social sciences (like the students) and those from other subjects, it was found that students' and teachers' perception about critical thinking was different. Teachers believed that analyzing/organizing, reasoning/arguing, and taking a position/taking decision were the three most

important categories. In contrast, students' places reasoning/arguing; then questioning/asking oneself, and then analyzing/organizing. The authors presented a well-argued account of the limitations of their study that was honest and transparent (for example the representativeness of the sample, the theoretical issue of developing the categories for comparison from, the inductive work with the teachers).

Our final two papers address aspects of online learning during the COVID-19 pandemic, namely massive open online courses (India) and contingency online learning (Czech Republic). While the areas of investigation cover aspects of teacher and/or student experiences, the foci are different, namely professional development, student engagement and mathematical concept acquisition respectively. Furthermore, the studies also noted whether the issues that emerged were specifically related to the pandemic, to the pedagogies employed, or to other socio-economic factors.

The first is a comparative case study of two universities in India: Suman Kalyan Panja, Atanu Banerjee, Kamal Krishna De, and Ajay Kumar Singh (*The attitude of students and teachers towards MOOC usage for their academic and professional development: A comparative study of two case study sites)*. While massive open online courses (MOOC) were in place prior to the COVID-19 pandemic, their use expanded during the pandemic. The authors were interested in student and teacher attitudes towards MOOC usage, specifically for professional development purposes. A self-designed survey with Likert type questions and free text responses was used with content validity checked by an expert group. This was administered to the students and teachers in neighbouring university case study sites with sample sizes for site one and two as follows: students 112 and 52, teachers 48 and 45.

The results indicated that for some statements there were no significant differences between institutions and students and their teachers. However, there were some demographic influences upon the data, namely the degree of engagement of older teachers and females. Similar findings have been found in earlier literature. Many respondents had no previous experience with MOOCs and this was reflected in the data, but especially the qualitative data. There were variations between some groups with a strong reported positive attitude of the CSS1 faculties. It was also evident that the Government of India policies and initiatives in this area noted by the authors appeared to have had some influence. Without the qualitative component of the research, it would have been difficult to explain some of the quantitative data and a few apparent anomalies.

This next study from Katerina Dvorakova, Jaroslav Emmer, Renata Janktova, and Katerina Klementova investigated university students'

engagement in remote foreign language classes during the COVID-19 lockdown (*The influence of remote learning environment and use of technology on university students' behavioural engagement in contingency online learning*). While online learning had been introduced in the Czech higher education system, it was not as well developed as other countries like the United Kingdom. Hence, when the pandemic required a transition to online learning, the authors were interested in the extent to which the use of technical equipment and the remote physical environment influenced students' engagement. They chose these two aspects of engagement based on emergent feedback from students and, second, that the university had little control (or none) over the students' home environment. As the authors noted, they sought to understand the complexity of the contingency online learning experience of their students. From their anecdotal reports from students, the authors were able to obtain a detailed insight into their world when continency online learning became a necessity. What emerged from the study was that the factor that most impacted upon students was their home working space. The use of web cams within the sessions proved contentious and aligned with other research findings where privacy, self-consciousness, and disclosure of socio-economic status led to feelings of discomfort and influenced engagement. The authors provide a very detailed and discursive account literature review that extended into their findings which were contrasted with those in the literature. The qualitative data was rich and detailed and showed the benefits of small scale in depth qualitative research in context.

While the hope is that such a pandemic would not re-occur, the learning from their and other studies can be applied by others when such transitions become a necessity.

These brief summaries of the forthcoming papers highlight that where there is an inappropriate lack of alignment between teacher and student conceptions of an issue, there can be negative implications for student education and teacher satisfaction.

Articles

Measuring students' coping with the Brief COPE: An investigation testing different factor structures across two contexts of university education

Fabian Pels, Alina Schäfer-Pels, and Birte von Haaren-Mack*

Abstract: Appropriate instruments are required for professionals in the field of educational psychology to measure students' strategies to cope with stress. As the results of previous studies are inconsistent, the purpose of the present manuscript was to examine the factor structure of the situational version of the Brief COPE as an economic and flexible coping measure to be used in the domain of university education and health psychology. In a sample of 508 university students, three factor structures were compared across two contexts of university education. Results show that a hierarchical two-level factor structure fits the data best, with relatively stable coping dimensions at superordinate levels and a variety of specific strategies and acts at subordinate levels. The findings support the applicability of the situational version of the Brief COPE in research and non-clinical practice.

---

* **Fabian Pels** (corresponding author, f.pels@dshs-koeln.de), PhD, is Post-Doc at the Institute of Psychology of the German Sport University Cologne, Germany. His research focus is on coping and stress in the field of education, and on flow experiences in sports.

Alina Schäfer-Pels (alina.schaefer-pels@uniklinik-ulm.de), PhD, is Post-Doc at the University Hospital Ulm, Department of Child and Adolescent Psychiatry/Psychotherapy, Germany. Her research focus is on coping as well as on the prevention of interpersonal violence in the sport context.

Birte von Haaren-Mack (birte.von-haaren-mack@kit.edu), PhD, is Post-Doc at the Institute of Sports and Sports Science, Karlsruhe Insitute of Technology, KIT. She uses the methodology of Ambulatory Assessment to investigate the effects of physical activity on psychophysiological factors in real-life settings.

Keywords: Coping; stress; stress management; scale development; questionnaire; instrument; measurement; higher education.

I. Introduction

Coping in students is an issue of great concern. This is particularly true in light of survey results which indicate that university students in a number of different countries suffer from stress[1,2,3,4] caused by a multitude of stressors.[5] Although stress can have positive consequences (e.g., personal growth[6,7]), it is more often linked to a wide range of negative health (e.g., high blood pressure, anxiety, depression or academic burnout[8,9]), learning (e.g., drop in learning performance[10]) or behavior (e.g., drop out[11]) outcomes. Thus, stress

---

[1] Nuran Bayram and Nazan Bilgel, "The Prevalence and Socio-Demographic Correlations of Depression, Anxiety and Stress Among a Group of University Students," *Social Psychiatry and Psychiatric Epidemiology* 43, no. 8 (2008): 668–70, https://doi.org/10.1007/s00127-008-0345-x.

[2] Uta Herbst, Markus Voeth, Anne Theresa Eidhoff, Mareike Müller, and Sarah Stief, "Studierendenstress in Deutschland: Eine empirische Untersuchung" (Student stress in Germany: an empirical study) (Berlin: AOK, 2016), 21–24.

[3] Wendy Larcombe et al., "Prevalence and Socio-Demographic Correlates of Psychological Distress Among Students at an Australian University," *Studies in Higher Education* 41, no. 6 (2014): 1080, https://doi.org/10.1080/03075079.2014.966072.

[4] Josephine G. W. S. Wong et al., "Web-Based Survey of Depression, Anxiety and Stress in First-Year Tertiary Education Students in Hong Kong," *The Australian and New Zealand Journal of Psychiatry* 40, no. 9 (2006): 778, https://doi.org/10.1111/j.1440-1614.2006.01883.x.

[5] Yao-Ting Sung and Tzu-Yang Chao, "Construction of the Examination Stress Scale for Adolescent Students," *Measurement and Evaluation in Counseling and Development* 48, no. 1 (2015): 50–53, https://doi.org/10.1177/0748175614538062.

[6] Iva Solcova and Peter Tavel, "Stress-Related Growth in Two Challenging Conditions," *Journal of Human Performance in Extreme Environments* 13, no. 1 (2017): 5, https://doi.org/10.7771/2327-2937.1099.

[7] Allison A. Vaughn, Scott C. Roesch, and Arianna A. Aldridge, "Stress-Related Growth in Racial/ethnic Minority Adolescents," *Educational and Psychological Measurement* 69, no. 1 (2009): 137, https://doi.org/10.1177/0013164408318775.

[8] Sheena Johnson, "The Experience of Work-Related Stress Across Occupations," *Journal of Managerial Psychology* 20, no. 2 (2005): 182–83, https://doi.org/10.1108/02683940510579803.

[9] George M. Slavich, "Life Stress and Health: A Review of Conceptual Issues and Recent Findings," *Teaching of Psychology* 43, no. 4 (2016): 348–51, https://doi.org/10.1177/0098628316662768.

[10] Jeffrey A. LePine, Marcie A. LePine, and Christine L. Jackson, "Challenge and Hindrance Stress: Relationships with Exhaustion, Motivation to Learn, and Learning Performance," *Journal of Applied Psychology* 89, no. 5 (2004): 888, https://doi.org/10.1037/0021-9010.89.5.883.

[11] Simon Brooman and Sue Darwent, "'Yes, as the Articles Suggest, I Have Considered Dropping Out': Self-Awareness Literature and the First-Year Student," *Studies in Higher Education* 37, no. 1 (2012): 26–31, https://doi.org/10.1080/03075079.2010.490580.

in students requires coping.[12] This, in turn, strengthens the need for appropriate instruments to measure coping both for research (e.g., to identify adaptive coping strategies) and applied (e.g., as part of the assessment phase of a stress reduction intervention) purposes.

The development of instruments to measure coping is a work that originated in the field of stress and emotion research in the early 1980s[13] and was continued and used by Educational Psychology.[14] Consequently, many instruments were developed in or applied to the domain of education. However, (1) these instruments often comprise a multitude of items, such as the Ways of Coping Questionnaire,[15,16] and are thus time-consuming and inefficient. Moreover, (2) these instruments are often too specific (e.g., because they deal with specific coping for improving education; the Coping Resources Inventory Scales for Educational Enhancement[17]) or (3) have an application that is too broad and does not apply exclusively to the education domain (e.g., because they deal with critical life events in general; the Life Situations Inventory[18]). Given these problems with existing coping questionnaires in the education domain, the purpose of the present manuscript is to further examine the Brief COPE[19] as an economic and flexible measure of coping for use in the field of (university) education.

---

[12] Eilidh Cage et al., "Barriers to Accessing Support for Mental Health Issues at University," *Studies in Higher Education* 39, no. 1 (2018): 3–4, https://doi.org/10.1080/03075079.2018.1544237.

[13] Richard S. Lazarus and Susan Folkman, *Stress, Appraisal, and Coping* (New York: Springer, 1984), 117–40.

[14] Janet L. Kottke, Gloria Cowan, and Diane J. Pfahler, "Development of Two Scales of Coping Strategies: An Initial Investigation," *Educational and Psychological Measurement* 48, no. 3 (1988): 737–42, https://doi.org/10.1177/0013164488483022.

[15] Susan Folkman and Richard S. Lazarus, *Manual for the Ways of Coping Scale* (Palo Alto, CA: Consulting Psychology Press, 1988), 1–40.

[16] Kathryn R. Rexrode, Suni Petersen, and Siobhan O'Toole, "The Ways of Coping Scale: A Reliability Generalization Study," *Educational and Psychological Measurement* 68, no. 2 (2008): 262–80, https://doi.org/10.1177/0013164407310128.

[17] Christopher J. McCarthy et al., "Factor Analysis of the Coping Resources Inventory Scales for Educational Enhancement," *Measurement and Evaluation in Counseling and Development* 32, no. 4 (2019): 199–215, https://doi.org/10.1080/07481756.2000.12068987.

[18] H. Feifel and S. Strack, "Coping with Conflict Situations: Middle-Aged and Elderly Men," *Psychology and Aging* 4, no. 1 (1989): 29–30.

[19] Charles S. Carver, "You Want to Measure Coping but Your Protocol's Too Long: Consider the Brief COPE," *International Journal of Behavioral Medicine* 4, no. 1 (1997): 92–100, https://doi.org/10.1207/s15327558ijbm0401_6.

I.1. Coping

Coping with stress can be defined as "efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person".[20] When an individual appraises external (e.g., expectations from others) and/or internal (e.g., individual goals) demands that exceed his or her own resources (e.g., self-efficacy), the demands become stressors. A stressor is a stimulus that causes a stressful behavioral or physiological response.[21] In order to cope with stress, individuals make efforts to manage the external and/or internal demands (i.e., the stressors) in the form of cognitive, emotional and behavioral coping strategies.[22]

An individual's use of coping strategies is dynamic in nature.[23] This dynamic can be characterized as an ongoing process in which the use of coping strategies changes as stressors and appraisals change. Stressors and appraisals are neither stable across contexts nor over time. Consequently, the respective coping reactions can change across contexts and over time.[24,25] Hence, actual coping behavior cannot be described as a stable personality trait.[26]

In recent years, numerous attempts have been made to categorize coping strategies.[27,28] For instance, the differentiation of coping strategies into problem-focused and emotion-focused coping dimensions.[29,30]

---

[20] Lazarus and Folkman, *Stress*, 141.

[21] Lazarus and Folkman, *Stress*, 15.

[22] Shelley E. Taylor and Annette L. Stanton, "Coping Resources, Coping Processes, and Mental Health," *Annual Review of Clinical Psychology* 3, no. 1 (2007): 378–90, https://doi.org/10.1146/annurev.clinpsy.3.022806.091520.

[23] Lazarus and Folkman, *Stress*, 118–21.

[24] Denise de Ridder, "What Is Wrong with Coping Assessment? A Review of Conceptual and Methodological Issues," *Psychology & Health* 12, no. 3 (1997): 418–27, https://doi.org/10.1080/08870449708406717.

[25] François Vandercleyen et al., "Pre-Service Teachers in PE Involved in an Organizational Critical Incident: Emotions, Appraisal and Coping Strategies," *Physical Education and Sport Pedagogy* 19, no. 2 (2014): 168–73, https://doi.org/10.1080/17408989.2012.732564.

[26] Vandercleyen et al., "Pre-Service Teachers", 173.

[27] Katharine H. Greenaway et al., "Measures of Coping for Psychological Well-Being," in *Measures of Personality and Social Psychological Constructs*, ed. Gregory J. Boyle, Donald H. Saklofske and Gerald Matthews (London: Academic Press, 2015), 108–09.

[28] Ralf Schwarzer and Christine Schwarzer, "A Critical Survey of Coping Instruments," in *Handbook of Coping: Theory, Research, Applications*, ed. Moshe Zeidner and Norman S. Endler (Oxford: John Wiley & Sons, 1996), 2–3.

[29] Wilfried F. Admiraal, Fred A. Korthagen, and Theo Wubbels, "Effects of Student Teachers' Coping Behaviour," *British Journal of Educational Psychology* 70, no. 1 (2000): 35, https://doi.org/10.1348/000709900157958.

[30] Charles S. Carver and Sara Vargas, "Stress, Coping, and Health," in *The Oxford Handbook of Health Psychology*, ed. Howard S. Friedman (Oxford University Press, 2011), 163–65.

Problem-focused coping strategies are supposed to manage a critical stressor by problem solving and identifying and evaluating potential alternatives to momentary behavior.[31] Emotion-focused coping strategies are supposed to concentrate on regulating the emotional response to stressors. Emotion-focused coping strategies are applied when an individual appraises a stressor as unchangeable or largely uncontrollable.[32,33] Furthermore, coping strategies can be classified into adaptive and maladaptive coping dimensions, for example. Adaptive strategies are said to be more functional than maladaptive strategies because they contribute to the sustainable management of stressors in the long term. In general, the literature classifies problem-focused and support-seeking strategies as adaptive and emotion-focused strategies as well as strategies such as avoidance and escape as maladaptive.[34] All of these attempts to categorize coping strategies have influenced the development of factor structures in coping questionnaires such as the Brief COPE.[35]

I.2. *The Brief COPE*

The Brief COPE[36] questionnaire was adapted from the COPE inventory.[37] It aims to facilitate the investigation of coping in naturally occurring settings by measuring coping responses in an economical way (i.e., time- and cost-efficient). It is a self-report instrument designed to assess situational or dispositional coping. As such, the Brief COPE overcomes problems relating to economics, context specificity and flexibility that are inherent to other coping instruments in the field of (university) education.

---

[31] Alexander-Stamatios Antoniou, Aikaterini Ploumpi, and Marina Ntalla, "Occupational Stress and Professional Burnout in Teachers of Primary and Secondary Education: The Role of Coping Strategies," *Psychology* 4, 3A (2013): 350, https://doi.org/10.4236/psych.2013.43A051.

[32] Admiraal, Korthagen and Wubbels, "Effects," 43–47.

[33] E. Stephenson, D. B. King, and A. DeLongis, "Coping Process," in *Stress: Concepts, Cognition, Emotion, and Behavior*, ed. George Fink (London, UK: Academic Press, 2016), 362.

[34] Ellen Skinner and Jeffry Beers, "Mindfulness and Teachers' Coping in the Classroom: A Developmental Model of Teacher Stress, Coping, and Everyday Resilience," in *Handbook of Mindfulness in Education*, ed. Kimberly A. Schonert-Reichl and Robert W. Roesner (New York, NY: Springer New York, 2016), 100–01.

[35] Carver, "Measure Coping," 92–100.

[36] Carver, "Measure Coping," 92–100.

[37] Charles S. Carver, M. F. Scheier, and J. K. Weintraub, "Assessing Coping Strategies: A Theoretically Based Approach," *Journal of Personality and Social Psychology* 56, no. 2 (1989): 267–83.

The original Brief COPE questionnaire consists of 48 items which are assigned to 14 theoretically and exploratory empirically driven factors. Each factor comprises two Likert-type scale items ranging from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). The two items per factor were selected by Carver[38] on a criteria-driven basis from the comprehensive COPE inventory.[39] These are items that, first, had a high loading on the respective factor of the COPE inventory and, second, have demonstrated their value over years of field use due to their clarity. Two items per factor are, therefore, considered by Carver[40] to be sufficient for a brief questionnaire.

The factors are active coping (e.g., "I've been taking action to try to make the situation better"), planning (e.g., "I've been thinking hard about what steps to take"), positive reframing (e.g., "I've been looking for something good in what is happening"), acceptance (e.g., "I've been learning to live with it"), humor (e.g., "I've been making jokes about it"), religion (e.g., "I've been praying or meditating"), using emotional support (e.g., "I've been getting emotional support from others"), using instrumental support (e.g., "I've been getting help and advice from other people"), self-distraction (e.g., "I've been turning to work or other activities to take my mind off things"), denial (e.g., "I've been refusing to believe that it has happened"), venting (e.g., "I've been expressing my negative feelings"), substance use (e.g., "I've been using alcohol or other drugs to help me get through it"), behavioral disengagement (e.g., "I've been giving up the attempt to cope"), and self-blame (e.g., "I've been criticizing myself").

However, a number of reviews[41,42,43] have identified inconsistencies in the factor structure of the Brief COPE. Firstly, studies differ in whether they consider (a) a one-level factor structure (for an example, see Fig. 1) or (b) a hierarchical two-level factor structure (for an example, see Fig.

---

[38] Carver, "Measure Coping," 94.

[39] Carver, Scheier, and Weintraub, "Assessing Coping Strategies," 267–83.

[40] Carver, "Measure Coping," 94–95.

[41] Sarah V. Brasileiro et al., "Controversies Regarding the Psychometric Properties of the Brief COPE: The Case of the Brazilian-Portuguese Version "COPE Breve"," *PLOS ONE* 11, no. 3 (2016): 1–14, https://doi.org/10.1371/journal.pone.0152233.

[42] Christian U. Krägeloh, "A Systematic Review of Studies Using the Brief COPE: Religious Coping in Factor Analyses," *Religions* 2, no. 4 (2011): 216–46, https://doi.org/10.3390/rel2030216.

[43] Dario Monzani et al., "The Situational Version of the Brief COPE: Dimensionality and Relationships with Goal-Related Variables," *Europe's Journal of Psychology* 11, no. 2 (2015): 295–310, https://doi.org/10.5964/ejop.v11i2.935.

2-3). In (b) a hierarchical two-level factor structure, first-level factors are nested within second-level factors (i.e., second-level factors comprise first-level factors). Secondly, studies differ in (a) whether they empirically examine the factor structure of the Brief COPE[44,45] or (b) whether instead they rely on a factor structure drawn from previous theoretical considerations or research findings without empirical testing.[46] Of those studies that empirically examine the factor structure, most consider a one-level factor structure. However, these studies differ widely in the number of factors they statistically identify (between two and 14 factors per analysis; for an overview, see [47] and [48]). Furthermore, few factor solutions reflect the factors outlined by Carver.[49] Very few studies consider a two-level factor structure. Knoll and colleagues[50] found four second-level factors (focus on positive, support coping, active coping, evasive coping), which comprise eleven of the 14 original first-level factors. In general, inconsistencies in factor structures are common in recent studies on coping instruments.[51,52]

Given the benefits of the Brief COPE on the one hand (i.e., economics, context specificity and flexibility) and the inconsistencies regarding the factor structure on the other hand, it is necessary to further investigate and overcome these inconsistencies. Regarding the Brief COPE, at least three superordinate issues can be highlighted that may be responsible for the inconsistencies. These issues are – at least to some extent – linked to each other.

The first issue that may account for the inconsistencies in factor structure is related to the lack of *theoretical foundation* underpinning previous Brief

---

[44] Julie Doron et al., "Coping Profiles, Perceived Stress and Health-Related Behaviors: A Cluster Analysis Approach," *Health Promotion International* 30, no. 1 (2014): 92, https://doi.org/10.1093/heapro/dau090.

[45] Yasuo Miyazaki et al., "Factorial Structure of Brief COPE for International Students Attending U.S. Colleges," *College Student Journal* 42, no. 3 (2008): 3.

[46] Matthias Michal et al., "Prevalence and Correlates of Depersonalization in Students Aged 12-18 Years in Germany," *Social Psychiatry and Psychiatric Epidemiology* 50, no. 6 (2015): 997–98, https://doi.org/10.1007/s00127-014-0957-2.

[47] Brasileiro et al., "Controversies," 1–14.

[48] Krägeloh, "A Systematic Review," 216–46.

[49] Carver, "Measure Coping," 96.

[50] Nina Knoll, Nina Rieckmann, and Ralf Schwarzer, "Coping as a Mediator Between Personality and Stress Outcomes: A Longitudinal Study with Cataract Surgery Patients," *European Journal of Personality* 19, no. 3 (2005): 233, https://doi.org/10.1002/per.546.

[51] Stephen W. Cook and P. P. Heppner, "A Psychometric Study of Three Coping Measures," *Educational and Psychological Measurement* 57, no. 6 (1997): 918, https://doi.org/10.1177/0013164497057006002.

[52] De Ridder, „What is wrong," 419.

COPE factor structures. In general, theories can serve as a foundation for reducing the dimensionality of psychological constructs by taking into account, for example, the psychological components (e.g., behavior, cognition, affect), functions, or consequences of a construct. In terms of coping, Schwarzer and Schwarzer[53] highlight that dimensionality reduction can be achieved by theoretically grouping coping strategies according to their purpose, meaning or functional value. In recent Brief COPE studies, factor solutions have often been derived only from exploratory factor analyses and, thus, are solely based on statistical criteria. This leads to statistical random findings and neglects the strengths of theoretical foundations. The lack of theoretical consideration and a priori grouping of coping strategies into dimensions could have prevented the identification of the most appropriate factor solutions across Brief COPE studies. In conclusion, there is a need for investigations considering theoretical foundations in factor structure analyses.

The second issue that may account for the inconsistencies in factor structure concerns the *context*[54] in which the Brief COPE has been used. Studies differ in what they examine and, consequently, in the context to which the items of the Brief COPE relate. Some studies use the so-called dispositional version of the Brief COPE and, thus, assess coping in general (i.e., global coping[55,56,57,58]), while others use the so-called situational version, thus, assessing coping in specific situations or domains. The situational version, for example, has been used to assess coping in the field

---

[53] Schwarzer and Schwarzer, „A critical survey," 108–09.

[54] Robert J. Vallerand, "Toward a Hierarchical Model of Intrinsic and Extrinsic Motivation," in *Advances in Experimental Social Psychology*, ed. M. P. Zanna (San Diego: Academic Press, 1997), 274.

[55] Anja Achtziger and Ute C. Bayer, "Self-Control Mediates the Link Between Perfectionism and Stress," *Motivation and Emotion* 37, no. 3 (2013): 413–23, https://doi.org/10.1007/s11031-012-9321-6.

[56] Anne Ahnis et al., "Surgically and Conservatively Treated Obese Patients Differ in Psychological Factors, Regardless of Body Mass Index or Obesity-Related Co-Morbidities: A Comparison Between Groups and an Analysis of Predictors," *PLOS ONE* 10, no. 2 (2015): 1–16, https://doi.org/10.1371/journal.pone.0117460.

[57] Michal, Matthias, Eva Duven, Sebastian Giralt, Michael Dreier, Kai W. Muller, Julia Adler, Manfred E. Beutel, and Klaus Wolfling. "Prevalence and Correlates of Depersonalization in Students Aged 12-18 Years in Germany." *Social Psychiatry and Psychiatric Epidemiology* 50, no. 6 (2015): 995–1003. https://doi.org/10.1007/s00127-014-0957-2.

[58] Beatriz Rueda and Esperanza Valls, "Is the Effect of Psychological Inflexibility on Symptoms and Quality of Life Mediated by Coping Strategies in Patients with Mental Disorders?," *International Journal of Cognitive Therapy* 13, no. 2 (2020): 112–26, https://doi.org/10.1007/s41811-020-00069-4.

of education[59,60,61] as well as to assess coping with specific physical[62,63,64] or mental disorders.[65,66] Early on, de Ridder[67] stated that a dispositional approach reduces the complexity of measuring coping. However, this perspective neglects that an individual's use of coping can vary between different types of stressful situations (i.e., the stressor and the related appraisal[68]). Moreover, it neglects that certain coping strategies are bound by situational circumstances. The latter may be the reason why in some situations a specific factor structure is unlikely to be found or replicated: If all participants mark "1" ("I haven't been doing this at all") for several items because the corresponding coping strategies cannot be applied to a situation, a floor effect with no variance will occur, making it difficult to find or replicate a specific factor structure. To conclude, future investigations should examine the same factor structures across different contexts.

The third issue that may account for the inconsistencies in the factor structure concerns the *methodological characteristics* of the studies that have used the Brief COPE. In this regard, authors most commonly raise translation-related and statistic-related points of criticism. In terms of translations,

---

[59] Kathryn Gow et al., "Retention and Intentions to Quit Among Australian Male Apprentices," *Education + Training* 50, no. 3 (2008): 216–30, https://doi.org/10.1108/00400910810873991.

[60] Yasuo Miyazaki, Nancy Bodenhorn, Carlos Zalaquett, and Kok-Mun Ng. "Factorial Structure of Brief COPE for International Students Attending U.S. Colleges." *College Student Journal* 42, no. 3 (2008): 795–806.

[61] Muhamad S. B. Yusoff, "The Validity of the Malay Brief Cope in Identifying Coping Strategies Among Adolescents in Secondary School," *International Medical Journal* 18, no. 1 (2011): 29–33.

[62] Robert J. Cramer et al., "The Brief COPE: Factor Structure and Associations with Self- and Other-Directed Aggression Among Emerging Adults," *Evaluation & the Health Professions* 43, no. 2 (2020): 120–30, https://doi.org/10.1177/0163278719873698.

[63] Nina Knoll et al., "Predictors of Spouses' Provided Support for Patients Receiving Laparoscopic Radical Prostatectomy Peri-Surgery," *Psycho-Oncology* 16, no. 4 (2007): 312–19, https://doi.org/10.1002/pon.1061.

[64] Aleksandra Luszczynska et al., "Patients' Coping Profiles and Partners' Support Provision," *Psychology & Health* 22, no. 7 (2007): 749–64, https://doi.org/10.1080/14768320600976232.

[65] Matthias Brand, Christian Laier, and Kimberly S. Young, "Internet Addiction: Coping Styles, Expectancies, and Treatment Implications," *Frontiers in Psychology* 5 (2014): 1–14, https://doi.org/10.3389/fpsyg.2014.01256.

[66] Olajide B. Obembe et al., "The Relationship Between Coping Styles and Depression Among Caregivers of Children with Cerebral Palsy in Nigeria, West Africa," *Archives of Clinical Psychiatry (São Paulo)* 46, no. 6 (2019): 145–50, https://doi.org/10.1590/0101-60830000000215.

[67] De Ridder, „What Is Wrong," 420.

[68] Schwarzer and Schwarzer, „A Critical Survey," 107–09.

Brasileiro and colleagues[69] criticized the fact that many translated versions of the Brief COPE were not created by using a best-practice approach for cross-cultural adaptation of questionnaire translations. In terms of statistics, both Krägeloh[70] and Monzani and colleagues[71] identify inappropriate techniques within the exploratory factor analyses of many recent studies (e.g., small and homogeneous samples, inappropriate scaling of the Brief COPE). They emphasize the need for confirmatory factor analyses as a more robust statistical procedure for the Brief COPE.

I.3. Study aim

There are three issues that may account for the inconsistencies in the Brief COPE factor structure. With these issues and the related conclusions in mind, the aim of the present study is to empirically analyze different factor structures of the Brief COPE.[72] This will help to define an appropriate instrument to assess coping in students for both research and practical application. More specifically, the study targets the three aforementioned issues and the related conclusions by (1) considering *theoretical foundations* of factor structures, (2) examining factor structures in *two contexts* of university education each and (3) applying an *appropriate methodological procedure*.

In terms of (1) the *theoretical foundations* of factor structures, three models will be examined: Firstly, the *original Brief COPE factor structure* (see Fig. 1) by Carver[73] with the aforementioned 14 first-level factors (i.e., active coping, planning, positive reframing, acceptance, humor, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, self-blame) will be tested. According to Carver[74], this factor structure reflects 14 conceptually different coping reactions derived from previous theoretical and exploratory empirical analyses of the original COPE inventory.[75]

Secondly, a hierarchical factor structure with 14 first-level factors and three second-level factors will be tested which takes into account the *functional value of coping strategies* (see Fig. 2). This factor structure

---

[69] Brasileiro et al., "Controversies," 2.
[70] Krägeloh, "A Systematic Review," 2.
[71] Monzani, et al., "The Situational Version," 298–99.
[72] Carver, "Measure Coping," 92–100.
[73] Carver, "Measure Coping," 96.
[74] Carver, "Measure Coping," 92–94.
[75] Carver, Scheier, and Weintraub, "Assessing Coping Strategies," 267–83.

consists of the aforementioned 14 conceptually different coping reactions on the first level and problem-focused coping, emotion-focused coping and less-useful coping strategies on the second level. These second-level factors represent a theoretical distinction between the evaluation of coping strategies as functional (comprising problem-focused coping and emotion-focused coping) on the one hand and potentially dysfunctional (i.e., less useful) on the other hand. This theoretical distinction is based on the considerations of Carver and colleagues[76] regarding the COPE inventory, who assume that coping strategies have a different functional value while still reflecting Lazarus and Folkman's[77] distinction between problem-focused and emotion-focused coping.

Thirdly, a factor structure with eleven first-level factors and four second-level factors that takes into account the *purpose of coping strategies* (see Fig. 3) will be tested. The purpose is typically also considered a criterion for grouping coping strategies.[78] This factor structure consists of eleven of the aforementioned 14 conceptually different coping reactions on the first level and focus on positive, support coping, active coping and evasive coping on the second level. Three first-level factors (self-distraction, substance use, behavioral disengagement) were removed and not assigned to any of the second-level factors. This factor structure represents a theoretical and empirical distinction between superordinate purposes of coping strategies as suggested by Knoll[79] and Knoll and colleagues.[80] This group of authors explicitly avoided an evaluative labeling of specific coping strategies as either functional or dysfunctional (see[81]).

In terms of (2) *contexts*, these three factor structures will be examined in two different contexts within the field of university education. More specifically, they will be examined with regard to students' coping during university lessons (e.g., during lectures, seminars) and with regard to students' study-related coping outside of university lessons (e.g., while preparing presentations or exams). There are two reasons for this approach: Firstly, it is important to distinguish between these contexts both in future research and in practical application. The results of future investigations that distinguish between these contexts will enable universities or practitioners to

---

[76] Carver, Scheier, and Weintraub, "Assessing Coping Strategies," 268–69.
[77] Lazarus and Folkman, *Stress,* 148–54.
[78] Schwarzer and Schwarzer, „A Critical Survey," 108–09.
[79] Nina Knoll "Coping as a Personality Process: How Elderly Patients Deal with Cataract Surgery." (PhD diss., Freie Universität Berlin, 2002), 80.
[80] Knoll, Rieckmann, Schwarzer „Coping As A Mediator," 233–34.
[81] Knoll, "Coping As Personality Process," 80.

provide students with coping strategies relating to their studies both outside of university lessons (e.g., to help deal with their workload) and during university lessons (e.g., to deal with exam anxiety or public speaking). The second reason for this approach is that the present study aims to explore whether the factor structures can be replicated (i.e., show invariance of factor structures) in two similar but different contexts of the same domain. Irrespective of a variance or invariance in factor structures, it is assumed that individuals (i.e., students) will differ in their application of coping strategies between the two contexts, since an individual's use of coping strategies is dynamic in nature.[82]

In terms of (3) an *appropriate methodological procedure*, confirmatory factor analyses will be conducted to analyze the data as recommended for theoretical factor considerations and for the scaling of the Brief COPE.[83]

To summarize, the overall purpose of this manuscript is to further examine the Brief COPE[84] as an economic and flexible measure of coping to be used in the field of (university) education. With this in mind, the specific aim of the present study is to empirically analyze different factor structures of the Brief COPE[85] in order to determine which of the three factor structures (model 1: 14 first-level factors; model 2: 14 first-level factors and three second-level factors; model 3: eleven first-level factors and four second-level factors; see Fig. 1) is best suited for the assessment of coping in two contexts of university education (during university lessons and outside of university lessons). This will be realized on the basis of the existing German language translation[86,87] of the situational version of the Brief COPE.

II. Method

II.1. Sample

After deleting multivariate outliers, the original sample of 547 participants was reduced to a final sample of 508 German university students (40.2% female, 59.8% male) ranging from 18 to 41 years of age ($M = 21.09$, $SD = 2.72$). Participants were either sport science or physical education students attending a sport university in North-Rhine Westphalia, Germany. 84.6% of

---

[82] Lazarus and Folkman, *Stress,* 148–54.

[83] Krägeloh, "A Systematic Review," 233.

[84] Carver, "Measure Coping," 92–100.

[85] Carver, "Measure Coping," 92–100.

[86] Knoll, "Coping As Personality Process," 299–301.

[87] Knoll, Rieckmann, Schwarzer „Coping As A Mediator," 233–34.

the participants studied in a Bachelor's degree program (BA) and 15.0% in a Master's degree program (MA). Most students (82.9%) were in the first term of their respective degree program ($M = 1.54$, $SD = 1.61$).

II.2. Measure

Coping was assessed using the situational version of the German-language translation[88,89] of the original Brief COPE.[90] Since the participants were German native speakers, the German version of the Brief COPE was used. This version includes 28 items that are similar to the original items, with a response format ranging from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). In order to assess coping in two different contexts of university education, participants were asked to respond to each item in terms of coping during lessons and subsequently in terms of study-related coping outside of lessons. As such, participants were presented with two response scales ("during the lessons" and "outside of lessons") ranging from 1 to 4 for each item. Participants were given the following instruction: "Please rate to what extent the following statements reflect your usual thinking and acting when you have been faced with unpleasant or difficult situations during your study program so far. Please indicate, for each of the following statements, how far they were true for your usual thinking and acting during lessons (e.g., lectures, seminars) and outside of lessons (e.g., preparing presentations or exams)."

II.3. Procedure

After approval by the ethics commission and the board of the local university, participants were recruited during regular classes. Participation was on a voluntary basis and withdrawal from participation was possible at any time. Students who agreed to participate were given permission by their lecturer to complete the paper-based questionnaire during their regular classes.

II.4. Data analysis

Data were analyzed using IBM SPSS Statistics 25 and IBM SPSS Amos 25. After screening for multivariate outliers (based on the Mahalanobis

---

88 Knoll, "Coping As Personality Process," 299–301.
89 Knoll, Rieckmann, and Schwarzer, "Coping As A Mediator," 233–34.
90 Carver, "Measure Coping," 96.

distance) according to the guidelines of Tabachnick and Fidell[91], the first step in data analysis was to analyze factor structures. Six (three models in two contexts) confirmatory factor analyses (CFAs) based on covariance matrices were computed in order to compare the factor structures and to identify the best of nested models. The results of the three CFAs within each context were compared using the model fit recommendations by Hu and Bentler[92] and the χ^2 difference test. Invariance testing between subgroups (e.g., between BA and MA students) was not carried out because there are no theoretical reasons to assume differences between subgroups (e.g., between sport science and physical education students).

Subsequently, the items were analyzed using descriptive statistics (*M, SD, Min, Max*), multicollinearity analysis (bivariate correlation and tolerance analyses according to Tabachnick and Fidell[93] and Hair et al.[94]), psychometric properties (item discrimination, item homogeneity, internal consistency) and concordance analyses (concordance correlation coefficient; Lin[95]). The concordance analyses were run in order to examine whether the Brief COPE is actually capable of distinguishing intraindividual differences in use of coping strategies across different contexts.

III. Results

III.1. *Analysis of factor structures*

III.1.1. Model fit

The fit indices for the three factor structures in each context are shown in Table 1. In terms of the "during the lessons" context, model 3 was the only model with an acceptable to good fit across all indices (CMIN/df, TLI, CFI, RMSEA, SRMR; cf. the criteria by Hu and Bentler[96]). The dominance of model 3 was underpinned by χ^2 difference

---

[91] Barbara G. Tabachnick and Linda S. Fidell, *Using Multivariate Statistics*, 6. ed., Pearson new internat. ed., Always learning (Harlow: Pearson, 2014), 93–152.

[92] Li-tze Hu and Peter M. Bentler, "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives," *Structural Equation Modeling: A Multidisciplinary Journal* 6, no. 1 (1999): 27–28, https://doi.org/10.1080/10705519909540118.

[93] Tabachnick and Fidell, *Using Multivariate Statistics*, 153–234.

[94] Joseph F. Hair et al., *Multivariate Data Analysis*. Seventh edition, Pearson new international edition. Harlow: Pearson Education Limited, 2014, 161.

[95] Lawrence I-Kuei Lin. "A Concordance Correlation Coefficient to Evaluate Reproducibility." *Biometrics* 45, no. 1 (1989): 255–68. https://doi.org/10.2307/2532051.

[96] Hu and Bentler, "Cutoff Criteria," 27–28.

tests showing significant differences to model 1 ($\chi^2(67) = 121.31$, $p <$ .001) and model 2 ($\chi^2(148) = 401.02$, $p < .001$). Also, the AIC scores of model 3 (493.75) were better than those of model 1 (787.06) and model 2 (904.77). Regarding the "outside of lessons" context, model 1 and model 3 showed acceptable to good fit indices (CMIN/df, TLI, CFI, RMSEA, SRMR). χ^2 difference tests showed a significant difference between model 1 and model 2 ($\chi^2(74) = 305.55$, $p < .001$) and between model 2 and model 3 ($\chi^2(141) = 365.91$, $p < .001$); however, there was no significant difference between model 1 and model 3 ($\chi^2(67) = 60.36$, $p =$ .704). Again, also, the AIC scores of model 3 (504.83) were better than those of model 1 (737.19) and model 2 (894.74). Thus, model 3 was the only model with an acceptable to good fit in both contexts and it proved to be superior in comparative analyses.

Table 1

Fit indices for the three factor structures

Context	Model	χ^2	df	p	CMIN/df	TLI	CFI	RMSEA	SRMR	AIC
"During lessons"	1	493.06	259	< .001	1.90	.85	.90	.05	.05	787.06
	2	772.77	340	< .001	2.27	.79	.81	.05	.06	904.77
	3	371.75	192	< .001	1.94	.89	.91	.05	.05	493.75
"Outside of lessons"	1	443.19	259	< .001	1.71	.91	.94	.04	.04	737.19
	2	748.74	333	< .001	2.25	.84	.86	.05	.06	894.74
	3	382.83	192	< .001	1.99	.91	.92	.05	.05	504.83

III.1.2. Factor loadings

The factor loadings of all models are displayed in Figures 1-3. Results show that, for all models, most factor loadings were acceptable, although some loadings were below the recommended minimum of $\lambda = .60$.[97] Item 2 and item 9 were particularly problematic, with factor loadings below $\lambda = .60$ for all models across both contexts. Additionally, item 1 and item 6 were problematic for model 1 and model 2.

---

[97] Zainudin Awang. *Research Methodology and Data Analysis*. 2nd ed. Mara: UiTM Press, 2014, 227–54.
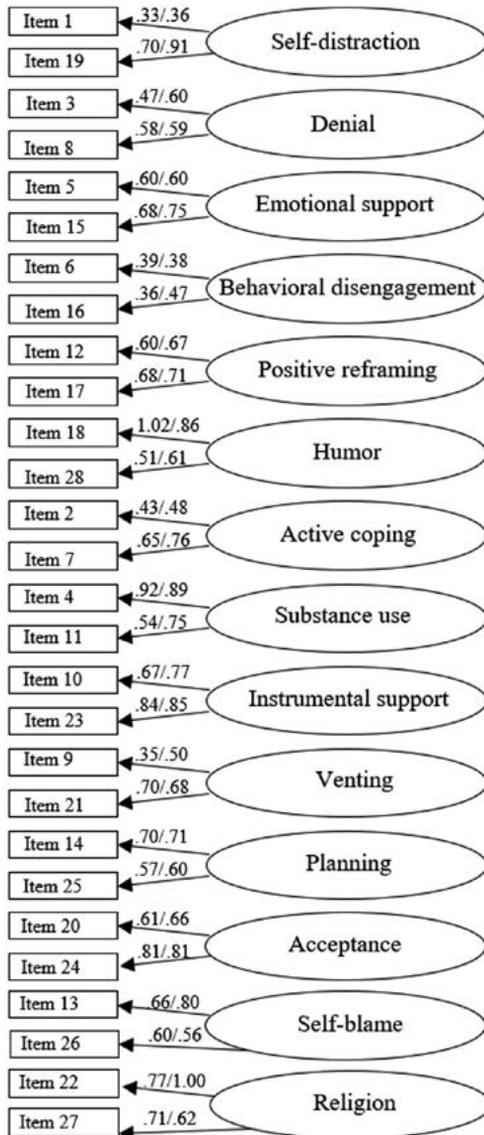
Figure 1

Model 1 (14 first-level factors). Values on the left represent factor loadings for the "during lessons" context, values on the right represent factor loadings for the "outside of lessons" context
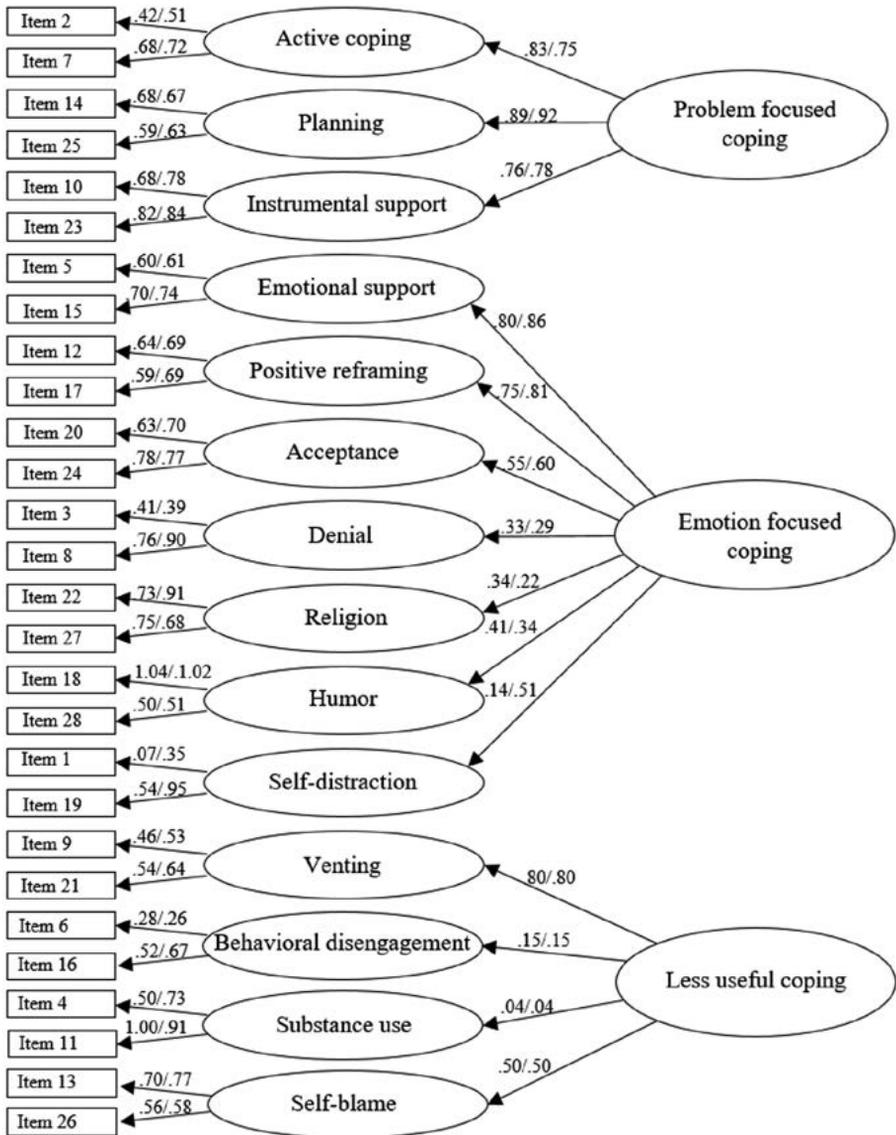
Figure 2

Model 2 (14 first-level factors and three second-level factors). Values on the left represent factor loadings for the "during lessons" context, values on the right represent factor loadings for the "outside of lessons" context
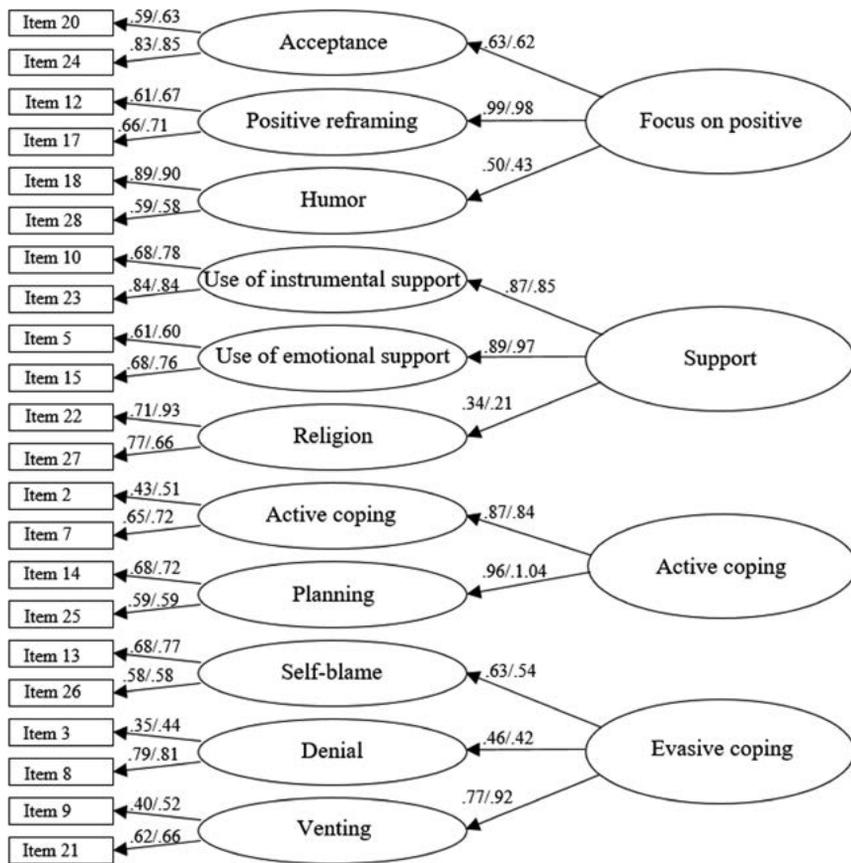
Figure 3

Model 3 (eleven first-level factors and four second-level factors). Values on the left represent factor loadings for the "during lessons" context, values on the right represent factor loadings for the "outside of lessons" context

III.2. *Psychometric analyses*

III.2.1. Psychometric analyses of items

III.2.1.1. Descriptive item statistics

Descriptive item statistics are displayed in Table 2. For all items and across both contexts, the full range of response options (1 to 4) was used.

Table 2

Descriptive item statistics

No.	Item Wording I've been…	Context "During lessons"				Context "Outside of lessons"				Concordance		
		M	SD	Min	Max	M	SD	Min	Max	ϱ_c	ϱ	C_b
1	… turning to work or other activities to take my mind off things.	1.72	.65	1	4	2.49	0.80	1	4	.15	.23	.63
2	… concentrating my efforts on doing something about the situation I'm in.	1.85	.83	1	4	2.19	0.90	1	4	.05	.15	.34
3	… saying to myself "this isn't real".	1.19	.51	1	4	1.21	0.50	1	4	.02	.09	.22
4	… using alcohol or other drugs to make myself feel better.	1.02	.14	1	4	1.28	0.56	1	4	.07	.19	.37
5	… getting emotional support from others.	2.13	.88	1	4	2.72	0.90	1	4	.98	.98	.99
6	… giving up trying to deal with it.	1.28	.58	1	4	1.32	0.61	1	4	1.00	1.00	1.00
7	… taking action to try to make the situation better.	2.36	.90	1	4	2.63	0.91	1	4	.99	1.00	1.00
8	… refusing to believe that it has happened.	1.32	.59	1	4	1.36	0.61	1	4	1.00	1.00	1.00
9	… saying things to let my unpleasant feelings escape.	1.60	.79	1	4	2.17	0.92	1	4	.98	.99	.99
10	… getting help and advice from other people.	2.01	.85	1	4	2.43	0.93	1	4	.66	.70	.94
11	… using alcohol or other drugs to help me get through it.	1.02	.22	1	4	1.13	0.40	1	4	1.00	1.00	1.00
12	… trying to see it in a different light, to make it seem more positive.	2.57	.89	1	4	2.83	0.86	1	4	.99	.99	1.00
13	… criticizing myself.	1.69	.76	1	4	1.97	0.89	1	4	.99	.99	1.00
14	… trying to come up with a strategy about what to do.	2.44	.95	1	4	2.90	0.90	1	4	.98	.99	1.00

No.	Wording I've been…	Context "During lessons"				Context "Outside of lessons"				Concordance		
		M	SD	Min	Max	M	SD	Min	Max	ϱ_c	ϱ	C_b
15	… getting comfort and understanding from someone.	1.61	.76	1	4	2.19	1.02	1	4	.98	.99	.99
16	… giving up the attempt to cope.	1.11	.34	1	4	1.13	0.42	1	4	1.00	1.00	1.00
17	… looking for something good in what is happening.	2.29	.99	1	4	2.57	1.00	1	4	.99	1.00	1.00
18	… making jokes about it.	2.08	.97	1	4	2.15	1.01	1	4	1.00	1.00	1.00
19	… doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1.85	.84	1	4	2.54	0.96	1	4	.97	.98	.99
20	… accepting the reality of the fact that it has happened.	2.16	1.01	1	4	2.24	1.01	1	4	.68	.72	.95
21	… expressing my negative feelings.	1.33	.58	1	4	1.67	0.84	1	4	.52	.62	.84
22	… trying to find comfort in my religion or spiritual beliefs.	1.37	.75	1	4	1.51	0.85	1	4	.84	.86	.98
23	… trying to get advice or help from other people about what to do.	2.06	.83	1	4	2.52	0.92	1	4	.54	.62	.87
24	… learning to live with it.	2.37	.97	1	4	2.46	0.97	1	4	.90	.91	.99
25	… thinking hard about what steps to take.	2.41	.94	1	4	2.67	0.95	1	4	.03	.03	.97
26	… blaming myself for things that happened.	1.89	.90	1	4	2.03	0.96	1	4	.50	.57	.87
27	… praying or meditating.	1.17	.53	1	4	1.34	0.71	1	4	.03	.12	.22
28	… making fun of the situation.	2.36	.96	1	4	2.45	0.99	1	4	.09	.18	.49

Note. ϱ_c = concordance correlation coefficient (comprising the measures of precision ϱ and accuracy C_b); ϱ = precision of concordance (Pearson correlation coefficient measuring how far each observation deviates from the line of best fit); C_b = accuracy of concordance (bias correction factor measuring how far the line of best fit deviates from the line through the origin).

Most of the mean item values were below the midpoint of the scale (2.50). Only item 12 ("during lessons" context) and items 5, 7, 12, 14, 17, 19, 23 and 25 ("outside of lessons" context) were above the midpoint. The lowest mean item values were $M = 1.02$ ($SD = 0.14$) for item 4 and $M = 1.02$ ($SD = 0.22$) for item 11 in the "during lessons" context, and $M = 1.13$ ($SD = 0.40$) for item 11 and $M = 1.13$ ($SD = 0.42$) for item 16 in the "outside of lessons" context. In this case, the items (particularly for the context "during lessons") were not sufficiently dispersed around the midpoint of the scale according to DeVellis.[98] The highest mean item values were $M = 2.57$ ($SD = 0.89$) for item 12 in the "during lessons" context and $M = 2.90$ ($SD = 0.90$) for item 14 in the "outside of lessons" context.

III.2.1.2. Item multicollinearity

Results for multicollinearity analyses are displayed in Table 3 (bivariate correlations) and Table 4 (tolerance scores). Bivariate correlations were clearly below $r = .90$ which is a first indicator of the absence of multicollinearity (cf. the guidelines by Tabachnick and Fidell[99]). At the same time, results revealed a substantial number of correlations higher than $r = .30$, indicating that factor analysis was appropriate.[100] Subsequently, tolerance scores for every item were calculated, taking into account all the other items of the highest-order factor the respective item was allocated to. This was only done for model 2 and 3, because model 1 only consisted of one level of factors with only two items per factor (in cases of only two items per factor, the tolerance score is based on simple R^2 which is derivable from simple bivariate correlation; see Table 2). For example, for item 2, the tolerance scores for model 2 for both contexts were based on item 7, 10, 14, 23 and 25 because these items make up the highest-order factor "problem-focused coping" of model 2 (cf. Fig. 2). All tolerance scores were clearly above the critical cut-off value of .10, finally indicating an absence of multicollinearity (cf. the guidelines by Hair et al.[101]).

III.2.1.3. Item difficulty and item discrimination

Psychometric item properties are displayed in Table 2 and Table 5. As indicated by the aforementioned mean values, item difficulties are low to

---

[98] Robert F. DeVellis and Carolyn T. Thorpe. *Scale Development: Theory and Applications*. Sage, 2021, 102–17.

[99] Tabachnick and Fidell, *Using Multivariate Statistics*, 93–152.

[100] Joseph F. Hair et al., *Multivariate Data Analysis*, 196–97.

[101] Joseph F. Hair et al., *Multivariate Data Analysis*, 196–97.

Table 3

Intercorrelations between items

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
(1)		.17**	.23**	.05	-.05	.26**	-.08	.10*	.01	.01	-.02	-.03	.14**	.00	-.06	.08	-.07	.18**	.25**	-.16**	.04	-.08	-.02	-.05	-.06	-.02	-.03	.10*
(2)	.17**		.19**	.09*	.09	.00	.30**	.19**	.10*	.09*	-.06	.09*	.21**	.32**	.19**	.05	.14**	.10*	.15**	.07	.12*	.05	.16**	.09*	.22**	.13**	.08	-.03
(3)	.22**	.11*		.11*	.05	.14**	-.01	.29**	.03	.02	-.01	-.01	.14**	.04	.11*	.22**	-.03	.10*	.15**	.02	.10*	.05	.00	.02	.15**	.09*	.02	-.05
(4)	.12**	.06	.13**		-.05	.04	-.08	.08	.00	.00	.08	-.07	.02	-.03	-.03	.09	-.09*	-.03	.02	-.08	.07	.08	-.03	-.02	.00	-.02	.08	.01
(5)	.12**	.18**	.05	.07		-.01	.24**	.08	.19**	.35**	.09*	.17**	.08	.22**	.43**	.03	.19**	.15**	.19**	.12*	.20**	.08	.42**	.18**	.18**	.06	.16**	.10*
(6)	.08	.01	.16**	.20**	-.05		-.09	.10*	.00	.05	.01	-.07	.05	-.04	.07	.16**	-.10*	.10*	.08	.06	.02	-.08	.03	-.01	-.08	-.01	-.01	.02
(7)	-.06	.35**	-.06	-.06	.29**	-.13**		.06	.14**	.32**	-.06	-.07	.10*	.42**	.29**	-.07	.27**	.16**	.18**	.18**	.13**	.09*	.32**	.26**	.25**	.18**	.06	.10*
(8)	.15**	.15**	.34**	.13**	.08	.15**	.09*		.11*	.12**	.10*	.04	.26**	.05	.21**	.18**	.02	.11*	.14**	.04	.16**	.16**	.10*	.00	.15**	.22**	.101	-.08
(9)	.02	.10*	.09	.04	.26**	-.05	.16**	.17**		.20**	-.01	.14**	.04	.12**	.18**	.05	.15**	.11*	.25**	.13**	.26**	.07	.14**	.13**	.14**	.07	.09*	.17**
(10)	.09*	.19**	.01	.04	.36**	-.02	.34**	.19**	.31**		-.05	.24**	.12**	.25**	.36**	.01	.15**	.21**	.24**	.12**	.20**	.10*	.55**	.19**	.17**	.09	.12**	.13**
(11)	.02	.05	.08	.63**	.08	.12**	.01	.14**	.07	.04		-.13**	.08	-.03	.11*	.17**	-.06	.03	.05	.06	.13**	.15**	.11*	.03	-.02	.04	.17**	.01
(12)	.12*	.17**	-.02	.03	.34**	.01	.38**	.06	.18**	.34**	.02		.12**	.34**	.22**	-.08	.43**	.25**	.19**	.23**	.19**	.19**	.26**	.31**	.28**	.12**	.14**	.23**
(13)	.19**	.20**	.25**	.12**	.15**	.14**	.49**	.23**	.19**	.14**	.12*	.14**		.23**	.23**	.14**	.13**	.15**	.30**	.03	.11*	.097*	.17**	.10*	.21**	.39**	.11*	-.03
(14)	.06	.32**	.08	.01	.23**	-.09*	.49**	.10*	.19**	.31**	.11*	.44**	.27**		.28**	-.07	.33**	.21**	.30**	.20**	.05	.11*	.31**	.26**	.42**	.12**	.11*	.16**
(15)	.15**	.17**	.10*	-.01	.46**	.00	.30**	.25**	.25**	.48**	.07	.30**	.25**	.36**		.06	.23**	.24**	.21**	.18**	.26**	.13**	.43**	.17**	.24**	.11*	.14**	.01
(16)	.07	.02	.29**	.12**	.02	.18**	-.06	.21**	.11*	.09*	.08	-.03	.18**	-.01	.03		-.08	.09	.06	.06	.14**	.05	.06	.02	.03	.07	.03	-.04
(17)	.10*	.20**	.02	.03	.30**	-.03	.31**	.05	.19**	.26**	.01	.48**	.18**	.36**	.31**	-.02		.34**	.27**	.22**	.06	.20**	.27**	.34**	.34**	.10*	.19**	.20**
(18)	.12**	.10*	.08	-.13**	.08	.06	.14**	.07	.09*	.20**	.11*	.23**	.12*	.20**	.16**	.05	.36**		.31**	.13**	.17**	-.02	.24**	.19**	.23**	.12**	.03	.50**
(19)	.31**	.21**	.15**	.13**	.20**	.02	.21**	.17**	.18**	.32**	.10*	.27**	.22**	.26**	.22**	.05	.38**	.32**		.09	.12*	.08	.24**	.04	.18**	.13**	.13**	.17**
(20)	.04	.08	.05	-.01	.15**	.06	.20**	.15**	.16**	.17**	.00	.21**	.13**	.22**	.25**	.08	.24**	.10*	.20**		.17**	.09	.26**	.49**	.22**	.20**	-.03	.12*
(21)	.11*	.17**	.12*	.13**	.25**	.03	.11*	.21**	.32**	.27**	.15**	.16**	.25**	.12*	.39**	.14**	.16**	.12*	.19**	.22**		.18**	.34**	.14**	.16**	.17**	.19**	.01
(22)	.11*	.06	.08	.00	.10*	-.03	.12*	.09	.01	.04	-.02	.18**	.09	.15**	.16**	.01	.20**	-.01	.06	.12*	.08		.18**	.11*	.17**	.10*	.54**	-.02
(23)	.08	.19**	.03	.03	.41**	-.06	.34**	.15**	.24**	.64**	.04	.34**	.16**	.36**	.52**	.00	.34**	.18**	.35**	.29**	.40**	.16**		.27**	.35**	.15**	.16**	.09*
(24)	.03	.10*	.00	.05	.20**	.02	.21**	.08	.19**	.19**	.08	.31**	.12**	.26**	.21**	.06	.38**	.19**	.20**	.54**	.18**	.15**	.25**		.28**	.15**	.13**	.19**
(25)	.12*	.21**	.08	.03	.30**	-.05	.31**	.22**	.23**	.30**	.07	.34**	.25**	.43**	.36**	.02	.33**	.29**	.27**	.28**	.21**	.15**	.38**	.29**		.22**	.14**	.12*
(26)	.09	.10*	.12**	.09*	.06	.07	.07	.20**	.08	.08	.10*	.14**	.43**	.19**	.12*	.10*	.16**	.10*	.12**	.21**	.10*	.63**	.13**	.16**	.26**		.04	.08
(27)	.07	.08	.07	.00	.09	-.01	.07	.11**	.11*	.05	.00	.07	.07	.10*	.11*	.03	.13**	.06	.04	.06	.21**	.15**	.12**	.16**	.15**	.04		.08
(28)	.04	.02	-.06	.07	.04	.00	.15**	-.09	.11*	.07	.06	.17**	-.08	.13**	-.01	-.10*	.22**	.50**	.19**	.13**	-.02	-.03	.05	.17**	.11*	.05	.04	

Note. Values above the diagonal display correlations for the context "during lessons", values below the diagonal display correlations for the context "outside of lessons".

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

Table 4

Tolerance scores of items for analysis of multicollinearity

Item	„During lessons"		„Outside of lessons"	
	Model 2	Model 3[a]	Model 2	Model 3[a]
1	.81		.85	
2	.85	.86	.84	.85
3	.84	.90	.83	.85
4	.87		.53	
5	.79	.73	.71	.74
6	.97		.93	
7	.75	.79	.68	.71
8	.85	.83	.81	.82
9	.92	.93	.87	.88
10	.65	.65	.56	.56
11	.84		.54	
12	.75	.78	.66	.73
13	.82	.80	.76	.75
14	.68	.70	.65	.66
15	.71	.74	.68	.63
16	.93		.93	
17	.67	.73	.60	.65
18	.58	.69	.62	.68
19	.77		.70	
20	.70	.75	.65	.71
21	.87	.89	.82	.82
22	.67	.71	.58	.59
23	.61	.60	.54	.52
24	.66	.68	.61	.63

Item	„During lessons"		„Outside of lessons"	
	Model 2	Model 3[a]	Model 2	Model 3[a]
25	.76	.81	.75	.80
26	.84	.82	.80	.79
27	.68	.70	.60	.60
28	.67	.74	.68	.74

Note. Tolerance scores for every item were calculated taking into account all the other items of the highest-order factor the respective item was allocated to. This was only done for model 2 and 3, because model 1 only comprised one level of factors with only two items per factor (in cases of only two items per factor, the tolerance score is based on simple R^2 which is derivable from simple bivariate correlation; see Table 2).

[a] Missing tolerance scores occur because some items were omitted from model 3 according to the a priori conceptualization of the factor structure.

Table 5

Psychometric item properties for second-level factors of model 3

Factor	Item	Context "During lessons"			Context "Outside of lessons"			Concordance		
		r_{id}	H (SD)	α	r_{id}	H (SD)	α	ϱ_c	ϱ	C_b
Focus on positive	20	.36			.37					
	24	.49			.51					
	12	.44	.28 (0.12)	.70	.44	.29 (0.14)	.71	.85	.87	.97
	17	.47			.52					
	18	.44			.43					
	28	.38			.60					
Support	10	.50			.52					
	23	.57			.60					
	5	.46	.27 (0.17)	.70	.45	.29 (0.21)	.72	.55	.70	.79
	15	.48			.55					
	22	.25			.29					
	27	.32			.27					

Factor	Item	Context "During lessons"			Context "Outside of lessons"			Concordance		
		r_{id}	H (SD)	α	r_{id}	H (SD)	α	ϱ_c	ϱ	C_b
Active Coping	2	.37			.38					
	7	.43	.32 (0.08)	.66	.52	.35 (0.09)	.68	.64	.73	.88
	14	.54			.57					
	15	.25			.42					
Evasive Coping	13	.38			.44					
	26	.35			.36					
	3	.22	.17 (0.10)	.55	.27	.21 (0.10)	.61	.65	.75	.87
	8	.37			.36					
	9	.17			.27					
	21	.31			.39					

Note. r_{id} = item discrimination; H = item homogeneity; α = internal consistency; ϱ_c = concordance correlation coefficient (comprising the measures of precision ϱ and accuracy C_b); ϱ = precision of concordance (Pearson correlation coefficient measuring how far each observation deviates from the line of best fit); C_b = accuracy of concordance (bias correction factor measuring how far the line of best fit deviates from the line through the origin).

medium. The item discrimination (as indicated by mean inter-item correlation[102]) varied between r_{id} = .17 and r_{id} = .60 for the best fitting factor structure (i.e., model 3). Three items were below the recommended discrimination minimum of r_{id} = .30[103] in both contexts (item 3, item 9, item 22), with item 3 and item 9 stemming from the factor "evasive coping" and item 22 stemming from the factor "support". Also, discrimination was low for item 15 (context "during lessons") and item 22 (context "outside of lessons").

III.2.1.4. Concordance

Concordance coefficients of the items are displayed in Table 2. Concordance between the two contexts varied between low (ϱ_c = .02) and

---

[102] Markus Bühner. *Einführung in die Test- Und Fragebogenkonstruktion*. (Introduction to test and questionnaire construction). München: Pearson Studium, 2011, 171–79.

[103] Bühner, *Einführung*, 171–79.

perfect concordance ($\varrho_c = 1.00$).[104] Almost half of the items showed high to perfect concordance.

III.2.2. *Psychometric analyses of factors*

III.2.2.1. Homogeneity and internal consistency

Psychometric factor properties are displayed in Table 5. The homogeneity was between $H = .17$ ($SD = 0.10$) and $H = .35$ ($SD = 0.09$), which corresponds to relatively homogeneous factors even when taking into account the standard deviations.[105] The internal consistency was low (i.e., unacceptable) to acceptable with Cronbach's Alpha values ranging from $\alpha = .55$ (factor "evasive coping") and $\alpha = .72$ (factor "support").

III.2.2.2. Concordance

Concordance coefficients of the factors are displayed in Table 5. Concordance between the two contexts was high.

IV. Discussion

The high prevalence of stress and the negative consequences of stress among university students raises the need for effective coping strategies in this population. Thus, appropriate instruments to measure coping are required in order to understand how university students can be supported. Recent studies on coping instruments in general[106,107,108] and the Brief COPE in particular[109,110,111] report inconsistencies in coping dimensions. Therefore, the aim of the present study was to analyze three different factor structures of the situational version of the Brief COPE in two contexts of university education (i.e., during lessons and outside of lessons) by using an appropriate methodological procedure. Results show that a two-level factor structure fits

---

[104] McBride, G. B. "A Proposal for Strength-of-Agreement Criteria for Lin's Concordance Correlation Coefficient." National Institute of Water & Atmospheric Research Ltd, Hamilton, New Zealand, 2005, 6.

[105] Bühner, *Einführung*, 178–81.

[106] Cook and Heppner, „A Psychometric Study," 906–23.

[107] De Ridder, "What Is Wrong," 417–31.

[108] Katharine H. Greenaway, Winnifred R. Louis, Stacey L. Parker, Elise K. Kalokerinos, Joanne R. Smith, and Deborah J. Terry (2015), 322–51.

[109] Brasileiro et al., "Controversies," 1–14.

[110] Krägeloh, "A Systematic Review," 216–46.

[111] Monzani et al., „The Situational Version," 295–310.

the data best for both contexts, but that an individual's coping strategies may differ between contexts. Although, from a strictly psychometric point of view, some items of the Brief COPE have limitations with respect to their applicability in the university context, the overall findings support the applicability of the situational version of the Brief COPE in research and practice.

Regarding the factor structure of the Brief COPE, the results lend support to the two-level factor structure that was identified by Knoll et al.[112] This structure organizes specific coping strategies (first-level factors) around a set of four superordinate factors (second-level factors). The superordinate factors describe different coping purposes (focus on positive, support, active coping, evasive coping) that, in sum, comprise eleven (acceptance, positive reframing, humor, use of instrumental support, use of emotional support, religion, active coping, planning, self-blame, denial and venting) of the 14 original first-level factors (behavioral disengagement, self-distraction and substance use were omitted).

This two-level conceptualization is in line with Schwarzer and Schwarzer's[113] general suggestion to use multi-level conceptualizations of coping strategies. Multi-level conceptualizations comprise relatively stable (i.e., stable over context and time) coping dimensions at superordinate levels and a variety of specific strategies and acts at subordinate levels. Such a conceptualization takes into account that an individual may have general coping tendencies (superordinate) that may be stable, but that specific strategies and acts which are subordinate to a general coping tendency may only work in one specific context or situation. This is particularly true for university students as it has been shown that stress is more prevalent at different times during a university semester.[114]

The adequacy of this multi-level conceptualization is also reflected in the context comparisons of the Brief COPE. While the multi-level conceptualization is stable across both contexts, the individual use of a specific coping strategy differs between contexts. Some strategies are used by individuals in one context but not in the other. For example, a university student who prefers active coping (superordinate level) may use the strategy to think thoroughly about what steps to take (subordinate level) during a stressful university lesson but will not take any action to try to improve the

---

[112] Knoll, Rieckmann, and Schwarzer, „Coping As A Mediator," 233–34.
[113] Schwarzer and Schwarzer, „A Critical Survey," 109.
[114] Adele Pitt et al., "An Exploratory Study of Students' Weekly Stress Levels and Sources of Stress During the Semester," *Active Learning in Higher Education* 19, no. 1 (2017): 61, https://doi.org/10.1177/1469787417731194.

situation (subordinate level) because he does not want to disturb the lesson (e.g., by leaving the lesson). On the contrary, he may take action to try to improve the situation outside of class.

The differences in the individual use of certain coping strategies between contexts have additional implications for the psychometric item properties of the Brief COPE. In comparison to common evaluation standards[115], some partial limitations were found regarding the psychometric item characteristics of the Brief COPE. These limitations relate to item discrimination, internal consistency and factor loadings. In particular, these parameters were low for items asking for evasive coping and for support coping. These limitations can be explained from a content-related and a methodological perspective. In terms of content-related explanations, the aforementioned instability of certain coping strategies and acts across contexts and over time needs to be considered. For example, it is difficult to say things during lessons in order to let unpleasant feelings escape (item 9; evasive coping), whereas it is less difficult outside of lessons. Furthermore, the width of factors must be taken into account. Specifically, support coping is a broad factor as it comprises instrumental support, emotional support and religion. Religion and faith might be important only for certain groups of people,[116] whereas instrumental and emotional support seem to be important for everyone given the human need for relatedness.[117] With regard to methodological explanations, aspects relating to statistics and operationalization need to be considered. In terms of statistics, internal consistency can be underestimated when there is a low number of items.[118] Moreover, a low number of items can have an impact on factor loadings. It is more likely that low factor loadings occur when there are only two items per (first-level) factor. In the present study, however, a restriction to two items per factor was necessary because a short version of a questionnaire was evaluated. Regarding operationalization, one should mention that the operationalization of instrumental and emotional support coping differs from the operationalization of religion. While the items for instrumental and emotional support ask for "getting" support, the items for religion ask for active support acts ("praying", "meditating"). Such

---

[115] Bühner, *Einführung*, 141–478.

[116] Cook and Heppner, „A Psychometric Study," 920.

[117] Roy F. Baumeister and M. R. Leary, "The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation," *Psychological Bulletin* 117, no. 3 (1995): 497–529, https://doi.org/10.1037/0033-2909.117.3.497.

[118] J. M. Cortina, "What Is Coefficient Alpha? An Examination of Theory and Applications," *Journal of Applied Psychology* 78, no. 1 (1993): 101–02, https://doi.org/10.1037/0021-9010.78.1.98, 10.1037/0021-9010.78.1.98.

differences in item wording can account for limitations in psychometric item properties.

Despite the limitations that arise when scrutinizing the psychometric properties, the findings of this study support the applicability of the situational version of the Brief COPE in research and practice from a content-related point of view. Firstly, the support of application is endorsed by the cross-context stability of the best fitting Brief COPE factor structure. Secondly, since coping strategies are interdependent and flexible[119], an elimination of items that do not perfectly fit psychometric criteria (e.g., religion items) would decrease the face validity of a coping questionnaire. Thirdly, having more general coping dimensions at superordinate levels (e.g., for research) and a variety of specific strategies and acts at subordinate levels (e.g., for practice), complies with previous recommendations.[120] Thus, for content validity in general and face validity in particular, as well as for the usefulness of the questionnaire, it is reasonable to maintain the identified factor structure for assessing situational coping.

Despite these benefits found in terms of the factor structure of the situational version of the Brief COPE, it remains open whether this factor structure could also be appropriate for the dispositional version of the Brief COPE. Situational coping can be defined as concrete coping in a specific situation, whereas dispositional coping can be defined as the general habitual coping tendency of an individual.[121] Previous studies have conceptualized and measured situational and dispositional coping in different ways. Some of them have conceptualized and measured them in a symmetric manner. This means that they assumed the same dimensions in both situational and dispositional coping, and used the same questionnaire but with different instructions.[122,123] Others have conceptualized and measured them in an asymmetric manner. They assumed different dimensions and used different questionnaires for situational and dispositional coping (for an example, see

---

[119] Cook and Heppner, "A Psychometric Study," 919.

[120] Schwarzer and Schwarzer, "A Critical Survey," 109.

[121] Geneviève Bouchard, Annie Guillemette, and Nicole Landry-Léger, "Situational and Dispositional Coping: An Examination of Their Relation to Personality, Cognitive Appraisals, and Psychological Distress," *European Journal of Personality* 18, no. 3 (2004): 222, https://doi.org/10.1002/per.512.

[122] Bouchard, Guillemette, and Landry-Léger, "Situational and Dispositional Coping": 223.

[123] Jasna Hudek-Knežević and Igor Kardum, "The Effects of Dispositional and Situational Coping, Perceived Social Support, and Cognitive Appraisal on Immediate Outcome," *European Journal of Psychological Assessment* 16, no. 3 (2000): 193–94, https://doi.org/10.1027//1015-5759.16.3.190.

[124]). Therefore, future studies should investigate the most appropriate factor structure of the dispositional version of the Brief COPE and compare this to the situational version. The identification of the factor structures of the situational version and the dispositional version could be fruitful for further research on coping in students. Studies should further investigate the impact of dispositionally preferred coping strategies and their interaction with appraisal on situational coping.[125,126]

IV.1. *Study strengths, limitations and future research*

In accordance with the study aim, the strengths of the present study lie in the comparison of different contexts and in the application of appropriate statistical procedures to identify the most appropriate factor structure of the Brief COPE. Despite these strengths, there are some limitations to the generalizability of the present study and to the validity of the identified factor structure of the Brief COPE that need to be addressed in future studies. First, future studies should examine the temporal stability of coping as assessed by the Brief COPE by applying a longitudinal design. Second, although the two-level structure identified by Knoll et al.[127] was found to be best in our study and stable for the chosen contexts, future studies should extend its context generalizability in order to check the robustness of the underlying factor structure. This could be done by examining contexts that are more disparate from each other (e.g., the university education context and leisure time context). In this regard, future studies should also check whether there are order effects when asking the participants to indicate their coping in different contexts. In the present study, participants were first asked to indicate their coping during lessons and then their study-related coping outside of lessons. This could have led to uncontrolled priming effects from the first context (coping during lessons), although we do not think that such a priming effect occurred given the different measures of concordance we have found. Third,

---

[124] Margaret R. Bauer et al., "Dispositional and Situational Avoidance and Approach as Predictors of Physical Symptom Bother Following Breast Cancer Diagnosis," *Annals of Behavioral Medicine A Publication of the Society of Behavioral Medicine* 50, no. 3 (2016): 375-76, https://doi.org/10.1007/s12160-015-9763-7.

[125] Hudek-Knežević and Kardum, "The Effects Of," 198–200.

[126] Saija Mauno and Marika Rantanen, "Contextual and Dispositional Coping Resources as Predictors of Work–family Conflict and Enrichment: Which of These Resources or Their Combinations Are the Most Beneficial?," *Journal of Family and Economic Issues* 34, no. 1 (2013): 101–02, https://doi.org/10.1007/s10834-012-9306-3.

[127] Knoll, Rieckmann, and Schwarzer, "Coping As A Mediator," 233–34.

studies should investigate the factor structure of the dispositional version of the Brief COPE. Fourth, future studies should test the criterion validity of the identified factor structure of the Brief COPE. For instance, it could be correlated with subjective and objective parameters of stress and well-being. Fifth, future studies should test the Brief COPE criterion validity by cross-correlating it with an observer coping inventory.[128] Sixth, studies should widen the cultural validity, taking into account that the Brief COPE has in general been translated into several languages in previous studies and that we have specifically used an existing German language translation which might have changed item meanings. Brasileiro and colleagues[129] summarize that cultural and socioeconomic factors have an influence on coping. Moreover, previous studies have found that deriving benefits from successfully coping with stress is perceived differently between ethnic groups.[130] Consequently, the factor structure of the Brief COPE could be suitable only for Western culture, yielding inconsistent dimensionality when used across cultures. The problem could be solved by finding consensus among researchers (e.g., with the use of expert conferences) about how coping strategies should conceptualized across cultures, or by identifying explicit differences between cultures in terms of coping.

V. Conclusions

In the present study, the factor structure of the Brief COPE was tested as an instrument to measure coping for both practical application and research. With regard to practical application, the first level of the multi-level conceptualization of the coping dimensions in the Brief COPE can be particularly helpful for practitioners that want to analyze coping in students in order to develop non-clinical stress management interventions (for overviews of stress reduction interventions in students[131,132]). Helpful for

---

[128] Kyunghee Han et al., "Evaluation of an Observer Form of the Coping Inventory for Stressful Situations," *Educational and Psychological Measurement* 69, no. 4 (2009): 675–95, https://doi.org/10.1177/0013164409332220.

[129] Brasileiro et al., "Controversies," 10.

[130] Vaughn, Roesch, and Aldridge, "Stress-Related Growth," 136–39.

[131] Cheryl Regehr, Dylan Glancy, and Annabel Pitts, "Interventions to Reduce Stress in University Students // Interventions to Reduce Stress in University Students: A Review and Meta-Analysis: A Review and Meta-Analysis," *Journal of Affective Disorders* 148, no. 1 (2013): 1–11, https://doi.org/10.1016/j.jad.2012.11.026.

[132] Miryam Yusufov et al., "Meta-Analytic Evaluation of Stress Reduction Interventions for Undergraduate and Graduate Students," *International Journal of Stress Management* 26, no. 2 (2019): 132–45, https://doi.org/10.1037/str0000099.

interventions is also that we were able to show that the Brief COPE can be applied in different contexts of university education (i.e., during lessons, outside of lessons). This fact will enable practitioners to provide students with study-related coping strategies to use outside of university lessons (e.g., to deal with their workload) and during university lessons (e.g., to deal with exam anxiety or public speaking). Thus, the Brief COPE could be used as part of an additional assessment which could also include measures of stress and stress-related constructs (e.g., resilience[133]).

In terms of research, the Brief COPE can be used, for instance, to examine the impact of different coping dimensions on perceived stress. Additionally, it can be used in order to investigate further moderators of the relationship between coping and stress reaction.[134] For research purposes, we recommended analyzing data only on the second factor level, since factors on the first level have a low reliability and insufficient factor loadings.

Bibliography

Achtziger, Anja, and Ute C. Bayer. "Self-Control Mediates the Link Between Perfectionism and Stress." *Motivation and Emotion* 37, no. 3 (2013): 413–23. https://doi.org/10.1007/s11031-012-9321-6.

Admiraal, Wilfried F., Fred A.J. Korthagen, and Theo Wubbels. "Effects of Student Teachers' Coping Behaviour." *British Journal of Educational Psychology* 70, no. 1 (2000): 33–52. https://doi.org/10.1348/000709900157958.

Ahnis, Anne, Andrea Figura, Tobias Hofmann, Andreas Stengel, Ulf Elbelt, and Burghard F. Klapp. "Surgically and Conservatively Treated Obese Patients Differ in Psychological Factors, Regardless of Body Mass Index or Obesity-Related Co-Morbidities: A Comparison Between Groups and an Analysis of Predictors." *PLOS ONE* 10, no. 2 (2015): 1–16. https://doi.org/10.1371/journal.pone.0117460.

Antoniou, Alexander-Stamatios, Aikaterini Ploumpi, and Marina Ntalla. "Occupational Stress and Professional Burnout in Teachers of Primary and Secondary Education: The Role of Coping Strategies." *Psychology* 4, 3A (2013): 349–55. https://doi.org/10.4236/psych.2013.43A051.

Awang, Z. *Research Methodology and Data Analysis*. 2nd ed. Mara: UiTM Press, 2014.

---

[133] Ethel Chung, Deborah Turnbull, and Anna Chur-Hansen, "Differences in Resilience Between 'Traditional' and 'Non-Traditional' University Students," *Active Learning in Higher Education* 18, no. 1 (2017): 80, https://doi.org/10.1177/1469787417693493.

[134] Julia Lawrence, Kelly Ashford, and Paul Dent, "Gender Differences in Coping Strategies of Undergraduate Students and Their Impact on Self-Esteem and Attainment," *Active Learning in Higher Education* 7, no. 3 (2016): 277–80, https://doi.org/10.1177/1469787406069058.

Bauer, Margaret R., Lauren N. Harris, Joshua F. Wiley, Catherine M. Crespi, Jennifer L. Krull, Karen L. Weihs, and Annette L. Stanton. "Dispositional and Situational Avoidance and Approach as Predictors of Physical Symptom Bother Following Breast Cancer Diagnosis." *Annals of Behavioral Medicine A Publication of the Society of Behavioral Medicine* 50, no. 3 (2016): 370–84. https://doi.org/10.1007/s12160-015-9763-7.

Baumeister, Roy F., and M. R. Leary. "The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation." *Psychological Bulletin* 117, no. 3 (1995): 497–529. https://doi.org/10.1037/0033-2909.117.3.497.

Bayram, N., and N. Bilgel. "The Prevalence and Socio-Demographic Correlations of Depression, Anxiety and Stress Among a Group of University Students." *Social Psychiatry and Psychiatric Epidemiology* 43, no. 8 (2008): 667–72. https://doi.org/10.1007/s00127-008-0345-x.

Bouchard, Geneviève, Annie Guillemette, and Nicole Landry-Léger. "Situational and Dispositional Coping: An Examination of Their Relation to Personality, Cognitive Appraisals, and Psychological Distress." *European Journal of Personality* 18, no. 3 (2004): 221–38. https://doi.org/10.1002/per.512.

Brand, Matthias, Christian Laier, and Kimberly S. Young. "Internet Addiction: Coping Styles, Expectancies, and Treatment Implications." *Frontiers in Psychology* 5 (2014): 1–14. https://doi.org/10.3389/fpsyg.2014.01256.

Brasileiro, Sarah V., Orsini, Mara R. C. A., Julianna A. Cavalcante, Daniel Bartholomeu, Jose M. Montiel, Paulo S. S. Costa, and Luciane R. Costa. "Controversies Regarding the Psychometric Properties of the Brief COPE: The Case of the Brazilian-Portuguese Version "COPE Breve"." *PLOS ONE* 11, no. 3 (2016): 10–13. https://doi.org/10.1371/journal.pone.0152233.

Brooman, Simon, and Sue Darwent. "'Yes, as the Articles Suggest, I Have Considered Dropping Out': Self-Awareness Literature and the First-Year Student." *Studies in Higher Education* 37, no. 1 (2012): 19–31. https://doi.org/10.1080/03075079.2010.490580.

Bühner, Markus. *Einführung in Die Test- Und Fragebogenkonstruktion*. [Introduction to test and questionnaire construction]. München: Pearson Studium, 2011.

Cage, Eilidh, Melissa Stock, Alex Sharpington, Emma Pitman, and Rachel Batchelor. "Barriers to Accessing Support for Mental Health Issues at University." *Studies in Higher Education* 39, no. 1 (2018): 1–13. https://doi.org/10.1080/03075079.2018.1544237.

Carver, C. S. "You Want to Measure Coping but Your Protocol's Too Long: Consider the Brief COPE." *International Journal of Behavioral Medicine* 4, no. 1 (1997): 92–100. https://doi.org/10.1207/s15327558ijbm0401_6.

Carver, Charles S., M. F. Scheier, and J. K. Weintraub. "Assessing Coping Strategies: A Theoretically Based Approach." *Journal of Personality and Social Psychology* 56, no. 2 (1989): 267–83.

Carver, Charles S., and Sara Vargas. "Stress, Coping, and Health." In *The Oxford Handbook of Health Psychology*. Edited by Howard S. Friedman, 162–88. Oxford University Press, 2011.

Chung, Ethel, Deborah Turnbull, and Anna Chur-Hansen. "Differences in Resilience Between 'Traditional' and 'Non-Traditional' University Students." *Active Learning in Higher Education* 18, no. 1 (2017): 77–87. https://doi.org/10.1177/1469787417693493.

Cook, Stephen W., and P. Paul Heppner. "A Psychometric Study of Three Coping Measures." *Educational and Psychological Measurement* 57, no. 6 (1997): 906–23. https://doi.org/10.1177/0013164497057006002.

Cortina, J. M. "What Is Coefficient Alpha? An Examination of Theory and Applications." *Journal of Applied Psychology* 78, no. 1 (1993): 98–104. https://doi.org/10.1037/0021-9010.78.1.98. 10.1037/0021-9010.78.1.98.

Cramer, Robert J., Abby Braitman, Claire N. Bryson, Molly M. Long, and Amanda C. La Guardia. "The Brief COPE: Factor Structure and Associations with Self- and Other-Directed Aggression Among Emerging Adults." *Evaluation & the Health Professions* 43, no. 2 (2020): 120-130. https://doi.org/10.1177/0163278719873698.

de Ridder, Denise. "What Is Wrong with Coping Assessment? A Review of Conceptual and Methodological Issues." *Psychology & Health* 12, no. 3 (1997): 417–31. https://doi.org/10.1080/08870449708406717.

DeVellis, R. F., and C. T. Thorpe. *Scale Development: Theory and Applications*. Sage, 2021.

Doron, Julie, Raphael Trouillet, Anaïs Maneveau, Grégory Ninot, and Dorine Neveu. "Coping Profiles, Perceived Stress and Health-Related Behaviors: A Cluster Analysis Approach." *Health Promotion International* 30, no. 1 (2014): 88–100. https://doi.org/10.1093/heapro/dau090.

Feifel, H., and S. Strack. "Coping with Conflict Situations: Middle-Aged and Elderly Men." *Psychology and Aging* 4, no. 1 (1989): 26–33.

Folkman, S., and Richard S. Lazarus. *Manual for the Ways of Coping Scale*. Palo Alto, CA: Consulting Psychology Press, 1988.

Gow, Kathryn, Chantelle Warren, David Anthony, and Connie Hinschen. "Retention and Intentions to Quit Among Australian Male Apprentices." *Education + Training* 50, no. 3 (2008): 216–30. https://doi.org/10.1108/00400910810873991.

Greenaway, Katharine H., Winnifred R. Louis, Stacey L. Parker, Elise K. Kalokerinos, Joanne R. Smith, and Deborah J. Terry. "Measures of Coping for Psychological Well-Being." In *Measures of Personality and Social Psychological Constructs*. Edited by Gregory J. Boyle, Donald H. Saklofske and Gerald Matthews, 322–51. London: Academic Press, 2015.

Hair, Joseph F., William C. Black, Barry J. Babin, and Rolph E. Anderson. *Multivariate Data Analysis*. Seventh edition, Pearson new international edition. Harlow: Pearson Education Limited, 2014.

Han, Kyunghee, Gary N. Burns, Nathan C. Weed, Gregory T. Hatchett, and Nancy K. S. Kurokawa. "Evaluation of an Observer Form of the Coping Inventory for Stressful Situations." *Educational and Psychological Measurement* 69, no. 4 (2009): 675–95. https://doi.org/10.1177/0013164409332220.

Herbst, Uta, Markus Voeth, Anne Theresa Eidhoff, Mareike Müller, and Sarah Stief. "Studierendenstress in Deutschland: Eine Empirische Untersuchung." [Student stress in Germany: an empirical study]. Berlin: AOK, 2016.

Hu, Li-tze, and Peter M. Bentler. "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives." *Structural Equation Modeling: A Multidisciplinary Journal* 6, no. 1 (1999): 1–55. https://doi.org/10.1080/10705519909540118.

Hudek-Knežević, Jasna, and Igor Kardum. "The Effects of Dispositional and Situational Coping, Perceived Social Support, and Cognitive Appraisal on Immediate Outcome." *European Journal of Psychological Assessment* 16, no. 3 (2000): 190–201. https://doi.org/10.1027//1015-5759.16.3.190.

Johnson, Sheena. "The Experience of Work-Related Stress Across Occupations." *Journal of Managerial Psychology* 20, no. 2 (2005): 178–87. https://doi.org/10.1108/02683940510579803.

Knoll, Nina. "Coping as a Personality Process: How Elderly Patients Deal with Cataract Surgery." PhD diss., Freie Universität Berlin, 2002.

Knoll, Nina, Silke Burkert, Hans Peter Rosemeier, Jan Roigas, and Oliver Gralla. "Predictors of Spouses' Provided Support for Patients Receiving Laparoscopic Radical Prostatectomy Peri-Surgery." *Psycho-Oncology* 16, no. 4 (2007): 312–19. https://doi.org/10.1002/pon.1061.

Knoll, Nina, Nina Rieckmann, and Ralf Schwarzer. "Coping as a Mediator Between Personality and Stress Outcomes: A Longitudinal Study with Cataract Surgery Patients." *European Journal of Personality* 19, no. 3 (2005): 229–47. https://doi.org/10.1002/per.546.

Kottke, Janet L., Gloria Cowan, and Diane J. Pfahler. "Development of Two Scales of Coping Strategies: An Initial Investigation." *Educational and Psychological Measurement* 48, no. 3 (1988): 737–42. https://doi.org/10.1177/0013164488483022.

Krägeloh, Christian U. "A Systematic Review of Studies Using the Brief COPE: Religious Coping in Factor Analyses." *Religions* 2, no. 4 (2011): 216–46. https://doi.org/10.3390/rel2030216.

Larcombe, Wendy, Sue Finch, Rachel Sore, Christina M. Murray, Sandra Kentish, Raoul A. Mulder, Parshia Lee-Stecum, Chi Baik, Orania Tokatlidis, and David A. Williams, "Prevalence and Socio-Demographic Correlates of Psychological Distress Among Students at an Australian University." *Studies in Higher Education* 41, no. 6 (2014): 1074–91. https://doi.org/10.1080/03075079.2014.966072.

Lawrence, Julia, Kelly Ashford, and Paul Dent. "Gender Differences in Coping Strategies of Undergraduate Students and Their Impact on Self-Esteem and Attainment." *Active Learning in Higher Education* 7, no. 3 (2016): 273–81. https://doi.org/10.1177/1469787406069058.

Lazarus, Richard S., and S. Folkman. *Stress, Appraisal, and Coping*. New York: Springer, 1984.

LePine, Jeffrey A., Marcie A. LePine, and Christine L. Jackson. "Challenge and Hindrance Stress: Relationships with Exhaustion, Motivation to Learn, and

Learning Performance." *Journal of Applied Psychology* 89, no. 5 (2004): 883–91. https://doi.org/10.1037/0021-9010.89.5.883.

Lin, Lawrence I-Kuei. "A Concordance Correlation Coefficient to Evaluate Reproducibility." *Biometrics* 45, no. 1 (1989): 255–68. https://doi.org/10.2307/2532051. Luszczynska, Aleksandra, Denis Gerstorf, Sonja Boehmer, Nina Knoll, and Ralf Schwarzer. "Patients' Coping Profiles and Partners' Support Provision." *Psychology & Health* 22, no. 7 (2007): 749–64. https://doi.org/10.1080/14768320600976232.

Mauno, Saija, and Marika Rantanen. "Contextual and Dispositional Coping Resources as Predictors of Work–family Conflict and Enrichment: Which of These Resources or Their Combinations Are the Most Beneficial?" *Journal of Family and Economic Issues* 34, no. 1 (2013): 87–104. https://doi.org/10.1007/s10834-012-9306-3.

McBride, G. B. "A Proposal for Strength-of-Agreement Criteria for Lin's Concordance Correlation Coefficient." National Institute of Water & Atmospheric Research Ltd, Hamilton, New Zealand, 2005.

McCarthy, Christopher J., Anne E. Seraphine, Kenneth B. Matheny, and William L. Curlette. "Factor Analysis of the Coping Resources Inventory Scales for Educational Enhancement." *Measurement and Evaluation in Counseling and Development* 32, no. 4 (2019): 199–215. https://doi.org/10.1080/07481756.2000.12068987.

Michal, Matthias, Eva Duven, Sebastian Giralt, Michael Dreier, Kai W. Muller, Julia Adler, Manfred E. Beutel, and Klaus Wolfling. "Prevalence and Correlates of Depersonalization in Students Aged 12-18 Years in Germany." *Social Psychiatry and Psychiatric Epidemiology* 50, no. 6 (2015): 995–1003. https://doi.org/10.1007/s00127-014-0957-2.

Miyazaki, Yasuo, Nancy Bodenhorn, Carlos Zalaquett, and Kok-Mun Ng. "Factorial Structure of Brief COPE for International Students Attending U.S. Colleges." *College Student Journal* 42, no. 3 (2008): 795–806.

Monzani, Dario, Patrizia Steca, Andrea Greco, Marco D'Addario, Erika Cappelletti, and Luca Pancani. "The Situational Version of the Brief COPE: Dimensionality and Relationships with Goal-Related Variables." *Europe's Journal of Psychology* 11, no. 2 (2015): 295–310. https://doi.org/10.5964/ejop.v11i2.935.

Obembe, Olajide Benjamin, Surajiu Adeyemo, Oluwayemi Cecilia Ogun, and Grace Temitayo Ijarogbe. "The Relationship Between Coping Styles and Depression Among Caregivers of Children with Cerebral Palsy in Nigeria, West Africa." *Archives of Clinical Psychiatry (São Paulo)* 46, no. 6 (2019): 145–50. https://doi.org/10.1590/0101-60830000000215.

Pitt, Adele, Florin Oprescu, Geraldine Tapia, and Marion Gray. "An Exploratory Study of Students' Weekly Stress Levels and Sources of Stress During the Semester." *Active Learning in Higher Education* 19, no. 1 (2017): 61–75. https://doi.org/10.1177/1469787417731194.

Regehr, Cheryl, Dylan Glancy, and Annabel Pitts. "Interventions to Reduce Stress in University Students // Interventions to Reduce Stress in University Students: A

Review and Meta-Analysis: A Review and Meta-Analysis." *Journal of Affective Disorders* 148, no. 1 (2013): 1–11. https://doi.org/10.1016/j.jad.2012.11.026.

Rexrode, Kathryn R., Suni Petersen, and Siobhan O'Toole. "The Ways of Coping Scale: A Reliability Generalization Study." *Educational and Psychological Measurement* 68, no. 2 (2008): 262–80. https://doi.org/10.1177/0013164407310128.

Rueda, Beatriz, and Esperanza Valls. "Is the Effect of Psychological Inflexibility on Symptoms and Quality of Life Mediated by Coping Strategies in Patients with Mental Disorders?" *International Journal of Cognitive Therapy* 13, no. 2 (2020): 112–26. https://doi.org/10.1007/s41811-020-00069-4.

Schwarzer, Ralf, and Christine Schwarzer. "A Critical Survey of Coping Instruments." In *Handbook of Coping: Theory, Research, Applications*. Edited by Moshe Zeidner and Norman S. Endler, 107–32. Oxford: John Wiley & Sons, 1996.

Skinner, Ellen, and Jeffry Beers. "Mindfulness and Teachers' Coping in the Classroom: A Developmental Model of Teacher Stress, Coping, and Everyday Resilience." In *Handbook of Mindfulness in Education*. Edited by Kimberly A. Schonert-Reichl and Robert W. Roesner, 99–118. New York, NY: Springer New York, 2016.

Slavich, George M. "Life Stress and Health: A Review of Conceptual Issues and Recent Findings." *Teaching of Psychology* 43, no. 4 (2016): 346–55. https://doi.org/10.1177/0098628316662768.

Solcova, Iva, and Peter Tavel. "Stress-Related Growth in Two Challenging Conditions." *Journal of Human Performance in Extreme Environments* 13, no. 1 (2017): 1–7. https://doi.org/10.7771/2327-2937.1099.

Stephenson, E., D. B. King, and A. DeLongis. "Coping Process." In *Stress: Concepts, Cognition, Emotion, and Behavior*. Edited by George Fink, 359–64. Handbook of strees 1. London, UK: Academic Press, 2016.

Sung, Yao-Ting, and Tzu-Yang Chao. "Construction of the Examination Stress Scale for Adolescent Students." *Measurement and Evaluation in Counseling and Development* 48, no. 1 (2015): 44–58. https://doi.org/10.1177/0748175614538062.

Tabachnick, Barbara G., and Linda S. Fidell. *Using Multivariate Statistics*. 6. ed., Pearson new internat. ed. Always learning. Harlow: Pearson, 2014.

Taylor, Shelley E., and Annette L. Stanton. "Coping Resources, Coping Processes, and Mental Health." *Annual Review of Clinical Psychology* 3, no. 1 (2007): 377–401. https://doi.org/10.1146/annurev.clinpsy.3.022806.091520.

Vallerand, Robert J. "Toward a Hierarchical Model of Intrinsic and Extrinsic Motivation." In *Advances in Experimental Social Psychology*. Vol. 29. Edited by M. P. Zanna, 271–360. San Diego: Academic Press, 1997.

Vandercleyen, François, Pierre Boudreau, Ghislain Carlier, and Cécile Delens. "Pre-Service Teachers in PE Involved in an Organizational Critical Incident: Emotions, Appraisal and Coping Strategies." *Physical Education and Sport Pedagogy* 19, no. 2 (2014): 164–78. https://doi.org/10.1080/17408989.2012.732564.

Vaughn, Allison A., Scott C. Roesch, and Arianna A. Aldridge. "Stress-Related Growth in Racial/ethnic Minority Adolescents." *Educational and Psychological Measurement* 69, no. 1 (2009): 131–45. https://doi.org/10.1177/0013164408318775.

Wong, Josephine G. W. S., Eric P. T. Cheung, Kitty K. C. Chan, Kamela K. M. Ma, and Siu W. Tang. "Web-Based Survey of Depression, Anxiety and Stress in First-Year Tertiary Education Students in Hong Kong." *The Australian and New Zealand Journal of Psychiatry* 40, no. 9 (2006): 777–82. https://doi.org/10.1111/j.1440-1614.2006.01883.x.

Yusoff, Muhamad S. B. "The Validity of the Malay Brief Cope in Identifying Coping Strategies Among Adolescents in Secondary School." *International Medical Journal* 18, no. 1 (2011): 29–33.

Yusufov, Miryam, Jennifer Nicoloro-SantaBarbara, Natalie E. Grey, Anne Moyer, and Marci Lobel. "Meta-Analytic Evaluation of Stress Reduction Interventions for Undergraduate and Graduate Students." *International Journal of Stress Management* 26, no. 2 (2019): 132–45. https://doi.org/10.1037/str0000099.

The assessment of service quality effect in higher education sector on satisfaction, suggestion, and behavioral intention of university students: The case of Turkey

Esen Gürbüz and Muhammet Bayraktar*

Abstract: The number of enterprises in the service sector is increasing with the time and the market for service sector is expanding. Universities as higher education institutions were affected by these developments in the service sector and have included providing quality service to their internal and external stakeholders as their top priority. Providing quality service in a university affects the satisfaction of students, who are among the most important stakeholders, their intention to suggest university to potential students and to visit after graduation. Hedperf scale was used to measure the service quality at universities and various institutions in different countries. The construct validity of the Hedperf scale was investigated according to the student perceptions at a university in Turkey and it was found with exploratory factor analysis (EFA) that service quality dimensions were classified into four dimensions - *academic, non-academic, reputation*, and *access*. Among these dimensions, the effect of *academic, reputation* and *access* dimensions on satisfaction,

suggestion, and behavioral intention for visiting after graduation was determined, while the effect of *non-academic* dimension was not determined. Service quality dimensions explain approximately 31% of the variability in overall satisfaction. *Access* affects satisfaction at the level of β = .322, which is more than other dimensions. It was determined that the service quality dimensions explained 17% of the behavioral intention to "visit the university after graduation" and the effect of *access* (β = .264) among these dimensions was higher than the other dimensions. University service quality dimensions explain 23% of the intention for "suggest the university to potential students", and it was determined that the *reputation* dimension has the strongest effect (β = .367). The research explores the link between service quality and satisfaction, suggestion, behavioral intention and determines the construct validity of the scale developed in a foreign culture.

Keywords: Service quality in higher education; Hedperf scale; satisfaction; suggestion; behavioral intention.

I. Introduction

The understanding that universities operate in a market-oriented environment is gaining popularity (Narang 2012, 357). While the higher education sector (HES) is seen as a marketplace, the education and training services offered at the university emerge as a marketable service. In other words, it is thought that universities will be successful if the education and training services offered can meet the demands of students (Sultan and Wong 2010, 267). Knowing the needs of students will let universities create products and programs that can meet their needs (Rodríguez-González and Segarra 2016, 172). This encourages universities to continue their activities in a way that will provide competitive advantage (Cristina, Levy-Mangin and Novo-Corti 2013, 603). Service quality in HES is seen as the strongest competitive factor that determines marketing and business strategy (Muhammad, Kakakhel, and Shah 2018, 165), and it provides convenience in students' employment by presenting students with the right skills (Randheer 2015, 31).

The quality of the services offered in HES is one of the most important factors for a university to attract students, meet the needs of students and make them loyal customers (Mahmoud and Khalifa 2015, 343). Universities have begun to recognize that higher education has evolved into a product, and as a result, they have begun to assess the quality of their services, redefine their products, and gain a competitive advantage by measuring student satisfaction in ways that are familiar to service marketing experts. They understood that their sustainability is contingent on the quality of their services, and that offering high-quality services sets one university apart from another (Tsinidou, Gerogiannis, and Fitsilis 2010, 227).

It has been seen that quality as a component of service delivery comes to the fore as an important concept in students' preferences for universities (De Jager and Gbadamosi 2010, 253). Service quality at universities is very complicated and involves uncertainty (Lazibat, Baković, and Duzević 2014, 923). Being multidimensional and complicated also makes it difficult to define a standard service quality and to apply a standard service quality measurement model for determining the service quality perceptions (Gruber et al. 2010, 107). The quality at universities is related to the concepts such as efficiency, fit for purpose, high quality standards, excellence, and customer orientation (Cristina, Levy-Mangin and Novo-Corti 2013, 603).

Research about service quality in the context of HES is considered novel compared to the commercial sector. However, most of the quality models used to measure the commercial sector's service quality have been extended to the educational sector (O'Neill and Palmer 2004, 39; Sultan and Wong 2013, 72). Recently, some studies have stated that a comprehensive service quality model needs to be developed for HES (Sultan and Wong 2013, 73).

Due to the unique characteristics of HES, some studies have been conducted for developing service quality measurement models at universities (Yıldız and Kara 2009, 394). In addition, different models for service quality have been created to determine service quality and its dimensions reliably (Saad 2013, 25).

With the escalation of competition, concepts such as service quality, student satisfaction, corporate image, and student loyalty, which were previously unmentioned at university strategic plans, have rapidly become critical for long-term sustainability of universities (Teeroovengadum et al. 2019, 428). Quality definitions for universities are made according to the perspectives of stakeholders and students are considered as the most important stakeholders of universities (Ali et al. 2016, 73). The purpose of this study is to measure the quality of the services received by the students of Nigde Omer Halisdemir University in Turkey with the Hedperf scale and determining the factor dimensions determined in the scale. It is also aimed in what way the perceived service quality dimensions affect the students and to investigate the level of effect of these quality dimensions on students' satisfaction, their intention for recommending university to potential students (suggestion) and visiting after graduation (behavioral intention).

II. Theoretical background

Service quality is related to the dominant market-oriented characteristics of a service provided, which have a long-term impact on the sustainable

supplier-buyer relationship. Perceived service quality is a mental construct of quality evaluation, and service quality evaluation is a cognitive result of perceiving, acquiring, rationalizing, and comprehending service qualities (Sultan and Wong 2014, 498). In HES, O'Neill, and Palmer (2004, p.42) explained service quality as the gap between what a student anticipates and what they actually get. The service quality studies at universities reveal the significance of monitoring the service quality to continuously improve universities (Brochado 2009, 175-176). It is important to use reliable and valid scales to measure service quality at universities (De Jager and Gbolahan Gbadamosi 2010, 252), and it is necessary to determine and apply appropriate tools to assess the quality of educational services for the creation of sustainable service quality (Campos, dos Santos and Castro 2017, 409).

The satisfaction, behavioral intention, and retention of students are significantly impacted by their perceptions of the university quality (Kruja, Ha and Tabaku 2021, 373). Student satisfaction with private university rises when they have a favorable opinion of the level of service. Satisfied students will therefore stay with the university and spread the information about it to others (Tan, Choong and Chen 2021, 4). Student satisfaction is likely to benefit universities in the form of student loyalty and good word of mouth, giving the university a competitive edge. Students who are satisfied with their educational experiences are more likely to remain loyal, suggest the university to other students, and support them financially (Chaudhary and Dey 2021, 30).

Universities must be interested not just in what community values in terms of graduate students' knowledge and talents, but also with how their students feel and view their education (Cristina et al. 2013, 602-603). By comprehending the expectations and perspectives of students, universities can attract students to their institutions and provide services that meet students' needs (Ushantha and Kumara 2016, 99).

II.1. *Quality measurement in HES*

Factors such as the development of education in a global environment and the reduction of the economic support given by the government to universities encourage universities to continue their education and training activities in a way that will provide competitive advantage. These have caused universities to feel the need to benefit from the education and training experiences of students (Abdullah 2006a, 72) and to understand customer orientation in HES (Abdullah 2006b, 570). Although the Hedperf scale has been created to determine the service quality at universities (Abdullah 2005),

the Servequal, Servperf and Grönroos measurement models, which are commonly applied to assess the service quality of universities, are also used. Abdullah (2005) concluded that the 41-item Hedperf scale's modified five-dimensional structure *-academic, non-academic, reputation, access,* and *program issues-* explained the variance better than the Servperf scale in terms of unidimensionality, reliability and validity. Brochado (2009) classified the quality dimensions as reliability, sensitivity, assurance, empathy, and concreteness in his study to determine which of the Servqual, Servperf, importance weighted Servqual, importance weighted Servperf and Hedperf service quality models have the best quality measurement feature in HES. Abdullah (2005) and Brochado (2009) determined that the Hedperf scale fits better than Servperf and Hedperf-Servperf scales in quality measurement at universities because of its more accurate estimates, more criteria and construct validity, and more explained variance.

Banahene, Kraa, and Kasu (2018, p.99) argued that the Hedperf scale is the most advanced technique for measuring the service quality of the universities, and Açan and Saydan (2009, p.228) discussed that the Hedperf scale measures service quality more reliably. Abdullah (2005) examined the performance of Hedperf, Servperf, and Hedperf-Servperf in predicting service quality. He discovered that the Hedperf scale's modified five-dimension structure demonstrated a considerable advantage.

A scale developed in one study under certain conditions for measuring service quality may give different results when used in another study. Factors such as geographical, religious, cultural, socio-political, lifestyle and technology can differentiate consumers' perceptions of service quality (Randheer 2015, 38). Therefore, the number of dimensions differ in studies using the Hedperf scale in HES such as four service quality dimensions *-academic, non-academic, reputation* and *access-* (Sheeja, Krishnaraj, and Harindranath 2014; Mang'unyi and Govender 2014; Ushantha and Kumara 2016; Muhammad, Kakakhel, and Shah 2018; Banahene, Kraa and Kasu 2018), five service quality dimensions *-academic, non-academic, reputation, access* and *program issues-* (Abdullah 2005; Abdullah 2006c; Abdullah 2006a) and six service quality dimensions *-academic, non-academic, reputation, access, program issues* and *understanding-* (Abdullah 2006a).

The *academic* dimension consists of the education and training services offered by the universities to the students. These consist of services such as guiding the students, encouraging them to do research, evaluating the feedback well by communicating with the students, and providing consultancy to them. Academic service quality means the basic service characteristics that offer fundamental academic principles such as quality and capability of

teaching, course improvement, and relationship between student and faculty. Academic activities in the context of the university are core values (Sultan and Wong 2013, 77). Academic and pedagogical quality is evaluated within the scope of academic staff and courses given by them. It is the qualification, competence, behavior, attitudes, and teaching style of academic staff, quality of teaching and efficient support given to students. Courses cover the quality of the programs, program outcomes, effectiveness of the teaching, content of curriculum, course structure and evaluation quality. It is also claimed that one of the factors of service quality is the academic background of lecturers (Arrieta and Avolio 2020, 223). The academic dimension indicates the lecturer obligations and emphasizes essential characteristics such as positive attitude, effective communication, adequate counseling, and regular feedback. The university's academic reputation is also crucial, notably its capacity to offer prominent and comprehensive courses with a flexible framework, locally and internationally accepted degrees, and highly educated and experienced academic staff (Abdullah 2005, 312; Abdullah 2006b, 575).

The *non-academic* dimension consists of the services that meet the needs of the students during their education. Expressions such as paying attention to the principle of confidentiality and protection of information by respecting students equally and providing good communication skills and timely services by administrative (non-academic) staff are included in this dimension. These are offered to students by administrative or support staff at universities.

This dimension includes the efficiency of administrative staff, the presentable appearance of staff, the support given to students by administration, IT facilities, turnaround to student inquiries, relations with students, service delivery, etc. (Arrieta and Avolio 2020, 224). It is known that the quality of administrative service plays a significant role in the general evaluation of service quality in HES. The attributes that enable the successful operation of academic tasks are referred to as administrative service quality. Administrative and support staff skills and talents, as well as their relationships with students, may be included in this dimension. A lack of administrative service quality might lead to improper assessment (Sultan and Wong 2013, 77). This dimension includes the variables for the duties and responsibilities of administrative staff, which is necessary to assist students in fulfilling their learning responsibilities. It is related to staff's capacity and desire to treat others with respect, give equitable treatment, and maintain data confidentially. It also emphasizes the significance of being friendly and reachable, having a positive attitude and strong communication abilities, giving students a reasonable degree of independence, and offering services within the time range specified (Abdullah 2005, 312).

It is important to maintain or develop the current situation of service quality by making improvements in the areas such as the dedication of administrative staff while showing interest in students' problems, having the ability to effectively evaluate and resolve students' complaints, responding to students' requests immediately, and determining working hours at appropriate times (Purwanto, Noor and Kusumawati 2020, 14). Ushantha and Kumara (2016) identified the *non-academic* and the *access* dimension as the most important dimension. The university administration should consider the training of administrative staff, improving their communication, and equipping them with the necessary skills to increase their productivity (Ushantha and Kumara 2016, 105).

Reputation dimension consists of the ability to reflect its own professional image to students through the services offered by the university. It explains the significance of universities to reflect a professional impression (Abdullah 2006b, 575). Students' impressions of the university in terms of reputation, modernity (programs that are regularly updated and open to worldwide cultural exchanges), attractiveness, and labor market connection are referred to as university image (Arrieta and Avolio 2020, 224). Ushantha and Kumara (2016) and Ali et al. (2016) determined that students perceive reputation dimension as the lowest dimension of service quality at a university. Thus, it is required to organize marketing activities and promotional programs to inform students. Purwanto, Noor, and Kusumawati (2020) concluded that the university maintains its services at a sufficient level in terms of reputation. Since service quality in the reputation dimension is perceived at a sufficient level, it can be tried to increase the quality perceptions of the students by making improvements in this dimension. It is known that factors such as classrooms, reading rooms, laboratories, parks, large parking lots, places where students will benefit as entertainment facilities, well-accredited departments, well-educated experienced lecturers, and employment rates of graduates are effective in increasing the reputation of the university.

Access dimension consists of features such as the accessibility and ease of communication of both academic and administrative staff. Accessibility is related to student consultant services, improvement feedback, respect, access to the services, student support facilities, library facilities (resources, business hours, availability of digital platforms and textbooks), lecture hall availability and study rooms, technical aid services and catering. It includes convenient opening hours, location, service accessibility, easy communication with staff, and so on (Arrieta and Avolio 2020, 224). Facility refers to the service quality necessary to promote competitiveness. Students define facility as access to amenities, including library amenities, leisure amenities,

career counseling, transportation amenities, dining amenities, computer access, workshops access, seminars, and conferences (Sultan and Yin Wong 2013, 77-78). Although many service quality features can affect a student's perception to a certain extent, the access dimension related to factors such as approachability, ease of communication, usability, accessibility, and comfort significantly affects general comprehension of the service quality (Abdullah 2006b, 569). Factors like the necessity of using new technological resources at universities and the development of a learning culture have raised concerns about the access dimension. Abdullah (2005) and Duževič, Časni, and Lazibat (2015) determined that students consider the access dimension as the most significant dimension in the assessment of perceived service quality. University administrators should prioritize the access dimension and apply marketing strategies that can attract new students to their universities and retain existing students (Duževič, Časni, and Lazibat 2015, 49-50).

Program issues express the broad and respected quality of the flexible curricula and academic programs offered to students by universities. The program issues dimension highlights the significance of providing comprehensive and respected academic programs with flexible framework and curricula (Abdullah 2006b, 575). To organize training programs to facilitate the employment of graduates, it is essential to examine the labor market's requirements in related areas and to implement training programs (Duževič, Časni, and Lazibat 2015, 50). Universities should offer a well-prepared curriculum to students by paying attention to the diversity, design, and flexibility of the programs they offer (Ali et al. 2016, 86).

Understanding is a dimension that expresses the personalized delivery of counseling and health services to students and an understanding of students' special needs. The understanding dimension has been seen as a significant factor of service quality for many industries. It includes elements relevant to recognizing students' special needs in terms of counseling and health services at universities (Abdullah 2006b, 575). Abdullah (2005) collected data from the students of six universities in Malaysia and determined that the understanding dimension was removed from the general fit assessment because of the weak fit value (RMSEA). Because of low reliability score, the understanding dimension was removed. Therefore, there is no understanding dimension in the modified version of the Hedperf scale.

II.2. *Satisfaction measurement in HES*

Analyzing quality perceptions with a marketing approach is of great importance in attracting students to universities and continuing their

education. HES is becoming increasingly significant in the economic growth of several countries.

Parasuraman, Zeithaml, and Berry (1988, p.16) argued that although service quality and satisfaction are interrelated, service quality is a long-term attitude towards the service business, while satisfaction is a temporary feeling associated with a specific service. Customer satisfaction is defined as an overall evaluation of the services supplied based on the experience obtained throughout service delivery (Teeroovengadum et al. 2019, 430). Given that both service quality and customer satisfaction are founded on the disconfirmation theory, it has been difficult to distinguish between the two concepts and identify service quality as an attitude and customer satisfaction as a transaction-specific metric (Clemes, Gan and Kao 2008, 295). Satisfaction is an emotional response triggered by a combination of product quality, process quality or services (Browne et al. 1998, 3). Two approaches, emotional and cognitive, can be used to define satisfaction. The most frequently recognized cognitive strategy for explaining the occurrence of satisfaction is the disapproval of expectations. Satisfaction has multiple antecedents and is a lot more complicated 'feeling' than many people believe (Clemes, Cohen and Wang 2013, 393). To thrive in the service industry, HEIs must meet the needs of its students (Pardiyono et. al. 2022, 137). Student satisfaction is a temporary attitude that results from an assessment of students' interactions with the university (Kruja, Ha and Tabaku 2021, 363).

A student's cognitive or emotional response to a particular or ongoing set of services provided by the university is known as their level of student satisfaction (Tan, Choong and Chen 2021, 4). Student satisfaction is often seen as a transient emotion that develops after a thorough examination of the educational experience. (Htang 2021, 103). To create strategies and procedures that can help to increase students' satisfaction, HEIs must identify and comprehend the aspects of service quality that students demand (Kruja, Ha and Tabaku 2021, 361). To give a thorough evaluation of satisfaction with university, Bertaccini, Bacci, and Petrucci (2021) advocated for the development of an ad hoc modified CSI (Customer Satisfaction Indices) model beginning from the European CSI (ECSI) baseline.

Universities are increasingly realizing that they are in the service industry, and they place a greater emphasis on satisfying students' expectations and demands. By identifying and meeting students' needs and expectations, universities can effectively attract and retain successful students. Thus, universities must identify and present what is significant to students (Elliott and Shin 2002, 197). In the context of HES, student satisfaction is a cognitive state of enjoyment resulting from the performance

assessment of service qualities (Sultan and Wong 2012, 764). Student satisfaction is positiveness of student's subjective assessment of various educational achievements and experiences (Elliott and Shin 2002, 198). Despite satisfaction is studied widely in the literature, there are limited studies on student satisfaction (Annamdevula and Bellamkonda 2016, 490).

Attitude influences both perceived quality and enjoyment. Perceived quality is the result of a long-term comprehensive evaluation, and satisfaction is the outcome of that evaluation. At universities, if the performance of service qualifications is good in general, students are satisfied (Sultan and Wong 2014, 493). A quality product at universities should provide certain outcomes for students, such as talent, knowledge, and the ability to successfully move on to the next stages of their lives. While student satisfaction and dissatisfaction may be related to meeting expectations in these areas, it is also affected by the processes involved in achieving the desired results (Browne et al. 1998, 3). Concentrating on student satisfaction allows universities restructuring their organizations to better meet student demands, as well as creating a system to track how well they meet or surpass these demands on a continuous basis (Elliott and Shin 2002, 197). Sultan and Wong (2014) determined that perceived service quality has a favorable influence on student satisfaction, and satisfaction affects confidence positively. The university brand, which has a very important role in the market, has been identified as another significant factor for satisfaction (Sultan and Wong 2014, 494). Teeroovengadum et al. (2019) determined a direct positive relationship between students' perception of the quality of transformative service offered by university and their level of satisfaction with their university, while they found that the level of the relationship between functional service quality and student satisfaction was not significant.

Ali et al. (2016) investigated international students' perceptions of service quality in Malaysian university and the effect of these perceptions on satisfaction, loyalty, and corporate image with the Hedperf scale. It has been determined that five dimensions of service quality affect satisfaction and satisfaction affects corporate image and student loyalty. The hypotheses that students who perceive the *academic*, *non-academic*, *program issues*, *reputation*, and *access* dimensions positively at the university will have higher satisfaction are supported. It has been concluded that satisfied students will perceive the corporate image positively and be more loyal to their universities. Ali et al. (2020) investigated undergraduate students' perceptions of quality in Malaysia and the relationship between these perceptions and student satisfaction with the Hedperf scale. As a result of their study, it was determined that there is a positive relationship between *academic, non-academic* and *reputation* dimensions and student satisfaction.

Browne et al. (1998) examined the relationship between university students' perceived service quality and satisfaction with the Servequal scale. They determined that satisfaction is affected by a student's perceived quality of a course and other curricular factors associated with university. Banahene, Kraa, and Kasu (2018) investigated the perceptions of service quality of students studying at a private university in Ghana and the effect of these perceptions on satisfaction and academic performance with the Hedperf scale. *Academic, reputation, program issues* and *access* dimensions were determined to be related to students' satisfaction positively. It was concluded that the *non-academic* dimension has a negative relationship with student satisfaction, and although the *access* dimension has a positive relationship with student satisfaction, it was found that this dimension was not statistically significant.

Lazibat, Baković, and Duževič (2014) conducted a study with the Hedperf scale to determine the effect of lecturers' and students' perceptions of service quality on students' satisfaction in a Croatian university. They found that students' and lecturers' perceptions of service quality were important determinants of student satisfaction. Muhammad, Kakakhel, and Shah (2018) analysed the impact of the Hedperf scale -academic, non-academic, access, reputation, and program issues- on customer satisfaction. It has been determined that *academic, non-academic, reputation* and *access* service quality dimensions affect customer satisfaction, while the program issues dimension is not effective. Mang'unyi and Govender (2014) concluded in their research that service quality dimensions affect satisfaction.

II.3. *Behavioral intention measurement in HES*

Behavioral intention is an indication of customers' individual evaluations of repurchasing current situation and likely circumstances a certain service from the same service business (Hellier et al. 2003, 1764) and that customers strengthen and maintain their relationship with a certain service business (Zeithaml, Berry, and Parasuraman 1996, 33). The service quality has an impact on how the consumer expects to act after receiving it. Customer satisfaction and/or customer perceptions of service quality have a favorable impact on intentions to behave positively toward a firm (Khoo, Ha, and McGroger 2017, 433). Customers' behavioral intentions reveal whether they will stay with the service provider or not. There are studies showing that behavioral intentions are affected by service quality, by satisfaction, and by both. It was also claimed that satisfaction is a mediator between service quality and behavioral intention (Clemes, Cohen and Wang 2013, 393). If service quality rating is high, behavioral intention is also positive and

relationship with the company is strengthened. If it's low, the behavioral intention is likely to be negative, and the relationship will possibly deteriorate (Zeithaml, Bery, and Parasuraman 1996, 35).

Universities no longer have a steady demand for their services. Universities that were solely available to the wealthy before must now compete for students and market share. While only a few prominent universities retain the ability to enroll students of their preference, the majority must compete in an open market with a diverse range of options (Teeroovengadum et al. 2019, 428). In HEIs, behavioral intention is related to student intention to continue their study at the same university at a higher level, distribute favorable word about the school, and refer other prospective students to the university (Riznic et. al. 2013, 583).

A student who is satisfied is highly likely to display positive behavioral intentions. Customers' behavioral intention reveals whether they will stay with the company or leave. Behavioral intention is described in education as a student's willingness to act, and it can encompass both positive and negative attitudes as well as behavioral consequences. Brand performance at universities can also affect students' behavioral intentions positively. This is because students want to graduate from a respected and well-known university (Sultan and Wong 2014, 494). Haverila and Haverila (2022) determined that student satisfaction was highly relevant to behavioral intention positively. Dlacic et al. (2014) determined that service quality and value perceived by university students are important predictors of repurchase intention. Khoo, Ha and McGroger (2017) determined positive relationships among students' perceived service quality, satisfaction, and behavioral intentions. Sultan and Wong (2013) concluded that students' perceived service quality indirectly affects brand performance and behavioral intention through satisfaction and trust. Khoo, Ha and McGroger (2017) determined that perceived service quality was positively associated with behavioral intentions. In their research, Annamdevula and Bellamkonda (2016) found that the service quality perceived by the student and satisfaction were positively related and that student satisfaction fully and partially mediated the relationship between the service quality perceived by the student and student loyalty. In the same study, it was also determined that student satisfaction both fully and partially mediated the connection between student perceived service quality and student behavioral intention.

II.4. *Suggestion measurement in HES*

Positive behavioral intentions result in suggesting the company's services to other people (Gürbüz et. al 2008, 792). Satisfied students are a valuable

reference for universities, while dissatisfied students can foster a culture of complaints that harms the university's reputation (Osman and Saputra 2019, 142). The quality of service has a favorable impact on behavioral outcomes like loyalty and good word of mouth (Boulding et al. 1993, 8). Inadequate service quality leads to customer dissatisfaction or complaints. The desire to speak positively about the university and to suggest university to others are found among the behavioral intentions (Khoo, Ha, and McGroger 2017, 433). In the context of HES, customer satisfaction is also seen to be a positive predictor of willingness to provide recommendations. According to existing studies, a pleased consumer is more likely to suggest the acquired brand to others, implying that there is a link between satisfaction, behavioral intentions, and willingness to recommend (Haverila and Haverila 2022, 253).

Browne et al. (1998) examined the relationship between university students' perceived service quality and satisfaction with the Servequal scale then concluded that the probability of a student recommend university to their friends/relatives is greatly affected from the size of interaction between students and university staff.

III. Methodology

Although Servequal and Servperf have been used commonly to measure the service quality of higher education institutions, Hedperf was developed specifically to measure service quality in HEIs. Additionally, the Hedperf scale was used for this study because its validity and reliability have been established in several studies, and because the scale items used to assess service quality were ranked in terms of *academic, non-academic, access, reputation*, and *program issues*.

III.1. Research hypothesis

A positive perception of service quality will result in satisfaction, positive behavior intentions for visiting university after graduation and suggesting university to potential students while a negative perception will result in dissatisfaction, negative behavior intention for visiting after graduation and negative comments about university. The effect of service quality level is the subject of research involving service enterprises, and it is known that it has not been adequately studied at universities. The irregularity of student demand with the increase in the number of universities causes the issues of service quality, satisfaction, positive behavior intention for re-visit and suggestion are becoming more important for universities. The hypotheses in this study aiming

to determine whether the perceived service quality dimensions in the context of universities affect students' satisfaction, their intention to visit after graduation and suggestion to potential students, are stated below.

Providing high-quality services to students has a significant impact on their satisfaction (Lau 2016, 391). Students may be satisfied if they have a pleasant experience with university services and believe that they are of high quality (Kruja, Ha and Tabaku 2021, 362). Student satisfaction and the image of university program were both increased by the perceptions of service quality (Tan, Choong and Chen 2021, 4). According to empirical research, student satisfaction is significantly influenced by service quality. Universities should evaluate student satisfaction using the outlined quality dimensions. We investigated the link between service quality and student satisfaction in higher education and discovered data to support this.

This results in the initial hypotheses:

H1: The quality perceptions of the university students affect their satisfaction levels.

The perceived quality is a factor in satisfaction, which should promote behaviors that include repeat purchases. These actions can be translated in the education field as a desire to continue education after receiving a degree (Bertaccini, Bacci and Petrucci 2021, 1). The link between service quality and constructive behavioral intentions is thought to be improved by measuring emotional satisfaction as a key indication. The research from Malaysian Public Universities shows that, with strong impacts, emotional satisfaction mediates the links between service quality and positive behavioral intentions (Mustaffa et. al. 2016, 499). A favorable sense of service quality may have a beneficial influence on students' satisfaction, and pleased students are more likely to interact favorably with prospective students and come back to the HEI to enroll in other programs (Kruja, Ha and Tabaku 2021, 362). There is a considerable chance that they will spread the word about the university, its services, and its brand and return to enroll there to continue their studies in the future if a student is satisfied with the university's services (Tan, Choong and Chen 2021, 5). Studies on student loyalty in HEIs assist college administrators in developing suitable programs that encourage, build, develop sustainable connections with students. Higher quality perceptions have a favorable impact on students' behavior intentions (Annamdevula and Bellamkonda 2016, 495). If students are really pleased with the university services they have received, their dedication will be especially increased (Cinkir, Yildiz, Kurum 2022, 2-3).

This brings up the following second premise:

H2: The quality perceptions of the university students affect their behavioral intentions to visit the university after graduation.

In the context of HEIs, student loyalty encompasses behaviors like praising a university to others, recommending to others, and returning to the same university in the future (Dewi et. al. 2020, 94). With more options, students are pickier about which university they will choose. Higher education has significant difficulties as a result, but they work to solve students' dissatisfaction to draw in new students and keep hold of current ones. Because unsatisfied students may disseminate unfavorable rumors, student satisfaction becomes crucial. Higher education has long placed a great emphasis on service quality. However, it is important to comprehend how students view the factors that determine and the results of the quality of services provided by higher education.

The potential advantages from a long-term commitment with students, such as good word-of-mouth advertising and prospective partnership with the university after graduation, highlight the significance of knowing students' perceptions of the quality of university services (Chong and Ahmed 2012, 36). Students are more likely to encourage others to enroll in their universities if they believe that the services are good (Pardiyono et. al. 2022, 138). The amount to which students tell their peers about their university after enrolling is what this study's word of mouth communication behavior is focused on. Word of mouth has long been seen as a potent tool for charity organizations, including colleges, as well as a potent source of information for consumers. Previous research has discovered connections, both direct and indirect, between students' opinions of service quality and effective word of mouth (Casidy 2014, 146).

This leads to the third hypothesis:

H3: The quality perceptions of the university students affect their suggestion intention to potential students.

III.2. *Data collection and sample*

In this study, data were collected from the students of Nigde Omer Halisdemir University in Turkey with the face-to-face survey method and quota sampling method. Quota sampling method was employed by dividing the population into strata (or subgroups) and reserved a non-random sample for each subgroup. Quota sampling was used for proportioning the sample to the

student number present in each of the different academic units to represent the population effectively. The study population consists of undergraduate and vocational degree students studying at Nigde Omer Halisdemir University in Turkey in the Spring Semester of the 2018-2019 Academic Year. A face-to-face survey method was conducted between 25.02.2019 and 25.04.2019.

Hedperf scale developed by Abdullah (2005, p.308) consists of 4 parts: A, B, C, D. In part A, the demographics and personal information of students were collected. In part B, there are questions from the 22-item Servperf scale adapted to universities. The questions in section C consist of 41 items that were taken from the Hedperf scale. All items in parts B and C were arranged as expressions in a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Part D measures students' overall perceptions of service quality, satisfaction levels, the intentions for giving suggestions to potential students and future visits after graduation. In addition, in part D, three open-ended questions were asked to explain the students' personal opinions about how the quality of service should be increased.

Data was collected from 1150 participants and 1112 questionnaires were evaluated. 50.7% (n= 567) of the sample was female, 48.5% (n= 542) was male, 35.7% (n = 399) was first grade students, 31.6% (n = 353) was second grade, 15.8% (n=177) was third grade students and 15.5% (n=173) was fourth grade students.

IV. Results

IV.1. *Normal distribution analysis*

The data was discovered to have a normal distribution since the kurtosis and skewness coefficients shown in Table 1 are all between -1.96 and 1.96 values, respectively (Howell, 2006: 76).

Table 1

Kurtosis and Skewness Values of Quality Dimensions

Perceived Service Quality	Kurtosis	Skewness
1. Academic Dimension	-.598	.319
2. Non-Academic Dimension	-.469	.198
3. Reputation	-.036	.103
4. Access	-.324	.145

General Perception	Kurtosis	Skewness
1. Perceived Quality	-.529	.676
2. General Satisfaction	-.489	-.203
3. Intention	.742	.171
4. Suggestion	.271	-.795

IV.2. *Validity and reliability analysis*

Kaiser-Meyer-Olkin (KMO) value was determined to be 0.943 with exploratory factor analysis (EFA). In addition, according to the Barlett sphericity test result, the chi-square ($\chi2$) value is at the level of 0.01 ($\chi2$=191.500, p =.00). These show that the data come from a multivariate normal distribution. Principal component analysis, one of the factorization techniques, was used to reveal the factor structure of the scale. The varimax (maximum variability) method, one of the vertical rotation methods, was used to find the dimension the items fit in better. For the main scale, objects with a factor loading of at least 0.32 were chosen (Tabachnick and Fidell 2007: 646). Items 3, 12, 17, 19, 20, 26, 27, 30, 31, 32, 33, 34, 35 were removed from scale as they had high load values in more than one factor. The values for factor load obtained with EFA are given in Table 2.

Table 2

Factor Load Values of Items

Item number	Academic	Non-Academic	Reputation	Access
k5	.757			
k2	.729			
k6	.724			
k4	.710			
k1	.636			
k7	.626			
k8	.582			
k22		.770		
k21		.709		

Item number	Academic	Non-Academic	Reputation	Access
k29		.683		
k23		.666		
k28		.652		
k24		.639		
k25		.519		
k11			.676	
k13			.619	
k15			.612	
k16			.571	
k18			.520	
k9			.516	
k14			.484	
k10			.479	
k39				.725
k40				.705
k38				.600
k41				.584
k37		.410		.511
k36		.353		.479

When Table 2 is examined, it is found that items are categorized under four dimensions that are sufficiently distinct from one another. Items in the first dimension are related to the *academic*, the second-dimension items are related to the *non-academic*, the third-dimension items are related to the *reputation*, and items in the fourth dimension are related to the *access*. The dimensions that Abdullah (2005) explained as program issues (providing comprehensive and respected academic programs with a flexible structure and curriculum) and understanding (counseling and health services) were not included because the model in this study was designed as 4 dimensions of the Hedperf scale. Item 37 in the Hedperf scale includes counseling service, item 38 includes health services. In this context, the understanding dimension was

merged with the *access* dimension in the scale. Also, adequate specialization programs in Hedperf scale are presented in item 15, flexible curriculum in item 16, and prestigious diploma programs in item 18. In this context, the *program issues* dimension was merged with the reputation dimension. The variance rates explained by each dimension in the scale are given in Table 3.

Table 3
Principal Components Analysis of Dimensions

Dimensions	Eigenvalue	Percentage of Variance	Percentage of Total Variance	Quality Rank
Academic	4.134	14.764	14.764	1
Non-Academic	4.046	14.449	29.213	1
Reputation	3.305	11.802	41.016	2
Access	2.860	10.213	51.228	3

Academic and *non-academic* dimensions are considered in the first place in the students' service quality perceptions towards university, according to the explained variance results. *Reputation* is in the second place, and *access* is in the third place (See Table 3). However, the service quality of universities should be evaluated with a holistic approach that includes all dimensions.

To determine whether the factor structure obtained by EFA of the scale was verified or not, Confirmatory Factor Analysis (CFA) was performed. Chi-square (χ2), χ2/sd, RMSEA, NNFI, NFI, CFI, IFI, GFI and AGFI are the most frequently used statistics calculated on model-data fit. CFA. χ2/sd ratio less than 2, the RMSEA value less than 0.05, and GFI, AGFI, NFI, NNFI, CFI, IFI values higher than 0.95 indicate that the model data fit is excellent (Tabachnick and Fidell 2007: 715-720). The values obtained from the scale are in Table 4 with the values of goodness of fit. According to these values, the factor structure of the scale is confirmed.

Table 4
Goodness of Fit Values for the Hedperf Scale

Fit Indices	Good Fit	Acceptable Fit	Goodness of Fit Values
RMSEA	0≤ RMSEA≤ .05	.05 < RMSEA ≤ .08	0.039
NFI	.95 ≤ NFI ≤1	.90≤ NFI < .95	0.98

Fit Indices	Good Fit	Acceptable Fit	Goodness of Fit Values
NNFI	.97 ≤ NNFI ≤1	.95≤ NNFI < .97	0.99
CFI	.97 ≤ CFI ≤1	.95≤ CFI < .97	0.99
GFI	.95 ≤ GFI ≤1	.90≤ GFI < .95	0.94
AGFI	.90 ≤ AGFI ≤1	.85≤ AGFI < .90	0.93
χ^2	$0 \leq \chi^2 \leq 2\ df$	$2\ df \leq \chi^2 \leq 3\ df$	
p	$.05 < p \leq 1.00$	$.01 \leq p \leq .05$	$p < .05$
χ^2/df	$0 < \chi^2/df \leq 2$	$2 < \chi^2/df \leq 3$	2.63

Source: Schermelleh-Engel, Moosbrogger and Müller 2003, p. 52.

Considering all the values related to the model-data fit in Figure 1, the data of the established model is in near-perfect fit. These findings reveal that the scale's factor structure is supported by the data, indicating that the scale has structural validity.

Table 5 shows the reliability coefficients of the perceived service quality dimensions. The confidence coefficients show that *academic*, *non-academic*, *reputation* and *access* dimensions are reliable.

Table 5
Hedperf Scale Dimensions Confidence (Cronbach Alfa) Coefficients

Dimensions	Number of Items in the Scale	Cronbach Alfa Coefficient
Academic	9	0.859
Non-Academic	12	0.892
Reputation	9	0.760
Access	7	0.825
Program Outcomes	2	0.60 (Merged with reputation)
Understanding	2	0.501(Merged with access)

Table 6 and Figure 2 show the effect of students' perceived *academic*, *non-academic*, *reputation* and *access* on satisfaction and the level of this effect.
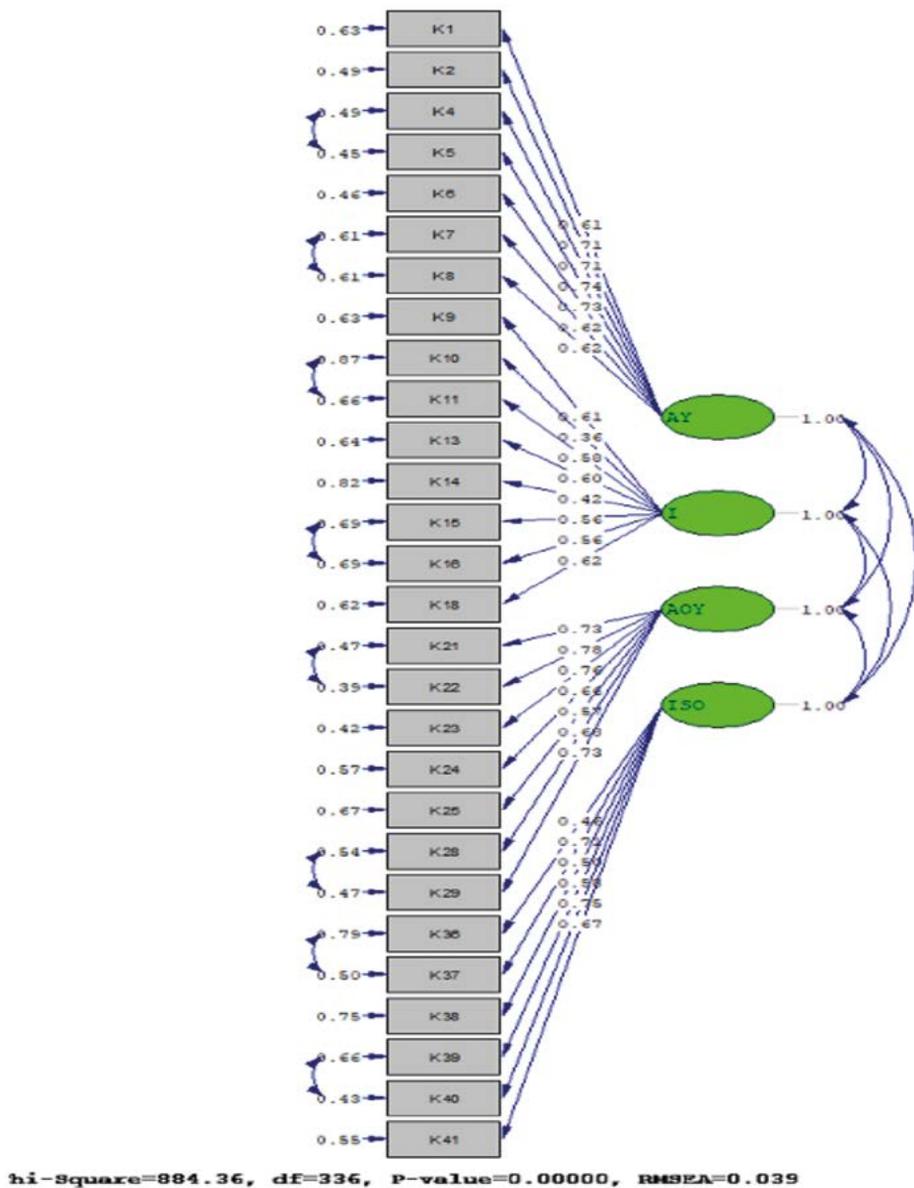
Figure 1

Confirmatory Factor Analysis Results of Hedperf Scale

Table 6

The Effect of Hedperf Dimensions on Satisfaction

Independent Variable	Dependent Variables	β	T	p	Adjusted R²
Service Quality Dimensions a. Academic b. Non-Academic c. Reputation d. Access	Satisfaction	.137 .044 .252 .387	3.567 1.056 5.966 9.314	.000 .291 .000 .000	.305
F = 122.081, *p* = 0.00, *R* = .554, *R²* = .307					

Figure 2

The Effect of Hedperf Dimensions on Satisfaction

As seen in Table 6 and Figure 2, at least one of the service quality dimensions was found to be a significant predictor of "satisfaction" (F = 122.081, p < .05). When the non-standardized regression coefficients are examined, *access* (β = .387) has the strongest effect on satisfaction. A 1-unit change in *access* dimension causes an increase of 0.387 in satisfaction level. A 1-unit change in *reputation* dimension provides an increase in satisfaction by 0.252 (β = .252). A 1-unit improvement in *academic* dimension increases the satisfaction level by 0.137. The effect of the *non-academic* dimension on satisfaction (β = .044) was not significant (p> 0.05). When the explained variance rates are examined, service quality dimensions explain approximately

31% (Adjusted R2 =.305) of the variability in satisfaction. H1 was accepted for *academic, reputation* and *access* dimensions, while *non-academic* dimension was not accepted for quality perception. The *academic, reputation* and *access* dimensions affect the satisfaction levels of university students from the services they receive, while the *non-academic* dimension does not.

Table 7 and Figure 3 show to what extent students' perceived *academic, non-academic, reputation* and *access* dimensions predict their behavioral intentions to visit the university they graduated from.

Table 7

The Effect of Hedperf Dimensions on Behavioral Intention
to Visit University after Graduation

Independent Variable	Dependent Variables	β	t	p	Adjusted R²
Service Quality Dimensions a. Academic b. Non-Academic c. Reputation d. Access	Intention	.160 .005 .211 .264	3.654 .104 4.401 5.589	.000 .917 .000 .000	.165
F = 55.785, *p* = 0.00, *R* = .410, *R²* = .168					

Figure 3

The Effect of Hedperf Dimensions on Behavioral Intention
to Visit University after Graduation

As seen in Table 7 and Figure 3, at least one of the service quality dimensions perceived by the students was a significant predictor of "behavioral intentions to visit the university after graduation" (F = 55.785, p < .05). When the non-standardized regression coefficients are examined, *access* dimension (β = .264) has the strongest effect on behavioral intention. A 1-unit change in *access* causes an increase of 0.264 in behavioral intention to visit university after graduation. A 1-unit change in the *reputation* dimension provides an increase of 0.211 (β = .252), and a 1-unit change in *academic* dimension provides an increase of 0.160 (β = .160) in the behavioral intention to visit. It was found that the *non-academic* dimension did not affect the number of visits to the university after graduation (β = .005, p> 0.05). When the explained variance rates are examined, the service quality dimensions explain 16% of the behavioral intention to visit the university after graduation (Adjusted R2 =.165). H2 was accepted for the *academic, reputation* and *access* dimensions, but not for the *non-academic* dimension. The *academic, reputation* and *access* dimensions affect the behavioral intentions of visiting their universities after graduation, while the *non-academic* does not.

Table 8 and Figure 4 show to what extent *academic, non-academic, reputation*, and *access* dimensions predict students' behaviors in giving suggestions to potential students.

Table 8

The Effect of Hedperf Dimensions on Suggestion to Potential Students Behavior

Independent Variable	Dependent Variables	β	t	p	Adjusted R²
Service Quality Dimensions a. Academic b. Non-Academic c. Reputation d. Access	Suggestion to Potential Students	.146 .038 .367 .333	2.905 .701 6.653 6.120	.004 .484 .000 .000	.223
F = 80.277, *p* = 0.00, *R* = .475, *R²* = .225					

Figure 4

The Effect of Hedperf Dimensions on Suggestion
to Potential Students Behavior

When the non-standardized regression coefficients in Table 8 and Figure 4 were examined, it was seen that reputation ($\beta = .367$) and access ($\beta = .333$) dimensions predicted the suggestion most strongly. While the *academic* dimension has an effect at the level of 0.146 ($\beta = .146$) on the suggestion for 1 unit change, the *non-academic* dimension ($\beta = .038$, p >0.05) has not. When the explained variance rates are examined, service quality dimensions explain approximately 22% (Adjusted R2 $=.223$) of the variability in suggestion. H3 was supported in *academic, reputation* and *access* dimensions, but not in *non-academic* dimension. *Academic, reputation*, and *access* affect students' behavioral intention to suggest university to potential students, while *non-academic* dimension does not.

V. Discussion

Service quality has become one of the most crucial criteria to be questioned because of developments and competition in the service sector. This insight has permeated the education sector and motivated universities to become aware of their students' expectations. Advances in universities are intended to consistently enhance the quality of services provided to students. Since they are immediately impacted by the services offered by universities and are involved in the process, students' perspectives have emerged as one

of the most crucial quality indicators. When consumers have a bad encounter, they adversely evaluate perceived quality. In other words, their prior experiences have an impact on how they perceive the quality of the service. The basis of a student's opinion of service quality in a university is thought to be their prior experiences as well as their contacts with university employees (Ghobehei et. al. 2019, 350).

Exploratory and confirmatory factor analyses were carried out to establish the construct validity of the scale created in a different culture. The items were categorized into four factors that were sufficiently distinct from one another with the exploratory factor analysis. The items in the first, second, third, and fourth dimensions were related to service characteristics related to *academic* dimension, service characteristics related to *non-academic* dimension, service characteristics related to *access* and service characteristics related to *reputation*, respectively. *Academic* and *non-academic* dimensions are rated at the same level as they come in the first place in the ranking according to the explained variance values, followed by *reputation* and *access*. Different studies that use the Hedperf scale in HES have different numbers of dimensions, such as four service quality dimensions -ac*ademic, non-academic, reputation*, and *access*- (Sheeja, Krishnaraj, and Harindranath 2014; Mang'unyi and Govender 2014; Ushantha and Kumara 2016; Muhammad, Kakakhel, and Shah 2018; Banahene, Kraa and Kasu 2018), five service quality dimensions -*academic, non-academic, reputation, access,* and *program issues*- (Abdullah 2005; Abdullah 2006c; Abdullah 2006a), and six service quality dimensions -*academic, non-academic, reputation, access, program issues* and *understanding*- (Abdullah 2006a). The capacity of the service provider to appropriately execute *academic, non-academic, program issue*, and *access* dimensions is confirmed as being crucial to increase the satisfaction by Khalid, Ali, and Makhbul (2019).

The first three hypotheses—hypotheses 1, 2, and 3—were verified in terms of *academic, reputation*, and *access* dimensions, but not in terms of *non-academic* dimension that had to do with impacts on student satisfaction, future behavioral intentions, and suggestion behavior of university students. The following dimensions -*academic, non-academic, reputation*, and *access* - have a positive and substantial impact on students' satisfaction, according to Mulyono et al. (2020). Students' satisfaction was unaffected by the *program issues* dimension or its component concerns. According to Moslehpour et al. (2020), the *non-academic* dimension of service quality has the greatest impact on student satisfaction, which in turn has a significant impact on the reputation. The link between the *academic* and *non-academic* dimensions of service quality and university *reputation* is mediated through

student satisfaction. Singh and Jasial (2021) found that student satisfaction was shown to be positively and significantly affected by teaching abilities, staff competence, reputation, and access, although a substantial influence of teaching abilities of lecturers and staff service attitudes could not be demonstrated. Students view the *academic* dimension to be the most rewarding dimension of service quality, followed by *access* and *reputation*, according to Duzevic and Casni (2015). The dimensions with the weakest results were HEI facilities and study programs.

According to Dewi et al. (2020), student satisfaction has a large impact on student loyalty, whereas educational quality has a big impact on student satisfaction. According to Mustaffa et al. (2016), emotional satisfaction has a sizable influence on the correlations between service quality and positive behavioral intentions. According to Kruja, Ha, and Tabaku (2021), retention and general student satisfaction are positively correlated. According to Tan, Choong, and Chen (2021), student perception of service quality has a favorable impact on both student satisfaction and behavioral intentions in terms of word of mouth (suggesting university to other students). Student satisfaction serves as the primary mediator in the association between student behavior intentions and perceived service quality. They have shown a connection between students' behavioral intentions and satisfaction with the university. On the relationship between student satisfaction and behavioral intentions, switching obstacles have not been proven to have a mediating influence, nevertheless. According to Annamdevula and Bellamkonda (2016), students' perceived service quality has a direct beneficial impact on satisfaction, loyalty, and motivation. It supports the idea that student satisfaction plays a partial and full mediating function between students' perceptions of the quality of the services they get from universities and their loyalty and motivation to those services. According to Clemes, Gan, and Kao (2008), a higher degree of satisfaction enhances the likelihood that students would consider returning to the same university in the future and strengthens their desire to suggest it to others. Also, it notes that the largest influence on satisfaction with higher education is service quality. According to Subrahmanyam (2017), the perceived service quality of students has a direct impact on their satisfaction and motivation, as well as a secondary impact on their loyalty. Their research revealed that students' perceived service quality is a significant predictor of students' satisfaction, motivation, and loyalty, demonstrating the significance of service quality. The satisfaction of graduates is impacted by all service quality characteristics, according to Sharabati, Alhileh, and Abusaimeh (2019). According to Chaudhary and Dey (2021), student satisfaction was directly impacted by how well they

considered their services to be. According to Riznic et al. (2013), students' behavioural intentions are significantly influenced by the quality and satisfaction of higher education services. The influence of satisfaction on behavioural intentions, however, is more significant and modulates the effect of service quality. According to Teeroovengadum et al. (2019), technical service quality, image, and perceived value have an impact on student satisfaction but not functional service quality.

As a result, in the context of HEIs, the perceived service quality is found to be the most significant predictor of student satisfaction. Thus, satisfied students are more likely to exhibit the desired behavioral intentions. If a student is pleased with the university's services, they are likely to continue to speak positively of the school and may even decide to return in the future for higher degrees there (Tan, Choong and Chen 2021, 11). According to Mulyono et al. (2020), it is essential to increase the teaching quality to raise students' academic and communication skills. Conducting training and development initiatives and enhancing administrative staff awareness programs are crucial in terms of *non-academic* dimension. For the *reputation* dimension, it is also necessary to implement a number of marketing initiatives that are intended to influence students and help them form favorable impressions of the university. In the meantime, it is important to ensure that every student has direct access to staffs, and it is important to improve dimensions that can boost student satisfaction thus students are convinced of their decisions about the university, and they suggestion it to others.

According to the findings, increasing students' satisfaction—such as their satisfaction with their decision to enroll, their satisfaction at the time of registration, and their satisfaction with teaching—will increase students' loyalty and commitment to the university until they graduate significantly. Suggestion to others (positive word of mouth) about the university will increase applications, and more students will stay to complete their degrees (Mulyono et al. 2020, 936).

VI. Results

In Turkey, four dimensions have been determined in the quality of the services received by the students of Nigde Omer Halisdemir University as *academic, non-academic, reputation* and *access*. Hypotheses 1, 2 and 3, were confirmed in *academic*, *reputation* and *access* dimensions, but not in *non-academic* dimension that relating to effects of quality perceptions of the university students on students' satisfaction, suggestion, and behavioural intentions for visiting university in the future.

Service quality dimensions explain approximately 31% of the variability in overall satisfaction. While *academic*, *reputation* and *access* dimensions affect general satisfaction significantly, the *non-academic* dimension was shown to have no substantial impact. *Access* affects satisfaction at the level of $\beta = .322$, which is more than other dimensions. Universities should give importance to strategies that improve *access*, *reputation*, and *academic* dimensions to increase students' satisfaction levels. In the literature, there are studies that support this result for *access* (Ali et al. 2016), *academic, non-academic, access, program issues* (Ushantha and Kumara 2016), *academic, reputation, access, program issue,* (Banahene et al. 2018), *academic, non-academic, reputation, access* (Mang'unyi and Govender 2014) and do not support for *reputation* (Ushantha and Kumara 2016), *non-academic* (Banahene et al. 2018), and it is thought that different results were obtained due to the sample difference and the heterogeneity of services.

In this study, it was determined that the service quality dimensions explained 17% of the behavioral intention to "visit the university after graduation" and the effect of *access* ($\beta = .264$) among these dimensions was higher than the other dimensions. While *reputation* dimension was effective at the level of $\beta = .211$ and academic dimension at the level of $\beta = .160$, the effect of *non-academic* dimension was not determined ($\beta = .005$).

University service quality dimensions explain 23% of the intention for "suggesting university to potential students", and it was determined that the *reputation* dimension has the strongest effect ($\beta = .367$), then *access* dimension comes with $\beta = .333$, and *academic* dimension with $\beta = .146$. The *non-academic* dimension does not have any significant effect on the intention of giving suggestions. This finding confirms that students give priority to universities with more brand image.

VI.1. Recommendations for practitioners

Although the results are limited to the date of the study and the students of Nigde Omer Halisdemir University in Turkey, this study determined the service characteristics of academic and administrative staff ranks in the first place according to the variance values explained therefore strategic plans and practices for continuous improvement should be encouraged in accordance with the quality. It has been found that the marketing strategies to be applied for gaining the *reputation* dimension, which is considered in the second place by students in this study, are also significant for universities. For the *reputation* dimension, public relations and promotional activities should be expanded in traditional and social media. Ease of access to technological and

physical facilities should be reviewed for the *access* dimension, which is ranked in the third place in this study. It is recommended to use multiple communication channels such as telephone, face-to-face, e-mail and social media effectively so that they can access universities more regularly and effectively.

Due to the opening of new universities in Turkey and the relative weight of private universities increasing, universities have begun to offer their services in a competitive market like other businesses. The awareness of businesses operating in competitive markets to provide quality service becomes even more important at universities as they produce science that will be the locomotive of the country's economy. Professional interest in employment will contribute to efficiency in the country's economy, and education with high quality and better institution image will contribute to the preference of students with high scores. *Academic, non-academic, reputation* and *access*, which are determined as dimensions that can affect the perception of quality, are recommended as areas that should be managed by the quality coordinators of universities. The finding that these dimensions have an impact on the students' intention to suggest university to others may affect the sense of belonging positively, as they affect the percentage of student occupancy, and the number of visits after graduation. To provide competitive advantage for a university, it is recommended to use resources efficiently by prioritizing quality dimensions.

References

Abdullah, Firdaus. 2005. "HEdPERF versus SERVPERF: The quest for ideal measuring instrument of service quality in higher education sector." *Quality Assurance in Education* 13 (4): 305-328.

Abdullah, Firdaus. 2006a. "Measuring service quality in higher education: three instruments compared." *International Journal of Research & Method in Education* 29 (1): 71-89.

Abdullah, Firdaus. 2006b. "The development of HEdPERF: a new measuring instrument of service quality for the higher education sector." *International Journal of Consumer Studies*, 30 (6): 569-581.

Abdullah, Firdaus. 2006c. "Measuring service quality in higher education: HEdPERF versus SERVPERF." *Marketing Intelligence & Planning* 24 (1): 31–47.

Açan, Bora, and Reha Saydan. 2009. "The Evaluation of Academic Quality Expectation of the University Teachers: The Case of Kafkas University Faculty of Economics and Administrative Sciences." *The Journal of Atatürk University Social Sciences* 13 (2): 225-253.

Ali, Faizan, Yuan Zhou, Kashif Hussain, Pradeep K. Nair, and Neethiahnanthan A. Ragavan 2016. "Does higher education service quality effect student satisfaction,

image and loyalty?: A study of international students in malaysian public universities," *Quality Assurance in Education* 24 (1): 70-94.

Ali, Omar, Siti Rapidah, Md Shariff, Nor Alesha, Mohd Said, Nur Shafini and Khalid A. Mat. 2020. "The Effects of Service Quality Dimensions on Students'Satisfaction: Hedperf Model Adoption." *Jurnal Intelek* 15 (1): 69-76.

Annamdevula, Subrahmanyam, and Raja S. Bellamkonda. 2016. "Effect of student perceived service quality on student satisfaction, loyalty and motivation in Indian universities Development of HiEduQual." *Journal of Modelling in Management*, 11 (2): 488-517.

del Carmen Arrieta, María, and Beatrice Avoli. 2020. "Factors of Higher Education Quality Service: The Case of a Peruvian University." *Quality Assurance in Education* 28 (4): 219-238.

Banahene, Stephen, Jerry J. Kraa, and Philipine A. Kasu. 2018. "Impact of HEdPERF on Students' Satisfaction and Academic Performance in Ghanaian Universities; Mediating Role of Attitude towards Learning." *Open Journal of Social Sciences* 6 (May): 96-119.

Bertaccini, Bruno, Silvia Bacci, and Alessandra Petrucci. 2021. "A graduates' satisfaction index for the evaluation of the university overall quality." *Socio-Economic Planning Sciences* 73: 1-7.

Boulding, William, Ajay, Richard Staelin, and Valarie A. Zeithaml. 1993. "A dynamic process model of service quality: From expectations to behavioral intentions." *Journal of Marketing Research*, 30 (February): 7-27.

Brochado, Ana. 2009. "Comparing alternative instruments to measure service quality in higher education." *Quality Assurance in Education*, 17 (2):174-190.

Browne, Beverly A., Dennis O. Kaldenberg, William G. Browne, and Daniel J. Brown. 1998. "Student as Customer: Factors Affecting Satisfaction and Assessments of Institutional Quality." *Journal of Marketing for Higher Education*, 8 (3): 1-14.

Campos, Domingos F., Guido S. dos Santos, and Felipe N. Castro. 2017. Variations in student perceptions of service quality of higher education institutions in Brazil: A Longitudinal Study." *Quality Assurance in Education*, 25 (4): 394-414.

Casidy, Riza. 2014. "Linking Brand Orientation with Service Quality, Satisfaction, and Positive Word-of-Mouth: Evidence from the Higher Education Sector." *Journal of Nonprofit & Public Sector Marketing*, 26 (2): 142-161.

Chaudhary, Sartaj, Ajoy K. Dey. 2021. "Influence of student-perceived service quality on sustainability practices of university and student satisfaction." *Quality Assurance in Education*, 29 (1): 29-40.

Chong, Yit S., and Pervaiz K. Ahmed. 2012. "An empirical investigation of students' motivational impact upon university service quality perception: a self-determination perspective." *Quality in Higher Education*, 18 (1): 35-57.

Cinkir, Sakir, Sevgi Yildiz, and Gul Kurum. 2022, "The Effect of Undergraduate Students'Perceived Service Quality on Student Commitment." *SAGE Open*, April-June: 1–15.

523

Clemes, Michael D., Christopher E. C. Gan, and Tzu-Hui Kao. 2008. "University Student Satisfaction:An Empirical Analysis." *Journal of Marketing for Higher Education*, 17 (2): 292-325.

Clemes, D. Michael, Cohen A. David, and Wang Yang. 2013. "Understanding Chinese university students' experiences: an empirical analysis." *Asia Pacific Journal of Marketing and Logistics*, 25 (3): 391-427.

Calvo-Porral, Cristina, Jean-Pierre Lévy-Mangin, and Isabel Novo-Corti. 2013. "Perceived quality in higher education: an empirical study." *Marketing Intelligence & Planning*, 31 (6): 601–619.

De Jager, Johan, and Gbolahan Gbadamosi. 2010. "Specific remedy for specific problem: measuring service quality in South African higher education." *Higher Education,* 60 (3): 251-267.

Dewi, Ratna S., Melinda Roza, Muhamad Taridi, Alek Alek, Fahrurrozi. 2020. "Nexus between quality of education, student satisfaction and student loyalty: the case of department of english teacher education at Universitas Islam Negeri in Indonesia." *International Journal for Quality Research*, 15 (1): 89–106.

Dlačić, Jasmina, Maja Arslanagić, Selma Kadić-Maglajlić, Suzana Marković, and Sanja Raspor. 2014. "Exploring perceived service quality, perceived value, and repurchase intention in higher education using structural equation modelling." *Total Quality Management & Business Excellence*, 25 (1-2): 141-157.

Dužević, Ines, Anita Čeh Časni, and Tonći Lazibat. 2015. "Students'perception of the higher education service quality." *Croatian Journal of Education*, 17 (4): 37-67.

Elliott, M. Kevin, and Shin, Dooyoung. 2002. "Student Satisfaction: An alternative approach to assessing this important concept." *Journal of Higher Education Policy and Management*, 24 (2): 197-209.

Ghobehei, Mohsen, Faraz Sadeghvaziri, Elham Ebrahimi, and Khashayar A. Bakeshloo. 2019. "The effects of perceived brand orientation and perceived service quality in the higher education sector." *Eurasian Business Review* 9: 347–365.

Gruber, Thorsten, Stefan Fuß, Roediger Voss, and Michaela Gläser-Zikuda. 2010. "Examining student satisfaction with higher education services: Using a new measurement tool." *International Journal of Public Sector Management*, 23 (2): 105-123.

Gürbüz, Esen, Arzum Büyükkeklik, Mutlu Yüksel Avcılar, and Murat Toksarı. 2008. "The effect of perceived service quality on satisfaction and behavioural intentions:an empirical study on supermarkets in Nigde." *Ege Academic Review,* 8 (2): 785-812.

Haverila, Matti, and Haverila K.Christian. 2022. "The impact of the student–instructor relationship on student-centric measures." *Journal of Applied Research in Higher Education*, 14 (1): 240-263.

Hellier, Phillip K., Gus M. Geursen, Rodney A. Carr, and John A. Rickard. 2003. "Customer Repurchase Intention: A General Structurel Equation Model." *European Journal of Marketing*, 37 (11-12): 1762-1800.

Howell, David C. 2006. *Statistical Methods for Psychology*. 7th ed. Pacific Grove, CA: Cengage/Wadsworth.

Htang, Ling K. 2021. "A look at university student service quality and satisfaction." *Quality Assurance in Education*, 29 (2/3): 101-115.

Khalid, Sulaiman M., Khairul A. M. Ali, and Zafir K. M. Makhbul. 2019. "Assessing the effect of higher education service quality on job satisfaction among lecturers in premier polytechnics using HEdPERF model." *LogForum*, 15 (3): 425-436.

Khoo, Susie, Ha Huong, and Sue L. T. McGroger. 2017. "Service quality and student/customer satisfaction in the private tertiary education sector in Singapore." *International Journal of Educational Management*, 31 (4): 430-444.

Kruja, Drita, Huong Ha, and Elvira Tabaku. 2021. "Students'perception and satisfaction of services provided by public and private higher education institutes: a case study in Albania." *International Journal of Quality and Service Sciences*, 13 (3): 359-380.

Lau, Melissa Y. M. 2016. "Effects of 8Ps of services marketing on student selection of self-financing sub-degree programmes in Hong Kong." *International Journal of Educational Management*, 30 (3): 386-402.

Lazibat, Tonci, Tomislav Baković, and Ines Duževic. 2014. "How perceived service quality influences students'satisfaction? Teachers' and students' perspectives." *Total Quality Management & Business Excellence*, 25 (7/8): 923-934.

Mahmoud, Ali B., and Bayan Khalifa. 2015. "A confirmatory factor analysis for SERVPERF instrument based on a sample of students from Syrian universities." *Education and Training*, 57 (3): 343–359.

Mang'unyi, Eric E., and Krishna K. Govender. 2014. "Perceived service quality (SQ) and customer satisfaction (CS): Students'perceptions of Kenyan Private Universities." *Mediterranean Journal of Social Sciences*, 5 (23): 2739-2748.

Moslehpour, Massoud, Ka Y. Chau, JingJing Zheng, Asalia N. Hanjani, and Minh Hoang. 2020. "The mediating role of international student satisfaction in the influence of higher education service quality on institutional reputation in Taiwan." *International Journal of Engineering Business Management*, 12: 1–16.

Muhammad, Nisar, Shahid J. Kakakhel, and Fayaz A. Shah. 2018. "Effect of Service Quality on Customers Satisfaction: An Application of HEdPERF Model." *Review of Economics and Development Studies*, 4 (2): 165-177.

Mulyono, Hardi, Arief Hadian, Nelvitia Purba, and Rudy Pramono. 2020. "Effect of Service Quality Toward Student Satisfaction and Loyalty in Higher Education." *Journal of Asian Finance, Economics and Business*, 7 (10): 929–938.

Mustaffaa, Wan S. W., Mass H. A. Halid, Khuan W. Khuan, and Abdul R. Rafiduraida. 2016. "Investigating the Relationship among Service Quality, Emotional Satisfaction and Favorable Behavioral Intentions in Higher Education Service Experience." *Procedia - Social and Behavioral Sciences*, 224: 499 – 507.

Narang, Ritu. 2012. "How do management students perceive the quality of education in public institutions?" *Quality Assurance in Education*, 20 (4): 357-371.

O'Neill, Martin A., and Adrian Palmer. 2004. "Importance-performance analysis: a useful tool for directing continuous quality improvement in higher education." *Quality Assurance in Education*, 12 (1): 39-52.

Osman, Abu R., and Ruswiati S. Saputra, 2019. "A pragmatic model of student satisfaction: a viewpoint of private higher education." *Quality Assurance in Education*, 27 (2): 142-165.

Parasuraman, Parsu A., Valarie A. Zeithaml, and Leonard L Berry. 1988. "SERVEQUAL: A Multible-Item Scale for Measuring Consumer Perseptions of Service Quality." *Journal of Retailing*, 64 (1): 12-40.

Pardiyono, Ragil, Jaja Suteja, Hermita D. Puspita, Undang Juju. 2022. "Dominant factors for the marketing of private higher education." *Decision Science Letters*, 11: 137–146.

Purwanto, Yuli, Irwan Noor, and Andriani Kusumawati, 2020. "Service Quality Measurement through Higher Education Performance (HEDPERF): The Case of an Indonesian Public University." *Wacana, Jurnal Sosial dan Humaniora*, 23 (1): 10-16.

Randheer, Kokku. 2015. "Service quality performance scale in higher education: Culture as a new dimension." *International Business Research*, 8 (3): 29-41.

Riznić, Dejan, Janka T. Petrovičová, Tamara Rajić, and Jaroslav Ďaďo. 2013. "Linking Service Quality and Satisfaction to Behavioural Intentions in Higher Education Setting." *Ekonomický časopis*, 61 (6): 578 – 596.

Rodríguez-González, Francisco G., and Paulina Segarra. 2016. "Measuring academic service performance for competitive advantage in tertiary education institutions: the development of the Tedperf scale." *International Review on Public and Nonprofit Marketing*, 13 (2): 171-183.

Saad, Nada 2013. "Students' perceptions of higher education quality at Notre Dame University-Louaize in Lebanon." PhD Dissertation, Saint Louis University.

Schermelleh-Engel, Karin, Helfried Moosbrogger, and Hans Müller. 2003. "Evaluating the Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures." *Methods of Psychological Research Online*, 8 (2): 23–74.

Sharabati, Abdel-Aziz A., Mohammad M. Alhileh, and Hesham Abusaimeh. 2019. "Effect of service quality on graduates' satisfaction." *Quality Assurance in Education,* 27 (3): 320-337.

Sheeja, V. S., R. Krishnaraj, and R. M. Harindranath. 2014. "Evaluation of higher education service quality scale in pharmaceutical education." *International Journal of Pharmaceutical Sciences Review and Research*, 28 (2): 263-266.

Singh, Sonali, and Jasial Sumeet S. 2021. "Moderating effect of perceived trust on service quality – student satisfaction relationship: evidence from Indian higher management education institutions." *Journal of Marketing for Higher Education*, 31 (2): 280-304.

Subrahmanyam, Annamdevula. 2017. "Relationship between service quality, satisfaction, motivation and loyalty A multi-dimensional perspective." *Quality Assurance in Education*, 25 (2): 171-188.

Sultan, Parves and Wong, H. Yin. 2010. "Service quality in higher education–a review and research agenda." *International Journal of Quality and Service Sciences,* 2 (2): 259-272.

Sultan, Parves, and Ho Y. Wong. 2012. "Service quality in a higher education context: an integrated model." *Asia Pacific Journal of Marketing and Logistics*, 24(5): 755-784.

Sultan, Parves, and Ho Y. Wong. 2013. "Antecedents and consequences of service quality in a higher education context: a qualitative research approach." *Quality Assurance in Education*, 21 (1): 70-95.

Sultan, Parves and Wong, Ho Yin. 2014. "An integrated-process model of service quality, institutional brand and behavioural intentions: The case of a University." *Managing Service Quality*, 24 (5): 487-521.

Ushantha, Chanaka R. A., and Kumara P. A. P. Samantha 2016. "A quest for service quality in higher education: Empirical evidence from Sri Lanka." *Services Marketing Quarterly*, 37 (2): 98-108.

Yıldız, Suleyman M., and Ali Kara. 2009. "The Pesperf scale: An instrument for measuring service quality in the School of Physical Education and Sports Sciences (PESS)." *Quality Assurance in Education*, 17 (4): 393-415.

Tabachnick, Barbara G., and Linda S. Fidell. 2007. *Using Multivariate Statistics*. 5th ed., New York, New York: Pearson.

Tan, Peter S. H., Yuen O. Choong, and I-Chi Chen. 2021. "The effect of service quality on behavioural intention: the mediating role of student satisfaction and switching barriers in private universities." *Journal of Applied Research in Higher Education,* 14 (4): 1394-1413.

Teeroovengadum, Viraiyan, Robin Nunkoo, Christian Gronroos, T.J. Kamalanabhan, and Ashley K. Seebaluck. 2019. "Higher education service quality, student satisfaction and loyalty Validating the HESQUAL scale and testing an improved structural model." *Quality Assurance in Education*, 27 (4): 427-445.

Tsinidou, Maria, Vassilis Gerogiannis, and Panos Fitsilis. 2010. "Evaluation of the factors that determine quality in higher education: an empirical study." *Quality Assurance in Education*, 18 (3): 227-244.

Zeithaml, Valarie A., Leonard L. Berry, and A. Parasuraman. 1996. "The Behavioral Consequences of Service Quality." *Journal of Marketing*, 60 (April): 31-46.

Major increases in teachers' performance evaluations: Evidence from student evaluation of teaching surveys

Jaime Prieto, Rocío Guede-Cid, Ana I. Cid-Cid, and Santiago Leguey*

Abstract:

Purpose: This exploratory study examined major increases in teachers' performance evaluations and their immediate impact on next year's score for those instructors that taught the same subject for at least two years in a row. The purpose was twofold. Firstly, to identify those Student Evaluation of Teaching (SET) survey items associated with major increases in teacher evaluations. Secondly, to examine if there is evidence of the use of these SET results by instructors to improve their teaching.

Design: The sample comprised SET survey ratings from one university over a five consecutive year period, for a total sample of 13,052 teacher evaluations and 3,893 teachers-subject observations under analysis. Frequency tables and Student's t-test were used for analysis.

Findings: The results highlighted the three SET survey items captured by the dimension of teaching methodology as those most closely related to major increases in teacher evaluations. Regarding the second objective, the results show no generalised response from teachers who experience major increases in SET ratings. This suggests

---

* **Jaime Prieto** (jaime.prieto@urjc.es), PhD, is a lecturer on information and communications technology at the Rey Juan Carlos University (Spain).

Rocío Guede-Cid (rocio.guede@urjc.es), PhD, is a lecturer on Mathematics and Statistics at the Rey Juan Carlos University (Spain).

Ana I. Cid-Cid (ana.cid@urjc.es), PhD, is a senior lecturer on Mathematics and Statistics at the Rey Juan Carlos University (Spain).

Santiago Leguey (corresponding author, santiago.leguey@urjc.es), PhD, is a senior lecturer on Mathematics and Statistics at the Rey Juan Carlos University (Spain).

More information about the authors is available at the end of this article.

that the use of SET results is either limited or does not have an immediate measurable effect on student satisfaction.

Originality/Value: To the best of our knowledge, this was the first study to specifically examine major increases in teachers' performance evaluations and their immediate impact on next year's score based on evidence from SET surveys.

Keywords: Teacher evaluation; student evaluation; student evaluation of teaching; SET; teaching evaluation; higher education; university teaching; teacher performance evaluation; teaching excellence; SET surveys.

I. Introduction

Obtaining feedback from students through Student Evaluation of Teaching (SET) surveys is a widely extended practice in universities internationally that provides diagnostic feedback to instructors on the quality of their teaching.[1,2] However, from the point of view of the teaching staff, there is no consistent evidence of the teachers' direction of opinion towards the use, validity and consequences of SET results.[3] Published research examining instructors' attitudes to student ratings shows a broad range of responses, with teachers showing both positive and negative attitudes towards using SET surveys.[4,5] This lack of consensus is amplified in many cases due to opinions at the extremes, finding from strongly supportive teachers to the use of SET surveys to extremely critical ones.[6] It has been argued that the concerns of the instructors with the use of SET surveys is due to its dual usage for formative purposes (i.e., students' diagnostic feedback for improving teaching) as well as for summative purposes (i.e., administrative policymaking about faculty personnel and

---

[1] Rachel Johnson, "The authority of the student evaluation questionnaire," *Teaching in Higher Education* 5, no. 4 (2000): 419-434, https://doi.org/10.1080/713699176.

[2] Francisco Zabaleta, "The use and misuse of student evaluation of teaching," *Teaching in Higher Education* 12, no. 1 (2007): 55-76, https://doi.org/10.1080/13562510601102131.

[3] Cecilia. K. Y. Chan, Lillian Y. Y. Luk, and Min Zeng, "Teachers' perceptions of student evaluations of teaching," *Educational Research and Evaluation* 20, no. 4 (2014): 275-289, https://doi.org/10.1080/13803611.2014.932698.

[4] Tanya N. Beran and Jeniffer L. Rokosh, "Instructor's perspectives on the utility of student ratings of instruction," *Instructional Science* 37, (2009): 171-184, https://doi.org/10.1007/s11251-007-9045-2.

[5] Paul W. G. Surgenor, "Obstacles and opportunities: Addressing the growing pains of summative student evaluation of teaching," *Assessment & Evaluation in Higher Education* 38, (2013): 363-376, https://doi.org/10.1080/02602938.2011.635247.

[6] Fadia Nasser and Barbara Fresko, "Faculty views of student evaluation of college teaching," *Assessment & Evaluation in Higher Education* 27, no. 2 (2002): 187-198, https://doi.org/10.1080/02602930220128751.

key factor within institutional audits), with many teachers being highly suspicious and often hostile towards the use of SET results as a critical factor for administrative decision-making,[7,8,9] but agreeing that SET ratings provide instructors with valuable information on how to refine their teaching based on how their students have perceived their teaching practice during the course. [10,11,12,13]

SET surveys try to assess instructors' teaching effectiveness or teaching quality of a particular course surveying students' opinion, usually, through Likert-scale questionnaires (in this regard and despite not being the focus of the present study, see Bedggood and Donovan,[14] for an overview of published research criticising whether students' ratings constitute a measure of students' satisfaction as consumers rather than a measure of teaching quality). The standardised instruments that are most widespread in the literature on teacher evaluation in higher education, and therefore suggest greater prominence in the international university environment, are the Student Evaluation of Educational Quality (SEEQ), the questionnaire for student evaluation of teaching SET37 and the Students' Evaluation of Teaching Effectiveness Rating Scale (SETERS) (see Moreno-Murcia, Silveira and Belando,[15] for a brief overview on SET instruments used by

---

[7] Senior Bolivar, "Student teaching evaluations: Options and concerns," *Journal of Construction Education* 5, no. 1 (2000): 20-29.

[8] Cecilia. K. Y. Chan, Lillian Y. Y. Luk, and Min Zeng, "Teachers' perceptions of student evaluations of teaching," *Educational Research and Evaluation* 20, no. 4 (2014): 275-289, https://doi.org/10.1080/13803611.2014.932698.

[9] John C. Ory, "Faculty thoughts and concerns about student ratings," *New Directions for Teaching and Learning* 87, (2001): 3-15, http://dx.doi.org/10.1002/tl.23.

[10] John C. Ory, "Faculty thoughts and concerns about student ratings," *New Directions for Teaching and Learning* 87, (2001): 3-15, http://dx.doi.org/10.1002/tl.23.

[11] Magdalena Cladera, "Let's ask our students what really matters to them," *Journal of Applied Research in Higher Education* 13, no. 1 (2021): 112-125, https://doi.org/10.1108/JARHE-07-2019-0195.

[12] James A. Kulik, "Student ratings: Validity, utility and controversy," *New Directions for Institutional Research* 27, (2002): 9-25, http://dx.doi.org/10.1002/ir.1.

[13] Fadia Nasser and Barbara Fresko, "Faculty views of student evaluation of college teaching," *Assessment & Evaluation in Higher Education* 27, no. 2 (2002): 187-198, https://doi.org/10.1080/02602930220128751.

[14] Rowan E. Bedggood and Jerome D. Donovan, "University performance evaluations: what are we really measuring?" *Studies in Higher Education* 37, no. 7 (2012): 825-842, https://doi.org/10.1080/03075079.2010.549221.

[15] Juan Antonio Moreno-Murcia, Yolanda Silveira, and Noelia Belando, "Questionnaire Evaluating Teaching Competencies in the University Environment. Evaluation of Teaching Competencies in the University," *Journal of New Approaches in Educational Research* 4, no. 1, (2015): 54-61, https://doi.org/10.7821/naer.2015.1.106.

universities worldwide). Other institutions do not employ standardised questionnaires but develop their SET instruments. Therefore, the current practice of SET surveys is littered with instruments that differ on the items they incorporate and in the particular dimensions they capture to try to adequately operationalise the teaching effectiveness construct.[16] In this sense, there is general agreement that SET instruments must capture the multidimensional structure of the teaching process and, therefore, reflect this multidimensionality incorporating several dimensions related to effective teaching.[17] However, the SET literature reflects a wide variety both in the nature and number of the dimensions that are measured in SET instruments (see Spooren, Brockx and Mortelmans,[18] for an overview of the dimensions that are captured in recently published literature on SET instruments). In this regard, a relatively recent study by Bedggood and Donovan[19] (p. 831) identified "quality of instruction" (i.e., referring to "both teachers skills and ability, and also to their friendliness, enthusiasm and approachability"), "task difficulty" (i.e., "in terms of demands and effort required by students to achieve their desired result"), and "academic development and stimulation" (i.e., regarding to "how stimulated and motivated a student feels, and whether they believe they are growing and developing their academic skills") as the three most commonly identified dimensions in SET surveys.

SET research has been a hot topic for international academic researchers for a long time. It indeed still is, primarily because of the number of concerns involved in the use of formal instruments for obtaining students' feedback in higher education and their consequences.[20] A large body of literature has

---

[16] Lawrence A. Roche and Herbert W. Marsh, "Multiple dimensions of university teacher self-concept," *Instructional Science* 28, (2000): 439-468, http://dx.doi.org/10.1023/A:1026576404113.

[17] Herbert W. Marsh, "Students' evaluations of university teaching: Dimensionality, reliability, validity, potential biases and usefulness," in *The scholarship of teaching and learning in higher education: An evidence-based perspective*, ed. R. P. Perry and J. C. Smart (New York: Springer, 2007a), 319-383.

[18] Pieter Spooren, Bert Brockx, and Dimitri Mortelmans, "On the validity of student evaluation of teaching: The state of the art," *Review of Educational Research* 83, no. 4 (2013): 598-642, https://doi.org/10.3102/0034654313496870.

[19] Rowan E. Bedggood and Jerome D. Donovan, "University performance evaluations: what are we really measuring?" *Studies in Higher Education* 37, no. 7 (2012): 825-842, https://doi.org/10.1080/03075079.2010.549221.

[20] Dennis. E. Clayson, "Student evaluations of teaching: are they related to what students learn? A meta-analysis and review of the literature," *Journal of Marketing Education* 31, no. 1 (2009): 16-30, https://doi.org/10.1177/0273475308324086.

addressed the reliability, stability, and validity of the questionnaires in search of more valid and reliable SET instruments that will, therefore, help increase the trust in SET results.[21] Likewise, published SET literature has largely examined the possible influence of potential biasing factors in student evaluations (e.g., gender, race, ethnicity, culture) and how they may affect SET results interpretation.[22,23] Other studies compared SET results when evaluations were collected in-class with those gathered using online methods,[24,25] others have used student ratings to benchmark universities,[26] while others have attempted to identify "motivators, barriers, and strategies to improve response rate to student evaluation of teaching".[27]

Despite this richness of teaching evaluation literature, the majority of studies either rely on case studies or small cross-sectional data sample sizes obtained from one academic year.[28] In this regard, considering a longitudinal framework is crucial to investigate teachers' performance across years.[29] Despite the existence of several SET studies that have used longitudinal data

---

[21] Jing Zhao and Dorinda J. Gallant, "Student evaluation of instruction in higher education: Exploring issues of validity and reliability," *Assessment & Evaluation in Higher Education* 37, no. 2 (2012): 227-235, https://doi.org/10.1080/02602938.2010.523819.

[22] Yanan Fan, L. J. Shepherd, E. Slavich, D. Waters, M. Stone, M., R. Abel, and E. L. Johnston, "Gender and cultural bias in student evaluations: Why representation matters," *PLoS ONE* 14, no. 2 (2019): e0209749, https://doi.org/10.1371/journal.pone.0209749.

[23] Thi Thu Trang Tran and Truong Xuan Do, "Student evaluation of teaching: do teacher age, seniority, gender, and qualification matter?" *Educational Studies*, (2020). https://doi.org/10.1080/03055698.2020.1771545.

[24] Rosemary J. Avery, Keith Bryant, Alan Mathios, Hyojin Kang, and Duncan Bell, "Electronic course evaluations: does an online delivery system influence student evaluations?" *The Journal of Economic Education* 36, no. 1 (2006): 21-37, https://doi.org/10.3200/JECE.37.1.21-37.

[25] Yesim Capa-Aydin, "Student evaluation of instruction: comparison between in-class and online methods," *Assessment & Evaluation in Higher Education* 41, no. 1 (2016): 112-126, https://doi.org/10.1080/02602938.2014.987106.

[26] Cheng and Marsh, "UK National Student Survey: Are differences between universities and courses reliable and meaningful," *Oxford Review of Education* 36, no. 6 (2010): 693-712, <https://doi.org/10.1080/030549 85.2010.491179>.

[27] Catherine Cone, Velliyur Viswesh, Vasudha Gupta, and Elizabeth Unni, "Motivators, barriers, and strategies to improve response rate to student evaluation of teaching," *Currents in Pharmacy Teaching and Learning* 10, no. 12 (2018): 1543-1549, https://doi.org/10.1016/j.cptl.2018.08.020.

[28] Yanan Fan, L. J. Shepherd, E. Slavich, D. Waters, M. Stone, M., R. Abel, and E. L. Johnston, "Gender and cultural bias in student evaluations: Why representation matters," *PLoS ONE* 14, no. 2 (2019): e0209749, https://doi.org/10.1371/journal.pone.0209749.

[29] Silvia Bacci, "Longitudinal data: Different approaches in the context of item-response theory models," *Journal of Applied Statistics* 39, no. 9 (2012): 2047-2065, https://doi.org/10.1080/02664763.2012.700451.

to assess teachers' ratings over the years (e.g.,[30,31,32]), there is still a need for more long-term longitudinal studies to track and analyse the ratings of the same cohort of teachers over extended periods.[33] Specifically, the year-by-year analysis of the ratings obtained by a teacher in a particular subject might provide teachers with useful insights on how their teaching performance is perceived by their students with the close experience of having taught the subject for another year, helping them to identify their strengths or weaknesses in their way of teaching in the short term,[34,35] thus allowing lecturers to prepare the subject in a better way.[36] In particular, focusing more specifically on those teaching components in which instructors' ratings significantly increase from year to year might contribute to a better understanding of the path to teaching excellence (see Jones,[37] for an overview of how to measure the quality of higher education when linked to teaching quality measures).

However, and to our best knowledge, no studies have specifically analysed the year-by-year behaviour of those SET items and dimensions in

[30] Herbert W. Marsh and Lawrence A. Roche, "Effects of grading leniency and low workload on students' evaluations of teaching: Popular myth, bias, validity, or innocent bystanders?" *Journal of Educational Psychology* 92, no. 1 (2000): 202-228, https://doi.org/10.1037/0022-0663-92.1.202.

[31] Herbert W. Marsh, "Do university teachers become more effective with experience? A multilevel growth model of students' evaluations of teaching over 13 years," *Journal of Educational Psychology* 99, no. 4 (2007b): 775-790, https://doi.org/10.1037/0022-0663.99.4.775.

[32] Isabella Sulis, Mariano Porcu, and Vincenza Capursi, "On the Use of Student Evaluation of Teaching: A Longitudinal Analysis Combining Measurement Issues and Implications of the Exercise," *Social Indicators Research* 142, (2019): 1305-1331, https://doi.org/10.1007/s11205-018-1946-8.

[33] Herbert W. Marsh, "Do university teachers become more effective with experience? A multilevel growth model of students' evaluations of teaching over 13 years," *Journal of Educational Psychology* 99, no. 4 (2007b): 775-790, https://doi.org/10.1037/0022-0663.99.4.775.

[34] Sarah. J. Stein, Dorothy Spiller, Stuart Terry, Trudy Harris, Lynley Deaker, and Jo Kennedy, *Unlocking the impact of tertiary teachers' perceptions of student evaluation of teaching Wellington*, New Zealand: Ako Aotearoa National Centre for Tertiary Teaching Excellence, 2012.

[35] Paul W. G. Surgenor, "Obstacles and opportunities: Addressing the growing pains of summative student evaluation of teaching," *Assessment & Evaluation in Higher Education* 38, (2013): 363-376, https://doi.org/10.1080/02602938.2011.635247.

[36] Magdalena Cladera, "Let's ask our students what really matters to them," *Journal of Applied Research in Higher Education* 13, no. 1 (2021): 112-125, https://doi.org/10.1108/JARHE-07-2019-0195.

[37] Sandra Jones, "Measuring the quality of higher education: Linking teaching quality measures at the delivery level to administrative measures at the university level," *Quality in Higher Education* 9, no. 3 (2003): 223-229, https://doi.org/10.1080/1353832032000151094.

which teachers' ratings increase significantly. Therefore, this exploratory study aimed to increase knowledge on the SET topic by examining major increases in teachers' performance evaluations and its immediate impact on next year's score for those instructors that taught the same course or subject for at least two years in a row. Specifically, this paper had a twofold aim. Firstly, to identify those SET survey items associated with major increases in teacher evaluations of a particular subject. Secondly, to examine if there is evidence of the use of these SET results by instructors to improve their teaching when analysing the SET ratings behaviour in the years before and after the major increase occurred.

II. Method

II.1. Sample

The SET surveys of a public university (Madrid, Spain) over five consecutive years were analysed. Teachers were evaluated each year in all subjects and groups taught. For the study, the evaluations of all the groups corresponding to the same teacher, subject and year were grouped. A total number of 13,052 teacher evaluations was obtained from the 21 departments of all the different faculties. The average number of questionnaires collected per subject evaluated was 40.8. The pairs of evaluations corresponding to the same teacher and subject in two consecutive years were then selected for a total of 3,893 pairs of evaluations under analysis.

II.2. Instrument

The instrument for collecting students' evaluations was the standard used by the university. The researchers did not participate in any way in its development. The questionnaire consisted of ten questions grouped into three dimensions defined a priori: planning and organisation of the subject, teacher obligations and teaching methodology. In addition to the last question in which the students' overall satisfaction with the teacher is collected. All questions were formulated in terms of the degree of agreement of the students with different statements about various aspects of teaching. Responses were given on a 5-point Likert scale that ranged from "Strongly disagree" (1 on the scale) to "Strongly agree" (5 on the scale). Table 1 presents the dimensions captured by the instrument and the items included. It also includes a series of identification codes for each dimension and for each item that are used to more easily display the results of the analysis.

Table 1

Survey items and dimensions captured
by the instrument for collecting students' feedback

Dimension	Survey items	Id code
Planning and organisation (PO)		
	The teacher explains in detail to the students the teaching guide of the subject at the beginning of the course	PO1
	The teacher has informed clearly about the assessment criteria of the subject	PO2
	The teacher, in addition to the face-to-face classes, has planned complementary activities (e.g., problem-solving, readings, practical exercises) that facilitate the learning of the subject	PO3
Teacher obligations (TO)		
	The teacher respects the class schedules	TO1
	The teacher is available to attend to the students	TO2
	Teaching activities to meet the objectives, contents and methodology specified in the teaching guide of the subject	TO3
Teaching methodology (TM)		
	The teacher adequately clarifies the doubts of the different activities proposed in the subject	TM1
	The teacher explains clearly	TM2
	The development of the subject allows me adequate monitoring and learning	TM3
Overall satisfaction (OS)		
	Taking into account all the aspects mentioned, I am satisfied with the work carried out by the teacher	OS

II.3. *Procedure*

The procedure for obtaining student feedback was in a face-to-face classroom setting. The evaluations of the subjects of a single term duration were carried out at the end of each term immediately prior to the start of the examination period. The evaluations of the subjects of annual duration were

collected at the end of the second term. A survey team provided a questionnaire to each student containing the instructions and the survey questions along with optical reading sheets in which the students fill in the answers. No data were requested to allow the identification of the students. An optical mark reader software was used to scan the answers automatically (Dara Optical Mark Reader, Dara Group, Spain). The research complied both with the ethical principles of research of the university where the research was conducted and with the Ethical Guidelines for Educational Research published by the British Educational Research Association (BERA, fourth edition, 2018).[38] Collected data did not allow the identification of the teacher or the students nor did it require consent because data had already been collected for administrative purposes by the University and no intervention was conducted, thus guaranteeing compliance with internationally recognized scientific legislation and protocols advocating for the generation, dissemination, and application of research results for the scientific, technical and cultural development of society.[39]

II.4. Statistical analysis

The study aimed to analyse major increases in teachers' performance evaluations corresponding to the same teacher and subject in two consecutive years. In the first phase of the analysis, the pairs of evaluations susceptible to comparison were selected by calculating the difference in scores for each item and the average score thereof. In a second phase, the pairs of evaluations with an increase in the score were classified, both in average terms and for each item. The 95% percentile of the differences between the ratings obtained by the teachers in the subjects in two consecutive years was the cut-off point for the consideration of major increases.

To analyse the association of the survey items with major increases, these were classified into two types: average and isolated. Those evaluations that experienced a major average increase in the overall rating (i.e. when considering all the survey items) were classified as major average increases. Those evaluations in which there was a major increase in at least one of the items but did not produce a major average increase were identified as isolated major increases. To determine the relationships between major increases

---

[38] British Educational Research Association (BERA), *Ethical Guidelines for Educational Research* (London: BERA, 2018).
[39] UK Data Service, "Consent for data sharing," 2022, https://ukdataservice.ac.uk/learning-hub/research-data-management/ethical-issues/consent-for-data-sharing/.

(average and isolated) and the items in the questionnaire, the frequencies of occurrence were obtained. For examining the evidence of the use of SET results by instructors, a single mean value for each assessment in the years before and after the major increase was considered. The Student's t-test of the difference between average scores of paired data was computed. Special attention was paid to the behaviour of the scores in the year after the major increase in relation to the two previous years. That case-by-case comparison was impossible when the teacher did not teach the same subject the year after the major increase. Therefore, in these cases, the unpaired t-test was used. The statistical package SPSS (v21.0, IBM Corporation, USA) was used for analysis.

III. Results

III.1. *Association of the survey items with major increases*

The values from which 50%, 75%, 90%, 95% and 99% (percentiles) of the differences in the evaluations of the teachers and subject ratings in consecutive years are presented in Table 2. The values are presented for each questionnaire item, for the set of ten items and the mean score of all the items. The cut-off points for selecting the major increases were 0.855 for the set of all questions and 0.975 for the mean values. A first approximation shows TO1, TM2, TM3 and OS as the items in which the greatest differences occur. The 2,107 questions that exceeded these limits referred to 567 different pairs of teacher and subject ratings, of which 194 were significant average increases.

Table 2
Percentiles of differences in the teacher ratings in consecutive years

Survey item	P50%	P75%	P90%	P95%	P99%
PO1	0.06	0.38	0.73	0.96	1.5
PO2	0.06	0.37	0.72	0.97	1.46
PO3	0.04	0.39	0.74	0.99	1.5
TO1	0.03	0.36	0.71	1.01	1.69
TO2	0.02	0.32	0.65	0.88	1.46
TO3	-0.01	0.28	0.6	0.80	1.40
TM1	0.03	0.35	0.71	0.95	1.53

Survey item	P50%	P75%	P90%	P95%	P99%
TM2	0.03	0.37	0.75	1.00	1.54
TM3	0.07	0.40	0.75	1.03	1.53
OS	0.02	0.37	0.75	1.06	1.65
Set of ten items	0.03	0.32	0.63	0.86	1.4
Mean of all items	0.03	0.36	0.71	0.97	1.53

The percentage of items in which there was a major increase is presented in Table 3. Regarding isolated major increases, the items that appeared most frequently were PO3 (i.e., the teacher plans complementary activities that facilitate the learning of the subject) and TO1 (i.e., compliance with class schedules), with 25% and 27% respectively. Conversely, the items that showed the lowest frequencies were TO3 (i.e., teaching activities to meet the specifications of the teaching guide of the subject), TO2 (i.e., the teacher is available to attend to the students) and TM1 (i.e., the teacher clarifies the doubts properly), with 4%, 9% and 10% respectively. A more in-depth analysis showed that isolated major increases typically occurred in one (61.7%) or two (22.3%) of the questionnaire items, with items belonging to the dimensions of planning and organisation (PO) and teacher obligations (TO) showing the highest frequency of occurrence. In particular, items PO3 and TO1 accumulated the highest frequency when major increases occurred specifically in one item (reaching figures of 37.0% and 35.2% respectively). Interestingly and conversely, items PO3 and TO1 were among the three items that appeared less frequently among major average increases (57% and 56% respectively). Items relating to teaching methodology (TM dimension) showed the lower frequencies among isolated major increases.

With respect to the major average increases, all items showed frequencies of occurrence above 50%. When a major average increase occurred, major increases occurred in at least four survey items (6.8 items on average). Specifically, in 19% of cases, major increases occurred in all the items of the questionnaire. The three items that appeared most frequently among major average increases were those related to teaching methodology (i.e., TM1, TM2, TM3), all above 70%. Major average increases were strongly associated with the item that retrieved the students' overall satisfaction (OS item). In 87% of the cases in which there was a major average increase, there was also a major increase in this item. Interestingly, the item related to the teacher's compliance with the activity specifications as stipulated in the teaching guide

(TO3 item) showed the lowest frequency of occurrence both for isolated major increases (4%) and major average increases (55%).

Table 3

Percentage of items in which there was a major increase by type

Survey item	Isolated major increases	Major average increases	All increases
PO1	17%	64%	33%
PO2	16%	68%	34%
PO3	25%	57%	36%
TO1	27%	56%	37%
TO2	9%	60%	26%
TO3	4%	55%	21%
TM1	10%	75%	32%
TM2	18%	74%	37%
TM3	16%	83%	39%
OS	19%	87%	42%

III.2. *Evidence of the use of SET results by teachers*

The case-by-case comparison in the year after the major increase yielded the following results. In 36% of the cases the score obtained in the year after the major increase continued to rise, with teachers obtaining even better ratings (mean score differences greater than zero; mean difference = 0,46, standard deviation SD = 0,40, paired t-test p-value < 0.0001). In the rest of the cases (64%), the scores obtained the year after the major increase went down, showing mean score differences significantly lower than zero (mean difference = –0.50, SD = 0.37, paired t-test p-value < 0.0001) but significantly above the scores obtained in the course prior to the major increase (mean difference = 0.82, SD = 0.46, paired t-test p-value < 0.0001). Overall, the year after the major increase almost all teachers (95.7%) obtained an average score higher than that of the year prior to it.

Regarding the comparison between the year after the major increase and the set of all scores, the results showed that the average of the scores was significantly lower than that of the set of all scores (mean difference = –0.23, SD = 0.67, independent samples t-test p-value < 0.0001). That is, the highest

scores are obtained the year of the major increase. Besides, the scores obtained the year before showed lower values than those obtained in the subsequent year. These scores are also lower than those of the set of evaluations in which no major increases were detected.

IV. Discussion

To the best of our knowledge, this was the first study to specifically examine major increases in teachers' performance evaluations and their immediate impact on next year's score based on evidence from SET surveys.

The results of the analysed SET instrument highlighted the three items captured by the dimension of teaching methodology as those most closely tied to major average increases. Even though there is no single definition of its scope, teaching methodology is understood as the "set of strategies, procedures and actions consciously and thoughtfully organised and planned by teachers to guarantee student learning and the attainment of the stated objectives".[40] It is precisely this conscious action by teachers when implementing the most appropriate strategies, procedures and actions that the literature has highlighted about the importance of SET scores to promote teachers' self-reflection on their teaching quality and ability for teaching improvement purposes.[41,42,43]

These findings suggest the possible existence of a strong relationship between the extent to which students rate those SET survey aspects regarding teaching methodology and their degree of satisfaction with the teacher. Accordingly, focusing specifically on those teaching components in which instructors' ratings significantly increase from year to year, beyond the specific scores obtained, could contribute to deciphering the pathway towards excellence in teaching and learning, bringing with it the consequent benefit for students, teachers, institutions and society as a whole. Very

---

[40] Eurydice, "Teaching and learning in Primary Education. European Commission, Education Information Network in Europe," 2020, https://eacea.ec.europa.eu/national-policies/eurydice/content/teaching-and-learning-primary-education-42_en.

[41] Cecilia. K. Y. Chan, Lillian Y. Y. Luk, and Min Zeng, "Teachers' perceptions of student evaluations of teaching," *Educational Research and Evaluation* 20, no. 4 (2014): 275-289, https://doi.org/10.1080/13803611.2014.932698.

[42] Beatrice Tucker, Sue Jones, Leon Straker, and Joan Cole, "Course evaluation on the web: Facilitating student and teacher reflection to improve learning," *New Directions for Teaching and Learning* 96, (2003): 81-94, http://dx.doi.org/10.1002/tl.125.

[43] Yuankun Yao and Marilyn Grady, "How do faculty make formative use of student evaluation feedback? A multiple case study," *Journal of Personnel Evaluation in Education* 18, (2005): 107-126, https://doi.org/10.1007/s11092-006-9000-9.

interestingly, Beran and Rokosh[44] found that SET scores were used to a lesser extent to make choices about course textbooks, exams, and student assignments. Three particular aspects that are more related to the design of the subject or course rather than to how the subject is taught. These findings would be in line with the results of the present study and would suggest that the aspects related to the dimension of planification and organisation of the subject are less important in the general perception of student satisfaction than the specific actions carried out by the teacher (i.e. teaching methodology).

Regarding the isolated increases and together with the above, the results showed that it was less frequent to find isolated major increases in the items relative to the dimension of teaching methodology. This ratifies the idea that when there is a major increase in the items related to teaching methodology, the overall satisfaction of the student with the teacher increases, causing a drag effect on the rest of the items. Isolated major increases were mainly associated with items related to the dimensions of teacher obligations (TO) and planning and organisation (PO). In particular, items TO3 (i.e., teaching activities to meet the specifications of the teaching guide of the subject), TO2 (i.e., the teacher is available to attend to the students) and TM1 (i.e., the teacher clarifies the doubts properly) rarely appeared alone in isolated increases, nor did they show a strong association with major average increases. This could be an indicator that the scores of some of the different aspects of teaching are being differentiated and might refer to aspects of teaching that are less important for the students' general satisfaction.

Regarding the analysis of the scores when examining the previous year and the year following a major increase, the results showed that major increases generally started from scores below the set of evaluations in which no major increases were detected in the previous year. However, these increases were not consolidated in the year following the major increase. Most of the teachers lowered their scores the year after a major increase occurred, both for the teachers who improved or lowered their ratings. Although this is not incompatible with a possible reaction of the teaching staff to the feedback of their students for improving the teaching of a particular subject in the following academic year, this could also be due to natural variations in SET scores (that is, major increases would result from the combination of a low score in one year and a high score in the following

---

    44 Tanya N. Beran and Jeniffer L. Rokosh, "Instructor's perspectives on the utility of student ratings of instruction," *Instructional Science* 37, (2009): 171-184, https://doi.org/10.1007/s11251-007-9045-2.

118

year, without any of these scores being exceptional). Previous research analysing teachers' attitudes and reactions toward SET results has found conflicting results, covering the entire range from total acceptance to the strongest opposition.[45,46]

On the one hand, research has found instructors who recognise the importance of SETs and who consider that the systematic feedback they receive year on year from their students constitutes a very valuable and useful tool for the improvement of teaching (e.g.,[47,48]) and thus better learning for students.[49,50] Specifically, in a study investigating teachers' attitudes about SET ratings from a sample of 357 teachers conducted at a Canadian university by Beran and Rokosh,[51] the authors found that the teachers considered SET results to be most useful "for improving general teaching quality, for refining overall instruction, and for improving lectures". In this particular sense and very interestingly, a longitudinal study on the impact of lecturers reflective practices as an essential aspect of professional development found that SET scores increased for all reflective teachers year after year and, more significantly for instructors who showed higher levels of reflection.[52] In light of the results of the present research, this would suggest that the premise on the required level of reflection was

[45] Nasser, Fadia, and Barbara Fresko. "Faculty views of student evaluation of college teaching." *Assessment & Evaluation in Higher Education*, 27, no. 2 (2002): 187-198. https://doi.org/10.1080/02602930220128751

[46] Arthur, Linet. "From performativity to professionalism: Lecturer's responses to student feedback." *Teaching in Higher Education*, 14, (2009): 441-454. https://doi.org/10.1080/13562510903050228

[47] Nasser, Fadia, and Barbara Fresko. "Faculty views of student evaluation of college teaching." *Assessment & Evaluation in Higher Education*, 27, no. 2 (2002): 187-198. https://doi.org/10.1080/02602930220128751

[48] Surgenor, P. W. G. "Obstacles and opportunities: Addressing the growing pains of summative student evaluation of teaching." *Assessment & Evaluation in Higher Education*, 38, (2013): 363-376. https://doi.org/10.1080/02602938.2011.635247

[49] Ballantyne, Roy, Jill Borthwick, and Jan Packer. "Beyond student evaluation of teaching: Identifying and addressing academic staff development needs." *Assessment & Evaluation in Higher Education*, 25, no. 3 (2000): 221-236. https://doi.org/10.1080/713611430

[50] Zhao, Jing, and Dorinda J. Gallant. "Student evaluation of instruction in higher education: Exploring issues of validity and reliability." *Assessment & Evaluation in Higher Education*, 37, no. 2 (2012): 227-235. https://doi.org/10.1080/02602938.2010.523819

[51] Tanya N. Beran and Jeniffer L. Rokosh, "Instructor's perspectives on the utility of student ratings of instruction," *Instructional Science* 37, (2009): 171-184, https://doi.org/10.1007/s11251-007-9045-2.

[52] Tiffany M. Winchester and Maxwell Winchester, "A longitudinal investigation of the impact of faculty reflective practices on students' evaluations of teaching," *British Journal of Educational Technology* 45, no. 1 (2014): 11-124, https://doi.org/10.1111/bjet.12019.

not fulfilled. However, more research would be needed on this regard (e.g., qualitative research to investigate the possible relations between instructors' beliefs, thoughts or beliefs about their experiences with SET major increases).

On the other hand, teachers that show negative attitudes towards the use of SETs for the improvement of their teaching mainly argue that the aspects covered in the evaluations do not reflect their perceptions of good teaching (e.g.,[53,54,55]), therefore making them consider SET results of low or null utility for refining instruction and thus making little or no use of student feedback.[56] Nevertheless, and to a certain extent paradoxically, some of these same studies[57,58,59] have observed a general recognition by teachers of the suitability and usefulness of SET surveys for other purposes such as administrative decision-making or institutional integrity assessment. In this regard, previous research argued that teachers' response to students' feedback is a complex process involving multiple factors (e.g., teachers' background and experience, teacher's personality, students' characteristics, teaching strategies used) that is influenced by instructors' perceptions, beliefs and feelings[60] and that, ultimately, is more related to the teachers' desire and ability for change than to the

---

[53] Peter Burden, "Does the end of semester evaluation forms represent teacher's views of teaching in a tertiary education context in Japan?" *Teaching and Teacher Education* 24, no. 6 (2008): 1463-1475, https://doi.org/10.1016/j.tate.2007.11.012.

[54] Peter Burden, "Creating confusion or creative evaluation? The use of student evaluation of teaching surveys in Japanese tertiary education," *Educational Assessment, Evaluation and Accountability* 22, (2010): 97-117, https://doi.org/10.1007/s11092-010-9093-z.

[55] Paul W. G. Surgenor, "Obstacles and opportunities: Addressing the growing pains of summative student evaluation of teaching," *Assessment & Evaluation in Higher Education* 38, (2013): 363-376, https://doi.org/10.1080/02602938.2011.635247.

[56] Fadia Nasser and Barbara Fresko, "Faculty views of student evaluation of college teaching," *Assessment & Evaluation in Higher Education* 27, no. 2 (2002): 187-198, https://doi.org/10.1080/02602930220128751.

[57] Peter Burden, "Does the end of semester evaluation forms represent teacher's views of teaching in a tertiary education context in Japan?" *Teaching and Teacher Education* 24, no. 6 (2008): 1463-1475, https://doi.org/10.1016/j.tate.2007.11.012.

[58] Peter Burden, "Creating confusion or creative evaluation? The use of student evaluation of teaching surveys in Japanese tertiary education," *Educational Assessment, Evaluation and Accountability* 22, (2010): 97-117, https://doi.org/10.1007/s11092-010-9093-z.

[59] Fadia Nasser and Barbara Fresko, "Faculty views of student evaluation of college teaching," *Assessment & Evaluation in Higher Education* 27, no. 2 (2002): 187-198, https://doi.org/10.1080/02602930220128751.

[60] Arthur Linet, "From performativity to professionalism: Lecturer's responses to student feedback," *Teaching in Higher Education* 14, (2009): 441-454, https://doi.org/10.1080/13562510903050228.

belief in the usefulness of SETs.[61] In this sense and very interestingly, Hendry, Lyon and Henderson-Smart[62] observed from a survey of 121 lecturers covering student feedback over two years that those teachers implementing the "conceptual-change student-focused (CCSF) approach" in their classes (i.e., the CCSF approach was described by Prosser and Trigwell[63] in 1999 as a teaching approach in which teachers see students as active builders of their knowledge, being their role as teachers to help them in them in the process) were more responsive to the use of student feedback as guidance to improve their teaching. Given the large number of teachers considered in the present study and the diversity of subjects taught, it is expected to find all kinds of teachers' profiles and attitudes so that the explanations of the results obtained from the teacher evaluations could respond to different reasons. However, it seems that they do not respond to the expected patterns that would allow us to assert that major increases are mainly due to the reaction from teachers to SET ratings.

Overall, the results of the study contributed to a better understanding of the behaviour of major increases in SET ratings for those teachers that taught the same course or subject for at least two years in a row. The main results highlighted the three SET survey items captured by the dimension of teaching methodology as those most closely related to major increases in teacher evaluations and that there is no generalised response from teachers who experience major increases in SET ratings. However, and as is common in studies based on SET surveys, care must be taken when interpreting and extrapolating the results to other university educational contexts. Accordingly, as in all research, the findings of the present study should be interpreted based on a series of limitations. The instrument for collecting students' evaluations was not of those of standardised use in the international context and the items of which it was composed were grouped into three dimensions defined a priori. The study draws its sample from multiple years of a single institution (Spanish university, 5-year period). Also, further explanations for SET score changes, such as university administration's manipulation of

---

[61] Fadia Nasser and Barbara Fresko, "Faculty views of student evaluation of college teaching," *Assessment & Evaluation in Higher Education* 27, no. 2 (2002): 187-198, https://doi.org/10.1080/02602930220128751.

[62] Graham D. Hendry, Patricia M. Lyon, and Cheryl Henderson-Smart, "Teachers' approaches to teaching and responses to student evaluation in a problem-based medical program," *Assessment and Evaluation in Higher Education* 32, no. 2 (2007): 143-157, https://doi.org/10.1080/02602930600801894.

[63] Michael Prosser and Keith Trigwell, *Understanding Learning and Teaching: The experience in higher education*, SRHE and Open University Press: Buckingham, 1999.

courses arrangement, faculty competition, or tenure-track pressure, cannot be discarded. Thus, future research directions could further explore major score changes in teachers' performance evaluations trying (i.e., not only major increases but major dropdowns) to account for these potential limitations within the perspective of new multidimensional, long-term longitudinal and longitudinal international studies. Particularly and according to the aim of the present study, focusing specifically on those teaching components in which instructors' ratings significantly increase from year to year could contribute to deciphering the pathway towards excellence in teaching and learning, bringing with it the consequent benefit for students, teachers and institutions.

Bibliography

Arthur, Linet. "From performativity to professionalism: Lecturer's responses to student feedback." *Teaching in Higher Education* 14, (2009): 441-454. https://doi.org/10.1080/13562510903050228.

Avery, Rosemary J., Keith Bryant, Alan Mathios, Hyojin Kang, and Duncan Bell. "Electronic course evaluations: does an online delivery system influence student evaluations?" *The Journal of Economic Education* 36, no. 1 (2006): 21-37. https://doi.org/10.3200/JECE.37.1.21-37.

Bacci, Silvia. "Longitudinal data: Different approaches in the context of item-response theory models." *Journal of Applied Statistics* 39, no. 9 (2012): 2047-2065. https://doi.org/10.1080/02664763.2012.700451.

Ballantyne, Roy, Jill Borthwick, and Jan Packer. "Beyond student evaluation of teaching: Identifying and addressing academic staff development needs." *Assessment & Evaluation in Higher Education* 25, no. 3 (2000): 221-236. https://doi.org/10.1080/713611430.

Bedggood, Rowan E., and Jerome D. Donovan. "University performance evaluations: what are we really measuring?" *Studies in Higher Education* 37, no. 7 (2012): 825-842. https://doi.org/10.1080/03075079.2010.549221.

Beran, Tanya. N., and Jeniffer L. Rokosh. "Instructor's perspectives on the utility of student ratings of instruction". *Instructional Science* 37, (2009): 171-184. https://doi.org/10.1007/s11251-007-9045-2.

Bolivar, Senior. "Student teaching evaluations: Options and concerns." *Journal of Construction Education* 5, no. 1 (2000): 20-29.

British Educational Research Association (BERA). *Ethical Guidelines for Educational Research*. (London: BERA, 2018).

Burden, Peter. "Does the end of semester evaluation forms represent teacher's views of teaching in a tertiary education context in Japan?" *Teaching and Teacher Education* 24, no. 6 (2008): 1463-1475. https://doi.org/10.1016/j.tate.2007.11.012.

Burden, Peter. "Creating confusion or creative evaluation? The use of student evaluation of teaching surveys in Japanese tertiary education." *Educational*

Assessment, Evaluation and Accountability 22, (2010): 97-117. https://doi.org/10.1007/s11092-010-9093-z.

Capa-Aydin, Yesim. "Student evaluation of instruction: comparison between in-class and online methods." *Assessment & Evaluation in Higher Education* 41, no. 1 (2016): 112-126. https://doi.org/10.1080/02602938.2014.987106.

Chan, Cecilia. K. Y., Lillian Y. Y. Luk, and Min Zeng. "Teachers' perceptions of student evaluations of teaching." *Educational Research and Evaluation* 20, no. 4 (2014): 275-289. https://doi.org/10.1080/13803611.2014.932698.

Cheng, Jacqueline. H. S., and Herbert W. Marsh. "UK National Student Survey: Are differences between universities and courses reliable and meaningful." *Oxford Review of Education* 36, no. 6 (2010): 693-712. https://doi.org/10.1080/03054985.2010.491179.

Cladera, Magdalena. "Let's ask our students what really matters to them." *Journal of Applied Research in Higher Education* 13, no. 1 (2021): 112-125. https://doi.org/10.1108/JARHE-07-2019-0195.

Clayson, Dennis. E. "Student evaluations of teaching: are they related to what students learn? A meta-analysis and review of the literature." *Journal of Marketing Education* 31, no. 1 (2009): 16-30. https://doi.org/10.1177/0273475308324086.

Cone, Catherine., Velliyur Viswesh, Vasudha Gupta, and Elizabeth Unni. "Motivators, barriers, and strategies to improve response rate to student evaluation of teaching." *Currents in Pharmacy Teaching and Learning* 10, no. 12 (2018): 1543-1549. https://doi.org/10.1016/j.cptl.2018.08.020.

Eurydice. "Teaching and learning in Primary Education. European Commission, Education Information Network in Europe." 2020. https://eacea.ec.europa.eu/national-policies/eurydice/content/teaching-and-learning-primary-education-42_en.

Fan, Y., L. J. Shepherd, E. Slavich, D. Waters, M. Stone, M., R. Abel, and E. L. Johnston. "Gender and cultural bias in student evaluations: Why representation matters." *PLoS ONE* 14, no. 2 (2019): e0209749. https://doi.org/10.1371/journal.pone.0209749.

Hendry, Graham D., Patricia M. Lyon, and Cheryl Henderson-Smart. "Teachers' approaches to teaching and responses to student evaluation in a problem-based medical program". *Assessment and Evaluation in Higher Education* 32, no. 2 (2007): 143-157. https://doi.org/10.1080/02602930600801894.

Johnson, Rachel. "The authority of the student evaluation questionnaire." *Teaching in Higher Education* 5, no. 4 (2000): 419-434. https://doi.org/10.1080/713699176.

Jones, Sandra. "Measuring the quality of higher education: Linking teaching quality measures at the delivery level to administrative measures at the university level." *Quality in Higher Education* 9, no. 3 (2003): 223-229. https://doi.org/10.1080/1353832032000151094.

Kulik, James A. "Student ratings: Validity, utility and controversy". *New Directions for Institutional Research* 27, (2002): 9-25. http://dx.doi.org/10.1002/ir.1.

Marsh, Herbert W. "Students' evaluations of university teaching: Dimensionality, reliability, validity, potential biases and usefulness." In *The scholarship of*

teaching and learning in higher education: An evidence-based perspective, ed. R. P. Perry and J. C. Smart (New York: Springer, 2007a), 319-383.

Marsh, Herbert W. "Do university teachers become more effective with experience? A multilevel growth model of students' evaluations of teaching over 13 years." *Journal of Educational Psychology* 99, no. 4 (2007b): 775-790. https://doi.org/10.1037/0022-0663.99.4.775.

Marsh, Herbert W., and L. A. Roche. "Effects of grading leniency and low workload on students' evaluations of teaching: Popular myth, bias, validity, or innocent bystanders?" *Journal of Educational Psychology* 92, no. 1 (2000): 202–228. https://doi.org/10.1037/0022-0663.92.1.202.

Moreno-Murcia, Juan Antonio, Yolanda Silveira, and Noelia Belando. "Questionnaire Evaluating Teaching Competencies in the University Environment. Evaluation of Teaching Competencies in the University." *Journal of New Approaches in Educational Research* 4, no. 1, (2015), 54-61. https://doi.org/10.7821/naer.2015.1.106.

Nasser, Fadia, and Barbara Fresko. "Faculty views of student evaluation of college teaching." *Assessment & Evaluation in Higher Education* 27, no. 2 (2002): 187-198. https://doi.org/10.1080/02602930220128751.

Ory, John C. "Faculty thoughts and concerns about student ratings." *New Directions for Teaching and Learning* 87, (2001): 3-15. http://dx.doi.org/10.1002/tl.23.

Roche, Lawrence A., and Herbert W. Marsh. "Multiple dimensions of university teacher self-concept." *Instructional Science* 28, (2000): 439-468. http://dx.doi.org/10.1023/A:1026576404113.

Spooren, Pieter, Bert Brockx, and Dimitri Mortelmans. "On the validity of student evaluation of teaching: The state of the art." *Review of Educational Research* 83, no. 4 (2013): 598-642. https://doi.org/10.3102/0034654313496870.

Stein, Sarah. J., Dorothy Spiller, Stuart Terry, Trudy Harris, Lynley Deaker, and Jo Kennedy. *Unlocking the impact of tertiary teachers' perceptions of student evaluation of teaching* Wellington, New Zealand: Ako Aotearoa National Centre for Tertiary Teaching Excellence, 2012.

Sulis, Isabella, Mariano Porcu., and Vincenza Capursi. "On the Use of Student Evaluation of Teaching: A Longitudinal Analysis Combining Measurement Issues and Implications of the Exercise." *Social Indicators Research* 142, (2019): 1305-1331. https://doi.org/10.1007/s11205-018-1946-8.

Surgenor, P. W. G. "Obstacles and opportunities: Addressing the growing pains of summative student evaluation of teaching." *Assessment & Evaluation in Higher Education* 38, (2013): 363-376. https://doi.org/10.1080/02602938.2011.635247.

Tran, Thi Thu Trang, and Truong Xuan Do. "Student evaluation of teaching: do teacher age, seniority, gender, and qualification matter?" *Educational Studies,* (2020). https://doi.org/10.1080/03055698.2020.1771545.

Tucker, Beatrice, Sue Jones, Leon Straker, and Joan Cole. "Course evaluation on the web: Facilitating student and teacher reflection to improve learning." *New Directions for Teaching and Learning* 96, (2003): 81-94. http://dx.doi.org/10.1002/tl.125.

Winchester, Tiffany. M., and Maxwell Winchester. "A longitudinal investigation of the impact of faculty reflective practices on students' evaluations of teaching." *British Journal of Educational Technology* 45, no. 1 (2014): 11-124. https://doi.org/10.1111/bjet.12019.

Yao, Yuankun, and Marilyn Grady. "How do faculty make formative use of student evaluation feedback? A multiple case study." *Journal of Personnel Evaluation in Education* 18, (2005): 107-126. https://doi.org/10.1007/s11092-006-9000-9.

Zabaleta, Francisco. "The use and misuse of student evaluation of teaching." *Teaching in Higher Education* 12, no. 1 (2007): 55-76. https://doi.org/10.1080/13562510601102131.

Zhao, Jing, and Dorinda J. Gallant. "Student evaluation of instruction in higher education: Exploring issues of validity and reliability." *Assessment & Evaluation in Higher Education* 37, no. 2 (2012): 227-235. https://doi.org/10.1080/02602938.2010.523819.

About the authors

JAIME PRIETO (jaime.prieto@urjc.es) is a lecturer on information and communications technology at the Rey Juan Carlos University (Spain). He holds a PhD by the Technical University of Madrid. His research interests focus on the field of ICT and education, with particular interest to the field of higher education.

ROCÍO GUEDE-CID (rocio.guede@urjc.es) is a lecturer on Mathematics and Statistics at the Rey Juan Carlos University (Spain). She holds a PhD by the Rey Juan Carlos University. Her research interests focus on the field of innovation and assessment in higher education, as well as on the analysis of the technology transfer process.

ANA I. CID-CID (ana.cid@urjc.es) is a senior lecturer on Mathematics and Statistics at the Rey Juan Carlos University (Spain). She holds a PhD in Business and Economics by the Complutense University of Madrid. Her research interests focus on the assessment of both students' and teachers' performance in the higher education context.

SANTIAGO LEGUEY (corresponding author, santiago.leguey@urjc.es), PhD, is a senior lecturer on Mathematics and Statistics at the Rey Juan Carlos University (Spain). His research interests include applied statistics and education, with particular interest to the field of higher education. He is the Chief Manager of the University Center for Applied Social Studies CUESA.

Tourism and hospitality management faculty satisfaction towards flexible learning: A cross-sectional survey from higher educational institutions in Central Luzon, Philippines

John Paul Miranda and Maria Anna D. Cruz*

Abstract: The present study aimed to assess faculty satisfaction on the delivery of tourism and hospitality management programs in the flexible learning mode at the onset of the COVID-19 pandemic. It employed a purposive sampling design where 85 Tourism and Hospitality Management (THM) faculty members, across 27 Higher Education Institutions (HEIs) in the Central Luzon, Philippines, participated. While findings indicate that the faculty members are generally satisfied with the conduct of flexible learning in their institutions, they generally agree on items relating to having higher workloads, longer preparation time for a course, lack of human interaction by not seeing students face-to-face, lower participation of students, technical and connectivity problems, and the need to employ creativity and resourcefulness in the development of learning aids. As the better normal ushers in, flexible learning will still be implemented with the addition of limited face-to-face delivery. As such, faculty members play a vital role in the success of program delivery. That is, when they are satisfied with their conditions, students perform better which leads to better learning and outcome. Effective institutional support services are thus key to ensuring quality flexible learning environments. For continuous improvement, recommended actions should constantly be

---

* **John Paul P. Miranda** (corresponding author, jppmiranda@dhvsu.edu.ph)**,** MIT**,** is an assistant professor at Don Honorio Ventura State University (DHVSU), Mexico Campus in the Philippines, where he is presently the Program Head for International Linkages and Partnerships for the Office for International Partnerships and Programs.

Maria Anna D. Cruz (madcruz@dhvsu.edu.ph), PhD, has recently joined the roster of THM faculty at the Don Honorio Ventura State University (DHVSU), Mexico Campus, Philippines. Her fields of interests include tourism and hospitality management and culinary arts.

More information about the authors is available at the end of this article.

reviewed, modified, and enhanced to respond to uncertainties and the changing times. HEIs need to recalibrate their curriculum grounded on a deeper understanding of flexible learning to address these challenges; capacitate the faculty with innovations available to enhance student engagement; upgrade infrastructure designed to provide timely feedback and to ease out connectivity issues; and lastly, review policies on faculty workload and number of preparations to consider longer preparation time.

Keywords: Faculty satisfaction; flexible learning; tourism and hospitality education; COVID-19; higher education; Philippines.

I. Introduction

Flexible learning has been the norm since March of 2020 following the Philippine Commission on Higher Education's (CHED) pronouncement that the country's education system would adapt the flexible learning approach. This is part of the national government's stringent measures to thwart the still-raging COVID-19 virus and its multiple variants which were proven to be deadlier and more transmissible. In higher learning institutions, although students and teachers may have acclimatized themselves to this sudden shift, the concept of "one-size-fits-all" may not thoroughly apply to tourism and hospitality education. Similar to medical, allied health, engineering, and information technology programs, tourism and hospitality management programs are skills-based. They involve hands-on laboratory activities that cannot be delivered virtually,[1] and require experiential learning,[2] as the Filipino brand of service and hospitality is inculcated to the next generation of tourism professionals.[3]

Concluding one academic year of conducting mostly synchronous and asynchronous modalities of flexible learning for tourism and hospitality management programs, both students and faculty members are rearing to return to their colleges and universities. Flexible learning is defined as an all-encompassing term used to illustrate the design and delivery of programs and learning interventions that accommodates a variety of student needs in terms of learning styles and allows affordances and customizability of the students' learning experiences. The term is often erroneously used and interchanged with other terms such as "open learning," "distance learning," "work-based learning," as well as "e-learning," which are all modalities under flexible

---

[1] De Vera III, "Expansion of Limited Face-to-Face Classes to Other Degree Programs Approved by PRRD - CHED [Press Release]."

[2] Sebby and Brown, "Experiential Learning in Hospitality Management Curriculum: Case Study in Rural Southeast U.S."

[3] Department of Tourism Philippines, "DOT Banners 'Filipino Brand of Service'; Assists over 35,000 Tourists amid Pandemic."

learning as they provide flexibility to learners in relation to where and when they may choose to access content of their lessons as well as how fast or slow they complete a lesson/module. In light of the COVID-19 pandemic, CHED, through memorandum number 4 series of 2020, further reiterates that flexible learning can ensure the inclusivity and accessibility of education to students with the help of digital and non-digital technologies when other modes of learning (i.e., in-classroom learning) are not feasible due to national crisis.[4]

Faculty satisfaction is a fundamental element in the delivery of quality education be it in the traditional face-to-face, limited face-to-face, or flexible learning mode.[5] Stickney et al.[6] further confirm that higher education faculty who teach online are generally satisfied and their satisfaction is found to be linked to suitable training received and the flexibility in terms of schedule. Similarly, Eom and Ashill[7] agree that faculty are a critical factor in the success of online learning. Moreover, Hebert[8] emphasizes that satisfaction of faculty boosts morale which influences behavior, productivity and quality of teaching which leads to student satisfaction and program quality. Similarly, Toropova et al.[9] emphasize that students are ultimately affected by how teachers are satisfied with their job. Ultimately, positive job satisfaction among teachers is beneficial not only to the teacher but also to their students.[10]

More studies have delved on student satisfaction[11] and performance in online learning and/or student readiness to adapt to the new normal[12] as compared to the

---

[4] Gocotano et al., "Higher Education Student's Challenges on Flexible Online Learning Implementation in the Rural Areas: A Philippine Case."

[5] Al-Zahrani, "Faculty Satisfaction with Online Teaching in Saudi Arabia's Higher Education Institutions"; Blundell, Castañeda, and Lee, "A Multi-Institutional Study of Factors Influencing Faculty Satisfaction with Online Teaching and Learning."

[6] Stickney et al., "Online Higher Education: Faculty Satisfaction and Its Antecedents."

[7] Eom and Ashill, "The Determinants of Students' Perceived Learning Outcomes and Satisfaction in University Online Education: An Update*."

[8] Hebert, "Faculty Morale: A Perspective for Academic Leaders."

[9] Toropova, Myrberg, and Johansson, "Teacher Job Satisfaction: The Importance of School Working Conditions and Teacher Characteristics."

[10] Olmos-Gómez et al., "Quality in Higher Education and Satisfaction among Professors and Students"; Ortan, Simut, and Simut, "Self-Efficacy, Job Satisfaction and Teacher Well-Being in the K-12 Educational System."

[11] Hettiarachchi et al., "Student Satisfaction with Online Learning during the COVID-19 Pandemic: A Study at State Universities in Sri Lanka"; Elshami et al., "Satisfaction with Online Learning in the New Normal: Perspective of Students and Faculty at Medical and Health Sciences Colleges"; Dachner and Saxton, "If You Don't Care, Then Why Should I? The Influence of Instructor Commitment on Student Satisfaction and Commitment."

[12] Aboagye, Yawson, and Appiah, "COVID-19 and E-Learning: The Challenges of Students in Tertiary Institutions"; Almusharraf and Khahro, "Students Satisfaction with Online Learning Experiences during the COVID-19 Pandemic."

studies on the plight of the faculty. When the COVID-19 pandemic caused schools to suddenly close, the unforeseen and abrupt shift to flexible learning modalities instantaneously required teachers to manage the challenges of "distance learning" with varying degrees of structure, training, and support.[13]

Despite some research findings stating that learning outcomes in an online learning modality is comparable to that of the traditional face-to-face modality,[14] and current reports championing online education, researchers are still questioning its efficacy.[15] Research is still being conducted on the effectiveness of online teaching in spite of study results/findings that claim otherwise, particularly by that of Wingo et al.[16] on faculty perceptions about teaching online which reported faculty concerns regarding online teaching, such as frustrations with technical issues, faculty workload, and students' (lack of) access to technology, to name a few.

As faculty satisfaction is named as one of the five pillars of quality online education in the "Sloan Consortium Report to the Nation: Five Pillars of Quality Online Education" in 2002, faculty satisfaction being a vital contributor to the delivery of quality online courses could not be discounted.[17] Suffice it to say, faculty satisfaction and student outcomes converge when predicting success not only of online programs but of flexible learning modalities as well.

In this particular study, the THM programs were singled-out because of the nature of their course delivery where hands-on activities are supplemental in the learning process and are deemed essential in a people and service-oriented industry. Relative to this, CHED Commissioner Prospero De Vera III[18] has prioritized alongside medical and engineering courses, the hospitality management courses as they involve laboratory and hands-on subjects which are generally skills-based. The tourism and hospitality industry has been known to be labor-intensive[19] and since service and hospitality cannot readily be

---

[13] Thompson, Darwich, and Bartlett, "Not Remotely Familiar: How COVID-19 Is Reshaping Teachers' Work and the Implications for Teacher Education."

[14] Stack, "Learning Outcomes in an Online vs Traditional Course."

[15] Paul and Jefferson, "A Comparative Analysis of Student Performance in an Online vs. Face-to-Face Environmental Science Course From 2009 to 2016."

[16] "Faculty Perceptions about Teaching Online: Exploring the Literature Using the Technology Acceptance Model as an Organizing Framework."

[17] Bolliger, Inan, and Wasilik, "Development and Validation of the Online Instructor Satisfaction Measure (OISM)."

[18] De Vera III, "Expansion of Limited Face-to-Face Classes to Other Degree Programs Approved by PRRD - CHED [Press Release]."

[19] Bilsland, Nagy, and Smith, "Virtual Internships and Work-Integrated Learning in Hospitality and Tourism in a Post-COVID-19 World"; Elshaer and Marzouk, *Labor in the Tourism and Hospitality Industry*.

substituted, a well-trained workforce is needed as it fuels a country's economy. Tuomi et al.[20] explain that unlike other industries, automation or the use of service robots to replace people is relatively new in service settings which is particularly true in the Philippines. Additionally, THM-related jobs in the country prove to be a major economic driver[21] and biggest provider of jobs.[22]

Respondents in this study were limited to faculty members of selected higher education institutions in the Central Luzon, Philippines. These faculty members have handled courses for the Bachelor of Science in Tourism Management (BSTM), Bachelor of Science in Hospitality Management (BSHM), and Bachelor of Science in Hotel and Restaurant Management (BSHRM) programs and they have experienced conducting flexible learning (synchronous, asynchronous, and modular) classes at the onset of the COVID-19 pandemic. As such, this study aims to assess the teaching satisfaction of THM faculty from HEIs in Central Luzon in the flexible learning environment. Specifically, it intends to answer the following research questions:

RQ1. How may the demographic and academic profile of the respondents be described in terms of: a) affiliation, b) age, c) academic rank, d) employment status e) academic qualification f) years of teaching, g) experience in using the internet h) computer proficiency, i) workload, j) number of assigned positions, k) internet connectivity l) flexible training modalities used, and m) hours of training in flexible learning attended?

RQ2. How satisfied are the THM faculty with the conduct of flexible learning?

II. Literature review

II.1. *Flexible teaching and learning in COVID-19*

In March 2020, the UNESCO International Research and Training Centre for Rural Education (UNESCO INRULED), and Smart Learning Institute of Beijing Normal University (SLIBNU), released a book which

---

[20] Tuomi, Tussyadiah, and Stienmetz, "Applications and Implications of Service Robots in Hospitality."

[21] Philippine Statistics Authority, "GDP Expands by 7.6 Percent in the Third Quarter of 2022."

[22] Philippine Statistics Authority, "Employment Rate in October 2022 Is Estimated at 95.5 Percent"; United Nations Philippines, *Diversification, Jobs and the COVID-19 Recovery: Exploring Opportunities for Economic Diversification and Productive Employment in the Philippines*; INDUSTRY.GOV.PH, "Services."

defines the term "flexible learning" in the context of actual experiences during the onset of COVID-19 outbreak. Approaches exhibited were based on six components, and according to Huang et al.,[23] these are: infrastructure, learning tools, learning resources, teaching and learning methods, services for teachers and students, and cooperation among government, enterprises, and schools.

Presently, because of the pandemic, education systems in countries across the globe have shifted to varied learning modes with online learning as one of the main modes.[24] Singh and Thurman[25] characterize online learning as learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. Joaquin et al.[26] explicate further that online learning may be delivered synchronously with real-time teacher-led discussions and assessment activities, or asynchronously, with the teacher having pre-recorded discussions with accompanying assessment activities which students can access and complete at their own pace and convenient time. Synchronous learning is designed with real-time or live virtual teacher-led discussions where students can participate and get instant feedback on queries and some assessment mechanisms. Comparatively, students in the asynchronous learning environment cannot get instant feedback, and the learning content is not provided in live classes, but rather on different learning management platforms.[27] In a more recent study conducted during the pandemic, Daniel[28] reiterates that flexible learning provides a variety of courses and flexibility of time and place of learning to help students get back on track.

In the Philippines, several months after the initial reactions on the implementation of different modalities of remote learning in March 2020, CHED Chairperson further explained that flexible learning must be encompassing and should focus on the delivery and design of learning

---

[23] Huang et al., *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak*, 4.

[24] Huang et al., *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak*.

[25] Singh and Thurman, "How Many Ways Can We Define Online Learning? A Systematic Literature Review of Definitions of Online Learning (1988-2018)."

[26] Joaquin, Biana, and Dacela, "The Philippine Higher Education Sector in the Time of COVID-19."

[27] Littlefield, "The Difference Between Synchronous and Asynchronous Distance Learning."

[28] Daniel, "Education and the COVID-19 Pandemic."

interventions based on students' individual context (e.g., pace, place, process, outputs).[29] Furthermore, recent studies[30] have assessed the implementation of flexible learning in the country from both the student and teacher context. In particular, Tarrayo et al.[31] explore how teachers view flexible learning amidst the COVID-19 pandemic. Their study reveals that there are still several areas that need to be improved [32]. In a separate study, Penuliar et al.[33] examine the instructional delivery preference of students in the context of flexible learning. Their study indicates that partial-offline-online modality is preferred and at the same time it reduces the instructional loads and allows greater flexibility among teachers.

I.1.1. Faculty satisfaction on flexible learning

Faculty satisfaction in this specific study is defined as the perception that the process of teaching in the flexible learning environment is efficient, effective, and beneficial for the faculty.[34] Faculty perspectives are likewise vital since they are the ones responsible for the processes and delivery of student learning. Understanding the current challenges and diversity of their learners with focus on students' individual context is important in making the teaching and learning process more effective in flexible learning.[35] In a study conducted by Bolliger and Wasilik,[36] three main factors that influence

---

[29] Joaquin, Biana, and Dacela, "The Philippine Higher Education Sector in the Time of COVID-19"; Parrocha, "HEIs May Hold Limited Face-to-Face Classes in MGCQ Areas."

[30] Talosa, Javier, and Dirain, "The Flexible-Learning Journey: Phenomenological Investigation of Self-Efficacy Influencing Factors among Higher Education Students"; Tarrayo, Paz, and Gepila, "The Shift to Flexible Learning amidst the Pandemic: The Case of English Language Teachers in a Philippine State University"; Absolor et al., "The Preparedness of a Philippine Higher Education Institution on the Implementation of Flexible Learning (FL)"; Moralista and Oducado, "Faculty Perception toward Online Education in a State College in the Philippines during the Coronavirus Disease 19 (COVID-19) Pandemic"; Arciosa, "Flexible Learning and Its Effectiveness in Teaching College Subjects amidst Covid 19 Pandemic."

[31] Tarrayo, Paz, and Gepila, "The Shift to Flexible Learning amidst the Pandemic: The Case of English Language Teachers in a Philippine State University."

[32] Absolor et al., "The Preparedness of a Philippine Higher Education Institution on the Implementation of Flexible Learning (FL)."

[33] Penuliar et al., "Offline or Online?: How Should Biology Be Taught in a Flexible Learning Modality in the Philippines."

[34] Elshami et al., "Satisfaction with Online Learning in the New Normal: Perspective of Students and Faculty at Medical and Health Sciences Colleges," 1.

[35] Dayagbil et al., "Teaching and Learning Continuity Amid and Beyond the Pandemic."

[36] Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education."

instructors' satisfaction emerged; (1) student-related, (2) instructor-related, and (3) institutional-related. In another related study, Bolliger et al.[37] developed an instrument to measure faculty satisfaction for teaching online and validated its psychometric properties. The instrument was administered to 168 instructors who taught courses in a public university. Results include five factors which are instructor-to-student interaction, affordances, institutional support, student-to-student interaction, and course design. Similarly, Al-Zahrani[38] examine faculty satisfaction with online teaching adapting the same instrument developed by Bolliger et al. and recommends that HEIs should faithfully consider their instructors' 21st century professional and psychological needs (i.e., faculty satisfaction). Blundell et al.[39] conducted a similar study which reveals that faculty satisfaction is influenced by three main factors relating to instructor-student interaction, technology and institutional support which proved that their revised online faculty satisfaction tool is valid and reliable. He initially used the OFSS-R in an earlier study where the respondents are faculty from private HEIs in Ohio. Results reveal that faculty satisfaction and student satisfaction are linked throughout the online course. As such, he further investigated whether applying the Quality Matters TM Rubric [QMR] as a foundation for online course design increases faculty self-reported levels of satisfaction. However, his analysis found no significant differences. Blundell[40] findings further expose that faculty satisfaction is relative to their agreement on their course design. Furthermore, in another study on faculty perceptions about teaching online by Wingo et al.,[41] outcomes disclose that institutional strategic plans to promote online programs can be developed and implemented only if academic leaders have an in-depth understanding of it.

I.1.2. Faculty satisfaction vis-a-vis student satisfaction

In flexible teaching, student interaction is a skill that faculty found to be the most difficult to master as it is not part of the traditional component in

---

[37] Bolliger, Inan, and Wasilik, "Development and Validation of the Online Instructor Satisfaction Measure (OISM)."

[38] Al-Zahrani, "Faculty Satisfaction with Online Teaching in Saudi Arabia's Higher Education Institutions."

[39] Blundell, Castañeda, and Lee, "A Multi-Institutional Study of Factors Influencing Faculty Satisfaction with Online Teaching and Learning."

[40] Blundell, "A Disruption of Online Learning Course Design: Comparing Self-Reported Levels of Faculty Satisfaction with Online Courses Created Applying the 2011-2013 Edition of the Quality Matters™; Rubric Standards to Those Online Courses Created Without."

[41] Wingo, Ivankova, and Moss, "Faculty Perceptions about Teaching Online: Exploring the Literature Using the Technology Acceptance Model as an Organizing Framework."

classroom instruction. Bolliger and Wasilik[42] explain in their findings that faculty members with higher satisfaction have a high level of interaction with online students as compared to their less satisfied counterparts. Similarly, higher levels of interaction can potentially influence faculty decisions to adopt, reject, or continue with teaching. Huang et al.[43] underscore in their flexible learning handbook that to motivate learners to ask teachers for help when encountering difficulties, three conditions are necessary: (a) external encouragements from teachers, administration; (b) close association between teachers and students; and, (c) timely and effective feedback. Furthermore, more than the content, it is the engagement of participants in the course that matters.

I.1.3. Faculty concerns on online learning

According to Allen and Seaman,[44] even before the pandemic in the United States, faculty personnel were asked to teach online. However, they expressed reluctance to embrace online teaching and its different forms primarily due to fear of change brought about by concerns on the reliability of technology, skepticism on the achievement of learning outcomes, workload issues, and similar aspects.[45] Other parallel concerns were on longer preparation for flexible learning, particularly on online courses, as compared to the traditional face-to-face courses.[46] On-line course development and planning for instruction to include student participation as well as technological skills require much time and effort. Accordingly, best practices must be shared among faculty particularly by those with expertise in online learning modality to improve the teaching and learning process.[47]

---

[42] Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education," 177.

[43] Huang et al., *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak*, 16.

[44] Allen and Seaman, "Grade Level: Tracking Online Education in the United States."

[45] Bacow et al., "Barriers to Adoption of Online Learning Systems in U.S. Higher Education"; Betts and Heaston, "Build It But Will They Teach?: Strategies for Increasing Faculty Participation & Retention in Online & Blended Education"; Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education."

[46] Al-Zahrani, "Faculty Satisfaction with Online Teaching in Saudi Arabia's Higher Education Institutions"; Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education."

[47] Al-Zahrani, "Faculty Satisfaction with Online Teaching in Saudi Arabia's Higher Education Institutions."

Some other faculty concerns raised are about interacting with students in online courses[48]. Apprehensions include the negative effects on faculty promotion and tenure[49] and how performance evaluations for teaching online may be conducted.[50] Some issues deal with students' conduct in the new learning environment, particularly on the possibility for students to cheat in assessments.[51] Faculty members are likewise bothered whether or not students already possess the necessary technical skills, or if their students have the appropriate gadget, or if they have the skills and abilities to use online learning technology.[52] Nevertheless, the flexibility of the learning environment can be positive to faculty members.

I.1.4. Flexibility of the pedagogy

The flexible pedagogy has its share of affordances. It is seen as an avenue for otherwise timid students to participate in asynchronous discussions via discussion stream, not to mention that its flexibility can accommodate students with work and family obligations.[53] Bolliger et al. further stress that, "online instructors can provide pedagogically effective learning environments where the instruction is highly interactive, supportive, communicative, and social."[54]

I.1.5. Institutional support

Institutional support is key to guaranteeing quality flexible learning environments. According to Huang et al.,[55] support services include two

---

[48] Allen and Seaman, "Grade Level: Tracking Online Education in the United States"; Bacow et al., "Barriers to Adoption of Online Learning Systems in U.S. Higher Education"; Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education."

[49] Allen and Seaman, "Grade Level: Tracking Online Education in the United States"; Allen and Seaman, "Changing Course: Ten Years of Tracking Online Education in the United States."

[50] Bacow et al., "Barriers to Adoption of Online Learning Systems in U.S. Higher Education."

[51] Bacow et al.; McGee, "Supporting Academic Honesty in Online Courses."

[52] Bacow et al., "Barriers to Adoption of Online Learning Systems in U.S. Higher Education"; Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education."

[53] Bolliger, Inan, and Wasilik, "Development and Validation of the Online Instructor Satisfaction Measure (OISM)."

[54] Bolliger, Inan, and Wasilik, 185.

[55] Huang et al., *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak*, 23.

forms where one is support for teachers and the other is support for students' learning. Both of these can be provided in collaboration with the government, schools, enterprises, families, society, etc. Faculty members can be highly satisfied when their institutions value their plight and have policies in place to support them.[56] It may come in the form of adequate preparation time and tools, training and technical support, institutional policies in place, and fair compensation.[57] Support cannot be undermined because faculty members are unlikely to perform well unless they are comfortable with the circumstances they are in.

Both faculty and students reluctantly adapted the flexible learning modality as education systems across the globe found it as a solution to continue schooling amidst the COVID-19 pandemic. Though some educational institutions have been adapting it in different forms like distance learning, the modular approach to learning and the more popular online learning, scholars have studied its efficacy and some positive findings that have surfaced include the flexibility and affordances it provides in terms of place, process and outputs.[58] Institutional support services are key to its success particularly in terms of infrastructure, technical support training, tools, institutional policies, clear and well-defined course structure, and fair compensation.[59] Issues and concerns have likewise surfaced such as reliability on technology, longer preparation time, and course development and planning for instruction which require much time and effort.[60] But amidst all these, literature suggests that faculty satisfaction leads to student satisfaction which ultimately leads to quality flexible learning.

---

[56] Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education."

[57] Bolliger, Inan, and Wasilik, "Development and Validation of the Online Instructor Satisfaction Measure (OISM)," 185.

[58] Penuliar et al., "Offline or Online?: How Should Biology Be Taught in a Flexible Learning Modality in the Philippines"; Joaquin, Biana, and Dacela, "The Philippine Higher Education Sector in the Time of COVID-19"; Parrocha, "HEIs May Hold Limited Face-to-Face Classes in MGCQ Areas"; Daniel, "Education and the COVID-19 Pandemic"; Bolliger, Inan, and Wasilik, "Development and Validation of the Online Instructor Satisfaction Measure (OISM)."

[59] Blundell, Castañeda, and Lee, "A Multi-Institutional Study of Factors Influencing Faculty Satisfaction with Online Teaching and Learning"; Huang et al., *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak*.

[60] Al-Zahrani, "Faculty Satisfaction with Online Teaching in Saudi Arabia's Higher Education Institutions"; Allen and Seaman, "Grade Level: Tracking Online Education in the United States."

III. Materials and methods

III.1. Data collection procedures, sample size, and sampling design

The study used an online cross-sectional survey with three open ended questions from May to June 2021. The study also utilized purposive sampling design which according to Robinson,[61] is often utilized to select informants based on their specialty or knowledge of, and/or experience. In this study, only faculty members teaching in the programs BS Tourism Management (BSTM), Hospitality Management (BSHM), and Hotel and Restaurant Management (BSHRM) in Central Luzon, Philippines are eligible to participate. The researchers sought the approval and assistance of the college deans of HEIs in the Central Luzon to get in touch with THM faculty through Facebook Messenger, where a Google Form link to the survey instrument was attached. A total of 85 THM faculty across 27 different universities and colleges responded in the study (Table 1).

Table 1

List of institutions responded in the study

Institution	Type	No. of faculty*	No. of THM students**
Angeles University Foundation	Private	14	300
Bataan Peninsula State University	Public	10	950
Bulacan State University	Public	34	1,218
Central Luzon State University	Public	***	1,037
Centro Escolar University – Malolos	Private	4	198
City College of Angeles	Public	15	20
Clark College of Science and Technology	Private	2	***
Colegio de San Juan de Letran – Bataan	Private	***	39
Colegio de San Sebastian	Private	4	61
College of Subic Montessori	Private	2	49
College of the Immaculate Conception	Private	5	139
Dominican College of Tarlac	Private	10	650

---

61 Robinson, "Purposive Sampling."

Institution	Type	No. of faculty*	No. of THM students**
Don Bosco Academy	Private	***	***
Exact College of Asia	Private	5	334
Holy Angel University	Private	25	722
Holy Cross College	Private	5	435
Jocson College	Private	10	160
Mabalacat City College	Public	14	896
Nueva Ecija University Science and Technology	Public	15	838
Our Lady of Fatima University – Pampanga	Private	9	500
Pampanga State Agricultural University	Public	7	10
Philippine Women's University	Private	***	104
Phinma Araullo University	Private	17	1,400
Republic Central College	Private	2	25
Systems Plus College Foundation	Private	11	340
University Assumption	Private	7	505
Wesleyan University Philippines	Private	15	716

  * based from data of individual HEI.
  ** based on CHED data for academic year 2021 – 2022.
*** No official data was shared by the HEI.

III.2. *Survey instrument, pilot testing, validity, and reliability analysis*

The researchers developed a two-part survey to gather the needed data. The first part is composed of personal and academic profile questions particularly the respondent's age, institution type, academic rank, employment status, highest academic qualification, number of years in teaching, experience in using the Internet, computer literacy, workload, number of assigned positions other than teaching, estimated number of hours training attended in relation to flexible learning, internet connectivity, and their experience in flexible learning modalities.

For the second part, it adopted and revised an online faculty satisfaction survey by Bollinger and Wasilik.[62] The same instrument was also used in a

---

    [62] Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education."

more recent multi-institutional study which sought to determine factors influencing faculty satisfaction on online teaching and learning by Blundell et al.[63] Each item used a four-point Likert scale (Table 2). Item questions no. 1 - 4, 8 - 10, 14 – 16, 22, 27-29 are rated from highly satisfied to highly dissatisfied. While items no. 6, 7, 11-13, 18, 17, 19, 23, 24 - 26 are rated using strongly disagree to strongly agree and the rest of the scaled questions available responses are reversed. The term "online" was replaced with the word "flexible learning" across the 29 items. Some of the items were rephrased for contextual purposes. Three questions pertaining to the level of satisfaction in flexible learning were added and to gather more in-depth responses (total 31), three open-ended questions were included. To ensure the validity of the instrument, three experienced professors in the conduct of flexible learning in their respective colleges and/or universities performed face and content validation. One of the validators is a doctor of education, a graduate school professor and a vice-president for academic affairs in another HEI in Pampanga. The other is a professor and director in a state university with a background in educational management. After considering their comments and suggestions, the instrument was revised before pilot testing.

The instrument was pretested among 18 THM faculty from an HEI that implemented flexible learning at the onset of school closures due to COVID-19 in October 2020. The HEI has seven campuses offering THM courses and has approximately 4,674 THM students taking flexible learning courses. The researchers sought the assistance of the staff of the Commission of Higher Education Region III (CHED RO III) and the Council of Hotel and Restaurant Educators of the Philippines Region III (COHREP III) to reach faculty respondents. All THM faculty respondents were then invited through their respective deans or department heads to voluntarily answer the FFSS via Google Forms. The 18 THM faculty respondents were excluded in the population as their responses were used for pre-testing. The gathered data were subjected to a reliability test with 0.70 Cronbach's alpha and questions below the established minimum were discarded. Results thus indicate that the 29 items are considered reliable ($\alpha = 0.788$) and valid.

The third part consists of three supplementary open-ended questions which aim at extracting more in-depth views of THM faculty on their experiences in teaching in a flexible learning environment practicing varied flexible learning modalities which may differ depending on the location and sociodemographic profile of the institution.

---

[63] Blundell, Castañeda, and Lee, "A Multi-Institutional Study of Factors Influencing Faculty Satisfaction with Online Teaching and Learning."

Table 2

Likert-scale and its interpretation

Range	Interpretation
3.00 - 4.00	Highly satisfied/ strongly agree
2.00 - 2.99	Satisfied/ agree
1.00 - 1.99	Dissatisfied/disagree
0.99 - 1.00	Highly dissatisfied/ strongly disagree

III.3. Ethical considerations

All of the respondents were informed about the purpose of the study, its duration, potential risk, handling of their data, and their right to refuse and participate. They were asked in the form of online consent to read all the information about the study and agree to participate in the research.

IV. Results and discussion

IV.1. Faculty demographics

Of the 85 respondents, 51 teach in private HEIs and the rest teach in public HEIs otherwise known as State Universities and Local Colleges in the Philippines (n = 34). As shown in Table 3, the average age of the faculty is 35 where majority (62.4%) have Instructor academic rank. It also shows that more than half of the respondents are permanent (62.4%), almost one-third of them have a contract-of-service status (28.2%), and the remainder have either temporary or probationary status. As regards academic qualification, the faculty respondents have varied backgrounds: 31.8% have master's degrees; 23.5% are pursuing master's degrees; 27.1% are pursuing doctorate degrees; and the rest are doctorate degree holders. This is expected since the minimum requirement for faculty in the country to teach at the tertiary level is a master's degree in their fields of specialization based on Philippine's CHED memorandum order no. 40 series of 2008.

As of May 2021, the teaching experience of faculty members ranges from 1 to 29 years. Majority of them have advanced experience in using the Internet (52.9%) and are intermediate (51.8%) in terms of using a computer and with stable internet connection (81.2%). In terms of workload, more than three-fourths of the respondents teach full-time while the rest have administrative work not related to teaching. Results further show that most of the faculty hold

one concurrent position apart from teaching. With regard training and exposure to flexible learning, respondents have an average of 20 training hours.

In terms of experience in the three modalities of flexible learning, most of the respondents have experienced conducting at least more than two modes which are mostly synchronous (n = 75) and asynchronous (n = 73). This further validates that THM faculty in Central Luzon HEIs are indeed delivering flexible learning. The results seemingly show that some faculty members are delivering a combination of two while some are delivering instruction in all three modalities which indicates that flexible learning is not limited to online as it focuses on the learners' unique needs.[64]

Table 3
Distribution of faculty respondents

Variable		Results	
		No.	%
Age (Mean ± SD)		35.98 ± 8.90	
	Median	35	
	Range	21 - 64	
Educational type			
	Public	51	40
	Private	34	60
Academic rank			
	Instructor	53	62.4
	Assistant Professor	20	23.5
	Associate Professor	7	8.2
	Professor	5	5.9
Employment status			
	Permanent	53	62.4
	Temporary	8	9.4
	Contract-of-Service	24	28.2

---

[64] Joaquin, Biana, and Dacela, "The Philippine Higher Education Sector in the Time of COVID-19"; Parrocha, "HEIs May Hold Limited Face-to-Face Classes in MGCQ Areas."

Variable	Results	
	No.	%
Academic qualification		
Doctorate degree holders	10	11.8
With doctorate academic units	23	27.1
Master's degree holders	27	31.8
With master's academic units	20	23.5
Bachelor's degree holders	5	5.9
Teaching experience (Mean ± SD)	9.40 ± 6.20	
Median	9	
Range	1 - 29	
Experience in using Internet		
Beginner	-	-
Intermediate	35	41.2
Advanced	45	52.9
Expert	5	5.9
Computer proficiency		
Beginner	-	-
Intermediate	44	51.8
Advanced	37	43.5
Expert	4	4.7
Workload		
Full-time teaching	65	76.5
Teaching with administrative work not related to teaching	20	23.5
Extra assigned position not related to teaching (Mean ± SD)	1 ± 1	
Median	1	
Range	0 - 4	
Flexible learning training hours (Mean ± SD)	26.82 ± 29.74	
Median	20	
Range	0 - 130	

Variable	Results	
	No.	%
Internet connectivity		
Full capacity	69	81.2
Limited Capacity	16	18.8
Experience in flexible learning*		
Synchronous	75	
Asynchronous	73	
Modular	53	

IV.2. *Faculty satisfaction towards flexible learning*

IV.2.1. Positive satisfaction towards flexible learning modality

As presented on Table 4, mean ratings of 27 out of 29 items pertaining to THM faculty satisfaction on flexible learning show that the respondents are generally satisfied with the conduct of flexible learning in the new normal. Responses indicate that the respondents are highly satisfied the convenience and affordances brought about by the flexible learning environment (mean=3.27, n=85, 100%) as it can be and is designed such that a course can be accessed at any place and time[65]. Likewise, respondents are highly satisfied with the technology used in the conduct of both synchronous and asynchronous classes (mean=3.18, n=81, 95.3%) and they strongly agree that technology is reliable (mean=3.16, n=82, 96.5%). They are also highly satisfied with their experiences in teaching flexible learning in their respective institutions (mean 3.13, n=80, 94.1%) as well as their personal experiences (mean 3.01, n=77, 90.6%) conducting classes in this mode.

IV.2.2. Lower satisfaction, challenges, and disadvantages in flexible learning

Results show that only few faculty (mean=1.29) miss face-to-face contact with their students as majority or 97.6% (n=83) of them perceive that online learning in their synchronous sessions is tantamount to face-to-face

---

[65] Bolliger and Wasilik, "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education"; Parrocha, "HEIs May Hold Limited Face-to-Face Classes in MGCQ Areas."

interaction. Two reversed items concerning students being passive in the flexi-learning modality and faculty getting lower course evaluations were disagreed upon (82.4% n=70, 81.2% n=69 respectively) by the THM faculty. This is probably because there are applications available that promote student interaction, and faculty members are becoming skilled since different support groups have arisen to provide teacher training.[66]

It may me noted however, that though the THM faculty expressed their satisfaction, the mean ratings (2.21, 2.26, 2.31) relating to learner's enthusiasm, control of students and interaction with students are particularly lower signifying the lack of human interaction and that there may still be gaps and challenges in flexible learning as underscored in the study of Joaquin et al.[67] To further support these findings, items assessing the level of agreement of the THM faculty, denote that they have a higher workload when teaching a flexible learning course as compared to the traditional one (M = 1.96, 74.1%); preparation time is longer (M = 1.95, 78.8%); not meeting students face-to-face prevents them from knowing their students (M = 1.80, 87.1%); it is more difficult to motivate students in flexible learning (M = 1.75, 95.3%); level of participation of students in class discussion is lower (mean 1.72, 89.4%); they get frustrated due to technical problems (M = 1.60, 96.5%), and they have to be more creative in terms of the resources used for flexible learning (mean 1.44, 100%). Their agreement is in consonance with the findings of Elshami et al.[68] that, in the conduct of flexible learning, faculty members are confronted with higher workload; they devote more time to prepare lessons and materials; they have to incorporate a variety of applications to enhance student engagement and, at times, get frustrated with technical issues.[69]

In this sudden shift, some schools may have had support provided by different sectors of the government, and even the private sector, to cushion the impact by way of training and capacity building for teachers like the CHEd Hi-Ed Bayanihan project[70] where Google Classroom,

---

[66] De Vera III, "Universities, Colleges Gear up for Opening of Classes in August [Press Release]."

[67] Joaquin, Biana, and Dacela, "The Philippine Higher Education Sector in the Time of COVID-19."

[68] Elshami et al., "Satisfaction with Online Learning in the New Normal: Perspective of Students and Faculty at Medical and Health Sciences Colleges."

[69] Wingo, Ivankova, and Moss, "Faculty Perceptions about Teaching Online: Exploring the Literature Using the Technology Acceptance Model as an Organizing Framework."

[70] De Vera III, "Universities, Colleges Gear up for Opening of Classes in August [Press Release]."

initially, became a tool of support.[71] Furthermore, the development or purchase of learning management systems, monetary support to public schools, and agreements with internet providers are among the few means of support that have been extended to ensure quality flexible learning environments.[72]

Table 4

Faculty satisfaction towards flexible learning

No.	Item	Mean	Interpretation	HS/S/ SA/A % (N)	HD/D/ SD/D % (N)
1	I am satisfied with the level of interaction with students in flexible learning is higher than in a traditional face-to-face class.	2.31	Satisfied	36.5% (31)	63.5% (54)
2	I am satisfied with the convenience provided by the flexible learning environment.	3.27	Highly Satisfied	100% (85)	-
3	I am satisfied as I incorporate fewer resources when teaching a flexible learning course as compared to traditional teaching.	2.60	Satisfied	56.5% (48)	43.5% (37)
4	I am satisfied with the technology I use in synchronous and asynchronous tasks in the flexible learning environment.	3.18	Highly Satisfied	95.3% (81)	4.7% (4)
5	The technology I use for teaching in flexible learning is reliable.	3.16	Strongly Agree	96.5% (82)	3.5% (3)

---

[71] Zuniga-Tonio, "Google Classroom as a Tool of Support for Flexible Learning in the New Normal."

[72] Bolliger, Inan, and Wasilik, "Development and Validation of the Online Instructor Satisfaction Measure (OISM)."

No.	Item	Mean	Interpretation	HS/S/ SA/A % (N)	HD/D/ SD/D % (N)
6	I have a higher workload when teaching a flexible learning course as compared to the traditional one.	1.96	Agree	74.1% (63)	25.9% (22)
7	I miss face-to-face contact with students when teaching in flexible learning.	1.29	Agree	97.6% (83)	2.4% (2)
8	I am satisfied as I have no problems controlling my students in the flexible learning environment.	2.26	Satisfied	34.1% (29)	65.9% (56)
9	I am satisfied with my students' active communication with me regarding flexible learning course matters.	2.64	Satisfied	63.5% (54)	36.5% (31)
10	I am satisfied that my students in flexible learning are more enthusiastic about their learning than their traditional counterparts.	2.21	Satisfied	28.2% (24)	71.8% (61)
11	I have to be more creative in terms of the resources used for flexible learning.	1.44	Agree	100% (85)	-
12	Teaching in flexible learning is often frustrating because of technical problems.	1.60	Agree	96.5% (82)	3.5% (3)
13	It takes me longer to prepare for a flexible learning course on a weekly basis than for a face-to-face course.	1.95	Agree	78.8% (67)	21.2% (18)

No.	Item	Mean	Interpretation	HS/S/ SA/A % (N)	HD/D/ SD/D % (N)
14	I am satisfied with the use of communication tools in the flexible learning environment (e.g., chat rooms, threaded discussions, etc.).	2.86	Satisfied	77.6% (66)	22.4% (19)
15	I am satisfied as I am able to provide better feedback to my flexible learning students on their performance in the course.	2.72	Satisfied	67.1% (57)	32.9% (28)
16	I am more satisfied with teaching in flexible learning as compared to other delivery methods.	2.55	Satisfied	51.8% (44)	48.2% (41)
17	My flexible learning students are somewhat passive when it comes to contacting the instructor regarding course related matters.	2.05	Disagree	82.4% (60)	17.6% (15)
18	It is valuable to me that my students can access my flexible learning course from any place in the world.	3.27	Strongly Agree	97.6% (83)	2.4% (2)
19	The participation level of my students in the class discussions in the flexible learning setting is lower than in the traditional one.	1.72	Agree	89.4% (76)	10.6% (9)
20	My students use a wider range of resources in the flexible learning setting than in the traditional one.	2.94	Agree	80% (68)	20% (17)
21	Technical problems do not discourage me from teaching in flexible learning.	2.94	Agree	72.9% (62)	27.1% (23)

No.	Item	Mean	Interpretation	HS/S/ SA/A	HD/D/ SD/D
				% (N)	% (N)
22	I am satisfied with the compensation I receive for teaching in flexible learning.	2.91	Satisfied	74.1% (63)	25.9% (22)
23	Not meeting my flexible learning students face-to-face prevents me from knowing them as well as my on-site students.	1.80	Agree	87.1% (74)	12.9% (11)
24	I am concerned about receiving lower course evaluations in the flexible learning course as compared to the traditional one.	2.04	Disagree	81.2% (69)	18.8% (16)
25	Teaching in flexible learning is gratifying because it provides me with an opportunity to reach students who otherwise would not be able to take courses.	2.88	Agree	76.5% (65)	23.5% (20)
26	It is more difficult for me to motivate my students in flexible learning environment than in the traditional setting.	1.75	Agree	95.3% (81)	4.7% (4)
27	I am satisfied with teaching in flexible learning in relation to my experiences with students.	2.89	Satisfied	82.4% (70)	17.6% (15)
28	I am satisfied with teaching in flexible learning in relation to my experiences with my institution.	3.13	Highly Satisfied	94.1% (80)	5.9% (5)
29	I am satisfied with teaching in flexible learning in relation to my own personal experiences.	3.01	Highly Satisfied	90.6% (77)	9.4% (8)

IV.3. *Thematic analysis of the open-ended questions*

IV.3.1. Theme 1. Technical issues

This theme emerged from the responses of the respondents when asked about teaching in flexible learning. Most of them identified unstable internet connections, power interruptions and other computer-related problems as frequently identified reasons that contribute to technical issues that they experience. It is a truism that in a flexible mode of teaching, educators are confronted with pressing concerns like internet connectivity problems and hardware- and software-related problems. These findings were supported by earlier studies[73] which focused on the conduct of various learning modalities. Among the responses that support this theme are reflected as follows:

> "The problem in connectivity…" (P46)

> "Internet and power interruption..." (P41)

> "Poor internet connection…" (P85)

IV.3.2. Theme 2. Inability to develop student-teacher rapport

Another area of concern that was raised by the faculty respondents during flexible teaching and learning was linked to the inability to foster rapport with their students. For example, Fabito et al.[74] explore the barriers to online learning among computer students. Their study reveals that difficulties in communications with their respective teachers is one of the pressing challenges in the conduct of online learning. Similar findings were found by Andan and Anwar.[75] Some of the responses based on this theme are the following:

---

[73] Siripipatthanakul et al., "A Review of Educational Adaptation During the COVID-19 Pandemicvia Online Learning"; Fabito, Trillanes, and Sarmiento, "Barriers and Challenges of Computing Students in an Online Learning Environment: Insights from One Private University in the Philippines"; Gocotano et al., "Higher Education Student's Challenges on Flexible Online Learning Implementation in the Rural Areas: A Philippine Case"; Musingafi et al., "Challenges for Open and Distance Learning (ODL) Students: Experiences from Students of the Zimbabwe Open University"; Adnan and Anwar, "Online Learning amid the COVID-19 Pandemic: Students' Perspectives"; Ferri, Grifoni, and Guzzo, "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations."

[74] Fabito, Trillanes, and Sarmiento, "Barriers and Challenges of Computing Students in an Online Learning Environment: Insights from One Private University in the Philippines."

[75] Adnan and Anwar, "Online Learning amid the COVID-19 Pandemic: Students' Perspectives."

"Lack of cooperation with students…" (P9)

"Not being able to establish personal connections towards the students." (P37)

"Less interaction and monitoring with students…" (P58)

IV.3.3. Theme 3. Academic dishonesty and integrity

Academic integrity is another theme that emerged from the responses. It is based on the honesty in completing academic tasks required to students. As a concept, it refers to any behavior that affects or specifically undermines academic integrity like cheating in exams and the credibility of submitted materials for assessment (e.g., essays, reflections, etc.) This theme was supported in a literature review conducted by Chen et al.[76] Accordingly, academic dishonesty is a widespread problem particularly in online learning setup although earlier study by Tolman[77] argues the other way around. Nonetheless, this problem extends not only among undergraduate students but also across all academic levels.[78] The responses based on this theme include:

"The cheating in exams…" (P1)

"Credibility of student assessments…" (P65)

"Not seeing students' real reactions and their real output in terms of quiz and term exams." (P71)

IV.3.4. Theme 4. Learning flexibility

The last theme that emerged from the responses is learning flexibility. This refers to the flexibility to conduct classes based on the circumstances that surround the teachers and students.[79] Furthermore, it further extends to the customization of learning experiences to suit the needs of the teachers and students.[80] To support this theme, the following responses are stated below:

---

[76] Chen et al., "Online Academic Dishonesty of College Students: A Review."

[77] Tolman, "Academic Dishonesty in Online Courses: Considerations for Graduate Preparatory Programs in Higher Education."

[78] Paullet, "Student and Faculty Perceptions of Academic Dishonesty in Online Classes."

[79] Cassidy et al., "Flexible Learning Strategies in First through Fourth-Year Courses."

[80] Huang et al., *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19*

"Synchronous classes are not performed on a daily basis." (P6)

"It can be more convenient both to the students and with me." (P32)

"Learners' access to materials anytime and opportunity to choose their preferred mode of learning." (P34)

Of the eighty-five THM faculty members, 63 actively responded. The unstable internet connection mostly of students, lack of participation/ interaction, inability to connect with students on a more personal level, cheating in any forms and non-attendance to classes are among the factors that emerged. Clearly, the themes derived here are student-interaction, technology and connectivity, and integrity of assessments are what THM faculty least like about flexi-learning. This is similar to the findings of Jung et al.[81] where student-related and technology-related problems are most common concerns in a study in Tokyo, Japan. As such, these are areas that schools need to plan and improve on.[82]

In terms of flexibility, the respondents mentioned that the flexibility in terms of time, place and mode of delivery, the technological challenges it brings, and ease in adding supplementary materials to enhance learning are key factors. The theme of what is most liked about flexi-learning is its flexibility[83] and ease brought about by technology. As technology plays a vital role in flexible learning, it is seen as both positive and negative depending on the user—its presence or the lack of it.

In addition, it was mentioned that having available modules especially for new subjects and additional resources such as gadgets for faculty would greatly help including having an LMS to lessen incidences of cheating. On the other hand, other respondents said that faculty members should be more patient with students. Aside from the identified themes, there are other challenges disclosed by the respondents such as students give less effort in their studies; students are not committed; more training for faculty is needed; local city colleges lack resources; more training for flexible learning is

---

Outbreak; Wanner and Palmer, "Personalising Learning: Exploring Student and Teacher Perceptions about Flexible Learning and Assessment in a Flipped University Course."

[81] Jung et al., "Faculty as Reflective Practitioners in Emergency Online Teaching: An Autoethnography."

[82] Dayagbil et al., "Teaching and Learning Continuity Amid and Beyond the Pandemic"; Elshami et al., "Satisfaction with Online Learning in the New Normal: Perspective of Students and Faculty at Medical and Health Sciences Colleges."

[83] Almaghaslah and Alsayari, "The Effects of the 2019 Novel Coronavirus Disease (COVID-19) Outbreak on Academic Staff Members: A Case Study of a Pharmacy School in Saudi Arabia."

needed; if combined with face-to-face it may become a very good method of education; it is more demanding and stressful for both students and faculty members; faculty members should consider students' mental health; it will never compensate the need for exposure students in the Hospitality and Tourism Industry needs; and finally, one reiterated that, "just like any system implemented and used, acceptance will be subjective and relative to persons concerned, but it definitely, has pros and cons worth evaluating, for references and considerations." The THM faculty understand both the strengths and weaknesses of the flexible learning delivery during crises. This necessitates technical support, communication, and capacity building for effective blended or emergency online teaching.[84]

V. Conclusion and recommendations

The study was able to surface the demographic and academic profile of THM faculty who were teaching in flexible learning modalities. There were 85 THM faculty from 27 HEIs responded. Overall, this study showed that THM faculty are generally satisfied with the conduct of flexible learning despite the setbacks. Four themes were also identified in this study which are named as technical issues, inability to develop student-teacher rapport, academic dishonesty and integrity, and learning flexibility.

THM programs involve hands-on laboratory activities that cannot be delivered virtually as they are skills-based and require experiential learning where human interaction and the Filipino brand of hospitality are taught. With this, the study surveyed the THM faculty in higher education institutions in the Central Luzon to assess their satisfaction on the delivery of these programs in the flexible learning mode. While findings indicate that the faculty are generally satisfied with the conduct of flexible learning in their institutions, they express agreement on issues from being highly resourceful to relating to having higher workloads, longer preparation time for a course, lack of human interaction by not seeing students face-to-face, lower participation of students, and technical problems. Based on these findings, the study recommends that longitudinal studies should be conducted in order to determine how much has changed specifically after the COVID-19 pandemic. Interventions to specifically address and mitigate the key issues (e.g., inability to develop student rapport, academic integrity) this study identified should also be introduced.

---

[84] Jung et al., "Faculty as Reflective Practitioners in Emergency Online Teaching: An Autoethnography."

Bibliography

Aboagye, Emmanuel, Joseph Anthony Yawson, and Kofi Nyantakyi Appiah. "COVID-19 and E-Learning: The Challenges of Students in Tertiary Institutions." *Social Education Research* 2, no. 1 (2021): 1–8. https://doi.org/https://doi.org/10.37256/ser.212021422.

Absolor, Jocelyn L., Enhelyn L. Morla, Gina Mae C. Villanueva, Marites J. Yacap, and Jerome R. Bueno. "The Preparedness of a Philippine Higher Education Institution on the Implementation of Flexible Learning (FL)." *Technium Social Sciences Journal* 32, no. 102–125 (2022). https://www.techniumscience.com/index.php/socialsciences/article/view/6685/2359.

Adnan, Muhammad, and and Kainat Anwar. "Online Learning amid the COVID-19 Pandemic: Students' Perspectives." *Journal of Pedagogical Sociology and Psychology* 2, no. 1 (2020): 45–51. https://doi.org/http://www.doi.org/10.33902/JPSP.%202020261309.

Al-Zahrani, Abdulrahman M. "Faculty Satisfaction with Online Teaching in Saudi Arabia's Higher Education Institutions." In *International Journal of Instructional Technology and Distance Learning*, edited by Donald G. Perrin, Elizabeth Perrin, Brent Muirhead, and Muhammad Betz, 12:17–28, 2015. http://www.itdl.org/Journal/Apr_15/Apr15.pdf.

Allen, I. Elaine, and Jeff Seaman. "Changing Course: Ten Years of Tracking Online Education in the United States," 2013. http://www.onlinelearningsurvey.com/reports/changingcourse.pdf.

———. "Grade Level: Tracking Online Education in the United States," 2015. https://www.bayviewanalytics.com/reports/gradelevel.pdf.

Almaghaslah, Dalia, and Abdulrhman Alsayari. "The Effects of the 2019 Novel Coronavirus Disease (COVID-19) Outbreak on Academic Staff Members: A Case Study of a Pharmacy School in Saudi Arabia." *Risk Management and Healthcare Policy* 13 (2020): 795–802. https://doi.org/10.2147/RMHP.S260918.

Almusharraf, Norah, and Shabir Khahro. "Students Satisfaction with Online Learning Experiences during the COVID-19 Pandemic." *International Journal of Emerging Technologies in Learning (IJET)* 15, no. 21 SE-Papers (November 16, 2020): 246–67. https://doi.org/10.3991/ijet.v15i21.15647.

Arciosa, Ramil. "Flexible Learning and Its Effectiveness in Teaching College Subjects amidst Covid 19 Pandemic." *International Journal of Curriculum and Instruction* 14, no. 2 (2022): 1343–58. https://files.eric.ed.gov/fulltext/EJ1340901.pdf.

Bacow, Lawrence S., William G. Bowen, Kevin M. Guthrie, Kelly A. Lack, and Matthew P. Long. "Barriers to Adoption of Online Learning Systems in U.S. Higher Education," 2012. https://doi.org/https://doi.org/10.18665/sr.22432.

Betts, Kristen, and Amy Heaston. "Build It But Will They Teach?: Strategies for Increasing Faculty Participation & Retention in Online & Blended Education." *Online Journal of Distance Learning Administration* 17, no. 2 (2014). https://eric.ed.gov/?id=EJ1036864.

Bilsland, Christine, Helga Nagy, and Phil Smith. "Virtual Internships and Work-Integrated Learning in Hospitality and Tourism in a Post-COVID-19 World." *International Journal of Work-Integrated Learning* 21, no. 4 (2020): 425–37. https://files.eric.ed.gov/fulltext/EJ1271544.pdf.

Blundell, Gregory Edgar. "A Disruption of Online Learning Course Design: Comparing Self-Reported Levels of Faculty Satisfaction with Online Courses Created Applying the 2011-2013 Edition of the Quality Matters™; Rubric Standards to Those Online Courses Created Without." Kent State University, 2015. http://rave.ohiolink.edu/etdc/view?acc_num=kent1426268368.

Blundell, Gregory Edgar, Daniel A. Castañeda, and Junghyae Lee. "A Multi-Institutional Study of Factors Influencing Faculty Satisfaction with Online Teaching and Learning." *Online Learning* 24, no. 4 (2020): 229–53. https://doi.org/https://doi.org/10.24059/olj.v24i4.2175.

Bolliger, Doris U, Fethi A Inan, and Oksana Wasilik. "Development and Validation of the Online Instructor Satisfaction Measure (OISM)." *Journal of Educational Technology & Society* 17, no. 2 (December 21, 2014): 183–95. http://www.jstor.org/stable/jeductechsoci.17.2.183.

Bolliger, Doris U, and Oksana Wasilik. "Factors Influencing Faculty Satisfaction with Online Teaching and Learning in Higher Education." *Distance Education* 30, no. 1 (May 1, 2009): 103–16. https://doi.org/10.1080/01587910902845949.

Cassidy, Alice, Guopeng Fu, Will Valley, Cyprien Lomas, Eduardo Jovel, and Andrew Riseman. "Flexible Learning Strategies in First through Fourth-Year Courses." *Collected Essays on Learning and Teaching* 9 (2016): 83–94. https://doi.org/https://doi.org/10.22329/celt.v9i0.4438.

Chen, Changsheng, Jingyun Long, Junxiao Liu, Zongjun Wang, Lifeng Wang, and Jing Zhang. "Online Academic Dishonesty of College Students: A Review." In *Proceedings of the 2020 International Conference on Advanced Education, Management and Social Science (AEMSS2020)*, edited by Wadim Striełkowski, 156–61. Atlantis Press, 2020. https://doi.org/https://doi.org/10.2991/assehr.k.200723.121.

Dachner, Alison M., and Brian M. Saxton. "If You Don't Care, Then Why Should I? The Influence of Instructor Commitment on Student Satisfaction and Commitment." *Journal of Management Education* 39, no. 5 (2014): 549–71. https://doi.org/https://doi.org/10.1177/10525629145555.

Daniel, Sir John. "Education and the COVID-19 Pandemic." *PROSPECTS* 49, no. 1 (2020): 91–96. https://doi.org/10.1007/s11125-020-09464-3.

Dayagbil, Filomena T, Daisy R Palompon, Laurence L Garcia, and Michelle Mae J Olvido. "Teaching and Learning Continuity Amid and Beyond the Pandemic." *Frontiers in Education* 6 (2021): 269. https://doi.org/10.3389/feduc.2021.678692.

Department of Tourism Philippines. "DOT Banners 'Filipino Brand of Service'; Assists over 35,000 Tourists amid Pandemic," 2020. http://tourism.gov.ph/news_features/FilipinoBrandofService.aspx.

Elshaer, Abdallah M., and Asmaa M. Marzouk. *Labor in the Tourism and Hospitality Industry*. Apple Academic Press, 2019. https://www.routledge.com/Labor-in-

the-Tourism-and-Hospitality-Industry-Skills-Ethics-Issues-and/Elshaer-Marzouk/p/book/9781774634158.

Elshami, Wiam, Mohamed H Taha, Mohamed Abuzaid, Coumaravelou Saravanan, Sausan Al Kawas, and Mohamed Elhassan Abdalla. "Satisfaction with Online Learning in the New Normal: Perspective of Students and Faculty at Medical and Health Sciences Colleges." *Medical Education Online* 26, no. 1 (January 1, 2021): 1920090. https://doi.org/10.1080/10872981.2021.1920090.

Eom, Sean B, and Nicholas Ashill. "The Determinants of Students' Perceived Learning Outcomes and Satisfaction in University Online Education: An Update*." *Decision Sciences Journal of Innovative Education* 14, no. 2 (April 1, 2016): 185–215. https://doi.org/https://doi.org/10.1111/dsji.12097.

Fabito, Bernie S., Arlene O. Trillanes, and Jeshnile Sarmiento. "Barriers and Challenges of Computing Students in an Online Learning Environment: Insights from One Private University in the Philippines." *International Journal of Computing Sciences Research* 5, no. 1 (2021): 441–58. https://doi.org/10.25147/ijcsr.2017.001.1.51.

Ferri, Fernando, Patrizia Grifoni, and Tiziana Guzzo. "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations." *Societies*, 2020. https://doi.org/10.3390/soc10040086.

Gocotano, Thessalou E., Mae Anthoneth L. Jerodiaz, Jenny Claire P. Banggay, Harold B. Rey Nasibog, and Marivel B. Go. "Higher Education Student's Challenges on Flexible Online Learning Implementation in the Rural Areas: A Philippine Case." *International Journal of Learning, Teaching and Educational Research* 20, no. 7 (2021): 262–90. https://doi.org/https://doi.org/10.26803/ijlter.20.7.15.

Hebert, Edward. "Faculty Morale: A Perspective for Academic Leaders." *Kinesiology Review* 8, no. 4 (2019): 305–11. https://doi.org/10.1123/kr.2019-0040.

Hettiarachchi, Sujeewa, B W R Damayanthi, Shirantha Heenkenda, DMSLB Dissanayake, Manjula Ranagalage, and Lalith Ananda. "Student Satisfaction with Online Learning during the COVID-19 Pandemic: A Study at State Universities in Sri Lanka." *Sustainability*, 2021. https://doi.org/10.3390/su132111749.

Huang, Ronghuai, Junfeng Yang, Ahmed Tlili, and Ting-Wen Chang. *Handbook on Facilitating Flexible Learning During Educational Disruption: The Chinese Experience in Maintaining Undisrupted Learning in COVID-19 Outbreak*. Smart Learning Institute of Beijing Normal University, 2020. https://iite.unesco.org/wp-content/uploads/2020/03/Handbook-on-Facilitating-Flexible-Learning-in-COVID-19-Outbreak-SLIBNU-V1.2-20200315.pdf.

INDUSTRY.GOV.PH. "Services." Securing The Future of Philippine Industries. Accessed January 18, 2023. https://industry.gov.ph/category/services/.

Joaquin, Jeremiah Joven B, Hazel T Biana, and Mark Anthony Dacela. "The Philippine Higher Education Sector in the Time of COVID-19." *Frontiers in Education* 5 (2020): 208. https://doi.org/10.3389/feduc.2020.576371.

Jung, Insung, Sawa Omori, Walter P Dawson, Tomiko Yamaguchi, and Seunghun J Lee. "Faculty as Reflective Practitioners in Emergency Online Teaching: An

Autoethnography." *International Journal of Educational Technology in Higher Education* 18, no. 1 (2021): 30. https://doi.org/10.1186/s41239-021-00261-2.

Littlefield, Jamie. "The Difference Between Synchronous and Asynchronous Distance Learning." ThoughtCo, 2018. https://www.thoughtco.com/synchronous-distance-learning-asynchronous-distance-learning-1097959.

McGee, Patricia. "Supporting Academic Honesty in Online Courses." *Journal of Educators Online,* 10, no. 1 (2013). https://files.eric.ed.gov/fulltext/EJ1004890.pdf.

Moralista, Rome B., and Ryan Michael F. Oducado. "Faculty Perception toward Online Education in a State College in the Philippines during the Coronavirus Disease 19 (COVID-19) Pandemic." *Universal Journal of Educational Research* 8, no. 10 (2020): 4736–42. https://doi.org/10.13189/ujer.2020.081044.

Musingafi, Maxwell C.C., Barbra Mapuranga, Kudzai Chiwanza, and Shupikai Zebron. "Challenges for Open and Distance Learning (ODL) Students: Experiences from Students of the Zimbabwe Open University." *Journal of Education and Practice* 6, no. 18 (2015): 59–66. https://files.eric.ed.gov/fulltext/EJ1079750.pdf.

Olmos-Gómez, María D, Mónica Luque-Suárez, Concetta Ferrara, and Jesús M Cuevas-Rincón. "Quality in Higher Education and Satisfaction among Professors and Students." *European Journal of Investigation in Health, Psychology and Education*, 2021. https://doi.org/10.3390/ejihpe11010017.

Ortan, Florica, Ciprian Simut, and Ramona Simut. "Self-Efficacy, Job Satisfaction and Teacher Well-Being in the K-12 Educational System." *International Journal of Environmental Research and Public Health* 18, no. 23 (2021): 12763. https://doi.org/https://doi.org/10.3390/ijerph182312763.

Parrocha, Azer. "HEIs May Hold Limited Face-to-Face Classes in MGCQ Areas." Philippine News Agency, 2020. https://www.pna.gov.ph/articles/1105160.

Paul, Jasmine, and Felicia Jefferson. "A Comparative Analysis of Student Performance in an Online vs. Face-to-Face Environmental Science Course From 2009 to 2016." *Frontiers in Computer Science* 1 (2019): 7. https://doi.org/10.3389/fcomp.2019.00007.

Paullet, Karen. "Student and Faculty Perceptions of Academic Dishonesty in Online Classes." *Issues in Information Systems* 21, no. 3 (2020): 327–33. https://doi.org/https://doi.org/10.48009/3_iis_2020_327-333.

Penuliar, Aaron Jhoe M., Vemma Mae R. Guinto, Agnes D. Oclay, Paz Cheri Ann V. Soriano, Maricris M. Sison, Jun S. Camara, John Rommel T. Retuya, and John V. Bernardo8. "Offline or Online?: How Should Biology Be Taught in a Flexible Learning Modality in the Philippines." *Southeast Asian Journal of Science and Technology* 6, no. 1 (2021): 30–38. https://sajst.org/online/index.php/sajst/article/download/162/97/.

Philippine Statistics Authority. "Employment Rate in October 2022 Is Estimated at 95.5 Percent," 2022. https://psa.gov.ph/statistics/survey/labor-and-employment/labor-force-survey/table.

———. "GDP Expands by 7.6 Percent in the Third Quarter of 2022," 2022. https://psa.gov.ph/foreign-investments/technical-notes.

Robinson, Rebecca S. "Purposive Sampling." In *Encyclopedia of Quality of Life and Well-Being Research*, 227. SpringerLink, 2014. https://doi.org/https://doi.org/10.1007/978-94-007-0753-5_2337.

Sebby, Angela G., and Carroll Brown. "Experiential Learning in Hospitality Management Curriculum: Case Study in Rural Southeast U.S." *Research in Higher Education Journal* 38 (2020). https://files.eric.ed.gov/fulltext/EJ1263668.pdf.

Singh, Vandana, and Alexander Thurman. "How Many Ways Can We Define Online Learning? A Systematic Literature Review of Definitions of Online Learning (1988-2018)." *American Journal of Distance Education* 33, no. 4 (October 2, 2019): 289–306. https://doi.org/10.1080/08923647.2019.1663082.

Siripipatthanakul, Supaprawat, Pichart Kaewpuang, Tamonwan Sitthipon, and Patcharavadee Sriboonruang. "A Review of Educational Adaptation During the COVID-19 Pandemicvia Online Learning." *International Journalof Computing Sciences Research* 7 (2023): 1514–30. https://doi.org/https://doi.org/10.25147/ijcsr.2017.001.1.114.

Stack, Steven. "Learning Outcomes in an Online vs Traditional Course." *International Journal for the Scholarship of Teaching and Learning* 9, no. 1 (2015): 5. https://doi.org/https://doi.org/10.20429/ijsotl.2015.090105.

Stickney, Lisa T, Regina F Bento, Anil Aggarwal, and Veena Adlakha. "Online Higher Education: Faculty Satisfaction and Its Antecedents." *Journal of Management Education* 43, no. 5 (May 2, 2019): 509–42. https://doi.org/10.1177/1052562919845022.

Talosa, Arlene D, Billy S Javier, and Estela L Dirain. "The Flexible-Learning Journey: Phenomenological Investigation of Self-Efficacy Influencing Factors among Higher Education Students." *Linguistics and Culture Review* 5, no. S3 SE- (October 23, 2021): 422–34. https://doi.org/10.21744/lingcure.v5nS3.1590.

Tarrayo, Veronico N, Rafael Michael O Paz, and Emejidio C Gepila. "The Shift to Flexible Learning amidst the Pandemic: The Case of English Language Teachers in a Philippine State University." *Innovation in Language Learning and Teaching*, June 20, 2021, 1–14. https://doi.org/10.1080/17501229.2021.1944163.

Thompson, Alisun, Lina Darwich, and Lora Bartlett. "Not Remotely Familiar: How COVID-19 Is Reshaping Teachers' Work and the Implications for Teacher Education." *Northwest Journal of Teacher Education* 15, no. 2 (2020): 1–10. https://doi.org/https://doi.org/10.15760/nwjte.2020.15.2.2.

Tolman, Steven. "Academic Dishonesty in Online Courses: Considerations for Graduate Preparatory Programs in Higher Education." *College Student Journal* 51, no. 4 (2017): 579–84. https://www.ingentaconnect.com/content/prin/csj/2017/00000051/00000004/art00014.

Toropova, Anna, Eva Myrberg, and Stefan Johansson. "Teacher Job Satisfaction: The Importance of School Working Conditions and Teacher Characteristics." *Educational Review* 73, no. 1 (January 2, 2021): 71–97. https://doi.org/10.1080/00131911.2019.1705247.

Tuomi, Aarni, Iis P Tussyadiah, and Jason Stienmetz. "Applications and Implications of Service Robots in Hospitality." *Cornell Hospitality Quarterly* 62, no. 2 (May 25, 2020): 232–47. https://doi.org/10.1177/1938965520923961.

United Nations Philippines. *Diversification, Jobs and the COVID-19 Recovery: Exploring Opportunities for Economic Diversification and Productive Employment in the Philippines*, 2021. https://philippines.un.org/sites/default/files/2021-08/Diversification%2C Jobs and the COVID-19 Recovery.pdf.

Vera III, J. Prospero E. De. "Expansion of Limited Face-to-Face Classes to Other Degree Programs Approved by PRRD - CHED [Press Release]." Commission on Higher Education | Republic of the Philippines, 2021. https://ched.gov.ph/expansion-of-limited-face-to-face-classes-to-other-degree-programs-approved-by-prrd-ched/.

———. "Universities, Colleges Gear up for Opening of Classes in August [Press Release]." Commission on Higher Education | Republic of the Philippines, 2020. https://ched.gov.ph/universities-colleges-gear-up-for-opening-of-classes-in-august/.

Wanner, Thomas, and Edward Palmer. "Personalising Learning: Exploring Student and Teacher Perceptions about Flexible Learning and Assessment in a Flipped University Course." *Computers & Education* 88 (2015): 354–69. https://doi.org/https://doi.org/10.1016/j.compedu.2015.07.008.

Wingo, Nancy Pope, Nataliya V. Ivankova, and Jacqueline A. Moss. "Faculty Perceptions about Teaching Online: Exploring the Literature Using the Technology Acceptance Model as an Organizing Framework." *Online Learning* 12, no. 1 (2017): 15–35. https://doi.org/10.10.24059/olj.v21i1.761.

Zuniga-Tonio, Jimmylen. "Google Classroom as a Tool of Support for Flexible Learning in the New Normal." *Journal of Education, Management and Development Studies* 1, no. 2 (2021): 25–39. https://doi.org/10.52631/jemds.v1i2.20.

About the authors

JOHN PAUL P. MIRANDA (corresponding author, jppmiranda@dhvsu.edu.ph), MIT, is an assistant professor IV at Don Honorio Ventura State University (DHVSU) Mexico Campus, Philippines. He is presently the Program Head for International Linkages and Partnerships for the Office for International Partnerships and Programs by the same university and was awarded as researcher of the year in 2020. A graduate of Master of Information Technology and presently on his writing his dissertation writing for the degree Doctor of Information Technology at the University of the East – Manila. His publications are in data science, data mining, computer science/IT education, and software development.

MARIA ANNA D. CRUZ (madcruz@dhvsu.edu.ph), PhD, is a faculty member of Don Honorio Ventura State University (DHVSU) and the current area chairperson for Bachelor of Science in Hospitality Management and Bachelor of Science in Industrial Technology programs at DHVSU Mexico Campus in the Philippines. Her research interests are in hospitality and tourism management.

Exploring the impact of generational differences on university study decisions in Slovakia

Nikola Šabíková, Kamila Valentová, Radomír Masaryk, Aleš Neusar, and Lenka Sokolová*

Abstract: Students whose parents did not study at a university (first-generation students) exhibit differences in how they decide whether and what to study, compared to students whose parents attended university. In our study, we looked for possible similarities and differences between these two groups of students. The participants were Slovak students aged from 18 to 22 ($N = 357$). The data were collected using an online questionnaire. The results showed that it was significantly more important for second-generation students, whose parents had university degree experience, to continue the family tradition when deciding to study than for first-generation students. The results also revealed that the internet is the most important source of information for students when choosing the subject of their studies. At present, higher education institutions strongly compete for students and, consequently, we recommend that universities pay attention to different target groups of students and develop intervention programs aimed at retaining them. It is equally important that

* **Nikola Šabíková** (nikola.sabikova@gmail.com) is a PhD student of Social and Occupational Psychology at Comenius University in Bratislava, Slovakia.

Kamila Valentová (valentova74@uniba.sk) is an MA student of Social and Occupational Psychology at Comenius University in Bratislava, Slovakia.

Radomír Masaryk (radomir.masaryk@uniba.sk), PhD, is an associate professor at Comenius University in Bratislava, Slovakia.

Aleš Neusar (ales@neusar.cz), PhD, is an assistant professor at the University of Ostrava, Czech Republic.

Lenka Sokolová (corresponding author, lenka.sokolova@uniba.sk), PhD, is an associate professor at Comenius University in Bratislava, Slovakia.

More information about the authors is available at the end of this article.

universities keep up with the times and provide relevant information on their websites in today's digital world.

Keywords: First-generation students; second-generation students; decision-making; university study choice; sources of information.

I. Introduction

Career choices used to be traditionally linked to social learning, social-economic status, family, interests and personality.[1] In the past decades, we have however seen many substantial changes in the area of academic education. Also, the labour markets are faced with major changes and people tend to change jobs and/or employers several times in the course of their life,[2] which was not very typical not only in Slovakia. Family tradition ceases to be a factor when brand-new cohorts enter the field. Many "new" students are the first in their families to study at a college - yet a disproportionately low number of first-generation students are successful in university.[3]

The reason to focus on first-generation and second-generation students in our work is a continuing interest in higher education, even among students whose parents do not have a university degree. Higher education is currently, and in many countries (including Slovakia), much more open and accessible than ever before: we have a sufficient number of higher education institutions, a wide range of study programmes, accessible commuting, and distance learning options. It is important to note in this context that full-time university study is currently free for students in Slovakia. Students only need to pay for education if they exceed the standard duration of their study programme.[4] Higher education institutions (universities) in Slovakia follow the ECTS – European Credit Transfer System, which was introduced in 2002. Slovak universities provide three levels of higher education: Bachelor's (the common length is three years), Master's (the common length is two years) and the third level is a doctoral or PhD study programme (with a common

---

[1] Rebecca McPherson, 'Low-Qualified Labors' Job Mobility, Boundary Crossing, and Career Success: A Cross-Industry HRM Perspective', *Journal of Organizational Psychology* 18, no. 1 (2018): 116–29.

[2] McPherson.

[3] Gary R. Pike and George D. Kuh, 'First- and Second-Generation College Students: A Comparison of Their Engagement and Intellectual Development', *The Journal of Higher Education* 76, no. 3 (2005): 276–300, https://doi.org/10.1353/jhe.2005.0021.

[4] Ministry of Education, Science, Research and Sport of the Slovak Republic, 'Školné Na Vysokých Školách v SR' (Ministry of Education, Science, Research and Sport of Slovak Republic, 2022), https://www.minedu.sk/skolne-na-vysokych-skolach-v-sr/#VVSDF.

length of three or four years). Research on decision-making about university studies among Slovak students is relatively scarce. We do not know what the main factors influencing their choices are and whether family tradition plays a role in their decision-making. These findings may help to design university practices and policies.

I.1. *The "First-generation Student" phenomenon*

The decision-making of students about their university studies can be significantly affected by the phenomenon of first-generation students.[5] The definition of "first-generation university students' is not consistent in the literature.[6] Various studies have been focused on understanding the relationship between parental education and study plans and the performance of their children; however, it is difficult for researchers to agree on the definition of a first-generation student and the impact of this definition on the research conclusions.[7]

Some researchers use the term "first-generation student" to refer to a student whose parents or ancestors never attended a university.[8] They are the first in their families to go to university. Tate et al.[9] admit that there are advantages and disadvantages of choosing any particular definition, and they define first-generation university students as students whose parents have not obtained a bachelor's degree. Second-generation students, on the other hand, are those who have at least one parent who attended university and obtained a university degree.

Studies that looked at the effects of being first-generation vs. second-generation students arrived at various findings partially due to different

---

[5] Richard James, 'Non-Traditional Students and Their University Participation: An Australian Perspective on Persistent Inequities and the New Ideology of Student Choice.' (21st European Association of Institutional Research, 1999).

[6] James.

[7] Robert K. Toutkoushian, Robert A. Stollberg, and Kelly A. Slaton, 'Talking 'Bout My Generation: Defining "First-Generation College Students" in Higher Education Research', *Teachers College Record: The Voice of Scholarship in Education* 120, no. 4 (April 2018): 1–38, https://doi.org/10.1177/016146811812000407.

[8] George M. Froggé and Kathryn H. Woods, 'Characteristics and Tendencies of First and Second-Generation University Students', *College Quarterly* 21, no. 2 (2018), http://collegequarterly.ca/2018-vol21-num02-spring/characteristics-and-tendencies-of-first-and-second-generation-university-students.html.

[9] Kevin A. Tate et al., 'An Exploration of First-Generation College Students' Career Development Beliefs and Experiences', *Journal of Career Development* 42, no. 4 (August 2015): 294–310, https://doi.org/10.1177/0894845314565025.

definitions used. For example, James,[10] as well as Collier and Morgan,[11] pointed out the differences between the "traditional" university students (i.e., second-generation and multi-generation students) and first-generation students in how they master the role of a university student. Second-generation students identified themselves with the university student role faster and easier than first-generation students. According to Glass,[12] first-generation students may lack access to information and knowledge about university processes. That is why they may adopt different identity trajectories when transiting to university.[13] Collier and Morgan[14] looked particularly at the differences and similarities between the expectations of faculty and the expectations of students. They found differences between faculty and student perceptions of traditional and first-generation university students. The questions were focused on time management and specific aspects of teaching. The authors discovered that the expectations of the faculty and the students differed. They also identified differences between second-generation and first-generation university students, as mentioned above. The authors[15] concluded that differences in cultural capital, related to parents' educational experiences, corresponded to differences in each group's ability to meet the faculty expectations.

Terenzini et al.[16] similarly found that first-generation students differ from second- and multi-generation students both in their characteristics and their experiences when entering a higher education institution. Their study aimed to answer three questions: whether the first-generation students differ in

---

[10] James, 'Non-Traditional Students and Their University Participation: An Australian Perspective on Persistent Inequities and the New Ideology of Student Choice.'

[11] Peter J. Collier and David L. Morgan, '"Is That Paper Really Due Today?": Differences in First-Generation and Traditional College Students' Understandings of Faculty Expectations', *Higher Education* 55, no. 4 (April 2008): 425–46, https://doi.org/10.1007/s10734-007-9065-5.

[12] Leah E. Glass, 'Social Capital and First-Generation College Students: Examining the Relationship Between Mentoring and College Enrollment', *Education and Urban Society* 55, no. 2 (February 2023): 143–74, https://doi.org/10.1177/00131245221076097.

[13] Kateřina Machovcová, Taťána Škanderová, and Barbora Zumrová, 'Studující První Generace v Procesu Tranzice Do Vysokoškolského Studia [First-Generation Students in the Process of Transition into University Studies]', in *Punk v Kvalitativním Výzkumu Aneb „Kvalita Is Not Dead"*, ed. Alena Hricová (XXII. ročník česko-slovenské konference Kvalitativní přístup a metody ve vědách o člověku, České Budějovice: Jihočeská univerzita v Českých Budějovicích, 2023), 31.

[14] Collier and Morgan, '"Is That Paper Really Due Today?"'

[15] Collier and Morgan.

[16] Patrick T. Terenzini et al., 'First-Generation College Students: Characteristics, Experiences, and Cognitive Development', *Research in Higher Education* 37, no. 1 (February 1996): 1–22, https://doi.org/10.1007/BF01680039.

some pre-university variables from the traditional, whether the study experiences of both groups differ, and what are the academic consequences of these differences. The participants were 2,685 students (825 first-generation and 1,860 traditional students) from 23 institutions. The authors found differences between first-generation and traditional students in both preuniversity variables and academic experiences. Although traditional students' achievements in reading were higher, the two groups' achievements in math and critical thinking were similar. First-generation students were expected to take longer to complete their studies and to have less motivation and support from their families than second-generation students. First-generation students, therefore, differed from second-generation students in their personal and educational qualities when entering their selected university. These comparisons show that first-generation students were disadvantaged.[17] However, Capannola and Johnson[18] highlighted that despite the challenges in the transition to university and during university studies, first-generation students were able to use their strengths and strategies for success in this process. For some first-generation students, the strong motivation to succeed in the university setting could be becoming a role model for their community or family.[19] These findings contribute to the new perception of the university as a more diverse and inclusive setting. First-generation students may adopt new learning strategies and pathways to self-growth and academic or community achievement compared the their "traditional" peers.[20] Based on the previous research, we can conclude that there are several important differences between first- and second-generation students, whether in motivation, skills, family background or overall education, which we discuss below.

---

[17] Terenzini et al.

[18] Amanda L. Capannola and Elizabeth I. Johnson, 'On Being the First: The Role of Family in the Experiences of First-Generation College Students', *Journal of Adolescent Research* 37, no. 1 (January 2022): 29–58, https://doi.org/10.1177/0743558420979144.

[19] Gil Keppens et al., 'First-Generation College Students' Motives to Start University Education: An Investment in Self- Development, One's Economic Prospects or to Become a Role Model?', *YOUNG*, 30 January 2023, 110330882211393, https://doi.org/10.1177/11033088221139393.

[20] Chia-chen Yang, 'Similar Patterns, Different Implications: First-Generation and Continuing College Students' Social Media Use and Its Association With College Social Adjustment', *Journal of College Student Retention: Research, Theory & Practice* 24, no. 1 (May 2022): 79–98, https://doi.org/10.1177/1521025120902755; Jillian Ives and Milagros Castillo-Montoya, 'First-Generation College Students as Academic Learners: A Systematic Review', *Review of Educational Research* 90, no. 2 (April 2020): 139–78, https://doi.org/10.3102/0034654319899707.

Other studies found that university-educated parents can use their own experience to advise their children, second-generation students, in choosing a university as well as support and motivate them towards university study.[21] In most cases, they can also provide better financial support.[22] On the contrary, first-generation students often lack such advice, motivation and financial support or can sometimes support their children "too much" or somehow inappropriately – e. g. by pressing too hard on their kids to finish up their university studies or giving them too much money what may demotivate them from studying (*Note*: Author A. N. experienced this several times in psychotherapy sessions with his clients.)

According to Toutkoushian et al., the student's initial interest in studying at the university differed depending on whether at least one of the parents studied at the university.[23] If students had university-educated parents, they tended to study at university rather than first-generation students whose parents did not attend university. The authors summarized several reasons: higher income, as well as the educational attainment of parents, were related to the fact that such families had more financial resources and could thus afford to finance the education of their children. Another reason might be the experience of parents with university studies, which they presented at home to their children in the light of positive stories and events from the university environment. As the parents themselves completed their university education, they knew how to bring their lives closer to university, to understand university habits, and they were more likely to help children to consider studying at university. In addition, the reason may also be the contact of parents with their acquaintances, who also went to university with them. This was another possible way for students to obtain information about university studies, as well as to obtain suitable role models in this area.

Other authors explain the motivation to study at university by following the parents' example in a slightly different way – the theory of self-determination, according to which people tend to internalize behaviours that are valued by significant others.[24] Thus, a student may internalize a

---

[21] Collier and Morgan, '‘Is That Paper Really Due Today?’

[22] Toutkoushian, Stollberg, and Slaton, 'Talking 'Bout My Generation'.

[23] Toutkoushian, Stollberg, and Slaton.

[24] Richard M. Ryan and Edward L. Deci, 'Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being.', *American Psychologist* 55, no. 1 (2000): 68–78, https://doi.org/10.1037/0003-066X.55.1.68; Edward L. Deci and Richard M. Ryan, 'Motivation, Personality, and Development Within Embedded Social Contexts: An Overview of Self-Determination Theory', in *The Oxford Handbook of Human Motivation*, by

university-going goal initially promoted by parents or other influencers.[25] Consequently, the motivations of first-generation and second-generation students may differ.

According to Choy, the higher the level of education achieved by the parents, the greater the probability that students will apply to a university and attend it.[26] However, Horn and Nuñez found that the parents' level of education is just one of many factors related to the student's decision to pursue higher education.[27] According to these authors,[28] such factors include, for example, family income, parents' expectations, or the degree of the parents' engagement in their children's education. Choy[29] found that students, whose parents had university education experience but dropped out before earning a bachelor's degree, did not have an advantage in university compared to students whose parents had no university experience. It can be assumed that the parent's incomplete study experience leads to the children lacking the motivation to complete their university education. They might find this step unnecessary and opt to prevent a study failure by not enrolling in university at all.

In recent years, there have been publications that address the phenomenon of first-generation students,[30] but we have yet to encounter a support program aimed specifically at first-generation students. If universities want to retain as many students as possible, particularly to their graduation, they should focus on this group of students and attempt to support them in their university education.

Edward L. Deci and Richard M. Ryan, ed. Richard M. Ryan (Oxford University Press, 2012), 84–108, https://doi.org/10.1093/oxfordhb/9780195399820.013.0006.

[25] Deci and Ryan, 'Motivation, Personality, and Development Within Embedded Social Contexts'.

[26] Susan P. Choy, *Students Whose Parents Did Not Go to College: Postsecondary Access, Persistence, and Attainment* (U.S. Department of Education, 2001), https://nces.ed.gov/pubs2001/2001072_Essay.pdf.

[27] Laura Horn and Anne-Marie Nuñez, *Mapping the Road to College: First-Generation Students' Math Track, Planning Strategies, and Context of Support* (National Center for Education Statistics, 2000), https://nces.ed.gov/pubs2000/2000153.pdf.

[28] Horn and Nuñez.

[29] Choy, *Students Whose Parents Did Not Go to College: Postsecondary Access, Persistence, and Attainment*.

[30] Bogdan Sojkin, Paweł Bartkowiak, and Agnieszka Skuza, 'Determinants of Higher Education Choices and Student Satisfaction: The Case of Poland', *Higher Education* 63, no. 5 (May 2012): 565–81, https://doi.org/10.1007/s10734-011-9459-2; Bogdan Sojkin, Paweł Bartkowiak, and Agnieszka Skuza, 'Changes in Students' Choice Determinants in Poland: A Comparative Study of Tertiary Business Education between 2008 and 2013', *Higher Education* 69, no. 2 (February 2015): 209–24, https://doi.org/10.1007/s10734-014-9770-9; Terenzini et al., 'First-Generation College Students'.

In his study, Atherton[31] draws attention to the fact that higher education institutions would benefit if they quickly realized they should provide support programmes for first-generation students. As student populations become more diverse, higher education institutions need to understand the student's academic preparedness to provide adequate services for them. Even though first-generation students share common characteristics with other disadvantaged student groups, their situation involves specific circumstances.[32] Gullat and Jan[33] or Nathan[34] mentioned existing intervention programmes that can bridge the gap between students from low and high-income backgrounds. These aimed to increase university enrolment and degree attainment for low-income students, the number of high school graduates among students from low-income families, or to identify and assist academically disadvantaged population groups and provide such students with academic, information-based and career experience aimed at making their university life easier.

I.2. *The main motivational influences and information sources in the students' university study decisions*

The main influences which motivate decisions are different for first-generation students than for second-generation students. In the previous section, we introduced some of them and in this section, we will discuss the specific influences motivating students to choose a university education that we identified. The results of the questionnaire by Sojkin et al.[35] identified five main topics that determine the students' decision to pursue university study: opinions and expectations of family, student life, student financial support, a chance at a better job and a better career opportunity. Dowling-Hetherington[36]

---

[31] Matthew C. Atherton, 'Academic Preparedness of First-Generation College Students: Different Perspectives', *Journal of College Student Development* 55, no. 8 (2014): 824–29, https://doi.org/10.1353/csd.2014.0081.

[32] Atherton.

[33] Yvette Gulatt and Wendy Jan, *How Do Pre-Collegiate Academic Outreach Programs Impact College-Going among Underrepresented Students* (Pathways to College Network Clearinghouse, 2003).

[34] Alan B. Nathan, 'Does Upward Bound Have an Effect on Student Educational Outcomes? A Reanalysis of the Horizons Randomized Controlled Trial Study' (The University of Wisconsin, 2013), https://www.proquest.com/docview/1355756348.

[35] Sojkin, Bartkowiak, and Skuza, 'Determinants of Higher Education Choices and Student Satisfaction'.

[36] Linda Dowling-Hetherington, 'Transnational Higher Education and the Factors Influencing Student Decision-Making: The Experience of an Irish University', *Journal of Studies in International Education* 24, no. 3 (July 2020): 291–313, https://doi.org/10.1177/1028315319826320.

examined a sample of students at an Irish university with international campuses in Asia. She explored what influenced students' choice of university, its location, and its study programme. The participants were three cohorts of students over two years. She found that above all other factors, the international ranking of the university and the accreditations are the most influential in students' decision-making process.[37]

In both these studies, the factors weighing the most in the students' decision-making turned out to be expectations of the family, better job prospects, professional (career) advancement, and university ranking or study programme content. In particular, both studies found that the students' university study decision was greatly affected by the social impacts and overall evaluation of the university.

Sojkin et al.[38] identified the sources of information that students used most frequently when searching for information about universities, as well as the factors determining their final choice. They also asked the participants what were the main sources of information while deciding on their university studies. They reported the use of the Internet, university brochures, friends' recommendations and education fairs. The most important factors of satisfaction were social conditions and professional advancement.[39]

Le et al.[40] analysed data from prospective higher education students from Vietnam ($N = 509$). The results show that parents were the most important source of information for these students, which may reflect the collectivist and Confucian tradition in Vietnamese culture, where parents strongly influence the future of their children. Opportunities to visit the campus and university websites were found as important sources of information too.[41]

According to Le, Robinson, and Dobele,[42] "this finding could be relevant to university marketers who may be investing in online platforms as a significant tool of relationship marketing". Yet the results suggest that prospective students are not very likely to rely on social media as an information source informing their decision-making process. Although open

---

[37] Dowling-Hetherington.

[38] Sojkin, Bartkowiak, and Skuza, 'Determinants of Higher Education Choices and Student Satisfaction'.

[39] Sojkin, Bartkowiak, and Skuza.

[40] Tri D. Le, Linda J. Robinson, and Angela R. Dobele, 'Understanding High School Students Use of Choice Factors and Word-of-Mouth Information Sources in University Selection', *Studies in Higher Education* 45, no. 4 (2 April 2020): 808–18, https://doi.org/10.10 80/03075079.2018.1564259.

[41] Le, Robinson, and Dobele.

[42] Le, Robinson, and Dobele.

days and websites are not the key marketing tools of Vietnamese universities, the authors reported that students were increasingly considering these information sources, and universities were advised to adapt their promotional strategies.[43] The decisions about future university studies seem to be strongly influenced by cultural contexts and traditions. That is why we find it important to investigate the difference in decision-making between first- and second-generation students within the cultural aspects.

II. Material and methods

II.1. Research objectives

Our main objective is to find the factors which inform the university study decision-making of students in the graduating year of secondary school. Our objective is also to analyse the main sources of information that help students make decisions about university study. And last but not least, our objective is to identify the main differences and similarities in these matters between first-generation and second-generation students.

In this work, we deal with the main motivational factors informing the students' decisions concerning university study. This topic is not sufficiently researched on a sample of Slovak students and as mentioned above, the cultural or educational policy contexts may affect the motivational processes and information sources of students in a particular country. This is the reason why we took inspiration from the study of the Polish authors Sojkin et al.[44] who are culturally close, in defining the topics affecting the choice of study at a university. In the original Polish study, the authors focused on exploring all possible factors related to university education. They also attempted to specify the stages and sources of information informing the choice of university. Their study employed both qualitative and quantitative methods. They focused on three specific topics: (i) how students go about their decision-making, (ii) what are the main sources of information about the study area, and (iii) which factors affect the satisfaction with the study at the selected school.

For this study, we used a quantitative design with a questionnaire method.[45] The Polish study served as our guide because, after 1989,

---

[43] Le, Robinson, and Dobele.

[44] Sojkin, Bartkowiak, and Skuza, 'Determinants of Higher Education Choices and Student Satisfaction'.

[45] Colin Robson, *Real World Research: A Resource for Users of Social Research Methods in Applied Settings*, 3. ed (Chichester: Wiley, 2011).

universities in Slovakia underwent a similar boom as in Poland. The number of higher education institutions in Slovakia before 1989 was limited and not everyone had the opportunity to study at a university, whereas in the 90's the demand for higher education increased in areas like civil service, police force, preschool education, education in general, nursing, etc. This led to an increase in the number of higher education institutions. After the fall of communism in 1989, Poland also needed different skills to lead the companies in a new market economy, stimulating the growth of business-oriented education (marketing, management, finance) and a boom of private universities.[46] The number of universities and universities culminated in 2006 and began to decrease thereafter. That is why today if universities want to attract enough students to retain their status as higher education institutions, they need to adapt to the situation. It also means that higher education institutions should regard students as potential customers.[47] For this study, similarly to e.g., Keppens et al.,[48] we defined the second-generation students as those whose parents (one or both) finished university studies, and the first-generation students were defined as those whose parents had no university degree.

II.2. *Research hypotheses and research questions*

Our hypotheses and research questions are based on the study by Sojkin et al.[49]

Hypothesis No. 1: For second-generation students, the continuation of the family tradition is a more important factor informing their decision on whether to study at a university, than for first-generation students.

Hypothesis No. 2: For first-generation students, the internet is a more important source of information, than for second-generation students.

The following research questions compare the similarities and differences between the two groups of students - 1st generation students vs. 2nd generation students:

---

[46] Sojkin, Bartkowiak, and Skuza, 'Changes in Students' Choice Determinants in Poland'.

[47] Robert M. Brown and Timothy William Mazzarol, 'The Importance of Institutional Image to Student Satisfaction and Loyalty within Higher Education', *Higher Education* 58, no. 1 (July 2009): 81–95, https://doi.org/10.1007/s10734-008-9183-8.

[48] Keppens et al., 'First-Generation College Students' Motives to Start University Education'.

[49] Sojkin, Bartkowiak, and Skuza, 'Determinants of Higher Education Choices and Student Satisfaction'.

Research question 1: Who are the significant others that influence the student's university decision the most?

Research question 2: Which aspects play the greatest role in deciding about university study?

Research question 3: When do students begin deciding about going to university?

Research question 4: Which sources of information do students perceive as most important when selecting a university?

II.3. *The research sample*

Our research sample consisted of 357 ($N = 357$) Slovak students, 34.5% ($n = 123$) of whom were secondary school students in the graduating year and 65.5% ($n = 234$) were university freshmen. In terms of age, participants ranged from 18 to 22 years ($M = 19.0$), and in terms of gender, 71.1% were women ($n = 254$) and 28.9% were men ($n = 103$). Our research sample included 54.1% first-generation students ($n = 193$) and 45.9% second-generation students ($n = 164$). Using G-Power,[50] this sample size is considered sufficient to detect inter-group differences (with a power of 0.99 and size effect set to 0.3). This was a convenience sample with voluntary participation. The participants were recruited via schools and social media groups, where the online questionnaire was sent or posted.

II.4. *Ethical statement*

Approval was obtained from the Ethics Committee of the Faculty of Social and Economic Sciences, Comenius University in Bratislava. The procedures used in this study adhere to the tenets of the Declaration of Helsinki. Informed consent was obtained from all individual participants included in this study.

II.5. *Measurement tools*

The main research tool employed to examine this issue was a questionnaire based on Sojkin et al.[51] The main part of the questionnaire consisted of 84

---

[50] Franz Faul et al., 'G*Power 3: A Flexible Statistical Power Analysis Program for the Social, Behavioral, and Biomedical Sciences', *Behavior Research Methods* 39, no. 2 (May 2007): 175–91, https://doi.org/10.3758/BF03193146.

[51] Sojkin, Bartkowiak, and Skuza, 'Determinants of Higher Education Choices and Student Satisfaction'.

statements, which were measured using a five-point Likert scale (ranging from 1 = strongly disagree to 5 = strongly agree). Twenty-three out of the 84 statements in the questionnaire measured the possible responses to the decision to study at university. Another 27 of the 84 statements measured the significance of the variables determining the choice of university and 34 measured the various forms of satisfaction with the study at the selected university.

We obtained the original questionnaire of Sojkin et al.[52] from the authors themselves who also granted us their consent to follow up on their research. To improve the accuracy of the results we needed to rectify some shortcomings of the original questionnaire (such as outdated questions or choice of answers; in some questions the number of answers was left to the respondent's choice, preventing a relevant assessment of the results). We translated the original questionnaire into Slovak and then removed the outdated questions (e.g., the reason for university study being the avoidance of compulsory military service; searching for information about university studies in a telephone directory) and changed the answer scale of the questionnaire (from the original Likert scale to dichotomous, yes/no, answers offering a subsequent option of ranking the three most important factors – 1st place, 2nd place and 3rd place), to allow for a better evaluation of the data. Our main focus was to identify similarities and differences between the groups of first- and second-generation students, which is why we added the following question to the questionnaire: *Are your parents university graduates? (a) yes, one; (b) yes, both; (c) no, neither.* In this question, we divided the sample so that if the student indicated either *(a)* or *(b)*, we included them among second-generation students. If they indicated *(c)*, they were included among first-generation students. Finally, we expanded the questionnaire to obtain some demographic data about our participants.

Since we translated and modified the original questionnaire, we ran a pilot of the Slovak version of it. The pilot was conducted as semi-structured online interviews via MS Teams, using the method of cognitive interviews in the form of verbal probing.[53] With this method, we read the questionnaires to the participants point by point and asked them additional questions. The interviews were held with six secondary school students and six first-year university students aged 18 to 22 (*M = 19.0*). The pilot enabled us to verify that the questions and answer options were comprehensible and that the terms used in the questionnaire were easy to understand.

---

[52] Sojkin, Bartkowiak, and Skuza.

[53] Gordon B. Willis, *Cognitive Interviewing: A Tool for Improving Questionnaire Design* (Thousand Oaks, Calif: Sage Publications, 2005).

II.6. *Data analysis*

We analysed the collected questionnaire data using the SPSS statistical programme, version 25. We used the Chi-squared test to determine the relationships between the variables because we were conducting an inter-subject comparison of nominal variables in our hypotheses.

III. Results

H1: For second-generation students, the continuation of the family tradition is a more important factor informing their decision on whether to study at a university, than for first-generation students.

The difference between first-generation students (54.1%; $n = 193$) and second-generation students (45.9%; $n = 164$) in their university study decisions due to the influence of the continuation of the family tradition is statistically significant but small, $X^2 (2; N = 357) = 15.96; p = .003; V = 0.21$. The results show that 21.3% of second-generation students ($n = 35$) stated that they were influenced by the desire to continue the family tradition when choosing a university, while only 7.3% of first-generation students said so ($n = 14$). This means that for second-generation students, continuing the family tradition is a more significant factor in deciding to study at a university than for first-generation students. Hypothesis 1 was confirmed.

H2: For first-generation students, the internet is a more important source of information, than for second-generation students.

We did not find any difference between first- and second-generation students in their use of the internet as a source of information, $X^2 (2; N = 357) = 3.26; p = 0.516; V = 0.10$. The results show that 99% of first-generation students ($n = 191$) stated that they considered the Internet to be the main source of information, while 97.6% ($n = 160$) of second-generation students said so. Hypothesis 2 was not confirmed.

RQ1: Who are the significant others that influenced the student's university decision the most?

The results show that the most frequently selected questionnaire item was *I decided myself*, which was chosen by 79.3% ($n = 153$) of first-generation students and by 72.0% of second-generation students ($n = 118$). The second most frequently selected item was *parents (mother/father)*, which was chosen by 11.4% ($n = 22$) of first-generation students and by 18.9% ($n = 31$) of second-generation students. The third most popular answer

among the students was *my peers*. It was selected by 2.6% (*n* = 5) of first-generation students and by 5.5% (*n* = 9) of second-generation students.

Table 1

People influencing students in their choice of university study

Influence on study selection	1st Generation (n = 193)	2nd Generation (n = 164)	Total (N = 357)	X²	p
Myself	153 (78%)	118 (72%)	271 (76%)		
Parents (mother/father)	22 (11%)	31 (19%)	53 (15%)		
Other family members	8 (4%)	3 (2%)	11 (3%)		
Secondary school teachers	2 (1%)	1 (1%)	3 (1%)		
Acquaintances/colleagues who have completed their studies	1 (1%)	2 (1%)	3 (1%)	9.840	.198
Acquaintances/colleagues who are still studying	1 (1%)	0 (0%)	1 (0%)		
My peers	5 (3%)	9 (5%)	14 (4%)		
Employer	1 (1%)	0 (0%)	1 (0%)		

RQ2: *Which aspects play the greatest role in the university study decision?*

The most popular item was the *extension of knowledge*, for which 76.2% (*n* = 272) of students chose yes, meaning that they were influenced by this aspect. The item was considered influential by 48.9% (*n* = 133) of first-generation students and by 47.4% (*n* = 129) of second-generation students. Only 5.6% (*n* = 20) of all students (*n* = 357) stated that they were unaffected by this aspect. Out of the 20 participants who answered in the negative, 45% (*n* = 9) were first-generation students and 81.8% (*n* = 11) were second-generation students. Of the number of participants who considered this aspect influential, 32.3% (*n* = 88) indicated that it was the most important aspect: 55.7% (*n* = 49) of them were first-generation students and 44.3% (*n* = 39) were second-generation students.

The aspect of *acquiring a profession* ranked second because 65.8% (*n* = 235) of the students answered in the affirmative, meaning that they were influenced by this aspect. The aspect was considered influential by 54.9% (*n* = 129) of first-generation students and by 45.1% (*n* = 106) of second-generation students. Only 10.4% (*n* = 37) of the total number of students (*n* = 357) indicated that they were unaffected by this aspect. Out of the 37 participants who answered in the negative, 40.5% (*n* = 15) were first-generation students and 59.5% (*n* = 22) were second-generation students. Out of the number of participants who identified this aspect as influential, 22.1% (*n* = 52) said that this aspect was the most important, and of those 67.3% (*n* = 35) were first-generation students and 32.7% (*n* = 17) were second-generation students.

The aspect of *investment into the future* was ranked third and 67.8% (*n* = 242) of students answered in the affirmative meaning they were affected by this aspect. This aspect is considered to be influential by 55% (*n* = 133) of first-generation students and by 45% (*n* = 109) of second-generation students. Only 9.2% (*n* = 33) of all students (*n* = 357) indicated not to have been affected by this aspect. Out of these 33 participants who answered in the negative, 24.2% (*n* = 8) were first-generation students and 75.7% (*n* = 25) were second-generation students. Out of the number of participants who identified this aspect as influential, 21.1% (*n* = 51) stated they would rank this aspect first, and of those 45.1% (*n* = 23) were first-generation students and 55% (*n* = 28) were second-generation students.

Table 2
The most important aspects of the university study decision

Aspects in the college study decision	Yes/No	1st Generation (n = 193)	2nd Generation (n = 164)	X²	p
Extension of knowledge	Yes	94 (49%)	90 (55%)	3.702	.448
	No	9 (5%)	11 (7%)		
Acquiring a profession	Yes	94 (49%)	89 (54%)	8.213	.084
	No	15 (8%)	22 (13%)		
Investment into future	Yes	110 (57%)	81 (49%)	19.877	**.001**
	No	8 (4%)	25 (15%)		

RQ3: *When do students begin deciding about going to university?*

The results show that the most frequently selected item was *during secondary school studies*. This answer was indicated by 58% (*n* = 206) of

participants. No significant differences were found between the first- and second-generation students. The second most frequently selected answer was *before starting secondary school*. It was chosen by 26.3% ($n = 94$) of participants, 24.9% ($n = 48$) of whom were first-generation students and 28.0% ($n = 46$) were second-generation students. The third most frequent answer was *immediately after graduating from secondary school*, chosen by 8% (n = 30) participants, with $n = 18$ (9%) first-generation students and $n = 12$ (7%) second-generation students.

Table 3

When does university study decision-making begin?

The decision to study at college started	1st Generation (n = 193)	2nd Generation (n = 164)	Total (N = 357)	X²	p
One year or later after graduating from secondary school	11 (6%)	8 (5%)	19 (5%)		
Immediately after graduating from secondary school	18 (9%)	12 (7%)	30 (8%)	2.939	.709
During the secondary school studies	111 (57%)	95 (58%)	206 (58%)		
Before starting secondary school	48 (25%)	46 (28%)	94 (26%)		
I do not remember	5 (3%)	3 (2%)	8 (2%)		

RQ4: *Which sources of information do students perceive as most important when selecting a university?*

As many as 98.9% ($n = 191$) of first-generation students and 97.5% ($n = 160$) of second-generation students identified the internet as the main source of information used when deciding about university study. This answer was placed first on a scale of 1 to 3 by 55.4% ($n = 106$) of first-generation and 61.8% ($n = 99$) of second-generation students. The option which was the second most frequently to be answered in the affirmative was *University open day* - this item was chosen by 53.9% ($n = 104$) of first-generation students and by 55.0% ($n = 88$) of second-generation students. This answer

was placed first on a scale of 1 to 3 by 12.4% ($n = 24$) of first-generation and 7.9% ($n = 13$) of second-generation students. *Acquaintances/colleagues* was the item that participants identified as the third most relevant. Of them, 48.1% ($n = 93$) were first-generation students and 59.7% ($n = 9$) were second-generation students. This answer was placed first on a scale of 1 to 3 by 4.1% ($n = 8$) of first-generation and 8.5% ($n = 14$) of second-generation students.

Table 4

Sources of information in college study decision

Source of information	1st Generation (n = 193)	2nd Generation (n = 164)	X²	p
The press	32 (17%)	31 (19%)	4.790	.310
Television	10 (5%)	9 (5%)	.970	.808
Radio	5 (3%)	8 (5%)	3.462	.326
Internet	191 (99%)	160 (98%)	3.256	.516
Education fairs	94 (49%)	71 (43%)	1.238	.872
Academic information centres	41 (21%)	23 (14%)	5.762	.218
University information brochure	82 (42%)	69 (42%)	.430	.980
The family	68 (35%)	86 (52%)	12.858	**.012**
Acquaintances, colleagues	93 (48%)	98 (60%)	7.855	.097
Secondary school teachers	75 (39%)	59 (36%)	10.977	**.027**
Advertising in secondary school	35 (18%)	46 (28%)	5.886	.208
University Open Day	104 (54%)	88 (54%)	3.084	.544
Employer's opinion	6 (3%)	5 (3%)	2.035	.565

IV. Discussion

The results of our first hypothesis suggest that continuing the family tradition (i.e., attending university) is an aspect with slightly higher importance for second-generation students when deciding about university study than for first-generation students. The difference is small but statistically significant. The reason could be that second-generation students have at least one parent who attended university, providing a role model or motivation for this student rather than for a first-generation student, who lacks a role model

like this in the family.[54] In the first research question, we found no differences, but we did discover similarities between the first- and second-generation students, in terms of who influenced them in their university study decision.

The second hypothesis was not confirmed - the internet is not a more relevant source of information for first-generation students than for second-generation students. The results of the study by Sojkin et al.[55] indicate that students in Poland also reported the internet to be their most frequently used source of information. In another study, students in Portugal cited the Internet as their main source of information.[56] According to Khoo,[57] there are several reasons why digital marketing is the best way to reach prospective students: they spend more time online than with any other media; online advertising surpasses traditional advertising methods; potential students use the Internet to search for or select educational institutions and courses; parents or guardians have started to evaluate schools and universities based on their websites and online presence on social networks; most higher education institutions use the Internet for student applications or communication with the public; both foreign and domestic students heavily rely on the information from the website of the higher education institution during the application and admission procedure.

The internet is, consequently, considered by students to be the most important source of information when making a university study decision, regardless of the division of students between first- vs. second-generation students. Due to this finding, we recommend that universities pay considerable attention to their websites, which students search for before applying. We also suggest that universities be active on social networks (updating news about themselves, sharing the achievements of their students or faculty, organizing online interviews with university faculty, running public competitions, informing about study programmes and more) because these activities make up a large part of internet searches and at the moment social networks are probably the most frequently used place where students search for information in general, but where they also search for information about

---

[54] Toutkoushian, Stollberg, and Slaton, "Talking "Bout My Generation'; Choy, *Students Whose Parents Did Not Go to College: Postsecondary Access, Persistence, and Attainment*.

[55] Sojkin, Bartkowiak, and Skuza, "Determinants of Higher Education Choices and Student Satisfaction'.

[56] Cláudia Simões and Ana Maria Soares, "Applying to Higher Education: Information Sources and Choice Factors', *Studies in Higher Education* 35, no. 4 (June 2010): 371–89, https://doi.org/10.1080/03075070903096490.

[57] Benjamin KS Khoo, "Mobile Applications in Higher Education: Implications for Teaching and Learning', *International Journal of Information and Communication Technology Education* 15, no. 1 (January 2019): 83–96, https://doi.org/10.4018/IJICTE.2019010106.

their current or future school or career. In our study, the internet turned out to be the most important source of information for students in their university study decisions. However, it is important to consider changing trends in the use of internet sources and social media. Some studies highlight the fact that different cohorts of students may prefer different social media or the pattern of their use,[58]

In our first research question (see RQ1: *Who are the significant others that influenced the student's university decision the most?*) we focus on who influences students the most when they are choosing a university, whether it is their own decision or are they influenced by someone else. Both the first- and second-generation students indicated that the decision to continue studying was 1) their own (preferred by first-generation students but only by 7.3 percentual points), followed by 2) the influence of their parents (preferred by first-generation students but only by 7.5 percentual points), and 3) the influence of their peers (preferred by second-generation students but only by 2.9 percentual points).

Both groups chose approximately the same top three factors and there were no significant differences between them. This means that both groups most frequently based their university study decision on their initiative, then to a lesser extent on their parents, followed by their peers. In a study by Le et al.,[59] they found that students considered parents to be the largest factor in their choice of study, while in our research the students stated that the decision to study at university was mostly their own. These differences between results may be due mainly to the fact that the authors conducted their research on a sample of Vietnamese students. There are many differences between the Slovak and the Vietnamese populations, particularly in terms of culture and traditions. It is generally known that in Vietnam parents have a greater say in the future of their children. Vietnamese students would therefore naturally indicate their parents as the most significant factor in their university study decision-making.

In our second research question (see RQ2: *Which aspects play the greatest role in the university study decision?*) we looked at the most significant aspects informing the university study decision in the groups of first- and second-generation students. In both groups *extension of knowledge* ranks first among aspects that the students consider important to their decision-making. *Acquiring a profession* was ranked second and was chosen by 9.8% more first-generation students than second-generation students. The

---

[58] Yang, 'Similar Patterns, Different Implications'.

[59] Le, Robinson, and Dobele, "Understanding High School Students Use of Choice Factors and Word-of-Mouth Information Sources in University Selection'.

third most important factor for students is an *investment in the future,* which was chosen by 10% more first-generation students than second-generation students. The study by Sojkin et al.[60] found that *family opinion and expectations* were ranked first in importance, followed by *student life* (closer undefined) and *financial support of the family* in third place. Our results in this research question somewhat diverge from the results of the study we used as the basis. *Acquiring a profession*, which our participants ranked second, was ranked fourth by the participants in Sojkin et al.,[61] which is not hugely different. These results are not expected to be identical because the participants in our two surveys were of different ages. While our research sample consisted of young people aged 19 to 22, the original study of the authors whose questionnaire we used had participants aged 19 to 30. The authors, therefore, used participants who were eight years older and may consequently have different opinions regarding university study decisions than the younger sample we used in our research. It could be said that the larger age range of the participants in the original study also included young adults who chose to study at university to experience student life. People aged 25 to 30, after all, are often those who have been out of school for some time and may be returning to a classroom after several years of having worked in a job. At this age, the motivation to study at university and obtain a degree may significantly differ from students who arrive at university straight from secondary school.

In our third research question (see RQ3: *When do students begin deciding about going to university?)* we study when students begin to decide whether to study at university. Our results indicate that both first- and second-generation students began to ponder university study already while attending secondary school, and there were almost no differences between the two groups, on the contrary, they were similar. The options which were ranked second and third in our research also exhibited similarities between the two groups. The second most frequently indicated option by the participants was that they began pondering their university studies just before enrolling at their selected university. The third most frequently chosen option was the last year of secondary school. In the study by Sojkin et al.,[62] this question appears in the questionnaire but from the results of their research, we cannot conclude how exactly their participants responded because their analysis only included

---

[60] Sojkin, Bartkowiak, and Skuza, "Determinants of Higher Education Choices and Student Satisfaction'.

[61] Sojkin, Bartkowiak, and Skuza.

[62] Sojkin, Bartkowiak, and Skuza, "Changes in Students' Choice Determinants in Poland'.

multi-item questions. One remaining issue is whether an earlier interest in university study has a positive impact or whether this aspect is irrelevant. To find out, we would recommend carrying out a longitudinal study, which would cover several groups of students (those who had considered university study during their elementary and secondary school; those, who entertained the idea when selecting their secondary school graduation subjects, etc.) and would yield results relatable to the success of the university study.

Our last research question (see RQ4: *Which sources of information do students perceive as most important when selecting a university?*) studied the sources of information that are perceived by students to be the most relevant to choosing a university. *The internet* was the most frequently indicated choice by both first- and second-generation students. It appears to be the most important source of information for students. This statement is confirmed by the results of the study by Sojkin et al.,[63] which also concluded that the Internet was the most important source of information for students. The study by Simões and Soares[64] produced the same results, pointing to the importance of the Internet as a key source of information for future students. In our research, the *University open day* ranked second, and the numbers of first- and second-generation students who chose it differed by only 1.1%. The third most significant sources of information were *Acquaintances/colleagues*, mentioned by 11.6% more second-generation students than first-generation students.

The reason students massively reported the internet to be the main source of information was undoubtedly also affected by the pandemic, which prevented personal visits to universities. This means that students were not able to attend open days or access printed brochures (even though some universities tried to hold online University Open Days or send their brochures to secondary schools in electronic format). Young people particularly are regular users of the internet in the modern age, and this habit may have been boosted during the pandemic due to the restriction of personal contact.

Our findings indicate that family tradition plays a role in the decision-making about university studies in Slovak students, which supports the hypothesis of differences in first and second-generation students' decision-making. However, there are also similarities between those groups in terms of the sources they use in the decision-making about their studies. These results contribute to the existing theory of generational differences in the culturally

---

[63] Sojkin, Bartkowiak, and Skuza, "Determinants of Higher Education Choices and Student Satisfaction'.

[64] Simões and Soares, 'Applying to Higher Education'.

and historically specific situation of the Slovak education system. As such these results are applicable in several contexts. First, career counselling in secondary education may address the different needs and expectations of those two groups of students. Second, Slovak universities may adopt policies and practices supporting guidance for first-generation students that may help them to socialize into the university setting. Universities may develop intervention programs to prevent these students from early attrition.

We are aware that the questionnaire method used in our research comes with disadvantages - we were unable to ask supplementary questions[65] and we were not aware of the context of the answers chosen by the participants. In the future, we recommend studying the decision-making of first-generation vs. second-generation students by employing focus group interviews as well as in-depth one-on-one interviews. The former method would allow a discussion to take place, producing several counter-arguments, while the latter would enable a more detailed understanding of first-generation vs. second-generation student decision-making.

V. Conclusions

The main objective of our study was to compare first-generation and second-generation students in their university study decisions, to look for influences informing university study decisions, and to look for the main sources of information about university study which are taken into account by the students during their university study decision-making.

We found that students of both groups largely decide to study at university on their initiative, and the influence of parents or peers closely follows as a deciding factor. We also found that the most important aspect driving students to study at university, regardless of the first-generation/second-generation division, is the desire to expand their knowledge. The most important source of information about potential university study was the internet, once again irrespective of the first/second-generation distinction.

Our research highlights possible similarities between first- and second-generation students, for example in terms of information resources used by the students or influences which inform the students' university study decisions. We also point out the differences between first- and second-generation students, for example when choosing to study due to their parents' influence to continue a family tradition. It might be interesting to analyse these findings in a broader context to further explore this issue and to develop

---

[65] Robson, *Real World Research*.

tools to help, for example, first-generation students specifically. This could lead to further research, expanding the topic of the student's university study decisions, and helping to find answers to questions related to first-generation vs. second-generation students.

At present, universities compete with each other more than ever before and struggle for potential customers - new students - every year, leading to a need to consider supporting disadvantaged groups of students. In the case of our study, we draw attention to the group of first-generation students who might be the target audience of an intervention programme targeted specifically at them. We are aware that creating a good and functional intervention programme is challenging in its own right, but it is worth trying because today´s competitive milieu of university institutions and ongoing paradigmatic changes within the entire academic eco-system place enormous demands, especially on first-generation students when it comes to making their career decisions.

Bibliography

Atherton, Matthew C. 'Academic Preparedness of First-Generation College Students: Different Perspectives'. *Journal of College Student Development* 55, no. 8 (2014): 824–29. https://doi.org/10.1353/csd.2014.0081.

Brown, Robert M., and Timothy William Mazzarol. 'The Importance of Institutional Image to Student Satisfaction and Loyalty within Higher Education'. *Higher Education* 58, no. 1 (July 2009): 81–95. https://doi.org/10.1007/s10734-008-9183-8.

Capannola, Amanda L., and Elizabeth I. Johnson. 'On Being the First: The Role of Family in the Experiences of First-Generation College Students'. *Journal of Adolescent Research* 37, no. 1 (January 2022): 29–58. https://doi.org/10.1177/0743558420979144.

Choy, Susan P. *Students Whose Parents Did Not Go to College: Postsecondary Access, Persistence, and Attainment*. U.S. Department of Education, 2001. https://nces.ed.gov/pubs2001/2001072_Essay.pdf.

Collier, Peter J., and David L. Morgan. '"Is That Paper Really Due Today?": Differences in First-Generation and Traditional College Students' Understandings of Faculty Expectations'. *Higher Education* 55, no. 4 (April 2008): 425–46. https://doi.org/10.1007/s10734-007-9065-5.

Deci, Edward L., and Richard M. Ryan. 'Motivation, Personality, and Development Within Embedded Social Contexts: An Overview of Self-Determination Theory'. In *The Oxford Handbook of Human Motivation*, by Edward L. Deci and Richard M. Ryan, 84–108. edited by Richard M. Ryan. Oxford University Press, 2012. https://doi.org/10.1093/oxfordhb/9780195399820.013.0006.

Dowling-Hetherington, Linda. 'Transnational Higher Education and the Factors Influencing Student Decision-Making: The Experience of an Irish University'.

Journal of Studies in International Education 24, no. 3 (July 2020): 291–313. https://doi.org/10.1177/1028315319826320.

Faul, Franz, Edgar Erdfelder, Albert-Georg Lang, and Axel Buchner. 'G*Power 3: A Flexible Statistical Power Analysis Program for the Social, Behavioral, and Biomedical Sciences'. *Behavior Research Methods* 39, no. 2 (May 2007): 175–91. https://doi.org/10.3758/BF03193146.

Froggé, George M., and Kathryn H. Woods. 'Characteristics and Tendencies of First and Second-Generation University Students'. *College Quarterly* 21, no. 2 (2018). http://collegequarterly.ca/2018-vol21-num02-spring/characteristics-and-tendencies-of-first-and-second-generation-university-students.html.

Glass, Leah E. 'Social Capital and First-Generation College Students: Examining the Relationship Between Mentoring and College Enrollment'. *Education and Urban Society* 55, no. 2 (February 2023): 143–74. https://doi.org/10.1177/00131245221076097.

Gulatt, Yvette, and Wendy Jan. *How Do Pre-Collegiate Academic Outreach Programs Impact College-Going among Underrepresented Students*. Pathways to College Network Clearinghouse, 2003.

Horn, Laura, and Anne-Marie Nuñez. *Mapping the Road to College: First-Generation Students' Math Track, Planning Strategies, and Context of Support*. National Center for Education Statistics, 2000. https://nces.ed.gov/pubs2000/2000153.pdf.

Ives, Jillian, and Milagros Castillo-Montoya. 'First-Generation College Students as Academic Learners: A Systematic Review'. *Review of Educational Research* 90, no. 2 (April 2020): 139–78. https://doi.org/10.3102/0034654319899707.

James, Richard. 'Non-Traditional Students and Their University Participation: An Australian Perspective on Persistent Inequities and the New Ideology of Student Choice.' 21st European Association of Institutional Research, 1999.

Keppens, Gil, Simon Boone, Els Consuegra, Ilse Laurijssen, Bram Spruyt, and Filip Van Droogenbroeck. 'First-Generation College Students' Motives to Start University Education: An Investment in Self- Development, One's Economic Prospects or to Become a Role Model?' *YOUNG*, 30 January 2023, 110330882211393. https://doi.org/10.1177/11033088221139393.

Khoo, Benjamin KS. 'Mobile Applications in Higher Education: Implications for Teaching and Learning'. *International Journal of Information and Communication Technology Education* 15, no. 1 (January 2019): 83–96. https://doi.org/10.4018/IJICTE.2019010106.

Le, Tri D., Linda J. Robinson, and Angela R. Dobele. 'Understanding High School Students Use of Choice Factors and Word-of-Mouth Information Sources in University Selection'. *Studies in Higher Education* 45, no. 4 (2 April 2020): 808–18. https://doi.org/10.1080/03075079.2018.1564259.

Machovcová, Kateřina, Taťána Škanderová, and Barbora Zumrová. 'Studující První Generace v Procesu Tranzice Do Vysokoškolského Studia [First-Generation Students in the Process of Transition into University Studies]'. In *Punk v Kvalitativním Výzkumu Aneb „Kvalita Is Not Dead"*, edited by Alena Hricová, 31. České Budějovice: Jihočeská univerzita v Českých Budějovicích, 2023.

McPherson, Rebecca. 'Low-Qualified Labors' Job Mobility, Boundary Crossing, and Career Success: A Cross-Industry HRM Perspective'. *Journal of Organizational Psychology* 18, no. 1 (2018): 116–29.

Ministry of Education, Science, Research and Sport of the Slovak Republic. 'Školné Na Vysokých Školách v SR'. Ministry of Education, Science, Research and Sport of Slovak Republic, 2022. https://www.minedu.sk/skolne-na-vysokych-skolach-v-sr/#VVSDF.

Nathan, Alan B. 'Does Upward Bound Have an Effect on Student Educational Outcomes? A Reanalysis of the Horizons Randomized Controlled Trial Study'. The University of Wisconsin, 2013. https://www.proquest.com/docview/1355756348.

Pike, Gary R., and George D. Kuh. 'First- and Second-Generation College Students: A Comparison of Their Engagement and Intellectual Development'. *The Journal of Higher Education* 76, no. 3 (2005): 276–300. https://doi.org/10.1353/jhe.2005.0021.

Robson, Colin. *Real World Research: A Resource for Users of Social Research Methods in Applied Settings*. 3. ed. Chichester: Wiley, 2011.

Ryan, Richard M., and Edward L. Deci. 'Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being.' *American Psychologist* 55, no. 1 (2000): 68–78. https://doi.org/10.1037/0003-066X.55.1.68.

Simões, Cláudia, and Ana Maria Soares. 'Applying to Higher Education: Information Sources and Choice Factors'. *Studies in Higher Education* 35, no. 4 (June 2010): 371–89. https://doi.org/10.1080/03075070903096490.

Sojkin, Bogdan, Paweł Bartkowiak, and Agnieszka Skuza. 'Changes in Students' Choice Determinants in Poland: A Comparative Study of Tertiary Business Education between 2008 and 2013'. *Higher Education* 69, no. 2 (February 2015): 209–24. https://doi.org/10.1007/s10734-014-9770-9.

———. 'Determinants of Higher Education Choices and Student Satisfaction: The Case of Poland'. *Higher Education* 63, no. 5 (May 2012): 565–81. https://doi.org/10.1007/s10734-011-9459-2.

Tate, Kevin A., William Caperton, Dakota Kaiser, Nathan T. Pruitt, Heather White, and Eric Hall. 'An Exploration of First-Generation College Students' Career Development Beliefs and Experiences'. *Journal of Career Development* 42, no. 4 (August 2015): 294–310. https://doi.org/10.1177/0894845314565025.

Terenzini, Patrick T., Leonard Springer, Patricia M. Yaeger, Ernest T. Pascarella, and Amaury Nora. 'First-Generation College Students: Characteristics, Experiences, and Cognitive Development'. *Research in Higher Education* 37, no. 1 (February 1996): 1–22. https://doi.org/10.1007/BF01680039.

Toutkoushian, Robert K., Robert A. Stollberg, and Kelly A. Slaton. 'Talking 'Bout My Generation: Defining "First-Generation College Students" in Higher Education Research'. *Teachers College Record: The Voice of Scholarship in Education* 120, no. 4 (April 2018): 1–38. https://doi.org/10.1177/016146811812000407.

Willis, Gordon B. *Cognitive Interviewing: A Tool for Improving Questionnaire Design*. Thousand Oaks, Calif: Sage Publications, 2005.

Yang, Chia-chen. 'Similar Patterns, Different Implications: First-Generation and Continuing College Students' Social Media Use and Its Association With College Social Adjustment'. *Journal of College Student Retention: Research, Theory & Practice* 24, no. 1 (May 2022): 79–98. https://doi.org/10.1177/1521025120902755.

About the authors

NIKOLA ŠABÍKOVÁ (nikola.sabikova@gmail.com, ORCID 0000-0002-0140-3376) is PhD student of Social and Occupational Psychology at the Institute of Applied Psychology, Faculty of Social and Economic Sciences, Comenius University in Bratislava, Slovakia.

KAMILA VALENTOVÁ (valentova74@uniba.sk) is MA student of Social and Occupational Psychology at the Institute of Applied Psychology, Faculty of Social and Economic Sciences, Comenius University in Bratislava, Slovakia.

RADOMÍR MASARYK (radomir.masaryk@uniba.sk, ORCID 0000-0001-7927-7376), PhD in Educational Psychology, is an Associate Professor at the Institute of Applied Psychology, Faculty of Social and Economic Sciences, Comenius University in Bratislava, Slovakia. His research interests are social and health psychology and qualitative research. He is an active member of the International Society for Critical Health Psychology (ISCHP) and the European Health Psychology Society (EHPS). He is currently serving as the Comenius University Vice-Rector for External Affairs.

ALEŠ NEUSAR (ales@neusar.cz, ORCID 0000-0001-9574-7761), PhD in Psychology, is currently serving as an assistant professor at the Department of Psychology, Faculty of Arts, University of Ostrava, Czech Republic. He has his own psychotherapeutic practice and is interested in change for the better (e.g. among people with depression), research methodology, cognitive psychology, and educational psychology. He is an active member of Czech-Moravian Psychological society and Association of marital and family counsellors.

LENKA SOKOLOVÁ (corresponding author, lenka.sokolova@uniba.sk, ORCID 0000-0001-8535-5713), PhD in Educational Psychology, is an Associate Professor at the Institute of Applied Psychology, Faculty of Social and Economic Sciences, Comenius University in Bratislava, Slovakia. Her research interests are educational psychology and psychology learning and teaching. She is the past President of European Federation of Psychology Teachers' Associations (EFPTA) and the member of European Federation of Psychologists' Association's (EFPA's) Board of Educational Affairs.

Cooperative learning and social cohesion: Study in the 4th year classes of tourism degree of Cuba and Mexico

Félix Díaz-Pompa, Nadia Vianney Hernández-Carreón, Idevis Lores-Leyva, and Olga Lidia Ortiz-Pérez*

Abstract: The comprehensive training of future professionals is a fundamental objective of Higher Education. In this sense, cooperative learning, while contributing to learning, also favors the development of social competences that promote the social cohesion of the group or class. The objective of this research is to compare two class groups of Bachelor's degree courses in Tourism from universities in Cuba and Mexico, taking into account the social cohesion achieved from the cooperative learning experience. The Social Network Analysis method is used to obtain those indicators that show the social cohesion achieved by these class groups subject to cooperative learning practices. The results show that the Cuban class group exhibits better results with respect to Mexico. On the other hand, some elements that should continue to be worked on from this experience for the development of social competencies and to achieve greater social cohesion are evidenced.

Keywords: Cooperative learning; social cohesion; analysis of social networks; social competences; higher education; tourism education programs.

---

* **Félix Díaz-Pompa** (corresponding author, felixdp1978@gmail.com), PhD, is Dean of the Faculty of Economic Sciences of the University of Holguin, Cuba, since 2019; and Professor of the Department of Tourism of the same institution.

Nadia Vianney Hernández-Carreón (nadiahercar@gmail.com), PhD, is Research Professor at the University of Puebla, Mexico, and currently Rector of the Technological University of Tehuacan for the period 2020 - 2024.

Idevis Lores-Leyva (idevisll@cug.co.cu), PhD, is currently Vice Rector of Research and Graduate Studies at the University of Guantanamo, Cuba, since 2018.

Olga Lidia Ortiz-Pérez (olgalidiaortizperez@gmail.com), PhD, is Professor-Researcher of the Department of Tourism of the University of Holguin, Cuba.

More information about the authors is available at the end of this article.

I. Introduction

Cooperative learning bursts internationally as a significant area of research within the social sciences.[1,2] It constitutes a valuable proposal to favor learning in current academic institutions.[3] It is a topic whose timeliness and relevance is revealed by the exponential growth of research related to this field of investigation,[4] in their research show the immense opportunities for future research that can analyze this phenomenon from new perspectives.

---

[1] Robert E. Slavin, "Cooperative Learning and Academic Achievement: Why Does Groupwork Work?," *Anales de Psicología* 30 (2014), https://doi.org/10.6018/analesps.30.3.201201.

[2] David. W. Johnson and Roger. T. Johnson, "Cooperative Learning in 21st Century," *Anales de Psicología* 30, no. 3 (2014), https://doi.org/10.6018/analesps.30.3.201241.

[3] Desiderio J. García-Almeida and María T. Cabrera-Nuez, "The influence of knowledge recipients' proactivity on knowledge construction in cooperative learning experiences," *Active Learning in Higher Education* 21 (2018), https://doi.org/10.1177/1469787418754569.

[4] Idevis Lores-Leyva, Félix Díaz-Pompa, and Onaida Calzadilla-González, "Aprendizaje cooperativo: panorama de las investigaciones científicas publicadas en Sciencedirect en el período 1965-2017," *EduSol* 21 (2021), https://edusol.cug.co.cu/index.php/EduSol/article/view/1265/2698.

The progressive increase in the number of works on this subject has led to the existence of numerous definitions of cooperative learning. An analysis of a total of 12 definitions, facilitates the approach on this topic.[5,6,7,8,9,10,11,12,13,14,15,16]

The analysis of the definitions allows assuming cooperative learning as a pedagogical proposal with possibilities of application at any school level, aimed at the integral formation of students, where the teacher, mediator of social interaction and with a didactic enriched by methods, forms of organization and evaluation, promotes learning and socialization through group work, favors responsibility and mutual help among students in the

---

[5] David W. Johnson, Roger. T. Johnson, and Karl. A. Smith, "The state of cooperative learning in postsecondary and professional settings," *Educational Psychology Review* 19, no. 1 (2007), https://doi.org/10.1007/s10648-006-9038-8.

[6] Pere Pujolás Maset, "Estrategias metodológicas en la enseñanza universitaria: aprendizaje cooperativo," 2021 (2007), http://www.unex.es/unex/servicios/sofd/archivos/ficheros/formacion/Aprendizaje_Cooperativo.pps.

[7] José M. Serrano and Rosa M. Pons, "Cooperative learning: we can also do it without task structure," *Intercultural Education* 18 (2007), https://doi.org/10.1080/14675980701463562.

[8] Yael Sharan, "Cooperative learning for academic and social gains: Valued pedagogy, problematic practice," *European Journal of Education* 45 (2010), https://doi.org/10.1111/j.1465-3435.2010.01430.x.

[9] Mina Tsay and Miranda Brady, "A case study of cooperative learning and communication pedagogy: Does working in teams make a difference?," *Journal of the Scholarship of Teaching and Learning* 10 (2012), https://scholarworks.iu.edu/journals/index.php/josotl/article/view/1747.

[10] María del Mar García Cabrera, Ignacio González López, and Rosario Mérida Serrano, "Validación del cuestionario de evaluación ACOES. Análisis del trabajo cooperativo en educación superior," *Revista de Investigación Educativa* 30 (2011), https://doi.org/10.6018/rie.30.1.114091.

[11] David W. Johnson, Roger. T. Johnson, and Karl. A. Smith, "Co-operative learning: Improving university instruction by basing practice on validated theory," *Journal on Excellence in College Teaching* 25, no. 3&4 (2014), http://celt.miamioh.edu/ject/fetch.php?id=594.

[12] Robyn M. Gillies, "Developments in Cooperative Learning: Review of Research," *Anales de Psicología* 30 (2014), https://doi.org/10.6018/analesps.30.3.201191.

[13] Slavin, "Cooperative Learning and Academic Achievement: Why Does Groupwork Work?."

[14] José-Manuel Serrano and Rosa-María Pons, "Introduction: Cooperative Learning," *Anales de Psicología* 30 (2014), https://doi.org/10.6018/analesps.30.3.201251.

[15] Van Dat Tran, "The Effects of Cooperative Learning on the Academic Achievement and Knowledge Retention," *International Journal of Higher Education* 3 (2014), https://doi.org/10.5430/ijhe.v3n2p131.

[16] Dwi Sulisworo and Fadiyah Suryani, "The effect of cooperative learning, motivation and information technology literacy to achievement," *International Journal of Learning and Development* 4 (2014), https://doi.org/10.5296/ijld.v4i2.4908.

search for problem solving, completing tasks and achieving objectives in different subjects, contributing to prevent academic and social problems.

Cooperative learning requires cooperative work teams, which must have positive interdependence, individual and team responsibility, stimulating interaction, internal team management, and evaluation and improvement of teamwork.[17,18] The effectiveness of cooperative learning correlates with the social cohesion of the class group. Social cohesion increases academic results, interaction among members, ease of working on different tasks and the development of social competencies, as well as motivation and productivity.[19,20] In contrast, if group management is poor, there may be conflicts, dysfunctional behavior and low performance.[21,22] The role of the teacher is fundamental to improve social cohesion and the success of cooperative learning, but some researchers point out that teachers lack specific training and knowledge in group management.[23,24] Group formation must be careful to ensure interaction among all students and social cohesion. It is essential to investigate the relationships among group members to gain a better understanding of their behavior and improve cooperative learning.[25,26]

[17] García-Almeida and Cabrera-Nuez, "The influence of knowledge recipients' proactivity on knowledge construction in cooperative learning experiences."

[18] José M. Bermejo Díaz et al., "Educación física y universidad: Evaluación de una experiencia docente a través del aprendizaje cooperativo," *Retos* 39 (2021), https://doi.org/10.47197/retos.v0i39.77834.

[19] Lilian Cadoche, "Una propuesta de aprendizaje cooperativo," *Aula Universitaria* (2007), https://doi.org/10.14409/au.v1i9.1039.

[20] Mark J. Van Ryzin, Cary J. Roseth, and Anthony Biglan, "Mediators of Effects of Cooperative Learning on Prosocial Behavior in Middle School," *International Journal of Applied Positive Psychology* 5 (2020), https://doi.org/10.1007/s41042-020-00026-8.

[21] W. Martin Davies, "Groupwork as a form of assessment: Common problems and recommended solutions," *Higher Education* 58 (2009), https://doi.org/10.1007/s10734-009-9216-y.

[22] Margaret Healy, Jhon Doran, and Maeve McCutcheon, "Cooperative learning outcomes from cumulative experiences of group work: differences in student perceptions," *Accounting Education* (2018), https://doi.org/10.1080/09639284.2018.1476893.

[23] David W. Johnson, Roger T. Johnson, and Edythe Johnson Holubec, *Cooperation in the Classroom*, 9th ed. (Edina, MN: Interaction Book Company, 2013).

[24] Nicole Kimmelmann and Johannes Lang, "Vinculación dentro de la formación docente: aprendizaje cooperativo de docentes y estudiantes docentes," *European Journal of Teacher Education* 42 (2018), https://doi.org/10.1080/02619768.2018.1547376.

[25] Tara J. Shawver, "An experimental study of cooperative learning in advanced financial accounting courses," *Accounting Education* 29 (2020), https://doi.org/10.1080/09639284.2020.1736589.

[26] Naureen Durrani and Anjum Halai, "Dynamics of gender justice, conflict and social cohesion: Analysing educational reforms in Pakistan," *International Journal of Educational Development* 61 (2018), https://doi.org/10.1016/j.ijedudev.2017.11.010.

The aspects assessed so far highlight the importance of social cohesion in the success of cooperative learning, the need for an active role of the teacher in the management of groups, the importance of adequate teacher training, and the need for future research on group formation and the management of social cohesion. Research on how to improve cooperative learning and how to get groups to work effectively is essential to ensure academic success and the development of social skills in students.

I.1. *Cooperative learning and social cohesion in higher education*

From the point of view of Higher Education, teamwork is a fundamental competence for future graduates, since working cooperatively, provides students with the possibility of acquiring basic skills and abilities (effective communication, conflict resolution, adaptation to change, critical analysis, autonomy, sensitivity and empathy towards others, decision making, among others) for their subsequent professional practice.[27,28,29]

From this point of view, a graduate of the Bachelor's Degree in Tourism with competences for group work, is in conditions to face the complexity imposed by the current society and the multiple problems faced in the working world. Thus, the student can intervene in these problems and solve them satisfactorily. The transversality of the tourism sector explains that it is an activity in which coordination and teamwork play a fundamental role. Therefore, it is necessary that from the training process the cooperation of future professionals is promoted. In this sense, there is research that reveals the relevance and the need to include and promote cooperative learning in the teaching-learning process of tourism. Although there is no extensive literature regarding the topic, the findings found reveal the use of different methods and group formation strategies to enhance cooperative work. Wadawi identifies through a qualitative study the benefits of cooperative learning, with his proposal reveals that academic results are superior,[30] Jamaludin and

---

[27] Irina S. Castillo Reche and Belén Suárez Lantarón, "Una experiencia inclusiva de aprendizaje cooperativo: fomentando habilidades para el empleo en la universidad," *Siglo Cero Revista Española Sobre Discapacidad Intelectual* 51 (2020), https://doi.org/10.14201/scero20205125572.

[28] García Cabrera, González López, and Mérida Serrano, "Validación del cuestionario de evaluación ACOES. Análisis del trabajo cooperativo en educación superior."

[29] Abdelaziz M. Hussien, "The Impact of Combining Communicative Traits of Writing with Cooperative Learning on Trainee Teachers' Pedagogical Knowledge and Attitudes," *International Journal of Instruction* 13 (2020), https://doi.org/10.29333/iji.2020.13152a.

[30] Joe Kibuye Wadawi, "An assessment of cooperative learning effectiveness in tourism and hospitality teaching – a case study of selected student groups at Strathmore University in Kenya," *ECOFORUM* 2 (2013), http://hdl.handle.net/11071/5489.

Stapah evaluates the attitudes of students in the Geography of Tourism course after a cooperative learning situation, students show a positive attitude towards group work by feeling less pressure and achieving greater interaction of all its members to solve tasks.[31] Sarıoğlan and Cevizkaya based on the results of their research, state that learners achieve more positive interdependence if they manage to create different working groups and during the different sections they keep changing their members, so that more interaction is achieved among all members of the class group.[32]

The results presented so far highlight the importance of cooperative learning and social cohesion, and how the latter is addressed in the different studies, which reveal the positive influence on learning outcomes, motivation, sense of group work and helping. However, it is considered necessary to further deepen studies in this field of research, as one of the most distinctive features of previous research is that social cohesion is a complex and difficult concept to measure. Researchers often use self-report measures, which may not capture the full range of behaviors and attitudes that contribute to social cohesion. Many studies of social cohesion in cooperative learning are conducted with homogeneous groups of students, which may limit the generalizability of their findings to more diverse student populations. Potential for bias, given that researchers may have biases that influence their interpretations of social cohesion data, such as a preference for cooperative learning or a belief that social cohesion is always positive.

The lack of longitudinal studies is another limitation since most studies on social cohesion in cooperative learning are cross-sectional, meaning that they only measure social cohesion at a single point in time. Longitudinal studies would provide a better understanding of how social cohesion changes over time and how it affects student outcomes. However, throughout their careers, students experience different experiences in their formative process and under different cooperative learning situations, which, in turn, has an impact on the subjects' perception of the importance of group work.

The limited generalizability of studies on social cohesion in cooperative learning is another limitation, considering that many of these studies are conducted in specific contexts, such as specific courses or institutions, which

---

[31] Mazlina Jamaludin and Mazura Stapah, "The cooperative learning approach in Tourism Geography" (paper presented at the e-Proceeding of the 3rd Global Summit on Education GSE, Meliá Hotel Kuala Lumpur, Malaysia, 2014).

[32] Mehmet Sarıoğlan and Gülhan Cevizkaya, "Applicability of cooperative learning model in gastronomy education," *Journal of Tourism Theory and Research* 1 (2015), https://doi.org/10.24288/jttr.202824.

may limit their generalizability to other contexts. Finally, there is also limited attention to contextual factors studies often focus on individual factors, such as student characteristics and behaviors, and may not fully take into account contextual factors that can influence social cohesion, such as institutional policies and classroom dynamics.

Based on the limitations found, the need to examine how cooperative learning has impacted the students of the Bachelor's Degree in Tourism who during their entire academic program (four years) were in group learning situations is revealed, by analyzing the degree of integration and union among the members of an organization or social group from a structural point of view, that is, from the bonds and integration achieved in class groups working in a cooperative learning situation.

I.2. *The educational context of research*

In recent years, there has been growing interest in the use of cooperative learning in higher education, especially in the field of tourism studies. The use of cooperative learning in tourism courses has the potential to improve students' understanding of complex concepts and topics, as well as develop their critical thinking and problem-solving skills. However, the effectiveness of this approach may depend on a number of factors, such as the cultural context in which it is applied.

In this study, we intend to investigate the use of cooperative learning in tourism courses in Cuba and Mexico. Both countries have similar tourism industries and face similar challenges, such as the need to balance economic development with environmental sustainability. However, they also have different cultural contexts and educational systems that may influence the implementation and outcomes of cooperative learning.

The model of Higher Education in Cuba is characterized by being free and universally accessible, aimed primarily at training professionals in strategic sectors for the country's development. It emphasizes the relationship between cooperative work and professional training. It is based on promoting a collaborative work environment between students and teachers, with the aim of fostering values such as solidarity, responsibility and social commitment. In addition, teamwork is considered an effective tool to improve learning and develop social and leadership skills in students. Therefore, it is used in the main pillars of the integral formation of students (training, research and university extension), from the realization of projects in the classroom to participation in community activities. In the Cuban Higher Education model, cooperative work is considered a key element for

the formation of professionals committed to society and capable of working as a team to achieve common objectives.[33]

In Mexico, the Higher Education model is aimed at training highly qualified professionals, where theory and practice are combined. However, there are challenges in terms of equity in access to higher education and improving the quality of teaching. This model also recognizes the importance of teamwork in the development of social and professional skills. In this sense, collaboration between students and professors is encouraged to improve the quality of teaching and learning through team projects and participation in activities that allow students to develop their ability to work in teams and solve problems collaboratively. Similarly, the active participation of students in university life is promoted, including participation in student organizations and community projects. As in the Cuban model, teamwork in higher education in Mexico is considered a fundamental element for the formation of trained professionals committed to society.[34]

Through a comparative analysis of student experiences and outcomes in cooperative learning groups, the present research aims to identify similarities and differences between the two contexts and to provide insights into the potential benefits and challenges of this approach in tourism education. In doing so, we hope to contribute to the growing body of literature on cooperative learning in higher education and to inform future pedagogical practices in the field of tourism studies.

I.3. Social network analysis

The analysis of social networks (hereinafter referred to as SNA) has become an essential tool for the study of social cohesion and the learning process in educational settings. Social network analysis allows us to examine the connections and relationships between individuals, groups, and communities, and to identify patterns of interaction and communication that contribute to the development of social cohesion. In the context of cooperative learning, social network analysis can provide valuable insights into the dynamics of collaboration and communication among students, as well as the formation of social ties and the emergence of shared norms and values. By mapping and analyzing the social networks that emerge in the classroom,

---

[33] Ministerio de Educación Superior, *Modelo Educativo Cubano* (La Habana: Ministerio de Educación Superior, 2018). http://www.mes.edu.cu/.

[34] Secretaría de Educación Pública, *Educación Superior en México* (Secretaría de Educación Pública, 2020). https://www.sep.gob.mx/.

researchers can gain a deeper understanding of the factors that promote or inhibit social cohesion and the development of effective learning communities.

The SNA focuses its attention on the links between actors or nodes; from identifying and interpreting the patterns derived from the relationships established between them. SNA facilitates the description of the social structure in terms of a network and the analysis of the relationships formed between each of the actors from the position they occupy within the structure. The SNA is based on the conception that a social network constitutes a finite set of actors in which one or more types of relationships are established and that their links are based on the relational information shared among the actors. As a result of these interpersonal links, behaviors, attitudes, information, goods or merchandise are transmitted through all the actors in the network.[35]

Some of the indicators traditionally used in the SNA are:

Density: is considered as a measure of cohesion among network actors.[36] Density, basically, is a measure of the number of existing links in the network, presented as a proportion of the number of possible links.

Centralization: for the study of complete networks within the SNA, an indicator that measures the difference between the levels of actor centrality and provides an idea that dominant nodes exist is the level of network centralization. Since centralization measures the degree to which an actor is dominant in the network, different measures of centralization can be obtained based on the three indicators of node centrality;[37] however, for the purposes of this paper emphasis will be placed only on network centralization based on degree centrality.

Nodal degree: takes into account the direct ties of an actor (or node), it refers to the number of nodes to which a node is directly connected. Nodal degree or rank analysis indicates the most connected node in a group. Rank can also be interpreted as the degree of opportunity to influence or be influenced by others in the network.[38]

---

[35] Norman Aguilar-Gallegos et al., "Análisis de redes sociales para catalizar la innovación agrícola: de los vínculos directos a la integración y radialidad," *Estudios Gerenciales* 32 (2016), https://doi.org/10.1016/j.estger.2016.06.006.

[36] Stephen Borgatti, Martin Everett, and Jeffrey Johnson, *Analyzing social networks* (London: SAGE Publications Limited, 2013).

[37] Linton C. Freeman, Stephen Borgatti, and Douglas White, "Centrality in valued graphs: A measure of betweenness based on network flow," *Social Networks* 13 (1991), https://doi.org/10.1016/0378-8733(91)90017-n.

[38] Alejandro Velázquez-Álvarez and Norman Aguilar-Gallegos, *Manual introductorio al análisis de redes sociales. Ejemplos prácticos con UCINET 6.85 y NETDRAW 1.48. Medidas de centralidad* (Toluca: Universidad Autónoma del Estado de México, 2005).

Centrality degree: is the number of actors to which an actor is directly linked. Centrality degree is divided into input degree and output degree. This indicator shows which students have the most relationships and are therefore the most influential within the group.

Degree of intermediation (betewenss): indicates the number of times an actor appears on the shortest (or geodesic) leg and links two others. That is, it shows when a subject mediates between two other subjects who do not know each other and belong to the same group, which can be called a "bridging actor". One reason to consider the importance of an actor lies in its intermediation, this focuses on the control of communication, and explains the possibilities that a subject has to intermediate communications between pairs of subjects (actors). That is, it demonstrates when a student is an intermediary among two other persons within the group who do not know each other (what is called "bridge person").[39]

Betweenness centrality: is the ability of the subject to occupy an intermediate position in the informal communications among the totality of the subjects. the subjects with a higher degree of intermediation are creditors of a great leadership, being able to control the informal communication flows, assuming that each node transfers following the shortest paths.[40]

Networks within networks (groups and subgroups or cliques): Also known as communities, it is a characteristic that can be observed at a glance is that through this it is possible to identify groups or sub-networks. This is nothing more than a set of nodes or actors that have all the possible links between them. The actors that make up a clique must be more than two; usually cliques of three or more members are used. A group of nodes that have all possible links between them is called "maximum complete subgraph".[41]

Consequently, and taking into account the need to analyze social cohesion from the point of view of the links established between the different actors in a network, the analysis of this structural component is much better dealt with using SNA techniques. The analysis of this structural component is much better dealt with using SNA techniques. The use of SNA not only aims to study the relationships that arise from the implementation of

---

[39] Aguilar-Gallegos et al., "Análisis de redes sociales para catalizar la innovación agrícola: de los vínculos directos a la integración y radialidad."

[40] Antonieta Kuz, Mariana Falco, and Roxana Giandini, "Social Network Analysis: a Practical Case Study," *Computación y Sistemas* 20 (2016), https://doi.org/10.13053/cys-20-1-2321.

[41] Van Ryzin, Roseth, and Biglan, "Mediators of Effects of Cooperative Learning on Prosocial Behavior in Middle School."

cooperative learning, but also to identify the aspects that retard the social cohesion of the class groups under study. In this way, it is possible to advance in the understanding of "micro" (students) and "meso" (class group) social phenomena; that is, those phenomena that derive from social actors in which individual interactions, institutions and empirically observable social structures are simultaneously present.

The objective of this study is to compare the social cohesion of 4th year class groups of the Bachelor's Degree in Tourism of the University of Holguín, Cuba and the Meritorious Autonomous University of Puebla (Atlixco Campus), Mexico in terms of social cohesion derived from cooperative learning. To achieve this objective, we will use social network analysis to analyze the relationships and interactions among the students in each group. By examining the network structure, we can obtain information about the levels of social cohesion within each group and compare them to identify any differences or similarities between the two countries. Therefore, social network analysis serves as a tool to facilitate the comparison of groups and the identification of factors that contribute to their levels of social cohesion in cooperative learning.

II. Methodology

The SNA is a methodological tool that allows understanding the social structure and dynamics, based on a set of social relationships, thus, from the use of this methodology we intend to dimension the social reality of two groups of Bachelor's Degree in Tourism classes subject to cooperative learning. According to Marsden (1990), the main objective of the study of the links between actors or nodes is to detect and interpret patterns derived from the relationships established between them.[42] In other words, the SNA seeks to describe a social structure in terms of a network and to interpret the existing relationships among the actors, taking into account their position within that structure.

SNA facilitates the evaluation and incorporation of strategies that contribute to favor cooperative learning and social cohesion of class groups, since it offers a broad perspective of the social relationships established in society.

In response to the general objective of the research, the following specific objectives are determined:

---

[42] Peter V. Marsden, "Network Data and Measurement," *Annual Review of Sociology* 16 (1990), https://doi.org/10.1146/annurev.so.16.080190.002251.

- Determine the criteria for analyzing the social cohesion of the groups under study.
- To analyze the relationship between positive interdependence and interaction in the groups under study.
- To determine the elements that affect positive interdependence and interaction in the groups.
- To compare the results obtained from the selected indicators.

II.1. *Origin and data collection*

The population of the research is determined by 53 students who make up the class of the last year of the Bachelor's degree in Tourism of Cuba and Mexico. In order to analyze the pattern of interactions and their relationship with positive interdependence, a convenience sample has been selected where all the students of both class groups are chosen. The selection of this type of sample responds to the need to structure the network of each class group from the relationships between each one of the undergraduate students who reach the conclusion of their four-year degree program in Bachelor's Degree in Tourism and to determine the finite set of the network. For their selection it was necessary to verify that during the four years they lived cooperative learning experiences and were in different group activities among which were, case studies, course work, research projects, among others, many of these evaluated, others not evaluated for which workshops were developed with professors and students. Given the longitudinal perspective of the research study, the specific nature of each group work activity is not reported here.

An online survey was used to collect information, which included four sections (introduction, sociodemographic data, evaluation of the impact of cooperative learning on social cohesion and the section dedicated to the generation of names). The reliability and validity analysis was calculated using SPSS.26 software, obtaining a Cronbach's Alpha coefficient of 0.968 and a KMO measure of 0.901, which indicates that these validity criteria guarantee the reliability and validity of the survey results and allow an adequate interpretation of the findings. Subsequently, the students answered an online questionnaire applied with the aim of deepening cooperative learning in these class groups. From this questionnaire data were extracted, in this case, attributes (age, gender), aspects affecting cooperative learning and relational data.

The aforementioned sources of information and knowledge were coded and recorded in a database to construct a mode-one network, in which each

node can be related to any other node in the network,[43] and for the analysis of the elements that affect the social cohesion of these groups subject to cooperative learning a mode-two network is constructed.

Different types of software were used for data analysis, depending on the stage. First, NetDraw v. 2,139 was used to visualize the network.[44] At a second stage, Ucinet v6 was used to obtain the first and second order indicators.[45]

To prepare the graphs and show the results, and in order to maintain the anonymity of the sample, each student was assigned a code composed of three letters for the location in each network structure analyzed.

Ethical approval: for the present study, the researchers carefully considered ethical aspects when designing their study. The selected Class groups meet the inclusion criteria, such as being part of the final year class group of the Bachelor of Tourism degree, having received cooperative learning influences throughout their studies, and being enrolled in a public school. In addition, it ensures that the sample size is sufficient to obtain meaningful results. Participants' rights are guaranteed based on informed consent before collecting personal and sensitive data, and they are informed that they can withdraw from the study at any time. To protect the privacy of participants, a label is given to each participant in order to anonymize the data and avoid sharing personal or identifiable information by third parties. It was also presented and approved by the Scientific Advisory Board of the Faculty of Economic Sciences of the University of Holguín and the University of Puebla.

III. Results

III.1. Respondents' profile

The Cuban group consisted of 24 students, 8 of them male (33.3%) and 16 female (66.7%), with an average age (22.2 years). The Mexican group consisted of 29 students, 6 of them male (20.7%) and 23 female (79.3%), with an average age (23.1 years).

A first approach to the networks of the University of Holguín and Meritorious Autonomous University of Puebla (Atlixco Campus) class

---

[43] Robert A. Hanneman, *Introducción a los métodos del análisis de redes sociales* (California: Universidad de California Riverside, 2000).

[44] Stephen Borgatti, *Netdraw Network Visualization* (Harvard, MA: Analytic Technologies, 2002).

[45] Borgatti, Everett, and Johnson, *Analyzing social networks*.

groups is provided by two measures that inform about the network globally, the density and centralization of the network. Next, the analysis of these indicators is carried out to later focus the analysis and comparison of the indicators at the node level.

III.2. *Density*

Density analysis provides information about the number of existing relationships with respect to the possible ones, therefore, it is considered as a measure of cohesion among the actors in the network. According to De Nooy, Mrvar and Batagelj, if density means cohesion in a network, then then there is a directly proportional relationship between density and cohesion and, therefore, the greater the number of links between the actors forming the network.[46] For the cases under investigation, there would be a positive relationship of social cohesion, mutual aid and positive interdependence in the class groups, because the higher the density, the greater it tends to be.

The density of relationships recorded in each of the class groups reveals significant differences. The Holguin class group shows a network with a high density (24.28%) with respect to the Puebla class group (7.15%) (See Table 1) if it is taken into account that the limits of the Holguin and Puebla student network are 24 and 29 actors respectively, therefore, the possibility that the actors know and interact with each other is greater. Furthermore, in all cases these are incomplete networks; in the Holguín class group there is one disconnected actor and in the Puebla group there is a subgroup with five actors.

With respect to gender and its influence on network density, note (Figure 1) that in both networks the male gender (represented by the blue colored nodes) are the most distant in the network. There is a coincidence with the results obtained by Healy, Doran and McCutcheon and Durrani and Halai[47,48] and are contrary to the studies of Martin and Good who reports that the female sex reported lower levels of cohesion than males.[49] One element that

---

[46] Wouter De Nooy, Andrej Mrvar, and Vladimir Batagelj, *Exploratory Social Network Analysis with Pajek* (Cambridge, UK: Cambridge University Press, 2005).

[47] Healy, Doran, and McCutcheon, "Cooperative learning outcomes from cumulative experiences of group work: differences in student perceptions."

[48] Durrani and Halai, "Dynamics of gender justice, conflict and social cohesion: Analysing educational reforms in Pakistan."

[49] Eleanor Martin and Judith Good, "Strategy, team cohesion and team member satisfaction: The effects of gender and group composition," *Computers in Human Behavior* 53 (2015), https://doi.org/10.1016/j.chb.2014.06.013.

is striking is the structure of the Cuban class group, although a distancing of the male gender is appreciated there are greater links between both sexes. According to Bosselut, Castro, Chevalier, and Fouquereau these results may be due to the total workload of the course or academic curriculum, which includes cooperative work among its requirements, since it favors social interaction and the positive interdependence of students.[50] Although Durrani, and Halai offer another perspective related to the conception of a gender transformative curriculum, taking into account that these can be transformed into places to promote gender-equitable attitudes and behaviors, for the achievement of this end it requires deep commitment from teachers and principals to policy makers at the state and national level.[51]

In the cases analyzed, the Holguin class group (see Figure 1 left) shows a more solid basis for the existence of greater social cohesion, in this sense, the speed of information dissemination between nodes will be faster than in the Puebla class group, which, due to the elongated shape of the network (see Figure 1 right), points to great inequalities in access to information and knowledge within the network, The elongated shape of the network (see Figure 1 right) points to great inequalities in the access to information and knowledge within the network, on the other hand, in the latter, the degree of access of each actor in this network can be a limiting factor for the achievement of greater positive interdependence.

From this perspective, we agree with the studies of Guillies who refer that more cohesive groups are more willing to share ideas and information among themselves and are more motivated to achieve the group's objectives.[52] From the point of view of Paredes León and Ramos Serpa the best cooperative learning experiences are those that depend on the level of social cohesion achieved by the class group and depend fundamentally on components such as: social skills, positive interdependence, social interaction, and group processing;[53] which are essential aspects to achieve significant team learning, empathy and good relations among members, efficient results and great help and collaboration among members.

---

[50] Grégoire Bosselut et al., "Does Perceived Cohesion Mediate the Student Personality–Engagement Relationship in the University Setting," *Journal of Educational Psychology* 112 (2020), https://doi.org/10.1037/edu0000442.

[51] Durrani and Halai, "Dynamics of gender justice, conflict and social cohesion: Analysing educational reforms in Pakistan."

[52] Gillies, "Developments in Cooperative Learning: Review of Research."

[53] Wilmer R. Paredes León and Gerardo Ramos Serpa, "El aprendizaje cooperativo, educación desde la participación social en estudiantes de bachillerato," *Revista Científica Uisrael* 7 (2020), https://doi.org/10.35290/rcui.v7n2.2020.300.
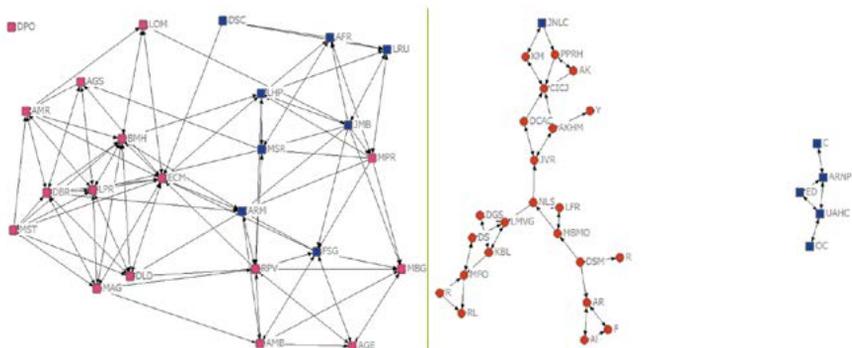
Figure 1

Structure of the Network class group University of Holguín (left)
and Meritorious Autonomous University of Puebla (right). Each node
is the position that each student occupies in the network and is identified
by a label. The red color is for female students and the blue color
is for male students

III.3. Centralization

In this research, when working with an asymmetric matrix, two types of data are obtained: on the one hand, the relations that an actor claims to have with the rest (degree of exit) and, on the other hand, the number of times that this actor is mentioned by all the others (degree of entry). Viewed globally, the degree of output refers to the flow of information (access and diffusion) within the network and the degree of input to the prestige or recognition of the actors within the network.

Regarding the degree of exit, it is evidenced that the Holguin class group has 24.6% higher than 3.7% of the Puebla class group (See table 1), these values indicate that in the Holguin students' network there is access and dissemination of more information, positive experiences are sought in cooperative work than in the Puebla students' network. Similarly, it occurs with the degree of entry, where a greater number of actors in the Holguín student network 33.6%, have greater prestige or constitute important nodes for the achievement of social cohesion within it, than the Puebla student network 11.1%.

These elements reveal that the Puebla network is classified as a star-type network where few nodes achieve greater centrality (see figure 1 right); the opposite occurs with the Holguín network, which shows a more connected

network (see figure 1 left) with a greater link between its actors. An important element to take into account is that in both networks the input degree is higher than the output degree (a result that rarely occurs, usually the output degree is higher than the input degree), which implies that the network is based, fundamentally, on the prestige and importance of its actors rather than on the flow of information through the network.[54]

Table 1

Descriptive statistics of the SNA (density and centralization)
of the Holguin and Puebla class groups network

	Groups of Bachelor's Degree in Tourism	
	Holguín	Puebla
Network density	0.2428	0.0715
Network centralization (output grade)	24.575%	3.699%
Network centralization (input level)	33.648%	11.097%

After a first approach to the global analysis of the networks of the Holguin and Puebla class groups, the following is an analysis of the networks based on a series of indicators that allow us to know the characteristics of each of the actors.

III.4. Degree centrality

The analysis of the nodal rank or degree indicates that the most connected person in the Holguin class group (see Figure 2 left), the one with the highest degree of output, is ECM with 11 ties, followed by RPV and BMH with ten ties each, there are also 11 nodes between nine and five ties each, and there is one DPO node with no degree of output. In this case, there are three nodes that reach more than 40% of normalized output degree, so it is assumed that these nodes, including ECM, which is the person with the highest percentage, have a high degree of influence on the rest of the actors in the network.

From another point of view, when we analyze the degree of entry, it can be seen that ECM has the highest degree of entry with 13 relationships,

---

[54] Aguilar-Gallegos et al., "Análisis de redes sociales para catalizar la innovación agrícola: de los vínculos directos a la integración y radialidad."

dominating 56.6% of the relationships with normalized degree and marks a notable difference with the rest of the nodes, followed by LPR with nine ties and BMH, DBR and LHP with eight ties each, in this case it is evident that these nodes are important in the network, due to the prestige or recognition of the rest of the actors.

In the case of the network of the Puebla class group (see Figure 2 right), in terms of the degree of output, the existence of nodes with few ties can be seen, seven actors (DSM, KBL, NLS, LMVG, ARNP, UAHC and AKMH) share three degree of output, each one reaching 10% of normalized degree of output. Although these nodes are the ones with the highest output degree within the network, due to the number of ties or relationships they have, it is evident that they do not have a high degree of influence over the rest of the actors in the network. From another perspective, it is evident that the degree of input is also low, although with a notable difference between each of its nodes, in this case CICJ has the highest degree with five ties followed by LMVG with four and ARNP, UAHC, MFO, AR and JVR with three ties each, these nodes are the most important within the network to contribute to the cohesion of the group.

The analysis of this indicator shows in terms of the degree of exit, how the Holguin student network has a higher percentage, although ECM is the student with the greatest influence on the network, there is a group that reaches a high degree of exit, therefore, there is a greater degree of influence on the rest of the students in the network, while the Puebla student network shows a low percentage of degree of exit and it is difficult to determine important nodes within this network. Regarding the degree of entry, similar results are shown, in the Holguin student network ECM continues to be the student with more recognition and importance by the rest of the students for the achievement of social cohesion of the class group, however, there are other students with possibilities of achieving recognition and importance within the network. In the case of the Puebla network, CICJ is the student who enjoys the greatest prestige and makes a difference with the rest of the students in the group; however, since she has a low entry grade, there are no students who have the recognition of the rest of the students in the class group. Therefore, this result can be taken into account as a measure that can be linked to the index of accessibility that a subject has to the rest of the subjects.[55,56]

---

[55] Velázquez-Álvarez and Aguilar-Gallegos, *Manual introductorio al análisis de redes sociales. Ejemplos prácticos con UCINET 6.85 y NETDRAW 1.48. Medidas de centralidad*.

[56] Kuz, Falco, and Giandini, "Social Network Analysis: a Practical Case Study."
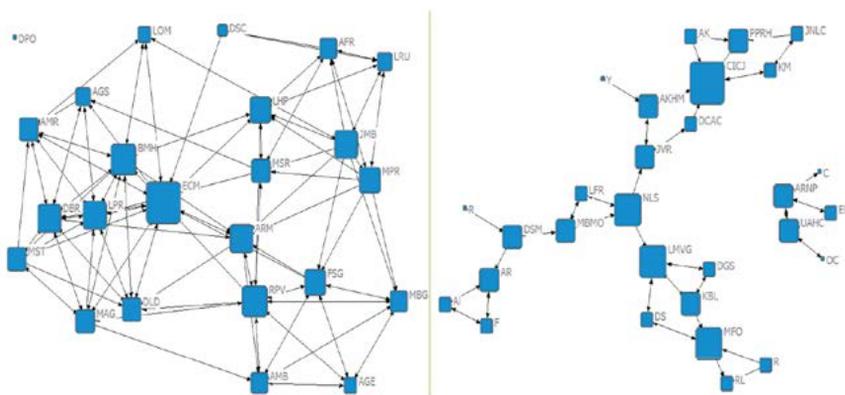
Figure 2

Network based on degree of centrality. Network class group University of Holguin (left) and Meritorious Autonomous University of Puebla (right). Node size indicates the degree to which students are connected to the network in each class group

III.5. *Intermediation*

This indicator identifies the capacity of an actor to become an intermediary in the relationships between all the others. Therefore, actors with a high intermediation capacity (bridging actors) tend to occupy positions of power to the extent that they control information and communication flows.[57] As a result, they can withhold, disrupt, or distort the operation of the same,[58] but they can also accelerate the dissemination of information or other "resource" of interest to network actors.

As can be seen (Figure 3 left), in the network of the Holguin class group, among the nodes that manage to position themselves among the most central ones in terms of intermediation is ECM intermediating 115 geodetic paths, which represents 22.8%, followed by RPV with 16.5% and LHP with 11.6%, it can also be seen that there are only two nodes with zero level of intermediation, so they cannot be considered to intermediate the flow of connections.

---

[57] Ramasuri Narayanam and Yadati Narahari, "Topologies of strategically formed social networks based on a generic value function—Allocation rule model," *Social Networks* 33 (2011), https://doi.org/10.1016/j.socnet.2010.10.004.

[58] Borgatti, Everett, and Johnson, *Analyzing social networks*.
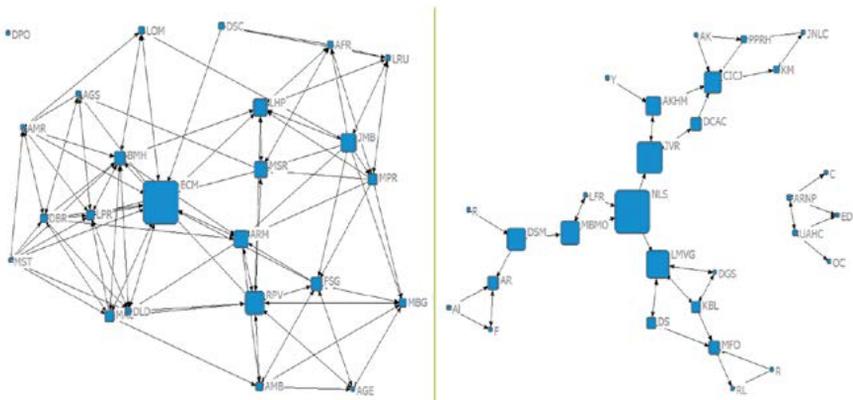
Figure 3

Network formed from the degree of intermediation. Network class group University of Holguin (left) and Meritorious Autonomous University of Puebla (right). The size of the node shows the capacity of each student to become an intermediary in the relationships between all the others

When observing (Figure 3 right) the Puebla class group, NLS intermediates 60 geodesic paths, a fundamental element in this network, is that if the operation of the node (student) NLS is interrupted, the Puebla student network fragments into four subgroups, on the other hand, a significant number of students (11) with zero intermediation level is appreciated, which means that they cannot be considered to intermediate the flow of connections.

Although in the networks of the class groups of Holguín and Puebla there are students with a high degree of intermediation, it is possible to distinguish between these networks, that in the Holguín network, 91% of the students serve as bridges between other students (only two have zero level of intermediation), however, in the network of students of Puebla 62% of students have the possibility of being bridges, in this network 11 students cannot be considered to intermediate the flow of connections between students. A particular element in this network is that when the NLS student is affected, this flow of connections and the social cohesion of the class group would be lost, as four isolated subgroups would be formed.

The results obtained from this perspective surpass those of Cadoche who obtained in his study that in 50% of the groups created for the cooperative

learning experience, students stood out for the possibility of integrating and mediating among their peers.[59]

Another essential component of cooperative learning is to achieve social cohesion of class groups with the objective of involving each student to be responsible for his or her own success, but at the same time for the results of the group Johnson and Johnson and Gillies.[60,61] In such a sense, the organization of the teaching-learning process should give the opportunity to generate links between the different students in the class group.[62] In this case, intermediation constitutes a powerful tool for the pursuit of positive interdependence.

III.6. Eigenvector

The results obtained (Figure 4 left) for the Holguin class group network show that ECM has the largest eigenvector 0.375 (53% normalized eigenvector) followed by BMH (0.301) and DBR (0.283). Thus, these are the best connected students with students who in turn are also well connected with other students. It can be seen that only one student DPO has zero eigenvector being an isolated node in the network. Regarding the network of the Puebla class group (Figure 4 right) it can be considered that CICJ has the highest eigenvector 0.348 (49.1% normalized eigenvector) followed by LMVG (0.342) and NLS (0.341), these are the best connected students within the network to other students who are also well connected, on the other hand, five students have zero eigenvector.

The analysis of this indicator in the networks of the Holguin and Puebla class groups shows that 95.8% of the students of the Holguin class group are connected to other students who are well connected within the network, only one has zero eigenvector, on the other hand, the Puebla class group reaches 82.7% of the students are connected to other students who are well connected, five of them have zero eigenvector.

The eigenvector can be interpreted as a measure of the popularity of an actor in the sense that a node with a high value of the indicator is connected to nodes that are themselves well connected.[63] This indicator, by taking into

---

[59] Cadoche, "Una propuesta de aprendizaje cooperativo."

[60] David W. Johnson and Roger T. Johnson, "Learning together and alone: Overview and meta-analysis," *Asia Pacific Journal of Education* 22, no. 1 (2002), https://doi.org/10.1080/0218879020220110.

[61] Gillies, "Developments in Cooperative Learning: Review of Research."

[62] Deniz Gökçe Erbil, "A Review of Flipped Classroom and Cooperative Learning Method Within the Context of Vygotsky Theory," *Frontiers in Psychology* 11 (2020), https://doi.org/10.3389/fpsyg.2020.01157.

[63] Borgatti, Everett, and Johnson, *Analyzing social networks*.
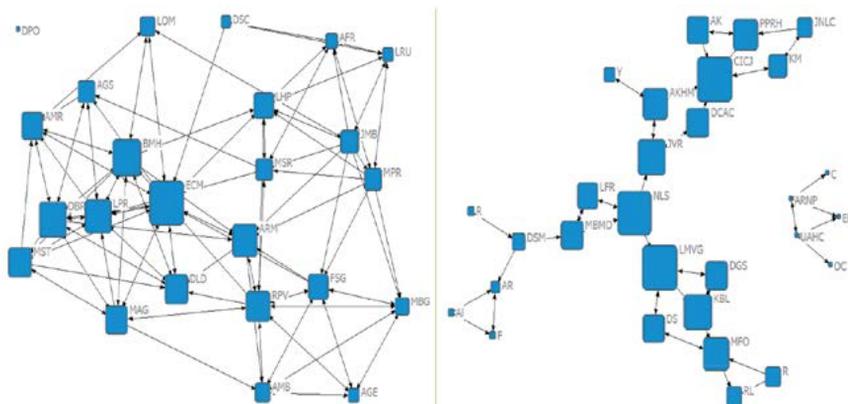
Figure 4

Network formed from the eigenvector degree. Network class group University of Holguin (left) and Meritorious Autonomous University of Puebla (right). The size of the nodes represents the best connected students within the network to other students who are also well connected

account indirect relationships, also provides more information regarding the links of the nodes, because it may be that there are nodes with low degree centrality, but they are connected to nodes with high degrees and, therefore, their eigenvector will be high; on the contrary, it may be that there are highly connected actors (high degrees) but that these are not connected to anyone, therefore, their eigenvector will be low.

From this point of view, the sums of positive nominations received by each group member is a measure of group acceptance and constitutes a measure of rejection when negative nominations are higher.[64]

From the point of view of social cohesion or social interdependence theory, the impact that can be achieved with cooperative learning is closely related to the degree of cohesion that the group can achieve.[65,66] In this sense, they take as a basis the postulates of Vygotsky, mainly the usefulness of working and

---

[64] Esther Ruiz Palomo et al., "Validación de un instrumento que estima la incidencia del aprendizaje cooperativo en el estatus sociométrico de los alumnos," *Contextos Educativos. Revista de Educación* (2020), https://doi.org/10.18172/con.3937.

[65] M. P. Li and Bick Har Lam, Cooperative Learning. A class. The Active classroom, (Hong Kong 2013).

[66] Erbil, "A Review of Flipped Classroom and Cooperative Learning Method Within the Context of Vygotsky Theory."

collaborating with a more competent partner. From this perspective, the group is more cohesive when collaboration is achieved with students with a high degree of popularity, seen as the possibility that this student is connected to more expert students or with greater cohesion within the group.

III.7. *Networks within networks (cliques)*

Since a clique is nothing more than a set of nodes or actors that have all the possible links between them. In this research, the analysis of groups and subgroups was carried out based on the integration of at least three students, a reference offered by research on cooperative learning for group work to exist.

In this case, it can be seen in Table 2, that in the Holguin class group 10 cliques are formed, of these, three subgroups with five students, four with four and three subgroups with three students. It can also be said that this network is made up of substructures with a high degree of overlapping (ECM and BMH, for example, appear in half of the cliques). Most of the actors only belong to one subgroup, while we have four isolated actors, who do not belong to any clique.

In the case of the Puebla class group, there are three subgroups formed by three members each, in this case the actors belong to only one group, more than 50% of the students are considered to be classified as isolated actors. In general, the Holguín class group shows a more robust "group" relationship with stronger ties than the Puebla group.

This indicator addresses the idea of Lewin, who concluded that the analysis of groups and subgroups constitutes a formidable instrument for the subjects to know themselves, to know others, to know the specific group of which they are part and which lives in a given context, and the rest of the groups that are in their environment and go through similar processes.[67]

In this sense, groups are key indicators, as they constitute the most cohesive structures, where identification and solidarity spaces are established among each of the subjects that make up the group.[68] In terms of the present research, this analysis allows identifying groups formed by students with high cohesion, with a greater sense of commitment in group work for the pursuit of group goals and success.

---

[67] Kurt Lewin, "Frontiers in group dynamics," *Human Relations* 1 (1947), https://doi.org/10.1177/001872674700100201.

[68] José Manuel Gaete Fiscella and Jorge Ignacio Vásquez, "Conocimiento y estructura en la investigación académica: una aproximación desde el análisis de redes sociales," *Redes. Revista Hispana Para El Análisis de Redes Sociales* 14 (2008), https://doi.org/10.5565/rev/redes.121.

Table 2

Number of groups and subgroups that are formed from the network
of each class group. Each subgroup is made up of a set of nodes (students)
that are identified by the labels

	Groups of Bachelor's Degree in Tourism	
	Holguín	Puebla
Cliques	1: DBR ECM BMH AMR LPR 2: DBR ECM DLD BMH LPR 3: MAG DBR ECM BMH 4: ECM BMH AMR LOM 5: MAG ECM BMH MST 6: DBR ECM AGS LPR 7: MBG AGE AMB RPV FSG 8: AFR LHP LRU 9: AFR LHP MSR 10: AFR MPR LRU	1: UAHC ARNP ED 2: AI AR F 3: DGS KBL LMVG

III.8. Elements that hinder social cohesion in the Holguín and Puebla class groups

In the analysis of the elements that constitute elements that hinder the social cohesion of the group, a mode two network was constructed from the criteria of the students of the class group, where the students of each class group are related to the elements that hinder social cohesion, to this network is made the analysis of centrality, results that are shown below.

In the Holguin class group, in the opinion of these students, there are 10 aspects that can affect the social cohesion of the class group (see Table 3). However, through the network graph based on the degree of centrality, there are six elements that exceed the average degree of centrality (responsibility, studious, intelligence, companionship, friendship and organized).

Table 3

Descriptive statistics based on the analysis of centrality
of the factors affecting social cohesion of the class group in Holguin, Cuba

	Factors	Degree
1	responsibility	0.708
2	studious	0.500
3	intelligence	0.375

	Factors	Degree
4	companionship	0.375
5	friendship	0.333
6	organized	0.333
7	empathetic	0.292
8	communication	0.208
9	help	0.167
10	understanding	0.083

In the case of the Puebla class group, 12 elements that hinder the positive interdependence of the group are related (see Table 4). Through the graph of the network based on the degree of centrality six elements that exceed the average degree of centrality these are (responsibility, companionship, participation, intelligence, friendship and organized)

Table 4

Descriptive statistics from the analysis of centrality of the factors affecting social cohesion of the class group in Puebla, Mexico

	Factors	Degree
1	responsibility	0.483
2	companionship	0.310
3	participation	0.241
4	intelligence	0.241
5	friendship	0.241
6	organized	0.207
7	studious	0.172
8	communication	0.138
9	empathy	0.138
10	show interest	0.103
11	honesty	0.103
12	creativity	0.103

The analysis shows that the Puebla class group lists a greater number of factors that hinder social cohesion than the Holguín class group. The fact that the Mexico class group has a greater number of factors means that it is more difficult to achieve the formation of positive relationships and trust between individuals, which is key to the success of cooperative learning and the achievement of social cohesion.

The analysis of each of these factors for each class group yields a certain similarity when listing each of these groups (six elements with a higher degree of centrality). There is consensus among both class groups that responsibility is the fundamental element that affects the social cohesion of the group, in a way that coincides with the studies of Arana Ercilla, Acosta Arévalo, Ibarra Argoty and Huérfano Caicedo and Paredes León and Ramos Serpa.[69,70] It also coincides with the work of Sharan, who states that effective communication is fundamental for social cohesion, since it facilitates individuals to communicate and listen to others.[71] On the other hand, Elliot and Dweck state that cultural, ethnic and personality diversity in a group can be a challenge for social cohesion, but it can also enrich cooperative learning.[72]

However, in the present research, factors such as being studious, intelligent, companionship, friendship and being organized come to light. Being studious and intelligent are factors that can significantly influence the social cohesion of a class group in the context of cooperative learning. First, students who are dedicated to study and strive for good academic results are often perceived as leaders or referents within the group, which can generate a higher degree of cohesion among members. In addition, these students tend to be more committed to learning and to teamwork, which translates into a higher degree of cooperation and coordination in the group. In terms of intelligence, students who show more advanced cognitive skills and superior analytical and synthesis skills may be seen as valuable resources for the group, which may increase social cohesion. On the other hand, it is also possible that these factors may generate tensions and conflicts within the

---

[69] Martha Hortensia Arana Ercilla et al., "La formación de valores de responsabilidad y trabajo cooperativo en equipo, en el proceso de investigación para el trabajo de grado," *Revista Científica General José María Córdova* 11 (2013), https://doi.org/10.21830/19006586.190.

[70] Paredes León and Ramos Serpa, "El aprendizaje cooperativo, educación desde la participación social en estudiantes de bachillerato."

[71] Sharan, "Cooperative learning for academic and social gains: Valued pedagogy, problematic practice."

[72] A. J. Elliot and C. S. Dweck, *Handbook of competence and motivation* (Guilford Press, 2005).

214

group, especially if some members feel inferior or excluded because of their academic performance.

In any case, it is important to bear in mind that social cohesion in cooperative learning does not depend exclusively on individual factors, but is influenced by multiple social and contextual variables.

IV. Conclusions

The theoretical elements addressed allow us to appreciate the importance of cooperative learning, as corroborated by the growth of research on this topic. The conceptualization of cooperative learning is characterized by the diversity of criteria; different authors contribute to its enrichment from research results that contribute new elements to it. It is evident that research in the context of Higher Education, at the international level, is below the rest of the teaching levels, which does not take into account the potential of this proposal for the preparation of future professionals through the development of social skills, facilitating group work and autonomous and cooperative learning in the academic field, where one learns to learn, that is to say, teaching how to learn and how to continue learning throughout life. Essential aspects in the integral formation of the future professional.

In this sense, studies show that cooperative learning constitutes a valuable proposal for the achievement of social cohesion in class groups, based on the development of social skills in students, who, through group work, are more motivated and committed to individual goals and those of the group in general. However, it is necessary to study it from other perspectives that, in the end, contribute to the design of strategies that help achieve greater social cohesion in the class groups where this proposal is put into practice.

On the other hand, the use of the SNA in the present study allowed, through the selected indicators, the analysis of social cohesion of the class groups in Holguín, Cuba and Puebla, Mexico, to analyze the results individually and arrive at comparisons, as well as to identify the elements that constitute barriers to the achievement of greater positive interdependence in these groups.

In this research it was found in the individual analysis of each class group network that there are students with outstanding reticular characteristics, which also has important implications, because through the "key students" a greater number of students could be reached, since they are well integrated in the network. Acting on these actors would allow that when new tasks for cooperative work are set, they are quickly disseminated to a network, in addition to updating it and facilitating cohesive and articulated work.

On the other hand, from a global perspective, the class groups subject to cooperative learning practices show different networks of relationships. The comparison of the networks of the class groups of Holguín, Cuba and Puebla, Mexico shows that the Holguín student network achieves greater cohesion, by forming a denser network, with a greater flow of information among the students of the network, as well as, with the identification of a greater number of students who enjoy recognition and importance within the network. The 91% of the students of the Holguin class group have the possibility of mediating in the relationship between other students which facilitates the flow of connections, in this sense, the Puebla class group reaches 62% with the condition that if a student is affected, the network is fragmented in four subgroups. On the other hand, it is significant that, in both networks, the male students are the ones who remain more distant in the network.

The analysis of the groups shows that the Holguín students have more strongly cohesive structures where the commitment to the results of cooperative work is evident, with a high sense of solidarity, as evidenced by the formation of 10 subgroups, more than the three in the group of students from Puebla.

Finally, there is agreement that the element that most affects cooperative work is responsibility; however, there is evidence of the existence of other socio-psychological factors that have a negative influence on the achievement of social cohesion in the class group. It should be noted that the Mexican class group takes into account a greater number of factors than the Cuban class group, an aspect that is reflected in the social cohesion of this group. However, the research on this point has a limitation because it is necessary to analyze longitudinally (over time) these changes dynamized through the actors mentioned. It should also be considered to analyze other attributes possessed by the students, such as: gender, age, race, academic results, social status, conflict resolution in the group, leadership, commitment, responsibility, among others that may be influencing the articulation of the network.

The findings of this research allow us to recommend that the implementation of cooperative learning should take into account the contributions of SNA, where students who are actors with the possibility of transmitting help, as well as those who enjoy the recognition of the rest of the students in the group, are considered in the search for the social cohesion of the class group, Another fundamental element is to consider the students who mediate the relationship between other students, so that, through the design of cooperative learning strategies, the teacher contributes to the formation of groups, in this sense, students who are more peripheral can be included in the group.

From this perspective, it is about connecting the most isolated students to students who are better connected with other students, so that, through their help, better academic results are achieved and contribute to the prevention of problems that come to light in the school group. In addition, knowledge of potential subgroups allows for the creation of more cohesive groups with a greater chance of success.

Finally, inquiring about the barriers that affect cooperative work provides the possibility for teachers to design strategies to minimize the impact and achieve greater social cohesion among students. The present study highlights empirical evidence related to indicators such as centrality, intermediation, eigenvector and cliques that may be valuable for the identification of actors that contribute catalyze the social cohesion of the group and enrich the cooperative learning proposal with the search for new strategies.

Integrating this SNA approach to the context of higher education is a means that allows the professor to detect and diagnose the transformations in the class groups subject to cooperative learning with emphasis on the social cohesion of the group, as well as to determine the retarding elements and intervene according to the results obtained, ultimately, to design strategies that contribute to favor the practice of cooperative learning and to strengthen the social cohesion of the class groups with the objective of integrally training future professionals in the tourism industry.

Bibliography

Aguilar-Gallegos, Norman, Enrique Genaro Martínez-González, Jorge Aguilar-Ávila, Horacio Santoyo-Cortés, Manrrubio Muñoz-Rodríguez, and Edgar Iván García-Sánchez. "Análisis De Redes Sociales Para Catalizar La Innovación Agrícola: De Los Vínculos Directos a La Integración Y Radialidad." *Estudios Gerenciales* 32 (2016): 197–207. https://doi.org/10.1016/j.estger.2016.06.006.

Arana Ercilla, Martha Hortensia, Carlos Miguel Acosta Arévalo, Vicente Hernán Ibarra Argoty, and Jhon Huérfano Caicedo. "La Formación De Valores De Responsabilidad Y Trabajo Cooperativo En Equipo, En El Proceso De Investigación Para El Trabajo De Grado." *Revista Científica General José María Córdova* 11 (2013): 129. https://doi.org/10.21830/19006586.190.

Bermejo Díaz, José M., David Pulido Salas, Aina M. Galmes-Panades, Pedrona Serra Payeras, Josep Vidal Conti, and Francisco J. Ponseti Verdaguer. "Educación Física Y Universidad: Evaluación De Una Experiencia Docente a Través Del Aprendizaje Cooperativo." *Retos* 39 (2021): 90-97. https://doi.org/10.47197/retos.v0i39.77834.

Borgatti, Stephen. *Netdraw Network Visualization*. Harvard, MA: Analytic Technologies, 2002.

Borgatti, Stephen, Martin Everett, and Jeffrey Johnson. *Analyzing Social Networks*. London: SAGE Publications Limited, 2013.

Bosselut, Grégoire, Oscar Castro, Severine Chevalier, and Evelyne Fouquereau. "Does Perceived Cohesion Mediate the Student Personality–Engagement Relationship in the University Setting." *Journal of Educational Psychology* 112 (2020): 1692–700. https://doi.org/10.1037/edu0000442.

Cadoche, Lilian. "Una Propuesta De Aprendizaje Cooperativo." *Aula Universitaria* (2007): 44–55. https://doi.org/10.14409/au.v1i9.1039.

Castillo Reche, Irina S., and Belén Suárez Lantarón. "Una Experiencia Inclusiva De Aprendizaje Cooperativo: Fomentando Habilidades Para El Empleo En La Universidad." *Siglo Cero Revista Española Sobre Discapacidad Intelectual* 51 (2020): 55-72. https://doi.org/10.14201/scero20205125572.

Davies, W. Martin. "Groupwork as a Form of Assessment: Common Problems and Recommended Solutions." *Higher Education* 58 (2009): 563–84. https://doi.org/10.1007/s10734-009-9216-y.

De Nooy, Wouter, Andrej Mrvar, and Vladimir Batagelj. *Exploratory Social Network Analysis with Pajek*. Cambridge, UK: Cambridge University Press, 2005.

Durrani, Naureen, and Anjum Halai. "Dynamics of Gender Justice, Conflict and Social Cohesion: Analysing Educational Reforms in Pakistan." *International Journal of Educational Development* 61 (2018): 27–39. https://doi.org/10.1016/j.ijedudev.2017.11.010.

Elliot, A. J., and C. S. Dweck. *Handbook of Competence and Motivation*. Guilford Press, 2005.

Erbil, Deniz Gökçe. "A Review of Flipped Classroom and Cooperative Learning Method within the Context of Vygotsky Theory." *Frontiers in Psychology* 11 (2020). https://doi.org/10.3389/fpsyg.2020.01157.

Freeman, Linton C., Stephen Borgatti, and Douglas White. "Centrality in Valued Graphs: A Measure of Betweenness Based on Network Flow." *Social Networks* 13 (1991): 141–54. https://doi.org/10.1016/0378-8733(91)90017-n.

Gaete Fiscella, José Manuel, and Jorge Ignacio Vásquez. "Conocimiento Y Estructura En La Investigación Académica: Una Aproximación Desde El Análisis De Redes Sociales." *Redes. Revista Hispana Para El Análisis de Redes Sociales* 14 (2008): 1. https://doi.org/10.5565/rev/redes.121.

García-Almeida, Desiderio J., and María T. Cabrera-Nuez. "The Influence of Knowledge Recipients' Proactivity on Knowledge Construction in Cooperative Learning Experiences." *Active Learning in Higher Education* 21 (2018): 79–92. https://doi.org/10.1177/1469787418754569.

García Cabrera, María del Mar, Ignacio González López, and Rosario Mérida Serrano. "Validación Del Cuestionario De Evaluación Acoes. Análisis Del Trabajo Cooperativo En Educación Superior." *Revista de Investigación Educativa* 30 (2011): 87-109. https://doi.org/10.6018/rie.30.1.114091.

Gillies, Robyn M. "Developments in Cooperative Learning: Review of Research." *Anales de Psicología* 30 (2014): 792-801. https://doi.org/10.6018/analesps.30.3.201191.

Hanneman, Robert A. *Introducción a Los Métodos Del Análisis De Redes Sociales*. California: Universidad de California Riverside, 2000.

Healy, Margaret, Jhon Doran, and Maeve McCutcheon. "Cooperative Learning Outcomes from Cumulative Experiences of Group Work: Differences in Student Perceptions." *Accounting Education* (2018). https://doi.org/10.1080/09639284.2018.1476893.

Hussien, Abdelaziz M. "The Impact of Combining Communicative Traits of Writing with Cooperative Learning on Trainee Teachers' Pedagogical Knowledge and Attitudes." *International Journal of Instruction* 13 (2020): 813–930. https://doi.org/10.29333/iji.2020.13152a.

Jamaludin, Mazlina, and Mazura Stapah. "The Cooperative Learning Approach in Tourism Geography." Paper presented at the e-Proceeding of the 3rd Global Summit on Education GSE, Meliá Hotel Kuala Lumpur, Malaysia, 2014.

Johnson, David W., and Roger T. Johnson. "Learning Together and Alone: Overview and Meta-Analysis." *Asia Pacific Journal of Education* 22, no. 1 (2002): 95-105. https://doi.org/10.1080/0218879020220110.

Johnson, David W., Roger T. Johnson, and Edythe Johnson Holubec. *Cooperation in the Classroom*. 9th ed. Edina, MN: Interaction Book Company, 2013.

Johnson, David W., Roger. T. Johnson, and Karl. A. Smith. "Co-Operative Learning: Improving University Instruction by Basing Practice on Validated Theory." *Journal on Excellence in College Teaching* 25, no. 3&4 (2014): 85-118. http://celt.miamioh.edu/ject/fetch.php?id=594.

———. "The State of Cooperative Learning in Postsecondary and Professional Settings." *Educational Psychology Review* 19, no. 1 (2007): 15–29. https://doi.org/10.1007/s10648-006-9038-8.

Johnson, David. W., and Roger. T. Johnson. "Cooperative Learning in 21st Century." *Anales de Psicología* 30, no. 3 (2014): 841-51. https://doi.org/10.6018/analesps.30.3.201241.

Kimmelmann, Nicole, and Johannes Lang. "Vinculación Dentro De La Formación Docente: Aprendizaje Cooperativo De Docentes Y Estudiantes Docentes." *European Journal of Teacher Education* 42 (2018): 52–64. https://doi.org/10.1080/02619768.2018.1547376.

Kuz, Antonieta, Mariana Falco, and Roxana Giandini. "Social Network Analysis: A Practical Case Study." *Computación y Sistemas* 20 (2016): 89–106. https://doi.org/10.13053/cys-20-1-2321.

Lewin, Kurt. "Frontiers in Group Dynamics." *Human Relations* 1 (1947): 143-53. https://doi.org/10.1177/001872674700100201.

Li, M. P., and Bick Har Lam. *Cooperative Learning. A Class. The Active Classroom*. Hong Kong, 2013.

Lores-Leyva, Idevis, Félix Díaz-Pompa, and Onaida Calzadilla-González. "Aprendizaje Cooperativo: Panorama De Las Investigaciones Científicas Publicadas En Sciencedirect En El Período 1965-2017." *EduSol* 21 (2021): 32-46. https://edusol.cug.co.cu/index.php/EduSol/article/view/1265/2698.

Marsden, Peter V. "Network Data and Measurement." *Annual Review of Sociology* 16 (1990): 435–63. https://doi.org/10.1146/annurev.so.16.080190.002251.

Martin, Eleanor, and Judith Good. "Strategy, Team Cohesion and Team Member Satisfaction: The Effects of Gender and Group Composition." *Computers in Human Behavior* 53 (2015): 536–43. https://doi.org/10.1016/j.chb.2014.06.013.

Ministerio de Educación Superior. *Modelo Educativo Cubano*. La Habana: Ministerio de Educación Superior, 2018. http://www.mes.edu.cu/.

Narayanam, Ramasuri, and Yadati Narahari. "Topologies of Strategically Formed Social Networks Based on a Generic Value Function—Allocation Rule Model." *Social Networks* 33 (2011): 56–69. https://doi.org/10.1016/j.socnet.2010.10.004.

Paredes León, Wilmer R., and Gerardo Ramos Serpa. "El Aprendizaje Cooperativo, Educación Desde La Participación Social En Estudiantes De Bachillerato." *Revista Científica Uisrael* 7 (2020): 75-92. https://doi.org/10.35290/rcui.v7n2.2020.300.

Pujolás Maset, Pere. "Estrategias Metodológicas En La Enseñanza Universitaria: Aprendizaje Cooperativo." 2021 (2007). http://www.unex.es/unex/servicios/sofd/archivos/ficheros/formacion/Aprendizaje_Cooperativo.pps.

Ruiz Palomo, Esther, Isabel Luis Rico, Tamara De la Torre Cruz, M. Camino Escolar Llamazares, Jonathan Huelmo García, Carmen Palmero Cámara, and Alfredo Jiménez Eguizabal. "Validación De Un Instrumento Que Estima La Incidencia Del Aprendizaje Cooperativo En El Estatus Sociométrico De Los Alumnos." *Contextos Educativos. Revista de Educación* (2020): 313–25. https://doi.org/10.18172/con.3937.

Sarıoğlan, Mehmet, and Gülhan Cevizkaya. "Applicability of Cooperative Learning Model in Gastronomy Education." *Journal of Tourism Theory and Research* 1 (2015): 72-75. https://doi.org/10.24288/jttr.202824.

Secretaría de Educación Pública. *Educación Superior En México*. Secretaría de Educación Pública, 2020. https://www.sep.gob.mx/.

Serrano, José-Manuel, and Rosa-María Pons. "Introduction: Cooperative Learning." *Anales de Psicología* 30 (2014): 801-04. https://doi.org/10.6018/analesps.30.3.201251.

Serrano, José M., and Rosa M. Pons. "Cooperative Learning: We Can Also Do It without Task Structure." *Intercultural Education* 18 (2007): 215–30. https://doi.org/10.1080/14675980701463562.

Sharan, Yael. "Cooperative Learning for Academic and Social Gains: Valued Pedagogy, Problematic Practice." *European Journal of Education* 45 (2010): 300–13. https://doi.org/10.1111/j.1465-3435.2010.01430.x.

Shawver, Tara J. "An Experimental Study of Cooperative Learning in Advanced Financial Accounting Courses." *Accounting Education* 29 (2020): 247–62. https://doi.org/10.1080/09639284.2020.1736589.

Slavin, Robert E. "Cooperative Learning and Academic Achievement: Why Does Groupwork Work?". *Anales de Psicología* 30 (2014): 785-91. https://doi.org/10.6018/analesps.30.3.201201.

Sulisworo, Dwi, and Fadiyah Suryani. "The Effect of Cooperative Learning, Motivation and Information Technology Literacy to Achievement." *International Journal of Learning and Development* 4 (2014): 58-64. https://doi.org/10.5296/ijld.v4i2.4908.

Tran, Van Dat. "The Effects of Cooperative Learning on the Academic Achievement and Knowledge Retention." *International Journal of Higher Education* 3 (2014): 131-40. https://doi.org/10.5430/ijhe.v3n2p131.

Tsay, Mina, and Miranda Brady. "A Case Study of Cooperative Learning and Communication Pedagogy: Does Working in Teams Make a Difference?". *Journal of the Scholarship of Teaching and Learning* 10 (2012): 78–89. https://scholarworks.iu.edu/journals/index.php/josotl/article/view/1747.

Van Ryzin, Mark J., Cary J. Roseth, and Anthony Biglan. "Mediators of Effects of Cooperative Learning on Prosocial Behavior in Middle School." *International Journal of Applied Positive Psychology* 5 (2020): 37–52. https://doi.org/10.1007/s41042-020-00026-8.

Velázquez-Álvarez, Alejandro, and Norman Aguilar-Gallegos. *Manual Introductorio Al Análisis De Redes Sociales. Ejemplos Prácticos Con Ucinet 6.85 Y Netdraw 1.48. Medidas De Centralidad*. Toluca: Universidad Autónoma del Estado de México, 2005.

Wadawi, Joe Kibuye. "An Assessment of Cooperative Learning Effectiveness in Tourism and Hospitality Teaching – a Case Study of Selected Student Groups at Strathmore University in Kenya." *ECOFORUM* 2 (2013): 12-18. http://hdl.handle.net/11071/5489.

About the authors

FÉLIX DÍAZ-POMPA (corresponding author, felixdp1978@gmail.com) is Dean of the Faculty of Economic Sciences of the University of Holguin since 2019, Doctor of Science since 2014 and Professor of the Department of Tourism. He has more than 20 years of work experience in Higher Education. For several years he was Advisor of the Faculty of Industrial Engineering. Research Professor who teaches in the Bachelor's Degree in Tourism. Member of the faculty of the Master's Degree in Tourism Management. Member of the Technical Advisory Council of Mintur in Holguin. The main lines of research he works on are cooperative learning, educational orientation, self-management of knowledge, scientometrics, tourism public policies, digital marketing, knowledge management and innovation in tourism facilities. He has publications in national and international journals. He has extensive experience in the management of research projects. Throughout his professional life, he has been recognized for his work as a research professor and in the management of university processes.

NADIA VIANNEY HERNÁNDEZ-CARREÓN (nadiahercar@gmail.com) is Research Professor at the University of Puebla, institution where she worked for many years in the Bachelor's Degree in Tourism and Economics. Currently Rector of the Technological University of Tehuacan for the period 2020 - 2024.

He holds a doctorate with honors in Economic and Strategic Sector Development; MBA from the Graduate School of Business Administration of the Tecnológico de Monterrey. He has more than 20 years of work experience in the public sector and in civil society organizations in Mexico; he has 18 publications, including journals and book chapters at national and international level; his line of research is entrepreneurship and innovation. He has been dedicated to teaching at the higher education level since 2007, and to research and consulting since 2014. He has taught courses in different universities in the country and abroad. Throughout his professional life, he has received several awards and recognitions.

IDEVIS LORES-LEYVA (idevisll@cug.co.cu) is currently Vice Rector of Research and Graduate Studies at the University of Guantanamo since 2018. With experience as Postgraduate Director since 2013. She is a Doctor of Science from the University of Holguin since 2013, Master in Educational Sciences and tenured professor. Most of her working life has been dedicated to the career of Bachelor in Education as a research professor at the University of Guantanamo. She has worked in universities in Angola as an advisor to the training process in the careers of Primary Education and Special Education. She has more than 20 years of work experience in higher education in Cuba. Her main lines of research are related to cooperative learning, in the field of speech therapy: dyslexia and dysgraphia and educational guidance. She has published more than 20 articles in national and international journals related to the lines of research. She has been awarded and recognized for her work throughout her professional life.

OLGA LIDIA ORTIZ-PÉREZ (olgalidiaortizperez@gmail.com) is Professor-Researcher of the Department of Tourism of the University of Holguin. Doctor in Sciences by the University of Holguin and Professor of the Department of Tourism. She has worked in Higher Education for 21 years. She begins her labor life in the University of Pedagogical Sciences of Holguin in the career of Licentiate in Geography. At the moment, she is a teacher in the Degree in Tourism, with experience in the coordination of the Masters in Tourism Management, Member of the Technical Advisory Council of the Delegation of the Mintur in Holguin. Professor invited by Angolan universities in which she served as advisor of the research and training processes. The main lines of research she works on are cooperative learning, self-management of knowledge, scientometrics, tourism public policies, digital marketing, knowledge management and innovation in tourism organizations. She has extensive experience in the management of research projects.

Understanding critical thinking: A comparative analysis between university students' and teachers' conception

María José Bezanilla, Héctor Galindo-Domínguez, Lucía Campo, Donna Fernández-Nogueira, and Manuel Poblete Ruiz*

Abstract: Critical thinking is a key competence in higher education. However, little is known about the conception that students have of this competence. This study aims to analyze what university students understand by critical thinking and if these conceptions agree with those of university teachers analyzed in a previous study. A total of 263 participants took part in the study. The findings reveal that students tend to consider critical thinking as a competence related to *reasoning/arguing* and *questioning/asking oneself*. Also, that students' conception about critical thinking differs from that of teachers. Whereas students tend to consider critical thinking as related to *reasoning/arguing*, *questioning/asking oneself* and, to a lesser extent, to *acting/compromising*. Teachers, on the other hand, tend to consider critical thinking as related to *analyzing/organizing* and *evaluating*. No significant differences were found regarding students' gender and academic year. These results highlight the

* **María José Bezanilla** (corresponding author; marijose.bezanilla@deusto.es), PhD, is Senior Lecturer at the University of Deusto, Spain, in the Department of Education.

Héctor Galindo-Domínguez (hector.galindo@ehu.eus), PhD, is currently an adjunct teacher at the University of the Basque Country, Spain.

Lucía Campo (l.campo@deusto.es), PhD, is currently a teacher in Primary School Grade and tutor for Final Degree Project and Practice at the University of Deusto, Spain.

Donna Fernández-Nogueira (donna.fernandez@deusto.es), PhD, is currently a Professor–Researcher at the University of Deusto, Spain.

Manuel Poblete Ruiz (manuel.poblete@deusto.es), PhD, does research mainly on issues related to competencies and Learning Systems based in Competencies. He is a retired lecturer of Organizational Psychology at the University of Deusto, Spain.

More information about the authors is available at the end of this article.

importance of considering students' views when designing the curricula and the learning activities to develop students' critical thinking.

Keywords: Critical thinking; higher education; thinking skills; university students; students' point of view; transversal competence.

I. Introduction

Critical thinking is a process that must be taught in all the different stages of education, from primary to post-graduate studies (Facione 1990). Moreover, it is necessary for students and educators to have a common understanding of this competence so as to find the most adequate methods and activities to develop it in the classroom. Literature shows that critical thinking is a polysemic concept and a complex process which is understood differently by teachers and students. Moreover, it is difficult to teach it and learn it in an effective way (Choy and Cheah 2009). Little research has been done on this particular issue, so it is necessary to advance knowledge about what teachers and students truly understand by critical thinking.

Many educational centers include critical thinking as a general strategy and include it in the different programs of the subjects taught (Bezanilla et al. 2021). From the teacher's point of view, critical thinking is linked to the integral, intellectual, and professional development of the student. For this reason, it is important to spend time teaching it in a transversal manner (Franco and Almeida 2015) and to include this competence in all the subjects taught. Beyond the analysis of contents, it is necessary to compare ideas to reach well-argued conclusions, question controversial issues, and determine the value of an issue based on criteria.

In addition, decisions should be based on analysis, argumentation, and questioning so as to reach a personal opinion, and consequently, be committed to society (Bezanilla et al. 2018). Developing critical thinking in the classroom has as an aim for students to internalize and systematically adopt this way of living and being in a reality which can sometimes be hostile.

The importance of developing critical thinking in college students has been widely recognized by experts who have pointed out several reasons for this. One of them is its importance in the development of higher order cognitive skills (reflection, self-awareness, among others), which will help them in the analysis and solution of social problems in the future when students become professionals (Ennis 2018; Morris 2017; Paul and Elder 2019; Velásquez de Suárez and Figueroa Morán 2012; Villarini 2003). Choy and Cheah (2009) add the importance of critical thinking as an intellectual stimulus that can facilitate learning. Other authors point out that in a world

where change and complexity are part of everyday life, key competences, including critical thinking, are necessary to face new challenges (Flores 2016; Franco 2016; Franco and Almeida 2015; Hervás and Miralles 2000; Tenías 2013). More specifically, some authors focus on the growing social complexity triggered by the digital social media phenomena (denialism, post-truth, fake news, conspiracy theory, and so on) and the need for students to have tools to cope with this reality through the management of critical thinking skills (Rodríguez Ríos 2021).

Critical thinking is a complex and multidimensional concept. Many authors have defined critical thinking in the educational context, although, and due to the abstract nature of the concept, multiple points of view have emerged when defining it. For Flores et al. (2012, 214), critical thinking "becomes the application of knowledge in more complex ways". A criterion that is commonly accepted by many authors is that critical thinking is about a learned skill or a set of skills, which means that critical thinking can be developed and taught. For Ennis (1991, 2011, 2018), it is a complex cognitive process involving dispositions and abilities with three basic dimensions: logical (judging, relating words to statements), criterial (using opinions to judge statements), and pragmatic (understanding judgment and decision to construct and transform the environment). Paul and Elder (2019) believe that the student can be trained and guided to conceptualize, apply, analyze, synthesize and evaluate information through experience, reflection, and metacognition. Elder and Paul (2003) consider that critical thinking involves the formulation of questions with clarity and precision, evaluation of information, arriving at conclusions based on relevant criteria, thinking with an open mind, and providing solutions to complex problems. These authors add that critical thinking is self-directed, self-disciplined, self-regulating, and self-correcting (Elder and Paul 2003). For Villarini (2003), critical thinking is defined as the capacity of thought to examine and evaluate one's way of thinking and that of others. For Facione (2011), good critical thinkers are defined by what they do, how they do it, and how they arrive at a synthesis. Facione concludes that critical thinking is the process of intentional and self-regulated judgment. From these points of view, critical thinking could be transferable to other disciplines, becoming a competence for lifelong learning. Other authors defend that logic or empirical evidence are the basis of critical thinking (Halpern 2014). In addition, some authors define critical thinking as domain-specific or applicable after a deep knowledge of a topic (Willingham 2007). In spite of this, the majority of the models analyzed claim that the ability of critical reasoning, that is, the 'know-how' of the process of critical thinking, is transferable to other contents once it is

acquired (Mulnix 2012). To sum up, it could be stated that critical thinking is a type of thinking that implies the development and application of different intellectual skills and dispositions for reasoning (more than the application of logic), and it needs the exercise of metacognition by the thinker, which facilitates the transferability of the process.

The skills and dispositions that frame and define critical thinking must be practiced and assumed in the learning process in order to develop this competence. For this reason, to know the starting point and previous ideas of the protagonists of the learning process is of utmost importance for an effective implementation of the educational process (Lee et al. 2021; Moloney 2004; Stupple et al. 2017). Moreover, given the complexity and polysemy of the term, it is important to clarify from the beginning what is meant by critical thinking in the context of a particular subject (Moore 2013; Piergiovanni 2014). What students understand by critical thinking, as well as the differences and coincidences they may have with teachers' understanding of the concept, will univocally help to know what the object of working with this competence is so as to facilitate the transfer in learning. This is the purpose of the present study, and to a larger extent, the purpose of the work done on critical thinking by this research group.

II. Students' conception of critical thinking

Many studies on critical thinking in higher education are based on the analysis of students' level of critical thinking or on the ways of developing it in the classroom, but very few of them deal with how students understand this competence or what they mean by critical thinking. This is an important matter since, as seen before, critical thinking is a complex concept with different meanings and dimensions, and getting to know students' conceptions and views about it is key for an effective teaching and learning process.

There are studies that show that considering students' views can provide very useful criteria to choose activities to acquire transversal competences that can be positive for their learning process (Cangalaya 2020; Llorens-Molina 2018). Llorens-Molina (2018) studied the perception of students in acknowledging the competences that were being taught in a certain activity in a classroom in two different academic years. Although most students could identify most of the transversal competences that were taught, only a low percentage (25.5%) perceived that critical thinking skills were being enhanced. This seems to show, in spite of limitations of the study, the complexity of teaching this competence. The reason could be due, according to this author, to the scarce stimuli in ethical values, which should be included in a critical thinker.

Another important fact is related to the teaching-learning process of critical thinking. As Choy and Cheah (2009, 205) indicate, teachers may think that they are "helping students think critically, but they could be focusing on their comprehension of the subject matter instead". In addition, Stupple et al. (2017) studied the attitudes and beliefs of critical thinking with a sample of psychology undergraduates at the University of Derby, U.K. They measured their confidence in critical thinking, how they recognized the importance of this competence, and finally, the misconceptions of critical thinking. The conclusion they made was very simple: "students desired critical thinking to be taught more explicitly" (Stupple et al. 2017, 104). In fact, Danczak et al. (2017) also highlight the fact that students do not identify the activities in which critical thinking is being taught.

It is essential to know if educational institutions, especially universities, are forming in an effective way, especially when the instruction is focused on improving certain skills (Saiz and Rivas 2008). When analyzing the perception of students in different periods of their academic life and in different countries, there are generally very slight variances. Sampson et al. (2007) asked students in business courses in a public college in Jacksonville (USA) to define critical thinking. The results were that more than 40% included terms, such as applying, analyzing, and synthesizing; 39% included interpreting information, making inferences and translations; 26% elements of making judgments; 19% comprehending the content and intent of the concept and understanding; and more outstanding, there were no answers that included "reflective thinking, reviewing and determining one's reasons and reasoning process" (Sampson et al. 2007, 49). The conclusion of this study is that the student "may have an unclear perception of the concept of critical thinking" (Sampson et al. 2007, 50), and to be able to measure or to evaluate it, it is essential that they understand the concept, and thus, give valid responses that may enhance their learning experience.

The way students perceive critical thinking is essential for acquiring this skill. In the area of Medicine and nursery, Olivares-Olivares and López-Cabrera (2017) believe that students of Medicine in Mexico think that critical thinking skills are related to analyzing and justifying the relevance of their arguments. They also thought that critical thinking was mainly based on using their common sense when reviewing and evaluating information, instead of using reliable evidence and information. This misconception is quite revealing as it shows that students do not always use critical thinking skills when evaluating information.

Díaz-Larenas et al. (2020) analyzed the concept of critical thinking from a group of Chilean fourth-year students of Pedagogy. They defined this

competence as to analyze, reflect or reason about a topic or problem with the aim of basing their point of view on reliable information, measuring the consequences and effects of their acts, and thus, be able to change individual or collective behavior. The latter is interesting as it is not common in students' definitions or perceptions of critical thinking to understand that critical thinking may also be action-oriented. These students also added factors such as the capacity to listen to other's opinions, to interpret evidence in order to reach conclusions, to give arguments, and freedom of speech. For these students, being critical is highly related to their future role as teachers, which is to educate with high intellectual, social, and ethical expectations.

Not so encouraging were the results of a study from Schreglmann and Kanatili-Óztürk (2018). They conveyed a qualitative study of gifted students' perceptions on critical thinking enrolled in the Science and Arts Centre in Turkey. Although the results did not differ from those of the literature, according to the authors, it revealed that the concept critic was perceived as negative by some students. On the positive side, gifted students used concepts such as "'scientific proofs, mental processes, constructive evaluation for both positive and negative opinions, questioning' frequently and defined critical thinking skills properly" (Schreglmann and Kanatili-Óztürk 2018, 11), and students believed that critical thinking was needed for objectivity and improvement as well as to avoid mistakes and have innovative ideas.

Indrašienė et al. (2021) studied the interaction between the understanding of critical thinking and the teaching and learning of the competence in higher education in Lithuania. According to these authors, teachers and students understand critical thinking as a dynamic competence that encompasses both cognitive skills and dispositions. All of the stakeholder groups, including students, consider inference and argumentation to be the most important critical thinking skills and self-confidence and fairness to be the most valued dispositions.

Another important fact concerning the conception and development of critical thinking may be the cultural and educational context. A study applied in the UK suggests that differences between conceptions are explained because students from other cultures had no exposure to critical thinking in their studies before arriving at Britain, a country which has critical thinking embedded in all the subjects along their educational system. When applying it, their main difficulties had to do with understanding when synthesizing and evaluating different sources as well as structuring ideas. Thus, the authors believed that there was a need for guidelines to evaluate, synthesize sources and build arguments, and that critical thinking should be integrated in academic disciplines (Islamiyah and Al Fajri 2020). Tian and Low (2011),

think that Chinese students' critical thinking skills when studying in the UK were not fully developed. These authors believe that one of the factors is that Chinese or Asian students, in general, do not demonstrate their critical thinking skills when going abroad, in spite of the fact that there are many elements of critical thinking skills in Asian culture.

Regarding the sources implied in the conception for the development of critical thinking, Danczak et al. (2017) propose that for the effectiveness of critical thinking in education, there should be a three-way understanding of this concept: students, the teaching staff, and employers. In their study, the authors found that there was not a shared understanding among the three groups of participants. For students, the highest score was analysis and problem solving; for the teaching staff, critique and evaluation; and for employers, problem solving, analysis, arriving at an outcome, and identifying opportunities.

From the teacher's point of view, Moore (2003), after interviewing 17 academics from three subject areas (history, philosophy, and cultural and literary studies) distinguished seven categories in teachers' vision and conceptualization of critical thinking: making judgments; having a skeptical and questioning view of reality; being original and producing knowledge; reading a text sensibly and carefully; rationality and a way of reasoning; adopting an ethical and activist stance; and as self-reflection and self-awareness (Moore 2013). Moreover, Bezanilla et al. (2018), found 6 categories in university teachers' conception of critical thinking: analyzing/organizing; reasoning/arguing; questioning/asking oneself; evaluating; taking a position/taking decisions and acting/compromising. These studies show the variety of answers teachers give to define the competence, as well as the complexity and polysemy of the concept.

In short, it is necessary for both teachers and students to share a common understanding of the competence of critical thinking, and in addition to this, for students to know exactly when it is taught and how it is evaluated. Listening to and understanding students' conceptions about critical thinking is an aspect that science has not given enough importance to, but that could be of special significance to advance in the theoretical knowledge about teaching and learning processes (Lee et al. 2021).

III. Purpose of the study

Based on the previous literature review, the present study aims to answer four main questions:

- RQ1: What is the university students' conceptionof critical thinking?

- RQ2: Is the conception of critical thinking the same depending on the gender of university students?
- RQ3: Is the conception of critical thinking the same depending on the academic year of university students?
- RQ4: Is the students' view of critical thinking identical to the teachers' view?

Taking these four research questions into consideration, the objectives of the present research are:

- Objective #1: To identify the university students' conception of critical thinking.
- Objective #2: To analyze whether the conception of critical thinking is the same depending on the gender of the university students.
- Objective #3: To examine whether the conception of critical thinking is the same depending on the academic year of the university students.
- Objective #4: To compare the conception of critical thinking between the university students and teachers.

IV. Methodology

IV.1. Design of the study

The present study can be classified as quasi-experimental in that the sample selection was not randomly selected, and there may be an influence of uncontrolled external variables. Likewise, the design of this study is cross-sectional in that it attempts to measure a variable at a specific time.

IV.2. Sample

A total of 263 Spanish Education university students (Age = 20.40; SD = 1.38) participated in the study. There were 187 women and 76 men. 42 of them were in 1st year, 62 in 2nd year, 107 in 3rd year, and 52 in their 4th year. In relation to their university degree, 33 of them were studying the Degree in Early Childhood Education, 205 of them were studying the Degree or Double Degree in Primary Education and Sciences of Physical Activity and Sports, and 25 of them were studying the Degree or Double Degree in Social Education and Social Work. Convenience sampling was used for this sample selection. That is, data were collected from participants based on their proximity to the researchers. Specifically, information was collected

from students who belonged to the classes in which the researchers of this study were teaching during the year of data collection. Therefore, this sample represents a portion of the total population of students (n = 1085).

The results were compared with those of a similar previous study (Bezanilla et al. 2018) with a sample of 230 university teachers that were also selected by convenience sampling methods.

IV.3. Instrument

To carry out this study, a brief *ad-hoc* questionnaire was designed consisting of two parts. It began by collecting a series of contextual variables from the participants: age, gender, course, university degree and university of origin.

Afterwards, the students were asked about their conception of critical thinking by means of the following question: *What is critical thinking for you?* (For them, in Spanish, *¿Qué es para ti el pensamiento crítico?*). To respond to this item, they were given a list of the 6 different dimensions of the model proposed by Bezanilla et al. (2018). The dimensions were the following ones:

- Analyzing/organizing: These are answers that refer to critical thinking as a way of examining something in detail (a text, a reality...) considering its parts in order to know its characteristics and draw conclusions. In some cases, they include aspects related to the structuring and organization of information, but do not go beyond that (e.g., I analyze the information by contrasting different sources).

- Reasoning/arguing: These definitions add to the analysis the relation and comparison of ideas and experiences based on arguments, to obtain conclusions and form a reasoned judgment. It involves expressing in words or in writing reasons for or against something, or justifying it as a reasonable action to convey a content and promote understanding (e.g., When I give my opinion I provide reasons or arguments that justify it).

- Questioning/asking oneself: Critical thinking is understood as the questioning of an issue that is controversial or commonly accepted. It means to question things, to ask oneself questions about the reality in which one lives (e.g., When reading an article I ask myself questions about the topics covered).

- Evaluating: It means to value, to weigh, to determine the value of something, to estimate the importance of a fact, taking into account various elements or criteria. It is more than an argumentation (deducing

pros and cons of a reality) because it implies determining the value of something according to certain criteria (e.g., Before making a decision, I evaluate the pros and cons of the situation).

- Taking a position/taking decisions: It implies not only analyzing, reasoning, questioning or evaluating, but also making a decision about it. It means to give a solution or make a definitive judgment on a matter in a certain way, including a position or proposed solution (e.g., When I make a decision, I take it and move forward, despite the fact that others may think differently).

- Acting/compromising: Critical thinking is understood as a means of transforming reality through social commitment. It is to take action, to act, to behave by performing voluntary and conscious acts in a determined and committed manner. It implies the adoption of a certain attitude or position before a certain matter (e.g., I get involved to respond to a situation of injustice or inequality).

After giving students this information, they could select, by means of checkboxes, a maximum of three dimensions or skills which better represented their conception of critical thinking.

Despite the fact that for the present study, only the above question was answered, in this process of collecting information, another series of variables were collected that were analyzed in different studies.

Finally, in relation to the conception of critical thinking held by university teachers, data were taken from the study by Bezanilla et al. (2018). These researchers, instead of giving the dimensions of critical thinking to the participants, collected open-ended responses to the question *What is critical thinking for you?* and performed an inductive analysis to extract the dimensions of critical thinking. In this regard, the possible answer options given to the students were based on the previous inductive analysis carried out with the teachers.

IV.4. Procedure

The procedure of data gathering of students began in May 2021 when the deans and degree coordinators of the faculties gave their permission to collect data for this study. The students were then asked, through their voluntary participation, and always respecting their anonymity and privacy, to accept the terms of the study. They completed the ad-hoc instrument by digital means through Google Forms outside university hours. It should be

added that students were asked for their email if they wanted to receive a report with the main results of the study.

IV.5. *Data analysis*

The data analysis process started with the sum of the frequency of the different dimensions of critical thinking from the students' view. This analysis was complemented with the study of differences by gender and by course, using a Chi-Square test. Secondly, in order to check the association or dissociation between the different dimensions of critical thinking and the role (students or teachers) of the respondent, a cross table and a Chi-Square test was carried out.

V. Results

In order to respond to RQ1, which showed the university students conception of critical thinking, it can be seen through the study of frequencies that the majority of students perceive critical thinking as reasoning/arguing (f = 218) and questioning/asking oneself (f = 203), far from the two dimensions less represented by the students, which were acting/compromising (f = 57) and evaluating (f = 56). The data from this analysis is collected in Table 1.

Table 1

Frequencies of the different conceptions
of critical thinking from the students' view

Conceptions	Frequency	%
reasoning/arguing	218	29.5%
questioning/asking oneself	203	27.5%
analyzing/organizing	113	15.3%
taking a position/taking decisions	91	12.3%
acting/compromising	57	7.7%
evaluating	56	7.5%

In order to respond to RQ2, which exposed whether the conception of critical thinking was the same depending on the gender of the university students, it was found after carrying out a Chi-Square test that there were no

statistically significant differences in any of the analyzed dimensions (reasoning/arguing, p = .717; questioning/asking oneself, p = .590; analyzing/organizing, p = .924; taking a position/taking decisions, p = .626; acting/compromising, p = .414; evaluating, p = .085).

In order to respond to RQ3, which showed whether the conception of critical thinking was the same depending on the academic year of the university students, no statistically significant differences were found in the vast majority of dimensions after carrying out a Chi-Square test (reasoning/arguing, p = 921; analyzing/organizing, p = .854; questioning/asking oneself = .300; evaluating, p = .420; taking a position/taking decisions, p = .184), but in acting/compromising (p = .036). In this regard, a Kruskal-Wallis H was carried out in order to analyze the Mean Ranks. This analysis revealed that students from 3rd (M = 140.37) and 4th year (M = 138.90) tend to consider critical thinking not only from its theoretical point of view (reasoning, analyzing, questioning, and so on), but also as a practical ability that aims in acting against social injustices, in contrast with students from 1st (M = 119.15) and 2nd year (M = 120.47).

Finally, in order to respond to RQ4, which referred to whether the students' conception of critical thinking was identical to the teachers' conception, a Chi-Square test was carried out comparing the different dimensions of the critical thinking model proposed by Bezanilla et al. (2018), based on their role, as a student, a social science teacher or a teacher (social science teachers included). This analysis can be seen in table 2. It is noteworthy to mention that as students came from the social sciences area, it was coherent to organize the sample of teachers consequently, generating a subsample of social science teachers (n=82) and a total sample of teachers (n=230).

Table 2

Cross Table and Chi-Square test between critical
thinking conceptions and student/teacher role

	Student/Teacher role				X^2	
	Student (n = 263)	Social Science Teacher (n = 82)	Teachers (n = 230)	Total		
analyzing/ organizing	113 (134)	50 (41.8)	130 (117.2)	293	12.86 (p = .002)	Teachers > Students
reasoning/ arguing	218 (177.9)	48 (55.5)	123 (155.6)	389	52.13 (p = .000)	Students > Teachers

	Student/Teacher role				X^2	
	Student (n = 263)	Social Science Teacher (n = 82)	Teachers (n = 230)	Total		
questioning/ asking oneself	203 (129.0)	25 (40.2)	54 (112.8)	282	154.80 (p = .000)	Students > Teachers
evaluating	56 (70.4)	26 (22.0)	72 (61.6)	154	7.45 (p = .024)	Teachers > Students
taking a position/taking decisions	91 (90.6)	19 (28.2)	88 (79.2)	198	6.10 (p = .047)	Not clear differences
acting/ compromising	57 (35.7)	4 (11.1)	17 (31.2)	78	27.50 (p = .000)	Students > Teachers

In the first analysis, there were no significant statistical differences found between the views of social sciences teachers and the general teacher sample, but in the case of taking a position/taking decisions, general teachers scored higher, which was an unexpected result.

From this analysis, it can be seen that there are statistically significant differences in all the dimensions of critical thinking. This means that students' and teachers' perception about critical thinking is different. Teachers tend to consider critical thinking as a group of abilities that help students in analyzing/organizing ($X2 = 12.86$; p = .002) and evaluating ($X2 = 7.45$; p = .024) processes, more than students do. In addition, taking into consideration the results from table 1 and the high values of the Chi-Square test, students specially tend to consider critical thinking as a group of abilities that help them in their critical skills: reasoning/arguing ($X2 = 52.13$; p < .000) and questioning/asking oneself ($X2 = 154.80$; p < .000). Moreover, significant statistical differences were found in the dimension of acting/compromising ($X2 = 27.50$; p < .000) in favor of students, and no clear statistical differences were found in the dimension of taking a position/taking decisions ($X2 = 6.10$; p = .047).

VI. Discussion

The main aim of this research has been to analyze the university students' conception of critical thinking, and subsequently, if this conception was consistent with that of teachers. As already mentioned, results showed

659

that the majority of students perceived critical thinking as related to reasoning/arguing and questioning/asking oneself. These results coincide with those of a recent study in which gifted secondary school students associated critical thinking with concepts such as scientific proofs, mental processes, constructive evaluation for both positive and negative opinions and questioning (Schreglmann and Öztürk 2018). In this study, it must be said, however, that some students perceived the meaning of the word critical negatively, which is an important fact, as it seems to show that students do not totally understand the concept. Moreover, another study on critical reading revealed the difficulties that many students had in defining this concept (Moloney 2014). A study by Sampson et al. (2007) found that students have an unclear perception of the concept of critical thinking. They appear to understand that applying, analyzing, synthesizing, and communicating information are elements of critical thinking but not so evaluation, reflection, and judging the value of information. Some other students, however, were able to define critical reading in terms of questioning, evaluating, and judging the information they read (Moloney 2004). This conception of critical by students showed similarities with the findings of the present study. Similarly, another study with Chilean Pedagogy students shows that they understand critical thinking as analyzing, reflecting, reasoning, generating changes, and solving problems. They also considered the critical thinker as someone who is cognitively and socially competent (Díaz-Larenas et al. 2019). This showed the complexity of understanding the concept of critical thinking and the variety of meanings it has, even among the same group of people, in this case, university students. Furthermore, analysis seemed to have the highest score among students' conception of critical thinking (Danczak et al. 2017; Olivares-Olivares and Lopez Cabrera 2017; Rodzalan and Saat 2015; Sampson et al. 2007) although this did not occur in the present study, in which analyzing/organizing took a third place after reasoning/arguing and questioning/asking oneself.

Regarding the comparison between teachers' (Bezanilla et al. 2018) and students' views of critical thinking, the results in this study did not coincide. Teachers believed that analyzing/organizing, reasoning/arguing, and taking a position/taking decisions were the three most important categories. Students, on the other hand, considered as the most important reasoning/arguing; then questioning/asking oneself, which for teachers was fifth; and analyzing/organizing, which for teachers was the most important factor. The findings suggested that, indeed, students had a critical thinking conception that differed from that of teachers. In particular, students tended to understand critical thinking mainly as the union of two areas of skills, reasoning/arguing

and questioning/asking oneself, while teachers tended to understand critical thinking mainly as analyzing/organizing information and reasoning/arguing. The point on which teachers and students agreed the most was in the category of reasoning/arguing, which seemed to be understood by both groups as an important element of critical thinking. It was surprising, however, that the ability of questioning/asking oneself was not so present in teachers' conception of critical thinking. Moreover, it is significant to point out that acting/compromising was more important for students than for teachers, and that evaluating, which is fourth for teachers, showed the lowest position for students.

Díaz-Larenas et al. (2019) results were that students in the area of Education believed that critical thinking should be action-oriented. According to these authors, students in education considered that the objective of this competence was to have a positive impact on individual and collective behavior. That is, that the critical thinking competence was action-oriented with social and ethical implications. In accordance with this, it may be advisable to go a step further in the teaching and acquisition of critical thinking in order not to teach in a passive way, but in an active and compromising manner that may affect the future behavior of students (Kim et al. 2013).

The flexibility of teachers was considered by Indrašienė et al. (2021) as an element to take into account. These authors highlight two factors that impact the teaching and learning of this competence: the rigidity and elasticity of the conception by teachers for students to acquire critical thinking. In their study, moreover, teachers gave more importance to argumentation, interpretations and inference skills, and less to skills that are related to assessing or presenting a context as well as the different attitudes or perspectives of others. Thus, they doubt the "understanding that teachers have about the essence of critical thinking". (37)

Finally, another important difference was that related to evaluation, as a category of critical thinking, which was higher for teachers than for students, probably as the latter identify evaluation as the grade they receive for their performance and not as to make a reliable judgment based on evidence.

VI.1. *Theoretical and practical implications*

This research has important theoretical and practical implications. With regard to theoretical implications, these findings show the idea that critical thinking is a competence that can be understood in different ways, based on the role of the person. In this sense, this study highlights the differences

between teachers and students in the conceptualization of critical thinking and suggests a six skills-based competence to define critical thinking, with significant differences between roles. These results are important in order to determine theoretically what critical thinking is.

With regard to practical implications, these findings could be useful so as to plan and develop critical thinking programs. The effectiveness of these programs has been previously observed in the literature, such as in the study of James et al. (2010), who highlight how students, after a critical thinking-based program, perceived a significant improvement in their critical thinking skills. Specifically, an improvement in their comprehension (87%), analysis (75%), evaluation (75%), justification (73%), and synthesis (62%).

It is very challenging for students to understand what is expected of them if students and teachers do not share the same perception and knowledge of the concept of critical thinking. If students have an unclear understanding of this competence or have a different perception than teachers, it is very difficult for them to acquire it in an effective way (Choy and Cheah 2009). Thus, it could be understood that students need to be taught this competence in an explicit way. Thus, it is essential for students and teachers to know what critical thinking is, as well as to make it explicit and share the aims related to critical thinking and the ways to evaluate the competence.

Since different conceptions on critical thinking do exist, even among students and among teachers, focused dialogue needs to take place between teachers and students in order to organize curriculum experiences for critical thinking. Moreover, such dialogue may give more space for students to take charge of their own learning.

VI.2. *Limitations and prospective*

The present study is not exempt from limitations. The first limitation refers to the scarcity and age of many documents in the literature on theoretical models that analyze the concept of critical thinking. This fact highlights the growing need to continue advancing in the elaboration of theoretical models that unify the conceptions of teachers and students in view of the challenges that the society of the 21st century faces. Hence, future studies need to continue to investigate the conception of critical thinking, taking into consideration the various theoretical models found in the literature and putting special interest in cross-cultural analysis and/or taking into account the diversity of personal and social characteristics.

The second limitation is linked to the methodology followed in the study. Specifically, the results should be cautiously interpreted as the theoretical

model underneath the questionnaire that was presented to the students was developed based on an inductive analysis of the opinions of the teaching staff. However, there could be differences if the theoretical model had been based on students' and not teachers' conception of the competence. On this matter, using the theoretical model used in the present study, future work could follow longitudinal designs in which, over time, it could be observed whether the conception of critical thinking remains stable or not in both teachers and students. Moreover, focus groups between students and teachers could be done in order to obtain deeper information on their conception and interpretation of critical thinking.

Third, another limitation of the study is related to the sample. In this specific case, the complete sample is made up of students from universities in one of the autonomous communities of Spain. Furthermore, in relation to the sample, it should be noted that it was not completely representative of the population of Spanish university students. Consequently, to guarantee the robustness of these results, future studies could reproduce this type of study in other national and international contexts, expanding the sample of participants.

Despite all these limitations, the findings obtained in this study are expected to serve as a reference point for education professionals to continue working on critical thinking in their classrooms. Consequently, it would be necessary for students and teachers to have the same understanding of critical thinking so as to be able to facilitate their students' learning, academic and personal growth. As Choy and Cheah (2009) indicate, many teachers may think they are helping their students to think critically, but they are in reality focusing on their subjects as they believe that they cannot think critically on their own.

References

Bezanilla, María José, Manuel Poblete, Donna Fernández-Nogueira, Sonia Arranz, and Lucía Campo. 2018. "El pensamiento crítico desde la perspectiva de los docentes universitarios." *Estudios Pedagógicos* 44, no. 1: 89-113. https://doi.org/10.4067/S0718-07052018000100089.

Bezanilla, María José, Héctor Galindo-Domínguez, and Manuel Poblete. 2021. "Importance of teaching critical thinking in higher education and existing difficulties according to teacher´s views." *Multidisciplinary Journal of Educational Research* 11, no. 1: 20-48. https://doi.org/10.17583/remie.0.6159.

Cangalaya, Luis Miguel. 2020. "Habilidades del pensamiento crítico en estudiantes universitarios a través de la investigación." *Desde el Sur* 12, no. 1: 141-153. http://dx.doi.org/10.21142/des-1201-2020-0009.

Choy, S. Chee. and Phaik Kin Cheah. 2009. "Teacher perceptions of critical thinking among students and its influence on higher education." *International Journal of Teaching and Learning in Higher Education* 20, no. 2: 198-206.

Danczak, Stephen, Christopher Thompson, and Tina Overton. 2017. "'What does the Term Critical Thinking Mean to You?' A qualitative analysis of chemistry undergraduate, teaching staff and employers' views of critical thinking." *Chemistry Education Research and Practice* 18: 420-434. https://doi.org/10.1039/C6RP00249H.

Díaz-Larenas, Claudio Heraldo, Carlos Javier Ossa-Cornejo, Maritza Roxana Palma-Luengo, Nelly Gromiria Lagos-San Martín, and Javiera Ignacia Boudon Araneda. 2020. "El concepto de pensamiento crítico según estudiantes chilenos de pedagogía." *Sophia, Colección de Filosofía de la Educación* 27: 267-288. https://doi.org/10.17163/soph.n27.2019.09.

Elder, Linda and Richard Paul. 2003." Critical thinking: Teaching students how to study and learn." *Journal of Developmental Education* 27, no. 2: 36-38.

Ennis, Robert H. 1991. "Critical thinking: A streamlined conception." *Teaching Philosophy* 14, no. 1: 5-24.

Ennis, Robert H. 2011. "The nature of Critical Thinking: An outline of critical thinking dispositions and abilities." Accessed January 30, 2022. https://education.illinois.edu/docs/default-source/faculty-documents/robert-ennis/thenatureofcriticalthinking_51711_000.pdf.

Ennis, Robert H. 2018. "Critical thinking across the curriculum: A vision." *Topoi* 37:165-184. http://doi.org/10.1007/s11245-016-9401-4.

Facione, Peter A. 1990. *Critical thinking: A Statement of expert consensus for purposes of educational assessment and instruction. The American Philosophical Association Delphi Report*. California: California Academic Press.

Facione, Peter A. 2011. "Critical thinking: What it is and why it counts." *Insight Assessment*. Accessed February 3, 2022. https://www.student.uwa.edu.au/__data/assets/pdf_file/0003/1922502/Critical-Thinking-What-it-is-and-why-it-counts.pdf.

Flores, David. 2016. "La importancia e impacto de la lectura, redacción y pensamiento crítico en la educación superior." *Zona Próxima* 24: 128-135. https://doi.org/10.14482/zp.24.8727.

Flores, Kevin L., Gina S. Matkin, Mark E. Burbach, Courtney E. Quinn, and Heath Harding. 2012. "Deficient critical thinking skills among college graduates: Implications for leadership." *Educational Philosophy and Theory* 44, no. 2: 212-230. https://doi.org/10.1111/j.1469-5812.2010.00672.x.

Franco, Amanda Helena Rodrigues and Leandro S. Almeida. 2015. "Critical Thinking in College: Differential Analysis by Academic Year and Scientific Area." In *Critical Thinking in Education: Actual Challenges,* edited by Caroline Dominguez, 25-30. Vila Real, Portugal: Universidade de Trás-os-Montes e Alto Douro.

Franco, Amanda. 2016. "What do ode to joy, the Nobel Peace Prize, umbrellas and cartoons have in common? Why critical thinking matters and how higher

education moulds." *Higher Education for the Future* 3, no. 1:108-124. http://doi.org/10.1177/2347631115610231.

Halpern, Diane F. 2014. *Thought and knowledge: An introduction to critical thinking* (5th ed). New York: Psychology Press. https://tandfbis.s3.amazonaws.com/rt-media/pdf/9781848726291/chpt_1.pdf.

Hervás, Rosa María and Pedro Miralles. 2000. "La importancia de enseñar a pensar en el aprendizaje de la historia." *Educar en el 2000* 9: 34-40. http://hdl.handle.net/11162/85775.

Indrašienė, Valdone, Jegelevičienė, Violeta, Merfeldaitė, Odeta, Penkauskienė, Daiva, Pivorienė, Jolanta, Railienė, Asta, Sadauskas, Justinas, and Valavičienė, N<taalija (2021). "The interaction between understanding of critical thinking and teaching/Learning of critical thinking skills." *Pedagogika/Pedagogy 144*, no. 4: 25-42. https://doi.org/10.15823/p.2021.144.2.

Islamiyah, Millatul and Muchamad Sholakhuddin Al Fajri. 2020. "Investigating Indonesian Master's students' Perception of critical thinking in academic writing in a British university." *The Qualitative Report* 25, no. 12: 4402-4422. https://doi.org/10.46743/2160-3715/2020.4058.

James, Nickolas, Claire Hughes, and Clare Cappa. 2010. "Conceptualising, developing and assessing critical thinking in Law." *Teaching in Higher Education* 15, no. 3: 285-297. http://dx.doi.org/10.1080/13562511003740858.

Kim, Kyoungna, Priya Sharma, Susan M. Land, and Kevin P. Furlong. 2013. "Effects of active learning on enhancing student critical thinking in an undergraduate general science course." *Innovative Higher Education* 38: 223-235. https://doi.org/10.1007/s10755-012-9236-x.

Lee, Ning Yuan, Zijun Wang, and Bernice Lim. 2021. "The development of critical thinking: What university students have to say." *Teaching in Higher Education*. https://doi.org/10.1080/13562517.2021.1973412 2021.

Llorens-Molina, Juan Antonio. 2018. "Autopercepción de los estudiantes acerca de la adquisición de las CTs y su contribución a la mejora de las actividades de aprendizaje." In *Congreso In-Red. Congreso Nacional de Innovación Educativa y de Docencia en Red* (Universitat Politècnica de Valéncia, July 19-20, 2018), 1159-1171. http://dx.doi.org/10.4995/INRED2018.2018.8595.

Moloney, Barbara. 2004. "Critical, what? EAP students' views on critical reading." *TESOL in Context* 14, no. 1 and 2: 15-19.

Morris, Libby V. 2017. "Moving beyond critical thinking to critical dialogue. *Innovative Higher Education* 43: 377-378. https://doi.org/10.1007/s10755-017-9413-z

Moore, Tim. 2013. "Critical thinking: Seven definitions in search of a concept." *Studies in Higher Education* 38, no. 4: 506-522. https://doi.org/10.1080/03075079.2011.586995.

Mulnix, Jennifer Wilson. 2012. "Thinking critically about critical thinking." *Educational Philosophy and Theory* 44, no. 5: 464-479. https://doi.org/10.1111/j.1469-5812.2010.00673.x.

Olivares Olivares, Silvia Lizet and Mildred Vanessa López Cabrera. 2017. "Validación de un instrumento para evaluar la autopercepción del pensamiento

crítico en estudiantes de Medicina." *Redie. Revista Electrónica de Investigación Educativa* 19, no. 2: 67-77. https://doi.org/10.24320/redie.2017.19.2.848.

Paul, Richard and Linda Elder. 2019. *The Miniature Guide to Critical Thinking. Concepts and Tools* (8th ed.). London: Rowman and Littlefield.

Piergiovanni, Polly R. 2014. "Creating a critical thinker." *College Teaching* 62, no. 3: 86-93. https://doi.org/10.1080/87567555.2014.896775.

Rodríguez Ríos, Rebecca Marilyn. 2021. "Pensamiento crítico y alfabetización digital en la escolaridad mexicana: Crisis a la luz de la posverdad." *Propuestas Educativas* 3, no. 6: 140–154. https://propuestaseducativas.org/index.php/propuestas/article/view/707

Rodzalan, Shazaitul and Maisarah Mohamed Saat. 2015. "The perception of critical thinking and problem solving skill among Malaysian undergraduate students." *Procedia. Social and Behavioural Sciences* 172: 725-732. https://doi.org/10.1016/j.sbspro.2015.01.425.

Saiz, Carlos and Silvia F. Rivas. 2008. "Evaluación en pensamiento crítico: Una propuesta para diferenciar formas de pensar". *ERGO Nueva Época* 22-23: 25-66.

Sampson, Della C., Rita Moore, and Mary Jo Jackson. 2007. "Critical thinking: Do they really have "it" if they don't know what "it" is?" In *Proceedings of the Academy of Educational Leadership* 12, no. 1: 47-51.

Schreglmann, Sinan and Fikriye Kanatli Öztürk. 2018. "An Evaluation of Gifted Students' Perception on Critical Thinking Skills." *Journal for the Education of Gifted Young Scientists* 6, no. 4: 1-16. https://doi.org/10.17478/jegys.463711.

Stupple, Edward J. N., Frances A. Maratos, James Elander, Thomas E. Hunt, Kevin Y. F. Cheung, and Aimee V. Aubeeluck. 2017. "Development of the Critical Thinking Toolkit (CriTT): A measure of student attitudes and beliefs about critical thinking." *Thinking Skills and Creativity* 23: 91-100. https://doi.org/10.1016/j.tsc.2016.11.007.

Tenías Padrón, Martín José. 2013. "Pensamiento crítico en la universidad de la postmodernidad." *Trilogía. Ciencia Tecnología Sociedad* 5, no. 8: 55-66. https://doi.org/10.22430/21457778.286.

Tian, Jing and Graham David Low. 2011. "Critical thinking and Chinese university students: A review of the evidence." *Language, Culture and Curriculum* 24, no. 1: 61-76. https://doi.org/10.1080/07908318.2010.546400.

Velásquez de Suárez, Martha Judith and Hugo Figueroa Morán. 2012. "Desarrollo del pensamiento crítico en estudiantes de educación superior en El Salvador." *Panorama* 6, no. 10: 7-20.

Villarini, Angel R. 2003. "Teoría y pedagogía del Pensamiento Crítico." *Perspectivas Psicológicas* 3-4: 35-42.

Willingham, Daniel T. 2007. "Critical thinking: Why is it so hard to teach?" *American Educator* 31: 8–19. http://www.aft.org/sites/default/files/periodicals/Crit_Thinking.pdf.

About the authors

MARÍA JOSÉ BEZANILLA (corresponding author; marijose.bezanilla@deusto.es) has a PhD in Education from the Institute of Education of the University of London and is Senior Lecturer at the University of Deusto in the Department of Education. She is currently the coordinator of the PhD in Education at the Faculty of Education and Sport of the same university. As member of eDucaR research team, she participates in research projects and has numerous publications on critical thinking, the use of ICT in the university context and the development of competences in higher education. Shares her teaching and research activities with management tasks in the Teaching Innovation Unit of the University of Deusto, with particular emphasis on the publications area and the development of transversal competences.

HÉCTOR GALINDO-DOMÍNGUEZ (hector.galindo@ehu.eus) holds a PhD in Education, a Master's degree in Innovation and Research in Education and a Master's degree in Prevention and treatment of bullying. He does research mainly on issues related to critical thinking, educational technology, and effectiveness of teaching methodologies. He is currently an adjunct teacher at the University of the Basque Country, but for years he has worked as a teacher of Primary Education.

LUCÍA CAMPO (l.campo@deusto.es) is Graduate in Psychology and Psychopedagogy, Master in Innovation and development of competencies and PhD in Education (University of Deusto, Bilbao, Spain). Currently teaching in University in Primary School Grade, as well as Final Degree Project and Practice tutoring. Member of eDucaR research team (University of Deusto). During her PhD she focused on studying the skills of teachers and how they can be assessed. Moreover, she has focused on the teaching-learning process and in transversal competencies. As such, she has become proficient at compiling and analysing quantitative as well as qualitative data and at building explicative models related to teaching competencies. Her themes of research are critical thinking, teacher's development and evaluation, and implementation of the teaching-learning model based on competencies in the EHEA.

DONNA FERNÁNDEZ-NOGUEIRA (donna.fernandez@deusto.es) holds a BA in Philosophy and Arts (English Philology) and a PhD in Philosophy and Arts (English Philology) from the University of Deusto. She is currently a Professor–Researcher at the University of Deusto, campus Bilbao. During the past few years she has carried out research on competences, critical thinking, entrepreneurship, and the historiography of linguistics, among other matters. She was part of the research team, INNOVA, recognized by the Basque Government (category A), which is now part of Deusto eDucaR (category A).

MANUEL POBLETE RUIZ (manuel.poblete@deusto.es) holds a PhD in Social Psychology. He does research mainly on issues related to competencies and Learning Systems based in Competencies: its conception, methodologies of

learning and evaluation. During the last years he researches with other teachers on critical thinking and about effectiveness of teaching methodologies. He has worked as a teacher of Organizational Psychology carrier in University of Deusto. Now he is retired and continues with different tasks in the education field.

The attitude of students and teachers towards MOOC usage for their academic and professional development: A comparative study of two case study sites

Suman Kalyan Panja, Atanu Banerjee, Kamal Krishna De, and Ajay Kumar Singh*

Abstract: The massive open online course (MOOC) and online learning concepts have received a lot of attention from educational stakeholders all around the world as a result of COVID-19. Initial studies demonstrated that people may use MOOCs as a tool for academic and professional advancement. This micro-study was conducted at two adjacent national higher educational institutions (HEIs) in India as case study sites (CSS) to learn more about the attitude of the students and faculties there. The research strategy used for the study was a mixed-method approach. To collect data, a tool that was created by the researchers was used. There was a type of atypical relationship between the institutions and the professionals. Comparing CSS2 students and CSS1 teachers to their peers from other institutions, it was discovered that they both displayed more optimistic attitude. The attitude of all four groups were discovered to be favorable. The study served as an example of some educational ramifications in the neighborhoods.

---

* **Suman Kalyan Panja** (corresponding author, sumanpanja03@gmail.com/suman.kalyan.panja@aus.ac.in), PhD, is Assistant Professor at the Assam University, India.

Atanu Banerjee (atanubanerjee7777@gmail.com), PhD, is Assistant Professor at the LN Mithila University, India.

Kamal Krishna De (de.kamal@yahoo.com), PhD, is a former Professor of the Ramakrishna Mission Sikshanamandira, India.

Ajay Kumar Singh (ajayaus2015@gmail.com/ajay.kumar.singh@aus.ac.in), PhD, is a Professor at the Assam University, India.

More information about the authors is available at the end of this article.

Keywords: Massive open online course; MOOC; career development; teacher professional development; technology-enhanced learning.

I. Introduction

Massive open online courses (MOOCs) began their voyage in 2008, and shortly after they were introduced, the phenomenon gained popularity all over the world. As a result, 2012 was designated as the Year of MOOC.[1] Through increasingly critical studies, the phenomenon eventually reaches a plateau. It was believed that MOOCs will completely overhaul the current system of instruction and training. The US and European nations have a higher prevalence of MOOC research and development. These two categories account for the majority of platforms that offer MOOCs. According to research, there was a sizable presence of Indian students in those MOOCs where the accent used to give the lessons was frequently one of the troublesome elements. Research was conducted on primary school students and caregivers during the COVID-19 pandemic, when all schools were closed due to the situation, in order to create and validate the online learning attitude questionnaire.[2] Additionally, a study on the perceptions of arts educators about online education was examined to look at their group characteristics.[3] The government of India (GoI) occasionally made efforts to launch some MOOC initiatives to support the area of academic and professional development (APD) of its citizens at a global climax. Such programmes may have also been motivated by the desire to help people transition from being merely consumers to prosumers. India currently has its own MOOC platform called "Study Webs of Active-Learning for Young Aspiring Minds" (SWAYAM), and nine national coordinators have been appointed to ensure effective oversight of the academic and research interests of its stakeholders at various levels. In a nutshell, the aforementioned image depicted national and international MOOC learning/development policies, practices, and research.

---

[1] Laura Pappano, "The Year of the MOOC," *New York Times*, November 2, (2012): https://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html.

[2] Joseph Hin Yan Lam, and Shelley Xiuli Tong, "Development and Validation of the Online Learning Attitude Questionnaire (OLAQ) among Primary School Children and Caregivers," *Interactive Learning Environments*, (2022): 1-15, https://www.tandfonline.com/doi/full/10.1080/10494820.2022.2043911.

[3] Mo Wang et al., "Art Teachers' Attitudes toward Online Learning: An Empirical Study Using Self Determination Theory," *Frontiers in Psychology* 12, (2021): 627095, https://doi.org/10.3389/fpsyg.2021.627095.

II. Literature review

The MOOC and APD are connected to this article. The researchers held the opinion that professional development (PD) and academic advancement cannot be isolated from one another because they frequently coexist. Some comparable works from the extant literatures have been put here in various categories for a systematic presentation.

II.1. *Review of research related to MOOC and academic development*

The use of ICT in education transactional processes was continuously noted by its stakeholders in the twenty-first century. In addition to the traditional delivery techniques for lessons, a number of innovative strategies were entering the picture. Flexible learning routes in higher education (HE) were promoted by the sustainable development goals (SDG4).[4] Research demonstrated that the practical application of ICT in teaching-learning processes improved the learning of rookie teachers of a hybrid institution, foreshadowing the blendedness in HE.[5] A significant change was about to occur in India's future university education system thanks to the engagement of MOOCs.[6] According to a comparative study of the users of two separate MOOC sites, Indian students were using MOOCs to advance their academic careers.[7] A team of researchers suggested that students might consider using virtual simulations for laboratory work in light of the development of augmented reality.[8] Researchers were present

---

[4] Michaela Martin, and Ana Godonoga, "SDG 4 - Policies for Flexible Learning Pathways in Higher Education," *IIEP-UNESCO Working Papers* (2020): 1-52, https://unesdoc.unesco.org/ark:/48223/pf0000372817?locale=en.

[5] Magda Pischetola, "Teaching Novice Teachers to Enhance Learning in the Hybrid University," *Postdigital Science and Education* 4, (2022): 70–92, https://link.springer.com/article/10.1007/s42438-021-00257-1.

[6] Pankaj Mittal, "Creating Future Ready Universities the Indian Context," in *Reimagining Indian Universities,* eds. Pankaj Mittal and Sistla Rama Devi Pani, (New Delhi: Association of Indian Universities, 2020): 1-19, https://www.aiu.ac.in/documents/AIU_Publications/Reimagining%20Indian%20Universities/8.%20Creating%20Future%20Ready%20Universities%20The%20Indian%20Context%20By%20Pankaj%20Mittal%20Secretary%20General,%20Association%20Of%20Indian%20Universities,%20New%20Delhi.pdf.

[7] Janesh Sanzgiri, "MOOCs for Development? A Study of Indian Learners and Their Experiences in Massive Open Online Courses," (Ph. D. diss., The Open University, 2020): https://www.proquest.com/openview/e5bc1153640ddb559a4290282edcc56a/1?pq-origsite=gscholar&cbl=18750&diss=y.

[8] Guido Makransky et al., "Equivalence of Using a Desktop Virtual Reality Science Simulation at Home and in Class," *Plos One* 14, no. 4 (2019): e0214944, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0214944.

during the start of the COVID-19 pandemic to emphasize the difficulties and possibilities in rethinking HE.[9] In the midst of the buzz surrounding MOOCs and access to high-quality HE, the researchers took a controversial stance based on their qualitative research.[10] The MOOC phenomenon received harsh criticism on a number of fronts. The spread of MOOCs in HE and their societal ramifications were discovered through a comparison of the USA and Europe.[11] Graduate students' perceptions of studying IFRS through MOOCs were investigated.[12] The dropout rate of MOOC students has been found to be too high in a number of studies. A group of scholars proposed adopting an alternative perspective on success and dropout in light of the learners' point of view.[13] To disseminate awareness of the benefits of MOOCs in India, however, the GoI issued a number of announcements that were helpful to the researchers in understanding how they may be implemented in academic settings.[14,15] The use of a mixed-method approach was emphasized by a group of researchers in relation to MOOC activities and its evaluation procedures.[16]

---

[9] Lorenz S Neuwirth, Svetlana Jovic, and B Runi Mukherji, "Reimagining Higher Education During and Post-COVID-19: Challenges and Opportunities," *Journal of Adult and Continuing Education* 27, no. 2 (2021): 141–156, https://doi.org/10.1177%2F1477971420 947738.

[10] David Nemer, and Jacki O'Neill, "Rethinking MOOCs: The Promises for Better Education in India," *International Journal of Information Communication Technologies and Human Development (IJICTHD)* 11, no. 1 (2019): 36-50, https://www.igi-global.com/article/rethinking-moocs/221310.

[11] Valentina Goglio, "The Diffusion and Social Implications of MOOCs A Comparative Study of the USA and Europe," (Routledge, 2022): 207-221, https://www.taylorfrancis.com/chapters/mono/10.4324/9781003009757-12/conclusions-valentina-goglio.

[12] Julieth E. Ospina-Delgado, María A. García-Benau, and Ana Zorio-Grima, "Learning IFRS through MOOC: Student and Graduate Perceptions," *Accounting Education* 30, no. 5 (2021): 451-471, https://doi.org/10.1080/09639284.2021.1925131.

[13] Maartje A. Henderikx, Karel Kreijns, and Marco Kalz, "Refining Success and Dropout in Massive Open Online Courses Based on the Intention–behavior Gap," *Distance Education* 38, no. 3 (2017): 353-368, https://www.tandfonline.com/doi/full/10.1080/015879 19.2017.1369006.

[14] University Grants Commission, Massive Open Online Courses an Initiative under National Mission on Education through Information Communication Technology (NME-ICT) Programme, (F. No. 8-1/2015-TEL, March 11, 2016a): https://www.ugc.ac.in/pdfnews/3885329_MOOCs-Guideline-(Development--Funding).pdf.

[15] University Grants Commission, UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016, (No. F.1-100/2016 (MOOCs/e-content), July 20, 2016b): https://www.ugc.ac.in/pdfnews/0272836_moocs.pdf.

[16] Edward Meinert et al., "Protocol for a Mixed-methods Evaluation of a Massive Open Online Course on Real World Evidence," *BMJ Open* 8, no. 8 (2018): e025188, http://dx.doi.org/10.1136/bmjopen-2018-025188.

II.2. *Review of research related to MOOC and professional development (PD)*

The need for professional training for teachers was felt in the post-COVID-19 environment as educators looked forward to the prospect of instruction delivery in a mixed mode.[17] There is evidence pointing to the benefits of MOOCs for teachers' professional development (TPD).[18] Were the instructors' techno-optimists or pessimists in the twenty-first century? A pilot study was conducted internationally to discover the solution.[19] According to a report, by offering continuous professional development (CPD) through online courses, social and economic mobility could be enhanced.[20] A team of researchers has offered advice on how to incorporate MOOCs into classroom instruction for the benefit of teachers.[21] MOOC continued to be a frequent research area for TPD.[22,23] According to research, MOOCs could help employees develop their digital skills.[24] A comparative study of two MOOC platforms' students revealed that the courses helped them improve their classroom attentiveness.[7] On the potential of MOOCs as a tool for human development, there were exemplary

---

[17] UNESCO, Teacher Task Force, and ILO, Supporting Teachers in Back-to-School Efforts Guidance for Policy-Makers, (May, 2020): 1-5, https://teachertaskforce.org/knowledge-hub/supporting-teachers-back-school-efforts-guidance-policy-makers.

[18] Pradeep Kumar Misra, "MOOCs for Teacher Professional Development: Reflections and Suggested Actions," *Open Praxis* 10, no. 1 (2018): 67–77. https://openpraxis.org/article/10.5944/openpraxis.10.1.780/.

[19] Łukas Tomczyk et al., "Are Teachers Techno-optimists or Techno-pessimists? A Pilot Comparative among Teachers in Bolivia, Brazil, the Dominican Republic, Ecuador, Finland, Poland, Turkey, and Uruguay," *Education and Information Technologies* 26, (2021): 2715–2741, https://link.springer.com/article/10.1007/s10639-020-10380-4.

[20] Runchana Pam Barger, "Democratization of Education through Massive Open Online Courses in Asia," *IAFOR Journal of Education: Technology in Education* 8, no. 2 (2020): 29-46, https://eric.ed.gov/?id=EJ1265753.

[21] Peter G. M. de Jong et al., "Twelve Tips for Integrating Massive Open Online Course Content into Classroom Teaching," *Medical Teacher* 42, no. 4 (2020): 393-397, https://doi.org/10.1080/0142159X.2019.1571569.

[22] Commonwealth of Learning, Policy Brief: Leveraging MOOCs for Teacher Development in Low-Income Countries and Disadvantaged Regions, (November, 2021): 1-16, http://hdl.handle.net/11599/3980.

[23] Benjamin Hertz et al., "A Pedagogical Model for Effective Online Teacher Professional Development—Findings from the Teacher Academy Initiative of the European Commission," *European Journal of Education* 57, (2022): 142–159, https://onlinelibrary.wiley.com/doi/epdf/10.1111/ejed.12486.

[24] Sarah Edelsbrunner et al., "Promoting Digital Skills for Austrian Employees through a MOOC: Results and Lessons Learned from Design and Implementation," *Education Sciences* 12, (2022): 89-105, https://www.mdpi.com/2227-7102/12/2/89.

findings accessible.[25] In order to integrate technology into education, a group of academics conducted a study on the assessment of teachers' digital competency.[26] According to a survey on teachers' attitude, they are open to more structured training that will increase the effectiveness of the online learning environment.[27] The impact of pre-service teachers' attitude toward web-based training in an online setting was investigated using self-regulated learning (SRL) skills.[28] Wu and Chen (2022) conducted a thorough investigation to identify the variables influencing the efficacy of MOOC teachers. The teachers were evaluated from the viewpoint of human capital.[29] To determine the function of TPACK and EFL teachers in China's emotional and evaluative attitude toward technology, a dichotomous model was created.[30] MOOC was introduced as an additional TPD tool. A fictitious learning model was used to increase the percentage of in-service teachers who completed their MOOC courses.[31]

---

[25] Balaji Venkataraman, and Asha Kanwar, "Changing the Tune: MOOCs for Human Development? – A Case Study," in *MOOCs and Open Education Around the World,* eds. Curtis J. Bonk, Mimi Miyoung Lee, Thomas C. Reeves, Thomas H. Reynolds, (Routledge, 2015): 27, https://www.routledge.com/MOOCs-and-Open-Education-Around-the-World/Bonk-Lee-Reeves-Reynolds/p/book/9781138807419.

[26] Alberto A. P. Cattaneo, Chiara Antonietti, and Martina Rauseo, "How Digitalised Are Vocational Teachers? Assessing Digital Competence in Vocational Education and Looking at its Underlying Factors," *Computers & Education* 176, (2022): 104358-104375, https://doi.org/10.1016/j.compedu.2021.104358.

[27] Sanjay Dey et al., "A study on the Effectiveness of Online Mode of Education during the Covid-19 Pandemic through the Awareness and Attitude of Teachers," *Research Review International Journal of Multidisciplinary* 7, no. 1 (January, 2022): 5-25, https://rrjournals.com/index.php/rrijm/article/view/48/33.

[28] Hasan Ozdal et al., "Effectiveness of Self-Regulated Learning Skills on Web Based Instruction Attitudes in Online Environments," *Pegem Journal of Education and Instruction* 12, no. 1 (2022): 182-193, View of Effectiveness of self-regulated Learning skills on web-based instruction attitudes in online environments (pegegog.net).

[29] Bing Wu, and Wei Chen, "Factors Affecting MOOC Teacher Effectiveness from the Perspective of Professional Capital," *Behaviour & Information Technology*, (2022): 1-16, https://doi.org/10.1080/0144929X.2021.2024596.

[30] Meng Zhang, and Sitong Chen, "Modeling Dichotomous Technology Use among University EFL Teachers in China: The Roles of TPACK, Affective and Evaluative Attitudes towards Technology," *Cogent Education* 9, no. 1 (2022): 2013396-2013420, https://doi.org/10.1080/2331186X.2021.2013396.

[31] Ning Ma et al., "A Learning Model for Improving In-Service Teachers' Course Completion in MOOCs," *Interactive Learning Environments*, (2022): 1-16, https://doi.org/10.1080/10494820.2021.2025405.

II.3. *Critical appraisal of the literature review and the rationale of the study*

The aforementioned survey of the literature revealed that numerous studies on MOOCs and APD were conducted, with participants being professors or students in a variety of settings and scenarios. However, very little study has been done on the CSS1 and CSS2 students and teachers to understand their attitudes regarding using MOOCs for their APD. Therefore, more study in the area was warranted. It is clear that HE was the primary research area for MOOCs. However, the phenomenon was slowly gaining traction in the Indian setting. The administration was eager to introduce it at various educational levels. Any policy's implementation success depends on the coordinated efforts of all relevant parties. The purpose of this study was to examine how teachers and students saw MOOCs in relation to their APD. Thus, the authors attempted to present a comparative analysis through this paper by including two significant groups of educational stakeholders, specifically students and teachers from two national HEIs of India, coded as CSS1 and CSS2.

III. Variables

The factors in the current study were split into two groups.

i) Major variable: Attitude towards MOOC usage for the APD
ii) Categorical variables: Institutional status (HEIs) & professional status (teachers & students of the HEIs)

IV. Research objectives

The subsequent two research objectives (ROs) served as the foundation for the study.

RO1: To study the attitude towards MOOC usage for the APD of the students and teachers of the CSS1 and CSS2.
RO2: To compare the attitude of the students and teachers of CSS1 and CSS2 towards MOOC usage for their APD of the students and teachers of the CSS1and CSS2.

V. Research hypothesis

The following null hypothesis was developed for the quantitative study of RO1, and RO2 was established by comparing the mean values of the samples' scores on the attitude scale.

$H_0$1: There will be no significant difference in attitude towards MOOC for their APD between the professionals i.e., the students (of CSS1 + CSS2) and teachers (of CSS1 + CSS2).

$H_0$2: There will be no significant difference in attitude towards MOOC for their APD between the institutes i.e., the (students + teachers of) CSS1 and CSS2.

$H_0$3: There will be no significant difference in attitude towards MOOC for their APD between the students of CSS1 and CSS2.

$H_0$4: There will be no significant difference in attitude towards MOOC for their APD between the teachers of CSS1 and CSS2.

$H_0$5: There will be no significant difference in attitude towards MOOC for their APD between the students and teachers of CSS1.

$H_0$6: There will be no significant difference in attitude towards MOOC for their APD between the students and teachers of CSS2.

VI. Explanatory (research) questions

Five explanatory (research) questions (EQs) were framed, each of which contained a list of possible responses, from which a respondent would choose one based on his or her own characteristics and circumstances in order to conduct in-depth qualitative analysis of the divergence of different groups in attitude toward MOOC usage.

EQ1: Did you face any kind of problem during the participation in MOOC? If yes, please explain.

EQ2: How did the MOOC /online course help you in your APD?

EQ3: How easy it was for you to go for e-learning through MOOC with regular institutional academic assignments?

EQ4: Would you like to attend MOOC in the future? If yes, then explain what type of MOOC you wish to attend.

EQ5: What is your overall experience about MOOC/online course?

VII. Methodology of the research

VII.1. Research tool and ethical considerations for the research

Self-determination theory served as the foundation for the descriptive survey. The main focus of the study was still online learning. This study used a mixed-method approach to research. A self-created Likert scale plus the aforementioned EQ questionnaire made up the research tool. The Likert

scale of 14 statements was used to collect quantitative data. There were both positive and negative statements. The statements received the following affirmative responses: 5, 4, 3, 2, and 1. For the negative type of statements, the marking trend was reversed. Data gathering took place from March to September 2021, primarily during the COVID-19 epidemic and related lockdown. The tool was changed into a Google form to take data collection into account. The draught tool was used in the standardization process. The population was given access to the finished instrument for data collection.

The researchers continued to be cautious when it came to ethical issues in study. The research instrument was divided into four sections: general information, demographic information, part for collecting quantitative data, and section for collecting qualitative data. The participants received clear information about the study's goal in the general information section. Data collection was carried out using an anonymous form. No information about the subjects' personal information was taken into consideration during the data collection process. A statement regarding the upkeep of data confidentiality was attached. Whatever information was gathered, it was done so with the respondents' consent.

VII.2. *Validity of the scale*

By contrasting the three experts' opinions on the 14 assertions of the scale, the content validity of the scale was assessed. 13 of the statements were kept. Three key components were found by factor analysis, and under these three, 12 items were distributed. Finally, the final piece was tossed. The Cronbach's alpha reliability of the scale was determined to be 0.701.

VII.3. *Population and sample/respondents*

A comparison between the CSS1 and CSS2 was conducted. Due to their proximity in terms of location and similarities in HE transactional practices, the two national HEIs were taken into consideration. All the students and faculty members of the aforementioned institutions made up the study's population. 257 CSS1 and CSS2 students and teachers made up the study's sample. The samples came from various demographic groups. Table 1 below shows the sample size for this study.

VIII. Presentation of data

Table 1 mentions the sample size for this study. Figure 1 depicts the same for easier visualization.

VIII.1. *Histogram and descriptive statistics*

The randomization method was applied throughout the study. The truth was demonstrably represented by the histogram (Figure 2) that follows of the entire sample scores. The odds ratio analysis of the data from the respondents was used to further investigate the fact of randomization. We have shown the descriptive statistics for each stratum in Table 2.

IX. Analyses of data

IX.1. *Quantitative data analysis*

In order to analyze the quantitative data, GraphPad Prism 5 and SPSS 17 were used. ANOVA and t-tests were used to evaluate the null hypotheses. Students and teachers from each institution participated in a comparative research that was conducted on two institutions, CSS1 and CSS2. In the beginning, the researchers made an effort to examine the issue from a broad spectrum, taking into account the degrees of institutes and professionals. As a result, 30 respondents from each area of the sample frame were selected by systematic randomization to create Table 3 for the ANOVA. The descriptive statistics for the attitude scores of the respondents chosen at random in equal numbers (N=30) from each of the four strata of the ANOVA matrices are presented in Table 4. Table 5 presents the ANOVA results.

$H_0 1$: The F value for the professionals, which is displayed in Table 5, is 1.783. At the 0.05 level of significance, this value is not significant. As a result, research showed that there were no significant differences between the professionals (teachers and students). So the *null hypothesis $H_0 1$ was retained*.

$H_0 2$: According to Table 5, the institutes' F value is 2.515, which at a 0.05 level of significance is not significant. Thus, it suggested that there were no significant differences between the institutes and the professionals (students and teachers) associated to them. So the *null hypothesis $H_0 2$ was retained*.

At the 0.05 level, the interactions between professionals and institutes (i.e., professionals * institutes) were significant. According to their institutions, it suggested that there might be a major difference between students or teachers. T-tests were required to make sure of this. Tukey's t tests were thus employed to determine whether the other 4 null hypotheses were tenable. The outcomes of the independent t-tests are shown in Table 6.

$H_0 3$: The distinction was not statistically significant (NS), as indicated by the "p" value of 0.381. Therefore, *the null hypothesis was retained*. This

indicated that there were no appreciable differences between the two national HEIs' students' attitudes regarding the research problem.

H$_0$4: Since the 'p' value was 0.005 in this case, the difference was significant (S). Therefore, *the null hypothesis was not retained*. This indicated that there was a large attitude gap between the teachers at the two national HEIs.

H$_0$5: 'p' was calculated to be 0.001. The difference was therefore substantial (S). Therefore, *the null hypothesis was not retained*. This indicated that there was a considerable attitude gap between CSS1 students and faculty when it comes to the research challenge.

H$_0$6: Since the 'p' value was 0.378, the difference in this case was not significant (NS). Therefore, *the null hypothesis was retained*. This indicated that there was no discernible difference in attitude towards the research problem between CSS2 students and teachers.

Comparing the mean scores of the samples from ANOVA Table 6 allowed for the establishment of RO2 using the quantitative data already available. The comparison shown in Table 7 allowed the researchers to determine the nature of the interactions between the institutes and the professionals that had previously existed (Figure 3).

IX.2. *Qualitative data analysis*

The qualitative analysis of the research problem was related to the second component of the research technique. So, using their content and theme analysis, the replies to each EQ were micro-analyzed. Below, absolute frequencies were used to illustrate the results of each EQ. Figures 4 and 5 provided, respectively, the students' and teachers' condensed replies to EQ1 for comparison examination.

Figures 4 and 5 demonstrated that technical issues with internet connectivity or bandwidth were the main cause of the MOOC learning problem. Other issues that students might encounter include a personal attention deficiency, a lack of awareness, a lack of personal interest, etc. The lack of time was another obstacle for teachers. Indicative replies for the EQ2 question were "enrichment of subject knowledge and development of new skill," "preparation of examinations like JAM/NET/GATE/TET etc.," "PD/enhancing employment potential," "credit transfer in academic evaluation," "not applicable to me," and "didn't help in any way." Figures 6 and 7 provided a comparison of the sample groups.

Figures 8 and 9 in EQ3 categorically displayed the respondents' feedback.

Figures 8 and 9 showed that majority of the comments were favorable. Figures 10 and 11 from EQ4 depicted the respondents' perspective.

Figure 10 showed how the students were imagining themselves participating in MOOCs and APD in the future.

Figure 11 showed that the professors' opinions regarding their future participation in MOOCs varied significantly. EQ4 once more showed that respondents had a generally optimistic perspective for the future. Figures 12 and 13 summarized the pros' final comments on EQ5.

In the EQ5 survey, a sizable portion of responses fell into the blend experience, satisfactory, and extremely satisfied categories. The researchers observed something of a similar nature to what they had seen in Figure 12, in Figure 13. Those in CSS1 were discovered to be happier than teachers in CSS2. The reception was mostly favorable for EQ5 as well.

X. Findings

The following conclusions were made when the quantitative data were analyzed:

1. When it came to their attitude toward using MOOCs for their APD, the students' and teachers' cumulative scores did not greatly diverge from one another.
2. Regarding their attitude on using MOOCs for their APD, the two national HEIs with their inmates (teachers + students) did not significantly differ from one another.
3. Regarding attitude on using MOOCs for their APD, students from the two national HEIs did not significantly differ from one another.
4. The attitude of the teachers at one national HEI (CSS1) and another (CSS2) towards the use of MOOCs for their APD were very different.
5. Regarding the use of MOOCs for their APD, the CSS1 faculty and students had very different attitudes.
6. The CSS2 students' and teachers' attitude scores regarding the research problem did not significantly differ from one another.

When compared to CSS1 students, CSS2 students were shown to have a more upbeat attitude. Teachers' attitude regarding the research problem was more favorable for CSS1 than CSS2 teachers. Our earlier conclusions were strengthened by the qualitative data analysis part, which also established the ROs and provided a thorough study of the research problem.

XI. Limitations

There were not many restrictions on the research. Which were

1. The newly introduced Google format used for collecting data might be somewhat difficult particularly for the aged teachers.
2. There might be wide diversity among the clientele over the research topic.
3. The researchers had to be satisfied by a small sample size due to a barrier set up by world-wide COVID-19 pandemic during the period of data collection.

XII. Results and discussions

The demographics of the respondents were taken into account during the investigation, which led to some intriguing findings. The respondents above the age of 40 were found to represent themselves less frequently. Thus, the generational divide had an impact on this MOOC research. A similar kind of observation was recorded by earlier studies.[32] It was noted that female teachers did not participate very well in this study. Consequently, a sense of gender parity in HE and MOOC activities was felt.[33] It was observed that a sizable portion of respondents had not yet taken part in any MOOCs or online courses. The researchers therefore saw the need for a curriculum to familiarize learners with MOOCs. According to a report, MOOCs could promote social inclusion and mobility.[34] But just a small portion of the locality's influence on MOOCs was observed in our study. From respondents with various subjective backgrounds, a diverse distribution of respondents' representation was seen. A MOOC from any subjective background was therefore thought to not be equally appealing. With regard to the respondents' overall teaching experiences, a similar downward trend was seen across all participant age groups. Participants with research insight contributed more to this MOOC's research and practices than other participants.

The researchers were able to statistically identify the research objectives through the testing of null hypotheses and comparison of the mean scores of

---

[32] David Santandreu Calonge, and Mariam Aman Shah, "MOOCs, Graduate Skills Gaps, and Employability: A Qualitative Systematic Review of the Literature," *International Review of Research in Open and Distributed Learning: IRRODL* 17 no. 5 (2016): 67-90, https://www.erudit.org/fr/revues/irrodl/2016-v17-n5-irrodl04876/1064705ar.pdf.

[33] Arnab Kundu, and Tripti Bej, "Perceptions of MOOCs among Indian State University Students and Teachers," *Journal of Applied Research in Higher Education* 12, no. 5 (2020): 1095-1115, https://www.emerald.com/insight/content/doi/10.1108/JARHE-08-2019-0224/full/html.

[34] Carmen Marta-Lazo,Sara Osuna-Acedo, and Javier Gil-Quintana, "sMOOC: A Pedagogical Model for Social Inclusion," *Heliyon* 5, no. 3 (2019): e01326, https://doi.org/10.1016/j.heliyon.2019.e01326.

the respondents. Teachers at different institutions exhibited quite different attitude (ref. $H_0 4$), but students couldn't see these distinctions (ref. $H_0 3$). Teachers and students occasionally displayed significant differences in attitude (ref. $H_0 5$), but such differences were not always be guaranteed (ref. $H_0 1$, $H_0 2$, $H_0 6$). In comparison to their peers in other institutions, the CSS2 students and CSS1 teachers showed a more upbeat mood than the other three strata (ref. Figure 3). Significant variations between some groups might be brought about by the strong reported positive attitude of the CSS1 faculties and the prevalent dysfunctional connection between institutions and professionals.

A qualitative study of the EQs was conducted in order to analyze the issue thoroughly. The responders' technical problems were highlighted in EQ1. The students' personal issues were another area of worry. Time restrictions for teachers continued to be a problem. A small percentage of respondents in EQ2 were found to use MOOCs for credit transfer. Therefore, it might be concluded that the GoI MOOC policies were being implemented.[15] Only a small percentage of respondents reported having bad feelings about taking a MOOC. Such comments need to be considered for the root cause analysis. MOOC sensitization initiatives were required at institutional levels in response to comments of the "Not applicable to me" kind of response from a significant portion of samples. A few respondents found it extremely difficult to participate in the MOOC. It is necessary to investigate the cause of these events. In varying degrees, past research has supported the perceived usefulness and accessibility of the online courses/MOOCs in EQ1-3.[35] EQ4 highlighted the students' comments' futuristic framework, which covered nearly every facet of PD. Less enthusiasm was seen on the part of the teachers for combining MOOC with the improvement of their soft skills. Our findings were consistent with past studies conducted in a different setting.[36] According to the respondents' EQ5 scores, their MOOC learning experiences were generally favorable. In this instance as well, CSS1 teachers were discovered to be happier than their CSS2 counterparts. In addition to the positive comments, a few unfavorable responses were also noted and should be taken into account.[37] The respondents' attitude about the research problem

---

[35] Amer Mutrik Sayaf et al., "Factors Influencing University Students' Adoption of Digital Learning Technology in Teaching and Learning," *Sustainability* 14, (2022): 493-510, https://www.mdpi.com/2071-1050/14/1/493.

[36] Smadar Donitsa-Schmidt, Rony Ramot, and Beverley Topaz, "Shaping the Future of Distance Learning in Teacher Education: MOOCS during COVID-19," *Perspectives in Education* 40, no. 1 (2022): 250-267, https://journals.ufs.ac.za/index.php/pie/article/view/5258.

[37] Michela Giordano, and Maria Antonietta Marongiu, "We Are a Global Community': Communicating Knowledge through MOOCs and Teacher Training Platforms," *Journal of*

were generally positive, as seen by the EQ2 through EQ5. Our findings in this study were consistent with those of Wang, Wang, Cui, and Zhang (2021), albeit in a different setting.[3]

XIII. Conclusion

The purpose of the study was to examine how students and teachers felt about using MOOCs for their APD. In this study, a diverse influence of demographic factors was found. In general, the institutes and professionals had similar attitudes, although their interactions with particular group levels occasionally revealed a noticeable difference. Compared to their CSS1 peers, the CSS2 students maintained a more cheerful attitude. The teachers' perspective painted a quite different picture. It was discovered that each of the four distinct groups had a favorable attitude toward the study's problem. Even the conclusions of the quantitative results were reinforced by the qualitative examination of the EQs. However, the researchers believed that if the respondents received adequate training on using MOOCs, there shouldn't be any significant differences in attitude toward using MOOCs for APD between groups of teachers, students, or students and teachers in HEIs. The findings of this empirical study could have a significant impact on both education stakeholders and policy makers. Given that it was a preliminary study, larger-scale research involving additional institutions of this type across the nation and the world might provide us with a better picture of the situation.

Bibliography

Barger, Runchana Pam. "Democratization of Education through Massive Open Online Courses in Asia." *IAFOR Journal of Education: Technology in Education* 8, no. 2 (2020): 29-46. https://eric.ed.gov/?id=EJ1265753.

Cattaneo, Alberto A. P., Chiara Antonietti, and Martina Rauseo. "How Digitalised Are Vocational Teachers? Assessing Digital Competence in Vocational Education and Looking at its Underlying Factors." *Computers & Education* 176, (2022): 104358-104375. https://doi.org/10.1016/j.compedu.2021.104358.

Commonwealth of Learning. Policy Brief: Leveraging MOOCs for Teacher Development in Low-Income Countries and Disadvantaged Regions. November, 2021: 1-16. http://hdl.handle.net/11599/3980.

de Jong, Peter G. M., James D. Pickering, Renee A. Hendriks, Bronwen J. Swinnerton, Fereshte Goshtasbpour, and Marlies E. J. Reinders. "Twelve Tips for Integrating

---

Critical Studies in Language and Literature 2, no. 6 (2021): 38-51, https://jcsll.gta.org.uk/index.php/home/article/view/123.

Massive Open Online Course Content into Classroom Teaching." *Medical Teacher* 42, no. 4 (2020): 393-397. https://doi.org/10.1080/0142159X.2019.1571569.

Dey, Sanjay, Amita Patra, Dillip Giri, and Viswanath Reddy. "A study on the Effectiveness of Online Mode of Education during the Covid-19 Pandemic through the Awareness and Attitude of Teachers." *Research Review International Journal of Multidisciplinary* 7, no. 1 (January, 2022): 5-25. https://rrjournals.com/index.php/rrijm/article/view/48/33.

Donitsa-Schmidt, Smadar, Rony Ramot, and BeverleyTopaz. "Shaping the Future of Distance Learning in Teacher Education: MOOCS during COVID-19." *Perspectives in Education* 40, no. 1 (2022): 250-267. https://journals.ufs.ac.za/index.php/pie/article/view/5258.

Edelsbrunner, Sarah, Karin Steiner, Sandra Schön, Martin Ebner, and Philipp Leitner. "Promoting Digital Skills for Austrian Employees through a MOOC: Results and Lessons Learned from Design and Implementation." *Education Sciences* 12, (2022): 89-105. https://www.mdpi.com/2227-7102/12/2/89.

Giordano, Michela, and Maria Antonietta Marongiu. "We Are a Global Community': Communicating Knowledge through MOOCs and Teacher Training Platforms." *Journal of Critical Studies in Language and Literature* 2, no. 6 (2021): 38-51. https://jcsll.gta.org.uk/index.php/home/article/view/123.

Goglio, Valentina. "The Diffusion and Social Implications of MOOCs A Comparative Study of the USA and Europe." Routledge, 2022: 207-221. https://www.taylorfrancis.com/chapters/mono/10.4324/9781003009757-12/conclusions-valentina-goglio.

Henderikx, Maartje A., Karel Kreijns, and Marco Kalz. "Refining Success and Dropout in Massive Open Online Courses Based on the Intention–Behavior Gap." *Distance Education* 38, no. 3 (2017): 353-368. https://www.tandfonline.com/doi/full/10.1080/01587919.2017.1369006.

Hertz, Benjamin, Hannah Grainger Clemson, Daniella Tasic Hansen, Diana Laurillard, Madeleine Murray, Luis Fernandes, Anne Gilleran, Diego Rojas Ruiz, and Danguole Rutkauskiene. "A Pedagogical Model for Effective Online Teacher Professional Development—Findings from the Teacher Academy Initiative of the European Commission." *European Journal of Education* 57, (2022): 142–159. https://onlinelibrary.wiley.com/doi/epdf/10.1111/ejed.12486.

Kundu, Arnab, and Tripti Bej. "Perceptions of MOOCs among Indian State University Students and Teachers." *Journal of Applied Research in Higher Education* 12, no. 5 (2020): 1095-1115. https://www.emerald.com/insight/content/doi/10.1108/JARHE-08-2019-0224/full/html.

Lam, Joseph Hin Yan, and Shelley Xiuli Tong. "Development and Validation of the Online Learning Attitude Questionnaire (OLAQ) among Primary School Children and Caregivers." *Interactive Learning Environments*, (2022): 1-15. https://www.tandfonline.com/doi/full/10.1080/10494820.2022.2043911.

Makransky, Guido, Righard E. Mayer, Nocola Veitch, Michelle Hood, Karl Bang Christensen, and Helen Gadegaard. "Equivalence of Using a Desktop Virtual

Reality Science Simulation at Home and in Class." *Plos One* 14, no. 4 (2019): e0214944. https://journals.plos.org/plosone/article?id=10.1371/journal. pone.0214944.

Ma, Ning, Ya-Meng Li, Jia-Hui Guo, Diana Laurillard, and Min Yang. "A Learning Model for Improving In-Service Teachers' Course Completion in MOOCs." *Interactive Learning Environments*, (2022): 1-16. https://doi.org/10.1080/10494 820.2021.2025405.

Marta-Lazo, Carmen, Sara Osuna-Acedo, and Javier Gil-Quintana. "sMOOC: A Pedagogical Model for Social Inclusion." *Heliyon* 5, no. 3 (2019): e01326. https://doi.org/10.1016/j.heliyon.2019.e01326.

Martin, Michaela, and Ana Godonoga. "SDG 4 - Policies for Flexible Learning Pathways in Higher Education." *IIEP-UNESCO Working Papers* (2020): 1-52. https://unesdoc.unesco.org/ark:/48223/pf0000372817?locale=en.

Meinert, Edward, Abrar Alturkistani, David Brindley, Alison Carter, Glenn Wells, and Josip Car. "Protocol for a Mixed-Methods Evaluation of a Massive Open Online Course on Real World Evidence." *BMJ Open* 8, no. 8 (2018): e025188. http://dx.doi.org/10.1136/bmjopen-2018-025188.

Misra, Pradeep Kumar. "MOOCs for Teacher Professional Development: Reflections and Suggested Actions." *Open Praxis* 10, no. 1 (2018): 67–77. https://openpraxis. org/article/10.5944/openpraxis.10.1.780/.

Mittal, Pankaj. "Creating Future Ready Universities the Indian Context." In *Reimagining Indian Universities,* eds. Pankaj Mittal and Sistla Rama Devi Pani. 1-19. New Delhi: Association of Indian Universities, 2020. https://www.aiu. ac.in/documents/AIU_Publications/Reimagining%20Indian%20 Universities/8.%20Creating%20Future%20Ready%20Universities%20The%20 Indian%20Context%20By%20Pankaj%20Mittal%20Secretary%20 General,%20Association%20Of%20Indian%20Universities,%20New%20 Delhi.pdf.

Nemer, David, and Jacki O'Neill. "Rethinking MOOCs: The Promises for Better Education in India." *International Journal of Information Communication Technologies and Human Development (IJICTHD)* 11, no. 1 (2019): 36-50. https://www.igi-global.com/article/rethinking-moocs/221310.

Neuwirth, Lorenz S., Svetlana Jovic, and B Runi Mukherji. "Reimagining Higher Education During and Post-COVID-19: Challenges and Opportunities." *Journal of Adult and Continuing Education* 27, no. 2 (2021): 141–156. https://doi. org/10.1177%2F1477971420947738.

Ospina-Delgado, Julieth E., María A. García-Benau, and Ana Zorio-Grima. "Learning IFRS through MOOC: Student and Graduate Perceptions." *Accounting Education* 30, no. 5 (2021): 451-471. https://doi.org/10.1080/09639284.2021.1925131.

Ozdal, Hasan, Celalettin Ozden, Ramazan Atasoy, and Ahmet Guneyli. "Effectiveness of Self-Regulated Learning Skills on WebBased Instruction Attitudes in Online Environments." *Pegem Journal of Education and Instruction* 12, no. 1 (2022): 182-193. View of Effectiveness of self-regulated Learning skills on web-based instruction attitudes in online environments (pegegog.net).

Pappano, Laura. "The Year of the MOOC." *New York Times*. November 2, 2012. https://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html.

Pischetola, Magda. "Teaching Novice Teachers to Enhance Learning in the Hybrid University." *Postdigital Science and Education* 4, (2022): 70–92. https://link.springer.com/article/10.1007/s42438-021-00257-1.

Santandreu Calonge, David, and Mariam Aman Shah. "MOOCs, Graduate Skills Gaps, and Employability: A Qualitative Systematic Review of the Literature." *International Review of Research in Open and Distributed Learning: IRRODL* 17 no. 5 (2016): 67-90. https://www.erudit.org/fr/revues/irrodl/2016-v17-n5-irrodl04876/1064705ar.pdf.

Sanzgiri, Janesh. "MOOCs for Development? A Study of Indian Learners and Their Experiences in Massive Open Online Courses." Ph. D. diss., The Open University, 2020. https://www.proquest.com/openview/e5bc1153640ddb559a4290282edcc56a/1?pq-origsite=gscholar&cbl=18750&diss=y.

Sayaf, Amer Mutrik, Mahdi M. Alamri, Mohammed Ayid Alqahtani, and Waleed Mugahed Alrahmi. "Factors Influencing University Students' Adoption of Digital Learning Technology in Teaching and Learning." *Sustainability* 14, (2022): 493-510. https://www.mdpi.com/2071-1050/14/1/493.

Tomczyk, Łukas, Vladimir Costas Jáuregui, Cibelle Albuquerque de La Higuera Amato, Darwin Muñoz, Magali Arteaga, Solomon Sunday Oyelere, Özgür Yaşar Akyar, and Mariana Porta. "Are Teachers Techno-optimists or Techno-pessimists? A Pilot Comparative among Teachers in Bolivia, Brazil, the Dominican Republic, Ecuador, Finland, Poland, Turkey, and Uruguay." *Education and Information Technologies* 26, (2021): 2715–2741. https://link.springer.com/article/10.1007/s10639-020-10380-4.

UNESCO, Teacher Task Force, and ILO. Supporting Teachers in Back-to-School Efforts Guidance for Policy-Makers. May, 2020: 1-5. https://teachertaskforce.org/knowledge-hub/supporting-teachers-back-school-efforts-guidance-policy-makers.

University Grants Commission. Massive Open Online Courses an Initiative under National Mission on Education through Information Communication Technology (NME-ICT) Programme. F. No. 8-1/2015-TEL. March 11, 2016a: https://www.ugc.ac.in/pdfnews/3885329_MOOCs-Guideline-(Development--Funding).pdf.

University Grants Commission. UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016. No. F.1-100/2016 (MOOCs/e-content). July 20, 2016b: (https://www.ugc.ac.in/pdfnews/0272836_moocs.pdf.

Venkataraman, Balaji, and Kanwar, Asha. "Changing the Tune: MOOCs for Human Development? – A Case Study." In *MOOCs and Open Education Around the World,* eds. Curtis J. Bonk, Mimi Miyoung Lee, Thomas C. Reeves, Thomas H. Reynolds, 27. Routledge, 2015. https://www.routledge.com/MOOCs-and-Open-Education-Around-the-World-Bonk-Lee-Reeves-Reynolds/p/book/9781138807419.

Wang, Mo, Minjuan Wang, Yulu Cui, and Hai Zhang. "Art Teachers' Attitudes Toward Online Learning: An Empirical Study Using Self Determination Theory." *Frontiers in Psychology* 12, (2021): 627095. https://doi.org/10.3389/fpsyg.2021.627095.

Wu, Bing, and Wei Chen. "Factors Affecting MOOC Teacher Effectiveness from the Perspective of Professional Capital." *Behaviour & Information Technology*, (2022): 1-16. https://doi.org/10.1080/0144929X.2021.2024596.

Zhang, Meng, and Sitong Chen. "Modeling Dichotomous Technology Use among University EFL Teachers in China: The Roles of TPACK, Affective and Evaluative Attitudes towards Technology." *Cogent Education* 9, no. 1 (2022): 2013396-2013420. https://doi.org/10.1080/2331186X.2021.2013396.

About the authors

SUMAN KALYAN PANJA (corresponding author, sumanpanja03@gmail.com/ suman.kalyan.panja@aus.ac.in, https://orcid.org/0000-0002-9097-4938) is currently working as Assistant Professor in the Department of Education, Assam University, Silchar, 788011, Assam, India. He completed his Ph. D. in Chemistry from the University of Calcutta in 2012. Recently, he submitted his thesis to Assam University, Silchar for the degree of Ph.D. in Education. His multidisciplinary area of research interest includes MOOC, technology-enhanced learning, higher education, professional development, science education and chemistry.

ATANU BANERJEE (atanubanerjee7777@gmail.com, https://orcid.org/0000-0002-7171-1294), PhD, is currently working as an Assistant Professor of Zoology in the Department of Zoology, LN Mithila University, Darbhanga, Bihar, India. His area of research interest includes zoological research and statistical analysis.

KAMAL KRISHNA DE (de.kamal@yahoo.com), PhD, has a vast experience in academics and administrative affairs. He remained the former Professor of Ramakrishna Mission Sikshanamandira, Belur Math, Howrah, 711 202, West Bengal, India. His main area of research interest includes the quantitative analysis of educational research, and statistics in education.

AJAY KUMAR SINGH (ajayaus2015@gmail.com/ajay.kumar.singh@aus.ac.in, https://orcid.org/0000-0002-7235-7530), PhD, is currently working as a Professor in the Department of Education, Assam University, Silchar, 788011, Assam, India. His key area of research interest includes quantitative research in education, professional development, and science education.

Annex

Table 1

The Sample Frame

		Professionals	
		Students	Teachers
Institute	CSS1	112	48
	CSS2	52	45

■ CSS1 ■ CSS2
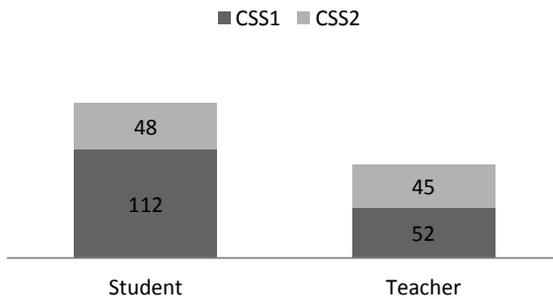
Figure 1

Distribution of Sample/Respondents
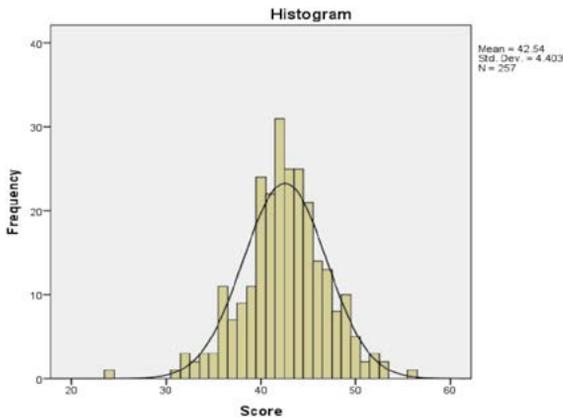
Figure 2

Histogram_Total Sample Scores

Table 2

Descriptive Statistics

Strata	N	Mean	Median	SD	Sk	kur
Total	257	42.54	43.00	4.403	- 0.264	1.087
AC	112	42.375	42.0000	4.11134	0.189	0.102
BC	48	41.6250	42.0000	4.01394	- 0.320	- 0.396
AD	52	42.7885	42.0000	3.91246	0.188	- 0.402
BD	45	41.2000	42.0000	5.52103	- 0.659	1.041

Table 3

ANOVA Matrices

		Professionals		
		A (Students)	B (Teachers)	Total
Institutes	CSS1 (C)	AC_{30}	BC_{30}	60
	CSS2 (D)	AD_{30}	BD_{30}	60
	Total	60	60	120

Note. A = Students, B = Teachers, C = CSS1, D = CSS2.

Table 4

Descriptive Statistics of the Attitude Scores of the Respondents Selected Randomly with Equal Number (N=30) from Each of the 4 Strata of ANOVA Matrices

Professionals	Institute	Mean	Std. Deviation	N
A	C	41.4667	3.83930	30
	D	42.4000	4.33590	30
	Total	41.9333	4.08746	60
B	C	44.7333	3.60969	30
	D	41.2667	5.47681	30
	Total	43.0000	4.91969	60
Total	C	43.1000	4.04508	60
	D	41.8333	4.93059	60
	Total	42.4667	4.53545	120

Table 5

ANOVA Results

Source	Sum of Squares	Df	Mean Square	F	Sig.
Intercept	216410.133	1	216410.133	11305.880	.000
Professionals	34.133	1	34.133	1.783	.184 **NS** ($p > 0.05$)
Institute	48.133	1	48.133	2.515	.116 **NS** ($p > 0.05$)
Professionals * Institute	145.200	1	145.200	7.586	.007 **S** ($p < 0.05$)
Error	2220.400	116	19.141		
Total	218858.000	120			

Note. NS = Not Significant, S = Significant.

Table 6

Independent t-test Results

Null Hypothesis	Group Details	Interaction Details	N	DF	Difference of Mean	SE_D	P [Sig. value (2-tailed)]	Level of significance
H_03	AC vs. AD	I/P interaction	30 30	58	-.93333	1.05736	0.381	NS($p > 0.05$)
H_04	BC vs. BD	I/P interaction	30 30	58	3.46667	1.19757	0.005	S($p < 0.05$)
H_05	AC vs. BC	I/P interaction	30 30	58	-3.26667	0.96212	0.001	S ($p < 0.05$)
H_06	AD vs. BD	I/P interaction	30 30	58	1.13333	1.27535	0.378	NS($p > 0.05$)

Note. P = Professionals, I = Institute.

Table 7

Comparative Study of Mean Scores from the ANOVA Table 6

Institution	Students' mean score (A)	Teachers' mean score (B)
CSS1 (C)	41.47	44.73
CSS2 (D)	42.40	41.27
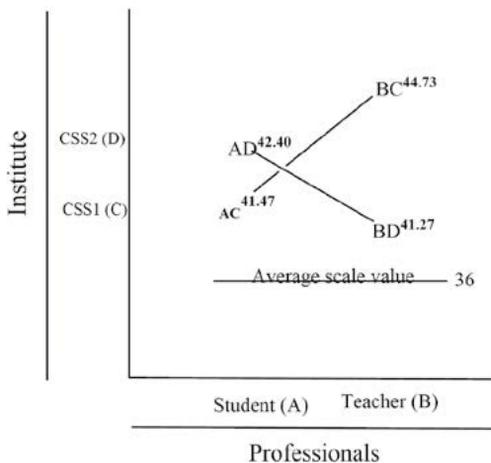
Figure 3

Interaction between Professionals and Institutes (Disordinal)
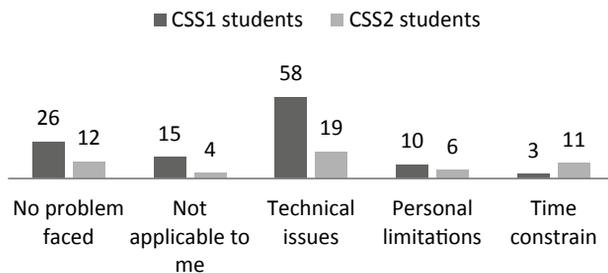
Figure 4

Students' Responses_EQ1
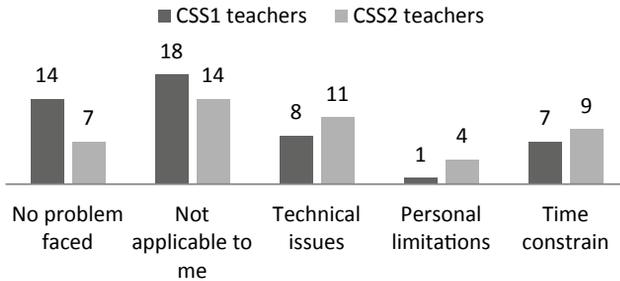
Figure 5
Teachers' Responses_EQ1
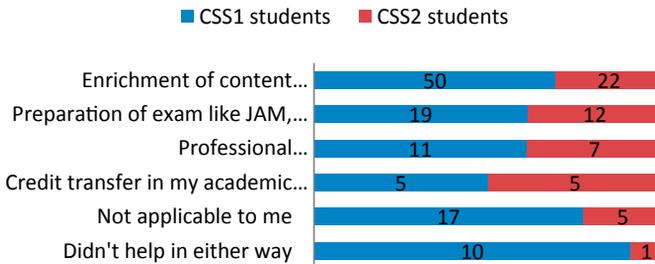
Figure 6
Students' Responses_EQ2
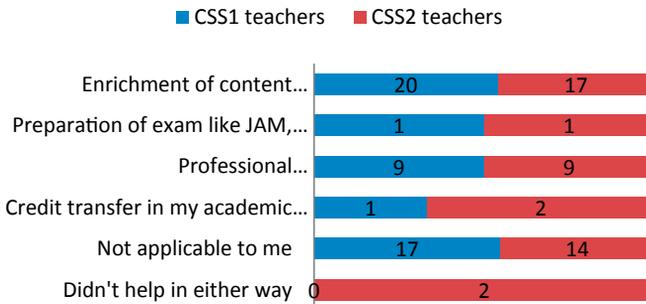
Figure 7
Teachers' Responses_EQ2
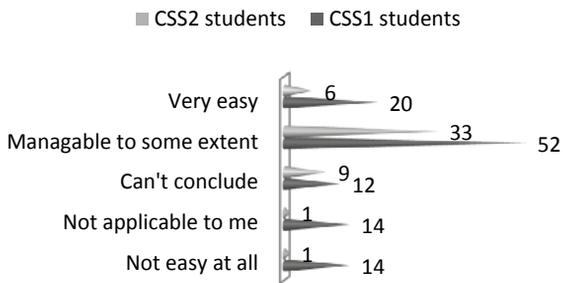
Figure 8

Students' Responses_EQ3
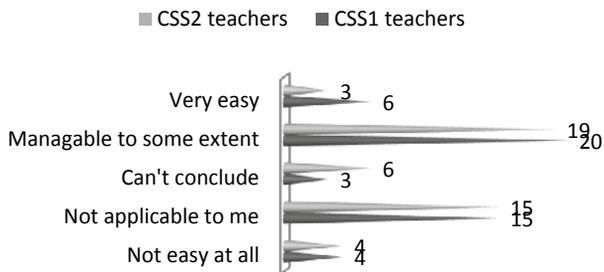
Figure 9

Teachers' Responses_EQ3
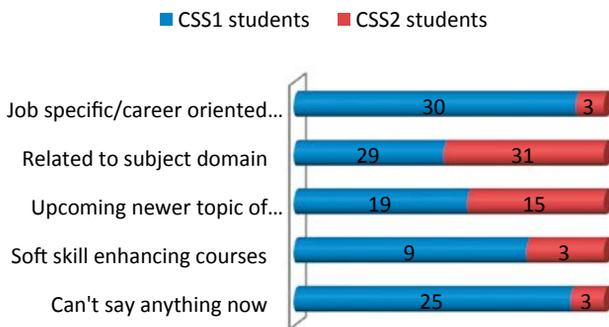
Figure 10

Students' Responses_EQ4
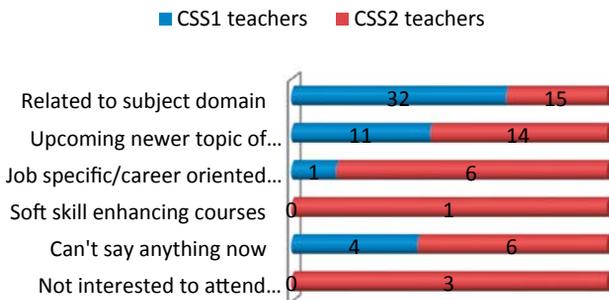
Figure 11

Teachers' Responses_EQ4
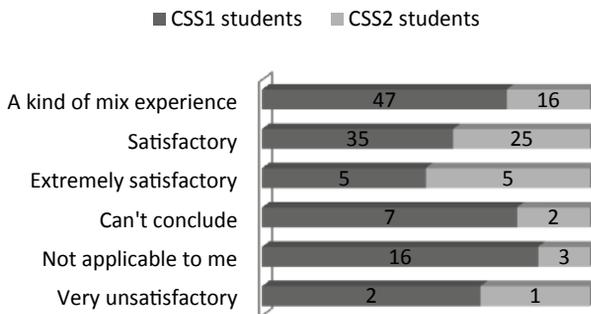
Figure 12

Students' Responses_EQ5
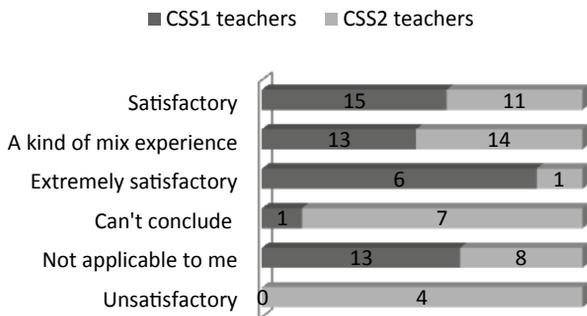
Figure 13

Teachers' Responses_EQ5

The influence of remote learning environment and use of technology on university students' behavioural engagement in contingency online learning

Katerina Dvorakova, Jaroslav Emmer, Renata Janktova, and Katerina Klementova*

Abstract: The shift of instruction imposed on higher education institutions by the pandemic-related restrictions bolstered the interest in students' online class participation. This study investigates university students' engagement in remote foreign language classes during the COVID-19 lockdown. While engagement is a multi-faceted construct, we only aim to explore its behavioural dimension. The authors felt compelled to acknowledge and comprehend their students' behaviour in contingency online learning (COL). Through a qualitatively oriented exploratory case study, we sought to answer two research questions related to the extent the use of technical equipment and remote physical environment influenced students' engagement. The study was conducted with students enrolled in regular, in-person Bachelor's or Master's degree courses to qualify as teachers of English at primary or

---

* **Katerina Dvorakova** (corresponding author, katerina@pf.jcu.cz), PhD, currently works as a Senior Lecturer at the Department of English Studies at the Faculty of Education, University of South Bohemia, Czech Republic.

Jaroslav Emmer (emmerj01@pf.jcu.cz), MA, is a lecturer at the Department of English Studies at the Faculty of Education, University of South Bohemia, Czech Republic.

Renata Janktova (rjanktova@pf.jcu.cz), PhD, is a Senior Lecturer in British History and Cultural Studies at the Department of English Studies at the Faculty of Education, University of South Bohemia, Czech Republic.

Katerina Klementova (kklementova@pf.jcu.cz), MA, is a Lecturer at the Department of English Studies at the Faculty of Education, University of South Bohemia, Czech Republic.

More information about the authors is available at the end of this article.

Conflict of interest: None.

lower-secondary schools. The results indicate that the use of technology did not prove to be a significant obstacle to online learning engagement. Concerning the remote physical environment, the learning process was compromised most significantly by the intimate character of the home-working space. We believe that our findings will help educators to rationalise their expectations and formulate best practice recommendations.

Keywords: Student engagement; contingency online learning; remote learning environment; technology; higher education; ELT.

I. Introduction

The history of online learning is more than twenty years long, with no other milestone as outstanding as the worldwide pivot to online classes induced by the onset of the global pandemic in 2020. This uncompromising shift to the remote form of instruction across all levels of education immediately earned a reputation as an improvised yet valued emergency response. It was welcomed by many but hoped to never be deployed again by most.

Compared to 1148 UK academics participating in a 2020 study who perceived "online migration" as disrupting their professional performance,[1] the Czech higher education approach to the mandatory emergency mode in education oscillated between the rejection of most remote teaching tools other than email and an instantaneous acceptance of videoconferencing, screen sharing, online testing, or after-hours digital messaging.[2] The outlook for the 2020/21 academic year dashed the hopes of global online learning becoming a matter of the past, nonetheless, there was a change in optics and attitude. Now viewed as a norm, the intentionally designed online classes made fewer allowances for the reluctant participants of online instruction and emphasized full cooperation. Additionally, effective communication in contingency online learning (COL) was to be enhanced by adequate handling of the technology.[3]

The authors of this article, all university educators with first-hand experience of the pivot to emergency online instruction forced by the

---

[1] Richard Watermeyer et al., "COVID-19 and Digital Disruption in UK Universities: Afflictions and Affordances of Emergency Online Migration," *Higher Education* 81, no.3 (2021): 631-636.

[2] Marie Fritzová, "Kvalita distanční výuky na katedrách a ústavech historie v době covid-19," *Pedagogická orientace* 30, no.2 (2020): 257, 260.

[3] cf. Thanassis Karalis and Natassa Raikou, "Teaching at the Times of COVID-19: Inferences and Implications for Higher Education Pedagogy," *International Journal of Academic Research in Business and Social Sciences* 10, no. 5 (2020): 488.

COVID-19 pandemic, set out to explore university students' engagement in emergency online learning. Engagement is affected by a plethora of variables, many of which are outside the scope of this paper. While we recognise many cognitive, social and emotional aspects as fundamental components of engagement, we only aim to explore the behavioural phenomena. The reason is twofold. Firstly, our goal is to share empirical evidence without delving into the domains of psychology and sociology. Secondly, we strive to provide tangible results related to two significant variables directly responsible for students' engagement in online learning. Consequently, we decided to work with the following research questions:

(1) To what extent did technical equipment influence students' engagement?
(2) To what extent did the physical environment influence students' engagement?

Question (1) is directly related to the technical devices used in online learning. We experienced students' difficulties ranging from "too small a screen to see anything" to "I don't even have my own device." Another frequently discussed issue is using a webcam, which is controversial. Therefore, we wanted to gather data from our students to help us understand their position, which would allow us to tailor the instruction accordingly. Question (2) works with the idea that, while implementing COL, the institution does not control the remote physical learning environment. Every student comes from a different social and economic setting, which directly affects their physical learning environment, for example sharing a room with another sibling, excessive noise from outside, or lack of suitable furniture (a chair and a desk). We believe that unfavourable conditions may significantly hinder the learner as mentioned by Karalis and Raikou, whose respondents expressed discontent with the lack of social contact, specifically the spontaneity of classroom teacher - student interaction.[4] Conversely, some students might welcome the possibility of choosing their environment, hence why we decided to explore this area as well.

The inquiry into students' engagement in online lessons was guided by creating and processing a questionnaire focused on the correlation between students' engagement and the use of technical equipment and physical environment, respectively. The interest in uncovering the extent of students' engagement in online lessons stemmed from the need to acknowledge and

---

[4] cf. Karalis and Raikou, "Teaching at the Times of COVID-19," 490.

comprehend the students' behaviour in COL – the form of instruction which, at least within Czech educational institutions, defined the 2020/2021 academic year.

II. Theoretical background

II.1. *Research in student engagement*

The concept of student engagement is a relatively recent theoretical model attracting the growing attention of both education theorists and practitioners.[5] It has proven to be a significant factor influencing academic performance and therefore, its study can have notable practical implications for course organisation, classroom management and teaching practice.[6]

Student engagement is a multi-faceted and dynamic construct, and as a result, it is surrounded by what Reschly and Christenson call "conceptual haziness" – the absence of a single comprehensive definition.[7] Trowler's literature review found that most of the reviewed articles to date lacked clear definition statements for engagement.[8]

The fact that student engagement research, including online engagement, is still marked by the absence of a concise definition and clearly defined categories is linked to the complexity of the construct.[9] Many research enquiries may require a tailored definition of student engagement, depending

---

[5] Melissa Bond et al., "Mapping Research in Student Engagement and Educational Technology in Higher Education: A Systematic Evidence Map," *International Journal of Educational Technology in Higher Education* 17, no. 1 (2020): 1, https://doi.org/10.1186/s41239-019-0176-8; also cf. Sandra Christenson, Amy L. Reschly, and Cathy Wylie, "Preface," in *Handbook of Research on Student Engagement*, eds. Sandra Christenson, Amy L. Reschly, and Cathy Wylie (New York, NY: Springer, 2012), v-vii.

[6] Jung-Sook Lee, "The Relationship between Student Engagement and Academic Performance: Is It a Myth or Reality?," *The Journal of Educational Research* 107, no. 3 (2014): 177-185, https://doi.org/10.1080/00220671.2013.807491; Robert M. Carini, George D. Kuh, and Stephen P. Klein, "Student Engagement and Student Learning: Testing the Linkages," *Research in Higher Education* 47, no. 1 (2006): 1-32, https://doi.org/10.1007/s11162-005-8150-9.

[7] Amy L. Reschly and Sandra L. Christenson, "Jingle, Jangle, and Conceptual Haziness: Evolution and Future Directions of the Engagement Construct," in *Handbook of Research on Student Engagement*, eds. Sandra Christenson, Amy L. Reschly, and Cathy Wylie (New York: Springer, 2012), 3.

[8] Vicki Trowler, *Student Engagement Literature Review* (Heslington: The Higher Education Academy, 2010), 20, https://www.heacademy.ac.uk/system/files/studentengagementliteraturereview_1.pdf.

[9] Bond et al., "Mapping Research in Student Engagement and Educational Technology," 2.

on their particular contexts and purposes. The definition proposed by Bond et al., which synthesises the key features identified by existing research, describes student engagement as "the energy and effort that students employ within their learning community, observable via any number of behavioural, cognitive or affective indicators across a continuum […and] shaped by a range of structural and internal influences, including the complex interplay of relationships, learning activities and the learning environment."[10]

A hierarchical model as established by Skinner and Pitzer consists of four main levels promoting specific kinds of engagement: the institutional level (e.g. school, church, local organisations), school level (including curricular and extracurricular activities), classroom level and finally the academic work level with engagement defined as "constructive, enthusiastic, willing, emotionally positive and cognitively focused participation with learning activities."[11]

Student engagement is recognised as a meta-construct featuring three main dimensions, or subconstructs: behavioural, affective/emotional, and cognitive,[12] with emphasis on the interdependence and mutual overlapping of the three facets.[13] While behavioural engagement includes positive conduct, attention, effort, and involvement in class activities, emotional engagement concerns positive social relations with teachers, classmates, and the institution as a whole. Finally, cognitive engagement means active, self-controlled involvement in complex learning processes.[14]

When approaching these dimensions as a continuum, the spectrum of behavioural engagement ranges from positive involvement, manifest in attendance, in-class attention, and participation, via the more-or-less neutral position of non-engagement or indifference to the negative pole, represented by adverse behaviour.[15]

---

[10] Bond et.al., "Mapping Research in Student Engagement and Educational Technology," 3.

[11] Ellen A. Skinner and Jennifer R. Pitzer, "Developmental Dynamics of Student Engagement, Coping, and Everyday Resilience," in *Handbook of Research on Student Engagement*, eds. Sandra Christenson, Amy L. Reschly, and Cathy Wylie, (New York: Springer, 2012), 22.

[12] Jennifer A. Fredricks, Michael Filsecker, and Michael A. Lawson, "Student Engagement, Context, and Adjustment: Addressing Definitional, Measurement, and Methodological Issues," *Learning and Instruction* 43 (2016): 2; Jennifer A. Fredricks, Phyllis C. Blumenfeld, and Alison H. Paris, "School Engagement: Potential of the Concept, State of the Evidence," *Review of Educational Research* 74, no. 1 (2004): 60, https://doi.org/10.3102/00346543074001059.

[13] Christenson, Reschly, and Wylie, "Preface," vii.

[14] Fredricks, Filsecker, and Lawson, "Student Engagement, Context, and Adjustment," 2.

[15] Trowler, *Student Engagement Literature Review*, 5-6.

However, disengagement is understood as a self-standing concept (not a mere absence or lack of engagement) of the same complexity as engagement, conditioned by a range of intrinsic factors such as psychological obstacles, low motivation or frustrated expectations, and extrinsic factors such as teaching quality, learning management platform (LMS) access, or financial stress.[16] Interestingly, online teaching and learning are listed among negative external factors as they minimise opportunities for personal interactions with peers and staff, and time spent in the academic environment.

A study focusing on individual differences in engagement impact indicates that underachieving students profit from increased engagement more than their better-performing classmates, or that engagement is translated into academic achievement differently in junior as opposed to senior students.[17] A slightly different typology is applied in Pittaway's engagement assessment framework, which recognises five converging elements of engagement: personal, academic, intellectual, social, and professional.[18]

Due to its complexity, the assessment of student engagement requires using a variety of perspectives and methods.[19] A practical overview of measurement tools and approaches has been provided by Fredricks and McColskey, who found that self-report surveys are the most common method to measure student engagement, followed by experience sampling (ESM) and teacher ratings.[20] The self-report method is particularly convenient in situations where observation methods cannot be applied, as in the case of distance learning.[21]

---

[16] Lucy Chipchase et al., "Conceptualising and Measuring Student Disengagement in Higher Education: A Synthesis of the Literature," *International Journal of Higher Education* 6, no. 2 (2017): 35, https://doi.org/10.5430/ijhe.v6n2p31.

[17] Carini, Kuh, and Klein, "Student Engagement and Student Learning," 13-14.

[18] Sharon M. Pittaway, "Student and Staff Engagement: Developing an Engagement Framework in a Faculty of Education," *Australian Journal of Teacher Education* 37, no. 4 (2012): 40, https://doi.org/ 10.14221/ajte.2012v37n4.8.

[19] Jacquelynne Eccles and Ming-Te Wang, "So What Is Student Engagement Anyway: Commentary on Section I," in *Handbook of Research on Student Engagement*, eds. Christenson, Sandra, Amy L. Reschly, and Cathy Wylie (New York, NY: Springer, 2012), 137.

[20] Jennifer A. Fredricks and Wendy McColskey, "The Measurement of Student Engagement: A Comparative Analysis of Various Methods and Student Self-Report Instruments," in *Handbook of Research on Student Engagement*, eds. Sandra Christenson, Amy L. Reschly, and Cathy Wylie (New York: Springer, 2012), 765-766.

[21] Curtis R. Henrie, Lisa R. Halverson, and Charles R. Graham, "Measuring Student Engagement in Technology-Mediated Learning: A Review," *Computers & Education* 90 (2015): 48, https://doi.org/10.1016/j.compedu.2015.09.005.

II.2. *Research in the use of digital technology in higher education*

To defend the position of digital technology in teaching as a fully integrated one, Bax predicts that "technology becomes invisible, embedded in everyday practice and hence 'normalised'" and continues by arguing that "a wristwatch, a pen, shoes, writing—these are all technologies which have become normalised to the extent that we hardly even recognise them as technologies." [22]

The teaching style of higher education, which has been traditionally considered reluctant, sceptical, or openly technophobic, is embracing the benefits of the flexibility of digital technology that make instruction more accessible.[23] Simultaneously, these institutions promote the role of the instructor, which, although undergoing a radical change induced by the presence of digital aids in the teaching process, remains highly visible in tasks such as communication with students, mentorship, guidance and evaluation.[24]

Additionally, survey data prove that several contextual factors such as "digitalisation policy and commitment of the university administration, institutional equipment, technical and educational support, basic digital skills, and technology-related teaching skills" are vital in facilitating digital learning activities.[25]

A theory of the blurred distinction between "traditional" and online courses presents two reasons for this process.[26] One is the speed of the development of online meeting tools that allow users to interact in patterns similar to those present in the classroom environment. The second reason relates to the substantial extent of research into effective learning strategies with recent findings of increased (compared to the traditional classroom) learners' activity in online courses, which involve and induce sharing,

---

[22] Stephen Bax, "CALL—Past, Present and Future," *System* 31, no. 1 (2003): 23, https://doi.org/10.1016/S0346-251X(02)00071-4.

[23] Catherine Caws and Trude Heift, "Evaluation in CALL: Tools, Interactions, Outcomes," in *The Routledge Handbook of Language Learning and Technology*, eds. Fiona Farr and Liam Murray (Abingdon: Routledge, 2016), 133; Joachim Schöpfel and Otmane Azeroual, "Current Research Information Systems and Institutional Repositories: From Data Ingestion to Convergence and Merger," *Future Directions in Digital Information* (2021): 19-37, https://doi.org/10.1016/B978-0-12-822144-0.00002-1.

[24] Caws and Heift, "Evaluation in CALL," 133.

[25] Sarah I. Hofer, Nicolae Nistor, and Christian Scheibenzuber, "Online Teaching and Learning in Higher Education: Lessons Learned in Crisis Situations," *Computers in Human Behavior* 121 (2021): 3, https://doi.org/10.1016/j.chb.2021.106789.

[26] Judith V. Boettcher and Rita-Marie Conrad, *The Online Teaching Survival Guide: Simple and Practical Pedagogical Tips*, 3rd ed. (San Francisco: John Wiley & Sons, 2021), 6.

discussion, and cooperation. According to Boettcher and Conrad, learners are more exposed in online classes, especially in terms of immediate confrontation of their preparedness for the session, which enhances students' motivation to do their homework.[27] Conversely, these authors stress that using a large array of online tools in learning poses a certain threat to the students' ability to choose the efficient ones, for example the drawbacks of the infinity of resources provided by the internet. In addition, edutainment is mentioned as a progressive element of technology-enhanced instruction, which on the other hand, may prove distractive when used excessively.[28]

Maximising outcomes of learning through technology thus requires more than a simple explanation of its features and handling. Training tailored to the learners' needs to use learning technology and teachers' pedagogical strategies influences the students' attitude towards technology in learning and their learning achievements.[29]

Interactive technological equipment such as videoconferencing tools adds to the flexibility, pedagogical variety, and cost-effectiveness of instruction while encouraging student autonomy and their ability to self-direct learning. Additionally, online study sessions promote motivation for life-long learning, especially when both students and teachers realise that various issues may be studied differently and still relate to work and practice.[30]

A clear outline of approaches to online communication used in the learning process provides a discrete and manageable mode of interaction between students and teachers. There are aspects, such as the students' preference of either synchronous or asynchronous information exchange, text-based format or videoconferencing, being given more time to reflect or an opportunity to react spontaneously, that educators need to take into consideration when planning and executing online instruction, namely in emergency remote teaching (ERT) or a temporary online pivot.[31]

---

[27] Boettcher and Conrad, *The Online Teaching Survival Guide*, 7.

[28] B. V. Ramana Murty and K. Narasimha Rao, "Digital Pedagogy – An Opportunity or a Threat?," in *Proceedings of International Conference on Digital Pedagogies (ICDP)* (2019), 3, https://doi.org/10.2139/ssrn.3375701.

[29] Philip Hubbard, "Making a Case for Learner Training in Technology Enhanced Language Learning Environments," *Calico Journal* 30, no. 2 (2013): 164-165, https://doi.org/10.11139/cj.30.2.163-178.

[30] Pirkko Jokinen and Irma Mikkonen, "Teachers' Experiences of Teaching in a Blended Learning Environment," *Nurse Education in Practice* 13, no. 6 (2013): 527-528, https://doi.org/10.1016/j.nepr.2013.03.014.

[31] Emily Nordmann et al., "Ten Simple Rules for Supporting a Temporary Online Pivot in Higher Education," *PLOS Computational Biology* 16, no. 10 (2020): e1008242/4-5, https://doi.org/10.1371/journal.pcbi.1008242.

In a study on the effectiveness of a synchronous online teaching platform (Blackboard Collaborate), Tonsmann emphasises that the availability of session recordings cannot fully compensate for absence from the sessions.[32] This confirms the outcomes of numerous previous studies that demonstrate the efficacy of synchronous online instruction compared to asynchronous forms. Breakout rooms were found to be highly effective tools for group discussions, enabling quick and easy group management and providing a comfortable discussion environment for students.

II.2.1. Use of webcams in COL

The deployment of videoconferencing tools significantly enhances synchronous online teaching; nevertheless, the views on using webcams remain mixed. While visual presence has been reported to have a positive impact on the experience and effectiveness of online learning,[33] this mode of technology-facilitated interaction also entails several specific challenges. They include, above all, the problem of heightened self-awareness, altered social interaction and experience, privacy issues and the employment of new modalities.[34]

Privacy and presence issues generated by the use of videoconferencing platforms along with technical problems are viewed as disturbing in COL.[35]

---

[32] Guillermo Tonsmann, "A Study of the Effectiveness of Blackboard Collaborate for Conducting Synchronous Courses at Multiple Locations," *InSight: A Journal of Scholarly Teaching* 9 (2014): 58, https://doi.org/10.46504/09201404to.

[33] cf. Tonsmann, "A Study of the Effectiveness of Blackboard Collaborate," 54-63; Masanori Yamada and Kanji Akahori, "Awareness and Performance through Self-and Partner's Image in Videoconferencing," *Calico Journal* 27, no. 1 (2009): 1-25, http://www.jstor.org/stable/calicojournal.27.1.1.

[34] cf. Jose Eurico de Vasconcelos Filho et al., "Image, Appearance and Vanity in the Use of Media Spaces and Video Conference Systems," in *Proceedings of the ACM 2009 International Conference on Supporting Group Work* (2009), 253-262, https://doi.org/10.1145/1531674.1531712 2009; Nicolas Guichon and Cathy Cohen, "The Impact of the Webcam on an Online L2 Interaction," *Canadian Modern Language Review* 70, no. 3 (2014): 331-354, https://doi.org/10.3138/cmlr.2102; ; Lorenz S. Neuwirth, Svetlana Jović, and B. Runi Mukherji, "Reimagining Higher Education During and Post-COVID-19: Challenges and Opportunities," *Journal of Adult and Continuing Education* 27, no. 2 (2021): 141-156, https://doi.org/10.1177/14779714209477381477971420947738; Christine Develotte, Nicolas Guichon, and Caroline Vincent, "The Use of the Webcam for Teaching a Foreign Language in a Desktop Videoconferencing Environment," *ReCALL* 22, no. 3 (2010): 293-312, https://doi.org/10.1017/S0958344010000170.

[35] Mohammad H. Rajab and Mohammed Soheib, "Privacy Concerns over the Use of Webcams in Online Medical Education during the COVID-19 Pandemic," *Cureus* 13, no. 2 (2021), https://doi.org/10.7759/cureus.13536; Nordmann et al. "Ten Simple Rules," 2, 6.

Nevertheless, most likely due to technological advancement and gradual internet quality enhancement, they have not been reported as a significant challenge in the most recent studies (carried out in developed countries).[36] Rather than seeing webcams as generally beneficial, students appreciate their use in relation to specific activities, such as giving and following a presentation or small group discussion.[37]

In foreign language learning, webcams provide additional benefits such as comprehension facilitation and perceived accuracy awareness.[38] Telles's study focused on students' perceptions of webcam images in online language classes and found that, while appreciating increased feelings of proximity and familiarity, communication facilitation, and comprehension enhancement, survey participants reported increased pre-occupation with their own image and its control.[39] Concerns over the disclosure of social and cultural information were also mentioned. These findings correlate with the outcomes of studies on self-awareness and social interaction, such as those conducted by Yamada and Akahori and Miller et al., which show that receiving video feedback (i.e. seeing one's own image on the screen) increased the participants' self-awareness and self-directed attention and, consequently, influenced both progress and the perception of the video conversation.[40]

The previously recorded reluctance to use webcams became visible in the recent lockdown periods that prompted mandatory shifts to online learning.[41] While the teacher's use of a camera and its availability may

---

[36] Rajab and Soheib, "Privacy Concerns over the Use of Webcams,"; Svenja Bedenlier et al., "Facilitating Student Engagement through Educational Technology in Higher Education: A Systematic Review in the Field of Arts and Humanities," *Australasian Journal of Educational Technology* 36, no. 4 (2020): 126-150, https://doi.org/10.14742/ajet.5477.

[37] Bedenlier et al., "Facilitating Student Engagement through Educational Technology," 139-140; Rajab and Soheib, "Privacy Concerns over the Use of Webcams," 6.

[38] Masanori Yamada and Kanji Akahori, "Social Presence in Synchronous CMC-Based Language Learning: How Does It Affect the Productive Performance and Consciousness of Learning Objectives?," *Computer Assisted Language Learning* 20, no. 1(2007): 37-65, https://doi.org/10.1080/09588220601118503.

[39] João Antonio Telles, "Do We Really Need a Webcam? - The Uses that Foreign Language Students Make Out of Webcam Images during Teletandem Sessions," *Letras & Letras* 25, no. 2 (2009): 7-9, https://www.researchgate.net/publication/253594664.

[40] Yamada and Akahori, "Social Presence in Synchronous CMC-Based Language Learning," 37-56; Matthew K. Miller et al.,"Through the Looking Glass: The Effects of Feedback on Self-Awareness and Conversational Behaviour during Video Chat," in *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (2017), 5271-5283, https://doi.org/10.1145/3025453.3025548.

[41] Tonsmann, "A Study of the Effectiveness of Blackboard Collaborate," 58.

enhance student motivation,[42] students generally prefer not to turn their cameras on.[43] The main reasons identified by Castelli and Sarvary include being concerned about personal appearance (41%), concerns regarding people and their physical surroundings being seen in the background (26% and 17% resp.), weak internet connections (22%) as well as the understanding that not having a camera on is normal.[44] Regarding the belief that webcam usage can effectively imitate face-to-face classroom experience, Rajab and Soheib report a supportive reaction from only a few respondents.[45]

In addition, a crucial determinant enhancing the reluctance to use webcams is the improvised home learning environment, with distracting elements and privacy issues.[46] Student concerns regarding their appearance and opening their private spaces to others have also been recorded by Reich et al.[47] According to their findings, self-consciousness linked to seeing one's own image on the screen also increased learning anxieties in some students. One responding teacher in the survey reported "life" as a barrier to synchronous online learning, referring to the problems of equity and students' family and social backgrounds and the consequent vulnerabilities.

The transfer of all classes online involves the risk of what has become known as 'Zoom Fatigue' - feelings of exhaustion caused by prolonged videoconferencing sessions.[48] Four major hypothetical causes of the condition

---

[42] İdris Göksu et al., "Distance Education amid a Pandemic: Which Psycho-Demographic Variables Affect Students in Higher Education?," *Journal of Computer Assisted Learning* (2021): 9, https://doi.org/10.1111/jcal.12544.

[43] Una Cunningham, and Anna Bergström, "Reimagining Learning in a Language Education Course Thrust Online: Social Constructivism in Times of Social Isolation," in *Teaching, technology, and teacher education during the covid-19 pandemic: Stories from the field*, eds. Richard E. Ferdig et al. (Fairmont, Association for the Advancement of Computing in Education (AACE), 2020), 453. https://www.diva-portal.org/smash/get/diva2:1508596/FULLTEXT02.pdf.

[44] Frank R. Castelli, and Mark A. Sarvary, "Why Students Do Not Turn On Their Video Cameras during Online Classes and an Equitable and Inclusive Plan to Encourage Them to Do So," *Ecology and Evolution* 11, no. 8 (2021): 3569, 3572, https://doi.org/10.1002/ece3.7123.

[45] Rajab and Soheib, "Privacy Concerns over the Use of Webcams," 6.

[46] Lorenz S. Neuwirth, Svetlana Jović, and B. Runi Mukherji, "Reimagining Higher Education During and Post-COVID-19: Challenges and Opportunities," *Journal of Adult and Continuing Education* 27, no. 2 (2021): 148, https://doi.org/10.1177/14779714209477381477971420947738.

[47] Justin Reich et al., "Remote Learning Guidance from State Education Agencies during the COVID-19 Pandemic: A First Look," *EdArXiv* (April 2, 2020): 8, 12, http://doi:10.35542/osf.io/437e2.

[48] Jeremy N. Bailenson, "Nonverbal Overload: A Theoretical Argument for the Causes of Zoom Fatigue," *Technology, Mind, and Behavior* 2, no. 1. (2021): 1, https://doi.org/10.1037/tmb0000030.

include excessive and highly intense amounts of close-up eye gaze, a considerably higher cognitive load in video chats compared to personal conversation, increased self-evaluation from looking at one's own video image, and restrictions on social and physical mobility. The existing research thus indicates that, while online classroom rules should clarify expectations regarding webcam usage, sharing one's video image should remain optional.[49]

II.3. *Research in physical environment in online learning*

Student engagement in learning of any kind (online or in-class) is necessarily linked to the learning environment. The link between the two phenomena is considered a crucial indicator of the learning effectiveness of online instruction in higher education. A fully online learning environment that allows education to be universally accessible claims responsibility in terms of effectiveness with student engagement as a benchmark.[50]

The extent to which learning in online courses is considered meaningful relates to social interaction and the experience of social practices.[51] While learning is viewed as an interactive process, it is necessary to consider the outcomes of interaction within the online learning environment where not all communication can be defined as "educationally valuable talk",[52] i.e. interaction that is constructive, critical, and substantiated.

Unexpected and sudden changes in the learning environment profoundly affect students' sensitivity towards the structure of the learning system. The findings of Lauret and Bayram-Jacobs demonstrate the extent to which students value structure in learning.[53] The study lists such aspects as proper instruction,

---

[49] cf. Rajab and Soheib, "Privacy Concerns over the Use of Webcams"; Neuwirth, Jović, and Runi Mukherji, "Reimagining Higher Education During and Post-COVID-19"; Castelli and Sarvary, "Why Students Do Not Turn On Their Video Cameras".

[50] c.f. Chin Choo Robinson and Hallett Hullinger, "New Benchmarks in Higher Education: Student Engagement in Online Learning," *Journal of Education for Business* 84, no. 2 (2008): 101-109, https://doi.org/10.3200/JOEB.84.2.101-109; Sarra Ayouni et al., "Innovations of Materials for Student Engagement in Online Environment: An Ontology," *Materials Today: Proceedings* (2021), https://doi.org/10.1016/j.matpr.2021.03.636.

[51] e.g. Sedef Uzuner, "Educationally Valuable Talk: A New Concept for Determining the Quality of Online Conversations," *Journal of Online Learning and Teaching* 3, no. 4 (2007): 400-410, https://jolt.merlot.org/documents/uzuner.pdf; Carla Meskill, ed., *Online Teaching and Learning: Sociocultural Perspectives* (London: Bloomsbury, 2013), 6, https://doi.org/10.1558/calico.v32i1.25658.

[52] Uzuner, "Educationally Valuable Talk," 400, 402.

[53] Dirk Lauret and Durdane Bayram-Jacobs, "COVID-19 Lockdown Education: The Importance of Structure in a Suddenly Changed Learning Environment," *Education Sciences* 11, no. 5 (2021): 221/14-17, https://doi.org/10.3390/educsci1105022.

clearly articulated expectations, or uniformity in tools used in lessons as comprising the perception of stability and security of the learning process. The authors claim that to support the feeling of a safe learning environment under emergency or extreme circumstances, educators are expected to take an interest in students' well-being by asking direct questions and making themselves available for communication. The study respondents expressed their opinion on what aspects of the online learning environment they found most negative and labelled the limited possibility to interact with each other as the second worst, while the lack of structure in instruction came first.[54]

Higher education institutions implementing emergency online learning must provide a comprehensive strategy and communicate it clearly to both students and teachers. The introduction of a detailed contingency plan promoting respect and acceptance of the necessary changes in behaviour affects the overall handling of the crisis situation by all stakeholders.[55] A case study conducted by Iglesias-Pradas et al. focusing on students' academic performance during emergency online learning shows a significant increase in the quality of the students' results, highlighting the crucial role of university organisational strategy in reaching beyond digitalisation equipment.[56] Additionally, the perception of the students' online status as a valid one (a norm) signals the institutional awareness of their needs and additionally illuminates their academic engagement.[57]

The need for self-isolation at home arising from COVID-related regulations impacted the quality of the learning process. The students' struggle with finding the right learning strategy for themselves in online learning at home is reported as significantly more challenging than experiencing technical difficulties. Issues such as little self-discipline, lack of suitable learning materials and an unfit learning environment appear to be the most critical ones.[58] Interacting with the outside world from home via online

---

[54] Lauret and Bayram-Jacobs, "COVID-19 Lockdown Education," 221/14.

[55] Hofer, Nistor, and Scheibenzuber, "Online Teaching and Learning in Higher Education," 8.

[56] Santiago Iglesias-Pradas et al., "Emergency Remote Teaching and Students' Academic Performance in Higher Education during the COVID-19 Pandemic: A Case Study," *Computers in Human Behavior* 119 (2021): 106713/8, https://doi.org/10.1016/j.chb.2021.106713.

[57] Sarah O'Shea, Cathy Stone, and Janine Delahunty, "'I 'Feel' like I am at University Even Though I am Online." Exploring How Students Narrate Their Engagement with Higher Education Institutions in an Online Learning Environment," *Distance Education* 36, no. 1 (2015): 55, https://doi.org/10.1080/01587919.2015.1019970.

[58] Wei Bao, "COVID-19 and Online Teaching in Higher Education: A Case Study of Peking University," *Human Behavior and Emerging Technologies* 2, no. 2 (2020): 114, https://doi.org/10.1002/hbe2.191.

platforms leads to undesirable interruptions such as, for example, a video conference disturbed by pets or family members suddenly appearing on the screen, undesirably diverting the participants' attention.[59]

The obligation of schools to provide a safe, educational environment to students is applicable even when learning shifts to the online format. Many institutions define student digital privacy rights, including the right to keep the webcam off for reasons such as an unwillingness to disclose the details of the student's home or the fact that the student is undocumented and strives to protect their privacy.[60] The Privacy Commission of the Philippines issued a guideline on the use of webcams, underlining the importance of using virtual backgrounds to avoid the undesirable disclosure of the private spaces of teachers and students.[61]

Mental health problems arising from the abrupt and global shift from in-class to online learning are feared to become an unwanted consequence of the pandemic situation. It is evident that the routine of attending school has a protective factor to it defined by social contact or a sense of belonging.[62] The objective visibility of students within online lessons contrasts with their feeling of being invisible and thus inconsequential. The feeling of belonging and mattering as a university student naturally stems from social interactions where one feels valued and connected, and their actions are viewed as autonomous and competent. Students who experienced the sudden change from the in-class to online format viewed the latter negatively. Decreases in motivation and engagement and overall dissatisfaction with their objective and expected academic achievements were reported among the key issues.[63]

---

[59] Olasile Babatunde Adedoyin and Emrah Soykan, "Covid-19 Pandemic and Online Learning: The Challenges and Opportunities," *Interactive Learning Environments* (2020): 5, https://doi.org/10.1080/10494820.2020.1813180.

[60] American Civil Liberties Union, *ACLU Annual Report 2020* (New York: ACLU, 2021). https://www.aclu.org/report/aclu-annual-report-2020.

[61] National Privacy Commission, "Privacy Commission's Updated Online Learning Guidelines Advise Schools to Enforce Social Media Policy," last edited November 11, 2021, https://www.privacy.gov.ph/2021/02/privacy-commissions-updated-online-learning-guidelines-advise-schools-to-enforce-social-media-policy.

[62] Organisation for Economic Co-operation and Development, *The Impact of COVID-19 on Student Equity and Inclusion: Supporting Vulnerable Students during School Closures and School Re-Openings*, (Paris: OECD Publishing, 2020). https://read.oecd-ilibrary.org/view/?ref=434_434914-59wd7ekj29&title=The-impact-of-COVID-19-on-student-equity-and-inclusion.

[63] Avi Besser, Gordon L. Flett, and Virgil Zeigler-Hill, "Adaptability to a Sudden Transition to Online Learning during the COVID-19 Pandemic: Understanding the Challenges for Students," *Scholarship of Teaching and Learning in Psychology* 8, no. 2 (2020): 98, https://doi.org/10.1037/stl0000198.

III. Materials and methods

In our work, university students' engagement in remote foreign language instruction during the COVID-19 lockdown has been investigated through a qualitatively oriented exploratory case study. Its focal point is how students perceived themselves as being engaged or disengaged in their online courses and the various factors, namely technical equipment and the physical environment, they experienced as facilitating or hampering their lesson engagement.

The study was administered at the Faculty of Education, University of South Bohemia, using voluntary response sampling with students who enrolled in regular in-person Bachelor's or Master's degree courses to qualify as teachers of English at primary or lower-secondary schools. However, due to the ongoing pandemic, their instruction in the 2020/2021 academic year had to be delivered remotely.

For a deeper understanding of the students' perceptions regarding their participation, a questionnaire entitled *Students of English reflecting on their engagement in contingency online lessons* was created and distributed electronically among all the students at the English department immediately upon the termination of classes of the academic year in June 2021. The students were instructed to fill in the questionnaire with information and comments related to seminars, not lectures, where English is the predominant communication tool and where they are encouraged to express their opinions on a variety of topics or present their knowledge and skills in front of their classmates. They were also informed about the purpose of the study and its adherence to the university's ethical standards of anonymity and confidentiality.

The questionnaire consisted of sixteen questions. The first three questions identified demographic information, including gender, degree programme and year of study. Six closed questions centred on the type, quality and general use of technology. Out of these, the first four questions required respondents to provide answers on a five-point Likert scale (always – most of the time – often – sometimes – never) and the following two used a six-point Likert scale (100 – 80 – 60 – 40 - 20 - 0%).

- How often did you use electronic devices (desktop, laptop, tablet, mobile phone) to connect to your online lessons?
- Did you experience any difficulties with your device, the internet connection or managing your applications in MS Teams?
- Did you have a camera?
- Did you turn your camera on during lessons?

- To what extent did the devices you used enable you to engage in your lessons?
- How many per cent of the total time of the lessons did you have your camera on?

Seven questions were open, enabling the respondents to comment on technical difficulties, reasons for turning or not turning cameras on, and factors that encouraged or discouraged engagement in contingency online lessons. The questionnaire also contained sixteen statements related to engagement in lessons, learning conditions and optimum format of online instruction to which participants responded using a five-point Likert scale (strongly agree – agree – undecided – disagree - strongly disagree). The two multi-statement Likert scales comprised 9 and 6 statements, respectively. Fleiss Kappa was calculated to measure the interrater agreement.[64] Given the nature of the statements and the fact that no "correct" answer exists, the overall agreement among the respondents was only slight; 4.33% for the 9-statement Likert scale, and 9.61% for the 6-statement Likert scale.[65] For comparison, we also calculated Fleiss Kappa for a simplified 3-point scale (as opposed to the original 5-point scale), where Strongly Agree and Agree responses were collapsed into the category Positive Response, and Strongly Disagree and Disagree became Negative Response. Such account results in 9.84% agreement for the 9-statement Likert scale, and 21.28% for the 6-statement Likert scale.

A total of 129 respondents, 77 (60%) Bachelor's and 52 (40%) Master's degree students training to become ELT teachers, voluntarily completed the online, anonymous questionnaire using MS Forms. Three-fourths were female, one-fourth was male, and one respondent did not specify their gender. This uneven split roughly reflects the actual male-to-female ratio in the ELT study programme.

We acknowledge that the main limitation of our study is linked with the population-specific sample. The non-probability sampling technique used in data collection is typical for exploratory and qualitative research, but it entails a higher risk of sampling bias. In our case, students with stronger opinions about the topic were more likely to participate in the survey. However, implementing voluntary response sampling still makes it possible to develop an understanding

---

[64] Joseph L. Fleiss, "Measuring Nominal Scale Agreement among Many Raters," *Psychological Bulletin* 76, no. 5 (1971): 378 - 382. https://doi.org/10.1037/h0031619.

[65] Richard J. Landis and Gary G. Koch, "The Measurement of Observer Agreement for Categorical Data," *Biometrics* 33, no. 1 (1977): 159–74. https://doi.org/10.2307/2529310.

of certain phenomena in the population but limits the conclusions we can draw from the data, as findings can only be generalised to similar student populations. Moreover, the focus of the study is very narrow as it examines selected phenomena of students' engagement in very particular circumstances (contingency online learning). Lastly, we are also aware of the fact that mixed-method approach would have yielded more comprehensive results.

IV. Results

IV.1. *Influence of technical equipment on student engagement*

Each device for connecting to online lessons has its specific benefits and drawbacks such as screen size, malfunctioning microphones or unstable connections that are directly relevant to user experience. The most selected device in our sample was a laptop with more than 85% of students using it always, often, or sometimes, followed by a mobile phone with a slightly over 25% usage rate, a desktop computer with 15%, and a tablet with an 11% usage rate. A laptop was also indicated as the device that enabled the most effective engagement: 61.9% of students experienced that using a laptop made it technically possible to be fully engaged in lessons. In comparison, less than 30% indicated that full engagement was possible when using a mobile phone, a desktop computer or a tablet.

Regarding technical difficulties, we found that these occurred relatively infrequently (see Figure 1). More than 90% of respondents only rarely or never struggled with their technical device or applications in the platform (MS Teams), 23.4% often struggled, and 61.7% rarely experienced difficulties with the internet connection. Despite their paucity, technical problems often notably impeded the students' understanding of the delivered content, the clarity and promptness of their responses to questions, and the quality of their presentations. As two respondents put it, "Occasionally the unstable connection distracted me from properly concentrating on my lesson" and "I often did not have the courage to answer questions because I did not want to interrupt the flow of the lesson with my technical problems, even though I normally interact all the time. With the bad connection, I often missed what the teacher was saying, which made me reluctant to engage as I was afraid of saying something that had already been said by someone else." In the case of problems with the internet connection, students often attempted to solve the situation by swiftly switching to a different device, usually from a computer to a mobile phone. This obstacle was considered particularly frustrating at the very beginning of lessons and in courses with a larger proportion of discussion-based activities because "communication on unstable Wi-Fi is hell".
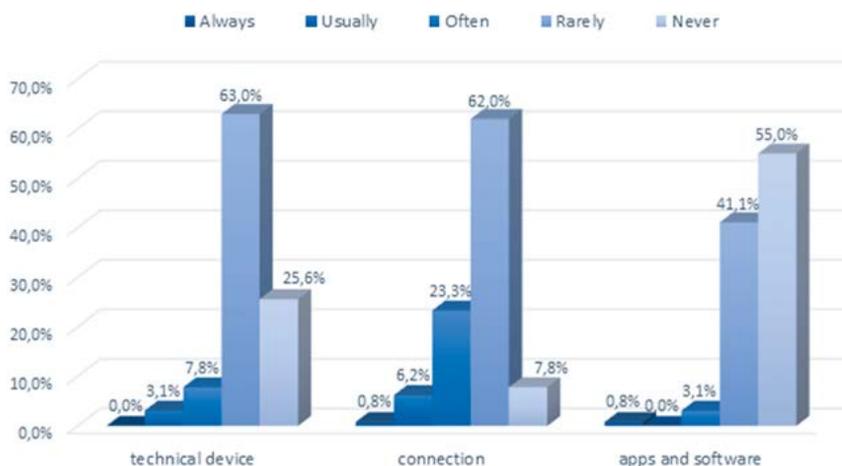
Figure 1

Technical difficulties

Although more than 80% of students had a webcam at their disposal all or most of the time, the vast majority (90%) rarely or never turned it on. The respondents could further explain why they turned on their webcam or why they did not. Some respondents listed one main reason, some more than one, and some chose not to comment further. All the provided explanations were then categorised into the following groups:

Reasons why students turned their webcams on (number of students)

It was requested by the instructor (77)
When I had something to say, gave a presentation or did an exam (43)
To make the instructor happy, to show respect or deeper interest in the topic (14)
When there was a reasonable number of students in the course or when classmates did the same (13)
During my teaching practice (5)

Reasons why students did not turn their webcams on (number of students)

The instructor did not request it, or I did not find it necessary (54)
I did not want to be seen because I felt awkward or self-conscious about my physical appearance (22)

Other classmates had their cameras off, and I did not want to stick out (22)

Turning on a webcam usually caused technical problems, especially in large groups (21)

I did not want to be seen because I did not want my private space to be exposed (14)

Laziness, I just did not want to turn it on (8)

I was doing other things (8)

Furthermore, two-thirds of students indicated that classmates' webcams being active had a positive effect on engagement in online lessons.

IV.2. *Influence of technical equipment on student engagement*

Regarding the respondents' learning conditions, 69% agreed or strongly agreed that they were acceptable. However, only 38.7% agreed or strongly agreed that they were not distracted by their surroundings.

Table 1 shows how the respondents perceived themselves regarding their engagement in lessons:

Table 1

Students' engagement in online lessons

	strongly agree	agree	undecided	disagree	strongly disagree
I was focused during online lessons.	7%	53.4%	17.8%	20.2%	1.6%
I responded to my instructors' questions and cues during online lessons.	31.8%	45.7%	14.7%	7.8%	0%
I responded to my classmates' questions and cues during online lessons.	12.4%	38%	17.8%	30.2%	1.6%
I engaged in other unrelated activities on the same or different device during online lessons, such as using social media or gaming.	18.6%	31%	16.3%	30.2%	3.9%
I engaged in other unrelated activities during online lessons, such as walking a dog or cooking.	14%	31%	16.3%	25.6%	13.1%

	strongly agree	agree	undecided	disagree	strongly disagree
I connected to my online lessons, but I did not actively engage; I merely followed the lessons.	3.9%	25.6%	26.4%	37.1%	7%
I connected to my online lessons, but I did not actively engage, and I did not follow the lessons.	1.6%	4.7%	14.7%	40.3%	38.8%
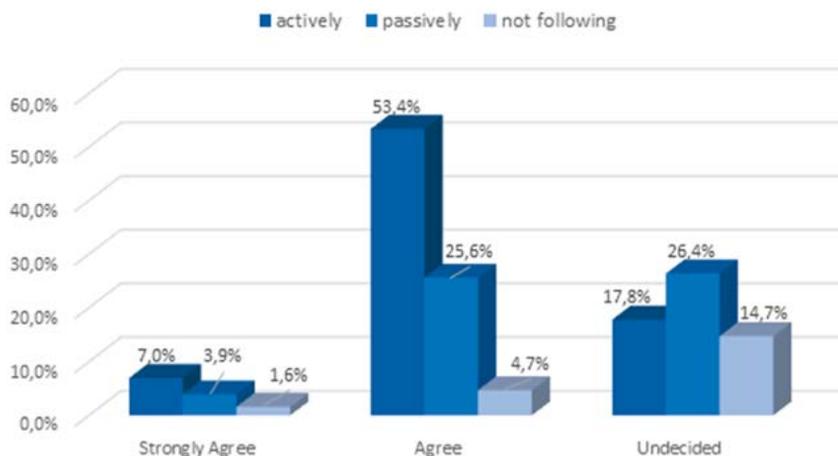
Figure 2

Following lesson content

The figure's percentage total does not equal 100% (for each respective question), as it only contains the positive and neutral answers from a five-item scale—the negative answers are excluded from the figure for better clarity.

The results visualised in Figure 2 indicate that 60% of students actively engaged in their English lessons. Additionally, the open answers exposed an array of factors that encouraged the students' engagement in online lessons. The most frequent explanations were "interesting content of the course and/ or suitable activities, such as discussions or group tasks" (23) and "when I was directly approached by the instructor" (22), followed by "when the

conditions were favourable", namely stable internet connections and no disturbances (14) and "the personality and methods of the instructor" (8). Fewer than five respondents listed the following factors: when other classmates were active, when it was required, when nobody else responded, when they knew the answer, when the cameras were on, their intrinsic motivation to study, and smaller group size.

Figure 3 shows that 45-50% of students admitted to engaging in various unrelated activities. Among the factors that discouraged the students' engagement in online lessons, "disturbances in the surrounding and/or technical problems" dominated with 42 responses followed by "possibility/ temptation to do other things simultaneously" (9), "feeling afraid or awkward" (7), "interaction was not expected by the instructor or the type of the course" (7), and "tiredness and/or a lack of motivation or concentration" (6). Fewer than five respondents reported that they did not engage actively because they did not know the answer, the group was too large, or there were enough students engaged in classwork already. Disturbances also included unstable daily routines caused by severe COVID-19 restrictions. Some respondents took up new jobs, which collided with their school timetables. Some respondents touched on fear, namely of "speaking into a black hole", "appearing stupid", "answering wrong", or "speaking in public generally".
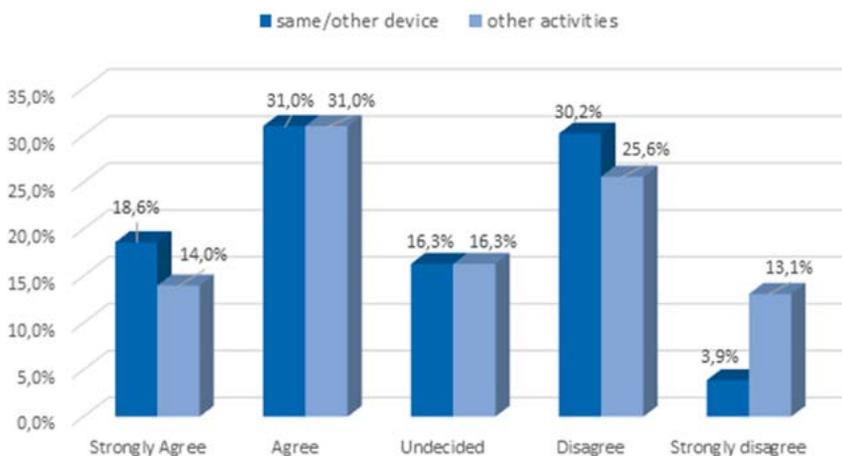
Figure 3

Engagement distractions

In additional comments, our respondents summarised their unprecedented learning experience and compared online with standard face-to-face lessons. While some acclimated to the new system quickly and easily, others considered it chaotic and tiring. Furthermore, some found standard lessons more convenient and easier to concentrate on and looked forward to returning to school; others revealed new and desirable benefits in online learning. In addition to the obvious answer that "not having to commute saved me a lot of time and money", they appreciated prompt communication with their instructors outside class time (via chat or email), the possibility to learn from recorded materials at any time, and several even admitted that "a bit of online anonymity made me actually more engaged". Two students suggested that elements of online learning should be incorporated into their study programmes.

V. Discussion and recommendations

According to the 2020 OECD report on the impact of school closures on students during the pandemic, the lack of social contact can have dire consequences for vulnerable individuals, such as those from broken families.[66] Moreover, female students incur additional risks compared to male students during school closures, including an increased burden in domestic duties.

In terms of engagement, almost 80% of students taking part in our study interacted with their instructors, but only half of them responded to classmates' questions and cues—only a few individuals connected to their online lessons without engaging with or even following the lessons. Approximately half of the students admitted to simultaneously engaging in various unrelated activities during their online lessons. These included activities such as gaming and chatting on the same or a different device as well as activities not connected with a technical device, such as household chores. These findings correspond to a study by Trowler, which describes behavioural engagement as ranging from positive involvement (e.g. attendance, in-class attention, and participation) via the neutral position classified as non-engagement or indifference to manifestations of adverse behaviour.[67]

Several respondents acknowledged that a mandatory webcam would not eliminate multitasking, but it would limit the range of possible distractions.

---

[66] Organisation for Economic Co-operation and Development, *The Impact of COVID-19 on Student Equity and Inclusion*.

[67] Trowler, "Student Engagement Literature Review," 5-6.

However, in accordance with Chen and Yan, who stress the necessity to discuss (specifically mobile phone) multitasking from the point of view of its interference with the specific type of tasks,[68] the issue of multitasking grows beyond the scope of online learning, and therefore it should not be interpreted as a direct correlate of deficient engagement practices.

Numerous recent studies[69] reported several issues related to online learning, namely those of privacy, socioeconomic status disclosure, and feelings of self-consciousness induced by camera use. One theme that emerged in our work was that many problems could be eliminated by adopting relatively simple measures. Firstly, it is advisable to hide self-view to diminish the issue of self-consciousness caused by the webcam. Self-view may draw excessive attention from the student to their image, which is disruptive. Secondly, to counter the concerns related to anonymity and the undesired showing of the student's physical environment, we recommend using either virtual or blurred backgrounds. It is of utmost importance that students be provided with practical suggestions on how to deal with these issues if the process of online learning is to be effective. The suggested measures are easy to implement and highly effective and recommending them at the start of the course may help students alleviate some of their concerns and feel comfortable in online lessons.

The open answers in our survey revealed further recommendations for instructors concerned about enhancing student engagement in COL circumstances. In addition to the apparent standards such as teaching in smaller groups, making content relevant and appealing, working interactively, or employing group tasks, the students felt more engaged when their instructors called them out directly. This was appreciated particularly by students who identified themselves as introverted. Some students even considered this measure to be more effective concerning their lesson engagement than making a webcam mandatory. Some students also pointed out that empathetic practices, such as the teachers' additional support and a more compassionate approach, boosted their lesson engagement.[70]

---

[68] Quan Chen and Zheng Yan, "Does Multitasking with Mobile Phones Affect Learning? A review," *Computers in Human Behavior*, 54 (2016): 35.

[69] e.g. Castelli and Sarvary, "Why Students Do Not Turn On Their Video Cameras,"; Reich et al., "Remote Learning Guidance from State Education Agencies."

[70] c.f. Letitia Basford, "'COVID Keepers': The Teaching Strategies We Should Hold Onto after the Pandemic Ends," *Academia Letters*. Article 2332 (2021), https://doi.org/10.20935/al2332.

Lastly, we anticipated differences in engagement between BA and MA students, as was observed in other studies.[71] The assumption was that MA students would be more familiar with the academic environment, the teaching staff, and each other, which would in turn result in enhanced commitment and engagement. However, the survey results do not corroborate our expectations, as there is no indication of the MA students being more engaged overall. Furthermore, one important factor observed among MA students was that they treated COL as an opportunity to combine work and study. Such an observation invites a reflection on the state of emergency caused by the pandemic, which (seems to have) dulled the students' traditional sense of responsibility towards their schoolwork. No matter how accessible and engaging the online classes were, the pandemic status quo shifted their focus to their private lives.

VI. Conclusion

The original reason behind this study was to explore the students' perception of their behavioural engagement in COL. Firmly believing that effective measures must build on solid foundations, we strove to complement our own experience with the opinions of our students to understand the complexity of their contingency learning experience. Even though our respondent sample was restricted, some of our results, such as those concerning the use of camera during online sessions, reaffirm and uphold existing findings and thus provide research support in the relevant areas. Hence, the next task is to create relevant guidelines to serve teachers and students alike in similar times of need. Presenting our findings, we hope that they could offer additional insight and guidance in COL and related modes of teaching and learning. Although COVID-19-induced COL in higher education institutions may never be deployed again, the hundreds of studies published between 2020 and 2022 by Taylor & Francis, Cambridge Core, Springer, and others contain vital data from first-hand testimonies, which impel and deserve further inquiry. The current war in Ukraine and other military conflict situations and crises in the world validate the ongoing adequacy of COL and dedicated research in this domain.[72]

---

[71] e.g. Bedenlier et al., "Facilitating Student Engagement through Educational Technology."

[72] Mykhailo Sherman et al., "The Future of Distance Education in War or the Education of the Future (The Ukrainian Case Study)." *Futurity Education* 2, no. 3 (2022): 1-9, https://futurity-education.com/index.php/fed/article/view/15; Ghislain Mervyl S. J. Kossingou et al., "Proposal of the Solution of Virtual Basic Schools in Rural Areas of African Countries in

Bibliography

Adedoyin, Olasile Babatunde, and Emrah Soykan. "Covid-19 Pandemic and Online Learning: The Challenges and Opportunities." *Interactive Learning Environments* (2020): 1–13. https://doi.org/10.1080/10494820.2020.1813180.

American Civil Liberties Union. *ACLU Annual Report 2020*. New York: ACLU, 2021. https://www.aclu.org/report/aclu-annual-report-2020.

Ayouni, Sarra, Fahima Hajjej, Mohamed Maddeh, and Shaha Alotaibi. "Innovations of Materials for Student Engagement in Online Environment: An Ontology." *Materials Today: Proceedings* (2021). https://doi.org/10.1016/j.matpr.2021.03.636.

Bailenson, Jeremy N. "Nonverbal Overload: A Theoretical Argument for the Causes of Zoom Fatigue." *Technology, Mind, and Behavior* 2, no. 1 (2021): 1-6. https://doi.org/10.1037/tmb0000030.

Bao, Wei. "COVID-19 and Online Teaching in Higher Education: A Case Study of Peking University." *Human Behavior and Emerging Technologies* 2, no. 2 (2020): 113-115. https://doi.org/10.1002/hbe2.191.

Bax, Stephen. "CALL—Past, Present and Future." *System* 31, no. 1 (2003): 13-28. https://doi.org/10.1016/S0346-251X(02)00071-4.

Bedenlier, Svenja, Melissa Bond, Katja Buntins, Olaf Zawacki-Richter, and Michael Kerres. "Facilitating Student Engagement through Educational Technology in Higher Education: A Systematic Review in the Field of Arts and Humanities." *Australasian Journal of Educational Technology* 36, no. 4 (2020): 126-150. https://doi.org/10.14742/ajet.5477.

Besser, Avi, Gordon L. Flett, and Virgil Zeigler-Hill. "Adaptability to a Sudden Transition to Online Learning during the COVID-19 Pandemic: Understanding the Challenges for Students." *Scholarship of Teaching and Learning in Psychology*. Advance online publication. (2020). https://doi.org/10.1037/stl0000198.

Boettcher, Judith V., and Rita-Marie Conrad. *The Online Teaching Survival Guide: Simple and Practical Pedagogical Tips*. 3rd ed. San Francisco: John Wiley & Sons, 2021.

Bond, Melissa, Katja Buntins, Svenja Bedenlier, Olaf Zawacki-Richter, and Michael Kerres. "Mapping Research in Student Engagement and Educational Technology in Higher Education: A Systematic Evidence Map." *International Journal of Educational Technology in Higher Education* 17, no. 1 (2020): 1-30. https://doi.org/10.1186/s41239-019-0176-8.

Basford, Letitia. ""COVID Keepers": The Teaching Strategies We Should Hold Onto after the Pandemic Ends." *Academia Letters*. Article 2332 (2021). https://doi.org/10.20935/al2332.

Conflict: Case of the Central African Republic," in *Proceedings of the 3rd International Conference on Networking, Information Systems & Security* (2020), 1-5. https://dl.acm.org/doi/abs/10.1145/3386723.3387900.

Carini, Robert M., George D. Kuh, and Stephen P. Klein. "Student Engagement and Student Learning: Testing the Linkages." *Research in Higher Education* 47, no. 1 (2006): 1-32. https://doi.org/10.1007/s11162-005-8150-9.

Castelli, Frank R., and Mark A. Sarvary. "Why Students Do Not Turn On Their Video Cameras during Online Classes and an Equitable and Inclusive Plan to Encourage Them to Do So." *Ecology and Evolution* 11, no. 8 (2021): 3565-3576. https://doi.org/10.1002/ece3.7123.

Caws, Catherine, and Trude Heift. "Evaluation in CALL: Tools, Interactions, Outcomes." In *The Routledge Handbook of Language Learning and Technology*, edited by Farr, Fiona, and Liam Murray, 127-140. Abingdon: Routledge, 2016.

Chen, Pu-Shih Daniel, Amber D. Lambert, and Kevin R. Guidry. "Engaging Online Learners: The Impact of Web-Based Learning Technology on College Student Engagement." *Computers & Education* 54, no. 4 (2010): 1222-1232. https://doi.org/10.1016/j.compedu.2009.11.008.

Chen, Quan, and Yan Zheng. "Does Multitasking with Mobile Phones Affect Learning? A review." *Computers in Human Behavior* 54 (2016): 34-42.

Chipchase, Lucy, Megan Davidson, Felicity Blackstock, Ros Bye, Peter Clothier, Nerida Klupp, Wendy Nickson, Debbie Turner, and Mark Williams. "Conceptualising and Measuring Student Disengagement in Higher Education: A Synthesis of the Literature." *International Journal of Higher Education* 6, no. 2 (2017): 31-42. https://doi.org/10.5430/ijhe.v6n2p31.

Christenson, Sandra, Amy L. Reschly, and Cathy Wylie. "Preface." In *Handbook of Research on Student Engagement*, edited by Christenson, Sandra, Amy L. Reschly, and Cathy Wylie, 3-19. New York, NY: Springer, 2012.

Cunningham, Una, and Anna Bergström. "Reimagining Learning in a Language Education Course Thrust Online: Social Constructivism in Times of Social Isolation." in *Teaching, technology, and teacher education during the covid-19 pandemic: Stories from the field*, edited by Richard E. Ferdig, Emily Baumgartner, Richard Hartshorne, Regina Kaplan-Rakowski, Chrystalla Mouza, 449-456. Fairmont: Association for the Advancement of Computing in Education (AACE). https://www.diva-portal.org/smash/get/diva2:1508596/FULLTEXT02.pdf.

de Vasconcelos Filho, Jose Eurico, Kori M. Inkpen, and Mary Czerwinski. "Image, Appearance and Vanity in the Use of Media Spaces and Video Conference Systems." In *Proceedings of the ACM 2009 International Conference on Supporting Group Work* (2009), 253-262. https://doi.org/10.1145/1531674.1531712.

Develotte, Christine, Nicolas Guichon, and Caroline Vincent. "The Use of the Webcam for Teaching a Foreign Language in a Desktop Videoconferencing Environment." *ReCALL* 22, no. 3 (2010): 293-312. https://doi.org/ 10.1017/S0958344010000170.

Eccles, Jacquelynne, and Ming-Te Wang. "So What Is Student Engagement Anyway: Commentary on Section I." In *Handbook of Research on Student Engagement*, edited by Christenson, Sandra, Amy L. Reschly, and Cathy Wylie, 133–145. New York, NY: Springer, 2012.

Fleiss, L. Joseph. "Measuring Nominal Scale Agreement among Many Raters." *Psychological Bulletin* 76, no.5 (1971): 378–382. https://doi.org/10.1037/h0031619.

Fredricks, Jennifer A., Phyllis C. Blumenfeld, and Alison H. Paris. "School Engagement: Potential of the Concept, State of the Evidence." *Review of Educational Research* 74, no. 1 (2004): 59-109. https://doi.org/10.3102/00346543074001059.

Fredricks, Jennifer A., and Wendy McColskey. "The Measurement of Student Engagement: A Comparative Analysis of Various Methods and Student Self-Report Instruments." In *Handbook of Research on Student Engagement*, edited by Christenson, Sandra, Amy L. Reschly, and Cathy Wylie, 763-782. New York: Springer, 2012.

Fredricks, Jennifer A., Michael Filsecker, and Michael A. Lawson. "Student Engagement, Context, and Adjustment: Addressing Definitional, Measurement, and Methodological Issues." *Learning and Instruction* 43 (2016): 1-4. https://doi.org/10.1016/j.learninstruc.2016.02.002.

Fritzová, Marie. "Kvalita distanční výuky na katedrách a ústavech historie v době covid-19." *Pedagogická orientace* 30, no. 2 (2020): 255-265.

Göksu, İdris, Naif Ergün, Zafer Özkan, and Halis Sakız. "Distance Education amid a Pandemic: Which Psycho-Demographic Variables Affect Students in Higher Education?." *Journal of Computer Assisted Learning* (2021): 1-14. https://doi.org/10.1111/jcal.12544.

Guichon, Nicolas, and Cathy Cohen. "The Impact of the Webcam on an Online L2 Interaction." *Canadian Modern Language Review* 70, no. 3 (2014): 331-354. https://doi.org/10.3138/cmlr.2102.

Henrie, Curtis R., Lisa R. Halverson, and Charles R. Graham. "Measuring Student Engagement in Technology-Mediated Learning: A Review." *Computers & Education* 90 (2015): 36-53. https://doi.org/10.1016/j.compedu.2015.09.005.

Hofer, Sarah I., Nicolae Nistor, and Christian Scheibenzuber. "Online Teaching and Learning in Higher Education: Lessons Learned in Crisis Situations." *Computers in Human Behavior* 121, (2021): 106789. https://doi.org/10.1016/j.chb.2021.106789.

Hubbard, Philip. "Making a Case for Learner Training in Technology Enhanced Language Learning Environments." *Calico Journal* 30, no. 2 (2013): 163-178. https://doi.org/10.11139/cj.30.2.163-178.

Iglesias-Pradas, Santiago, Ángel Hernández-García, Julián Chaparro-Peláez, and José Luis Prieto. "Emergency Remote Teaching and Students' Academic Performance in Higher Education during the COVID-19 Pandemic: A Case Study." *Computers in Human Behavior* 119 (2021): 106713. https://doi.org/10.1016/j.chb.2021.106713.

Jokinen, Pirkko, and Irma Mikkonen. "Teachers' Experiences of Teaching in a Blended Learning Environment." *Nurse Education in Practice* 13, no. 6 (2013): 524-528. https://doi.org/10.1016/j.nepr.2013.03.014.

Landis, J. Richard, and Gary G. Koch. "The Measurement of Observer Agreement for Categorical Data." *Biometrics* 33, no. 1 (1977): 159–74. https://doi.org/10.2307/2529310.

Lauret, Dirk, and Durdane Bayram-Jacobs. "COVID-19 Lockdown Education: The Importance of Structure in a Suddenly Changed Learning Environment." *Education Sciences* 11, no. 5 (2021): 221/1-21. https://doi.org/10.3390/educsci11050221.

Lee, Jung-Sook. "The Relationship between Student Engagement and Academic Performance: Is It a Myth or Reality?." *The Journal of Educational Research* 107, no. 3 (2014): 177-185. https://doi.org/10.1080/00220671.2013.807491.

Meskill, Carla, ed. *Online Teaching and Learning: Sociocultural Perspectives*. London: Bloomsbury Academic, 2013. https://doi.org/10.1558/calico.v32i1.25658.

Miller, Matthew K., Regan L. Mandryk, Max V. Birk, Ansgar E. Depping, and Tushita Patel. "Through the Looking Glass: The Effects of Feedback on Self-Awareness and Conversational Behaviour during Video Chat." In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (2017), 5271-5283. https://doi.org/10.1145/3025453.3025548.

Murty, B. V. Ramana, and K. Narasimha Rao. "Digital Pedagogy – An Opportunity or a Threat?." In *Proceedings of International Conference on Digital Pedagogies (ICDP),* 2019. https://doi.org/10.2139/ssrn.3375701.

National Privacy Commission. "Privacy Commission's Updated Online Learning Guidelines Advise Schools to Enforce Social Media Policy." Last edited November 11, 2021. https://www.privacy.gov.ph/2021/02/privacy-commissions-updated-online-learning-guidelines-advise-schools-to-enforce-social-media-policy.

Neuwirth, Lorenz S., Svetlana Jović, and B. Runi Mukherji. "Reimagining Higher Education During and Post-COVID-19: Challenges and Opportunities." *Journal of Adult and Continuing Education* 27, no. 2 (2021): 141-156. https://doi.org/10.1177/1477971420947738147797 1420947738.

Nordmann, Emily, Chiara Horlin, Jacqui Hutchison, Jo-Anne Murray, Louise Robson, Michael K. Seery, and Jill RD MacKay. "Ten Simple Rules for Supporting a Temporary Online Pivot in Higher Education." *PLOS Computational Biology* 16, no. 10 (2020): e1008242. https://doi.org/10.1371/journal.pcbi.1008242.

Organisation for Economic Co-operation and Development. *The Impact of COVID-19 on Student Equity and Inclusion: Supporting Vulnerable Students during School Closures and School Re-Openings*. Paris: OECD Publishing, 2020. https://read.oecd-ilibrary.org/view/?ref=434_434914-59wd7ekj29&title=The-impact-of-COVID-19-on-student-equity-and-inclusion.

Pittaway, Sharon M. "Student and Staff Engagement: Developing an Engagement Framework in a Faculty of Education." *Australian Journal of Teacher Education* 37, no. 4 (2012): 37-45. https://doi.org/ 10.14221/ajte.2012v37n4.8.

Rajab, Mohammad H., and Mohammed Soheib. "Privacy Concerns over the Use of Webcams in Online Medical Education during the COVID-19 Pandemic." *Cureus* 13, no. 2 (2021). https://doi.org/ 10.7759/cureus.13536.

Reich, Justin, Christopher J. Buttimer, Alison Fang, Garron Hillaire, Kelley Hirsch, Laura R. Larke, Joshua Littenberg-Tobias, Roya Moussapour, Alyssa Napier,

Meredith Thompson, Rachelo Slama. "Remote Learning Guidance from State Education Agencies during the COVID-19 Pandemic: A First Look." *EdArXiv* (April 2, 2020). http://doi:10.35542/osf.io/437e2.

Reschly, Amy L., and Sandra L. Christenson. "Jingle, Jangle, and Conceptual Haziness: Evolution and Future Directions of the Engagement Construct." In *Handbook of Research on Student Engagement*, edited by Christenson, Sandra, Amy L. Reschly, and Cathy Wylie, 3 –19. New York: Springer, 2012.

Robinson, Chin Choo, and Hallett Hullinger. "New Benchmarks in Higher Education: Student Engagement in Online Learning." *Journal of Education for Business* 84, no. 2 (2008): 101-109. https://doi.org/10.3200/JOEB.84.2.101-109.

Schöpfel, Joachim, and Otmane Azeroual. "Current Research Information Systems and Institutional Repositories: From Data Ingestion to Convergence and Merger." *Future Directions in Digital Information* (2021): 19-37. https://doi.org/10.1016/B978-0-12-822144-0.00002-1.O'Shea, Sarah, Cathy Stone, and Janine Delahunty. ""I 'Feel' like I am at University Even Though I am Online." Exploring How Students Narrate Their Engagement with Higher Education Institutions in an Online Learning Environment." *Distance Education* 36, no. 1 (2015): 41-58.

Sherman, Mykhailo, Evgen Puhovskiy, Yanina Kambalova, and Inesh Kdyrova. "The Future of Distance Education in War or the Education of the Future (The Ukrainian Case Study." *Futurity Education* 2, no. 3 (2022): 1-9. https://futurity-education.com/index.php/fed/article/view/15.

Skinner, Ellen A., and Jennifer R. Pitzer. "Developmental Dynamics of Student Engagement, Coping, and Everyday Resilience." In *Handbook of Research on Student Engagement*, edited by Christenson, Sandra, Amy L. Reschly, and Cathy Wylie, 21–44. New York: Springer, 2012.

Telles, João Antonio. "Do We Really Need a Webcam? - The Uses that Foreign Language Students Make Out of Webcam Images during Teletandem Sessions." *Letras & Letras* 25, no. 2 (2009): 1 - 14. https://www.researchgate.net/publication/253594664.

Tonsmann, Guillermo. "A Study of the Effectiveness of Blackboard Collaborate for Conducting Synchronous Courses at Multiple Locations." *InSight: A Journal of Scholarly Teaching* 9 (2014): 54-63. https://doi.org/10.46504/09201404to.

Trowler, Vicki. *Student Engagement Literature Review*. Heslington: The Higher Education Academy, 2010. https://www.heacademy.ac.uk/system/files/studentengagementliteraturereview_1.pdf.

Uzuner, Sedef. "Educationally Valuable Talk: A New Concept for Determining the Quality of Online Conversations." *Journal of Online Learning and Teaching* 3, no. 4 (2007): 400-410. https://jolt.merlot.org/documents/uzuner.pdf.

Watermeyer, Richard, Crick Tom, Knight Cathryn, and Goodall Janet. "COVID-19 and Digital Disruption in UK Universities: Afflictions and Affordances of Emergency Online Migration." *Higher Education* 81, no. 3 (2021): 623-641.

Yamada, Masanori, and Kanji Akahori. "Social Presence in Synchronous CMC-Based Language Learning: How Does It Affect the Productive Performance and

Consciousness of Learning Objectives?." *Computer Assisted Language Learning* 20, no. 1 (2007): 37-65. https://doi.org/10.1080/09588220601118503.

Yamada, Masanori, and Kanji Akahori. "Awareness and Performance through Self- and Partner's Image in Videoconferencing." *Calico Journal* 27, no. 1 (2009): 1-25. http://www.jstor.org/stable/calicojournal.27.1.1.

About the authors

KATERINA DVORAKOVA (corresponding author, katerina@pf.jcu.cz), PhD in Education, currently works as a Senior Lecturer at the Department of English Studies at the Faculty of Education, University of South Bohemia, Czech Republic. She specializes in pre-service training of future teachers of English, her core subjects are ELT Methodology and Communication Skills. She also supervises English teaching practice at elementary and lower-secondary schools. Her research focuses on primary ELT Methodology and issues related to pre-service foreign language teacher training. She has co-authored several locally published English textbooks for both primary and lower-secondary learners.

JAROSLAV EMMER (emmerj01@pf.jcu.cz), MA in language teaching (English and Czech), is a lecturer at the Department of English Studies at the Faculty of Education, University of South Bohemia, Czech Republic, where he teaches linguistic and practical English courses. He is also an external PhD student in the programme Philology: English Language at the Faculty of Arts, Charles University. His primary area of research is phraseology with the use of corpus linguistics. His hobbies are English pronunciation, computer game language, fantasy and science fiction literature, complex music, and sports.

RENATA JANKTOVA (rjanktova@pf.jcu.cz), PhD in English Literature, is a Senior Lecturer in British History and Cultural Studies at the Department of English Studies at the Faculty of Education, University of South Bohemia, Czech Republic. Her current research interests focus on English landscape history, national identity and cultural memory. Her further interests include architectural history and cultural heritage protection.

KATERINA KLEMENTOVA (kklementova@pf.jcu.cz), MA in teaching of Czech and English, currently works as a lecturer of spoken and written language analysis, a teacher of practical language; and she also supervises pre-service teacher practice at the Faculty of Education, University of South Bohemia, Czech Republic. She is an external PhD student of English Language and Literature in a Didactic Perspective at the Faculty of Education, Charles University, Prague. Her other interests are language of news media, sociolinguistics, English language skills in the workplace, and teacher training in English for specific purposes.

Editors'
Acknowledgments

Editors' Acknowledgments

Once again, the editors offer very sincere and genuine thanks to all who have helped produce this edition of the Journal. Thanks are due to Ladislas Bizimana our patient Managing Editor, who has supervised the overall production of the Journal, by supporting authors and editors in the process. His cheerful encouragement and attention to detail is unsurpassed. Finally, I would like to thank the many professors, scholars, and colleagues listed below who devoted their time and expertise to assist the reviewing process of this Issue. This remains a challenging time for colleagues who act as reviewers, and we are truly appreciative of the efforts made when there are heavy workloads or challenging circumstances.

Abdellah Abaida, University Ibn Zohr, Morocco
Hafiz Imtiaz Ahmad, Higher Colleges of Technology, United Arab Emirates
Inero Ancho, University of Los Banos, Philippines
Dao Thi Ngoc Anh, Hanoi National University of Education, Vietnam
Ana Corica, Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina
Pui Yee Chong, Universiti Tenaga Nasional, Malaysia
Mildred Jénica Ledesma Cuadros, Universidad César Vallejo, Peru
Patricia Andera Desimone, Universidad Tecnológica Metropolitana, Chile
Mehmet Durnali, Zonguldak Bülent Ecevit University, Turkey
Cesar Esquetini, Innovateq, Ecuador
Monica Fedeli, University of Padua, Italy
Laura Carlotta Foschi, University of Padova, Italy
Julio César Gutiérrez-Segura, Universidad Tecnológica de Pereira. Fundación Universitaria Visión de las Américas, Colombia
Fjolla Kacaniku, University of Prishtina, Kosovo
Janerose Mutegi Kibaara, Kenyatta University, Kenya
Luisa F. Echeverria-King, Corporación Universitaria del Caribe (CECAR), Colombia
Jeya Amantha Kumar, Universiti Sains Malaysia, Malaysia
Chenghua Lin, Zhejiang University, China
Emilia Mazurek University of Łodz, Poland
Tarek Abdelmalak Mekhail, New Cairo Technological University, Egypt
Sherif Mourad, Cairo University, Egypt
Mairna Mustafa, The Hashemite University, Jordan
Adaobiagu Obiagu, University of Nigeria, Nigeria
Ruth Ortega-Dela Cruz, University of the Philippines Los Baños, Philippines
Fabian Pels, Institute of Psychology of the German Sport University Cologne, Germany
Petra Pistor, Wandelwerk, Centre for Quality Assurance and Enhancement, FH Münster University of Applied Sciences, Germany
Geetha Radhakrishnan, Language Editor, India
Tesfaye Semela, Justus-Liebig University of Giessen, Germany, and Hawassa University, Ethiopia
Lenka Sokolová, Comenius University Bratislava, Slovakia
Dominika Vrbnjak, University of Maribor, Slovenia

Adem Yilma, Kastamonu University, Turkey
Slimi Zouhaier, University of Deusto, Spain, and National University of Science and Technology, Sultanate of Oman

Mary Gobbi
Editor
May 2023

Guidelines
for Authors

Guidelines for Authors

Version 1st May 2023

General Information

Tuning Journal for Higher Education, TJHE, is a joint academic publication of the University of Deusto (Spain) and the University of Groningen (Netherlands). It is published by the University of Deusto on behalf of the two institutions. It appears twice a year, in May and November, in both digital and print formats. Its first Issue was published in November 2013.

It is an international peer-reviewed, open access journal publishing in English original research studies and reviews in all aspects of competence-based, student-centred, and outcome-oriented education reforms at university level across the globe.

The Journal publishes both thematic and unsolicited contributions on pressing educational needs of contemporary societies.

At any time of the year, the Journal welcomes submissions related to its scope and focus.

The submitted manuscript should not have been previously copyrighted or published in any form, including electronic media and databases, and must not be currently under consideration for publication elsewhere.

The editorial staff uses the TURNITIN software (http://www.turnitin.com/) to verify the originality of manuscripts submitted to the Journal.

Manuscripts under consideration for publication in Tuning Journal cannot be submitted elsewhere without formal withdrawal approved by the Editor.

The submitted material and its eventual publication shall not be in violation of any codes of conduct, privacy and confidentiality agreements, laws or any rights of any third parties.

Authors are solely responsible for seeking and obtaining permission from the copyright owner to cover the reproduction in their manuscripts of any copyright literary or artistic material from other publications or sources. All tables, maps, photographs, diagrams, figures, and illustrations shall be captioned, with information concerning the source.

Authors are solely liable for the consequences that may arise from third parties' complaints about the submitted material and its publication in TJHE.

Authors should clarify whether their research study involved ethical considerations, how these have been taken into account (including evidence of approval by the competent ethical/research committee) and, if not, explain why not. For reference material, authors can use the BERA's Ethical Guidelines for Educational Research (https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-2018).

Authors shall sign a copyright transfer agreement (to the Publisher) after the acceptance but before the publication of their manuscripts in TJHE.

These Guidelines should be used with reference to the TJHE Ethical Guidelines for Publication, Peer Review policy, and Copyright Notice; all of which are available at the web page of the Journal (http://www.tuningjournal.org/).

Manuscript Preparation

To expedite the review process, please format your manuscript as follows:

1. Prepare your manuscript as a single editable Microsoft Word or Open Office document with line numbering, using the template downloadable from the web page of the Journal (http://www.tuningjournal.org/about/submissions#authorGuidelines). The file should include the complete text, references, tables and figures. All revised manuscripts should again be sent as a single editable document.

2. Manuscripts must be written in either UK English or U.S. English consistently and include a 100-300 word abstract. The title page should include authors' affiliations plus the email address of a single corresponding author. The Chicago Manual of Style (CMOS), 16th or later edition, should be used as a reference for manuscript preparation (www.chicagomanualofstyle.org/).

3. Format of references, notes, and bibliography or reference list.

   a) Authors can format their citations and references in either of the two referencing systems of the Chicago Manual of Style (16th or later edition): **Notes and Bibliography** and **Author-Date** systems (https://www.chicagomanualofstyle.org/tools_citationguide.html). They however are required to use either system consistently.[1]

   b) Note references must be numbered in superscript format in the text and arranged numerically (in the order they appear in the text) at the bottom of each page, in line with the CMOS 'Footnotes' system.

   c) 'Notes' include complete bibliographic information when cited for the first time. For subsequent citations of the same source, shortened versions are preferred.

   d) The Bibliography or Reference list includes **all and only** sources cited in the 'Notes' or text, and provides complete reference information.

   e) Bibliography or Reference list entries are to be arranged alphabetically by (first) author's last name following the CMOS guidelines. Note that for works of two or more authors, only the name of the first-listed author is inverted in a Bibliography or Reference list entry. This rule does not apply to 'Notes'.

   f) Microsoft Word (2010 and later edition) can be used with such software as "EndNote", "RefWorks", "Reference Manager", RefME, and "Zotero", to simplify the task of managing citations and references according to the recommended CMOS.

4. Authors are asked to provide between 5 and 10 keywords immediately following the Abstract.

5. Authors are reminded that it is their sole responsibility to ensure that their manuscripts are written in appropriate academic English and that the latter is consistently either UK English or U.S. English, but not both. They are also reminded that they can resort to professional language editing services, preferably prior to first submission.

---

[1] Before 1st January 2022, only the **Notes and Bibliography** system had to be used.

6. Please ensure that all the characters and special characters in the text, tables, figure legends, footnotes and references are in a single typeface and point size – such as 12 pt Times New Roman. Once a manuscript is accepted, a copy editor will decide the typeface and size of the different elements of the article.

7. Please submit all figures or photographs as separate jpg or tif files with distinct characters and symbols at 500 dpi (dots per inch). Tables and equations should be in an editable rather than an image version. Tables must be edited either with Microsoft Word or Open Office. Equations must be edited with the appropriate Equation Editor. Tables, table captions, figures and figure captions should be appended after the 'Bibliography' or 'References' section, as indicated on the standard template for manuscript preparation (https://tuningjournal.org/about/submissions#authorGuidelines).

8. Type your manuscript single-spaced and indent the first line of each paragraph. This will conserve paper and makes it easier for reviewers to handle.

9. Manuscripts should normally be between 5,000 and 12,000 words excluding notes and references. Diagrams should be reckoned at the equivalent of 500 words if they occupy a full page and proportionately less if smaller. Longer articles require editorial approval.

10. Authors of manuscripts should each submit a biographical note of 150-200 words. The note should be a continuous text containing the author's full name, email address, affiliation, current post, relevant experience, main research area(s), and highest academic qualification.

Online Submission

Manuscripts should be submitted online via the *Tuning Journal for Higher Education* online manuscript submission and review system at <http://www.tuningjournal.org/>.

All authors of a manuscript, and not only the submitter or corresponding author, must be registered with the Journal site (http://www.tuningjournal.org/user/register) prior to or during the submission process. Failure to comply with this requirement may delay the initial assessment of their manuscript.

Manuscripts will be processed using the Open Journal Systems (OJS) software which allows authors to track the progress of their manuscripts.

Upon submission of each manuscript, the system automatically sends out an acknowledgement to the submitter.

In OJS, editorial correspondence related to a manuscript is reserved for the person who actually submits the manuscript in question. In cases of various authors, the submitting author is the sole co-author with access to the manuscript and related files and correspondence. It is therefore important that the corresponding author, referred to as "Principal contact for editorial correspondence" in OJS terminology, be the actual submitter of the manuscript. Exceptionally and at the sole and exclusive discretion of the Editor and/or Managing Editor, can an additional co-author be allowed to act as "Principal contact for editorial correspondence".

Review Process

The Editor, with the assistance of the Managing Editor and or any other member of the editorial team, makes a first assessment of conformity of submitted manuscripts against the Journal editorial and publication policies and submission guidelines.

Currently, *Tuning Journal for Higher Education* uses a double-blind peer review system: mandatory anonymity for both the reviewer and reviewed author throughout the review process.

Manuscripts not conforming to the Journal guidelines will be returned to authors without evaluation.

The Editor hands each manuscript accepted for review to an advisory editor (generally from the Journal's Panel of Advisory Editors), who will control the review and revision process of that manuscript.

The Editor will prepare a decision letter based on the comments of the reviewers and the recommendation of the Advisory Editor, which will be sent to the corresponding author by email.

It is our intention to notify authors of non-reviewed manuscripts within 21 days of submission acknowledgement. For manuscripts accepted for review, the process shall last 6 months. However, due to reasons beyond our control, the whole process (initial screening and peer review) can take longer time to be completed. Our editors and reviewers are indeed very busy people and they carry out their review tasks voluntarily. We therefore invite authors to be patient. If you have not heard from the Editor after 4 months following the submission acknowledgement, please send an inquiry to the Editor (Professor Mary Gobbi, PhD, mary.gobbi@deusto.es) and or Managing Editor (Ladislas Bizimana, PhD, ladislas.bizimana@deusto.es, tuningjournal@deusto.es). We understand that these deadlines may be too long for some authors. We therefore would respect, though regrettably, their decision to withdraw from the process, preferably prior to the peer review stage.

Production, Publication, and Distribution

Under the coordination of the Managing Editor (ME), accepted manuscripts are copyedited for publication. For each copyediting round, authors normally have up to three (3) working days to act upon suggested changes. Once copyediting is completed, the ME moves each paper to the typesetting and proofreading stage. By email attachment, authors receive PDF proofs for a final check (of basically typographical and formatting errors), altogether with the copyright transfer form (to be completed, dated, signed, and returned to the ME). Authors are expected to give their feedback within three (3) working days of receipt. Exceptionally, more than one round of proofreading by authors may take place. Substantive changes to the content and or structure of the manuscript at this stage require the approval of the Journal editor.

The responsibility to check the proofs rests primarily with the author(s). Neither the Journal editorial staff nor the Publisher can be held responsible for errors that remain in the published version and which the author(s) should have amended.

Final proofs are published as a journal issue, first online (in PDF and HTML formats) and then in print format. Upon online publication of each issue, automatic notifications are sent from the Journal platform to authors, editors, reviewers, and registered readers who have chosen to be notified. New issue content metadata are subsequently submitted to various indexing, abstracting, and cataloguing service providers.

Only a limited number of print copies are made available for internal distribution (to authorities, libraries, records and archives services, and visiting researchers) within the two Tuning Academy institutions. Depending on availability, free print copies are also provided to authors, reviewers, section editors (of each issue), editorial board members, and key strategic partners of Tuning Academy.

Submission and Publication Fees

Currently, no charges for manuscript submission, processing, and publication are applicable.

Copyright

More Information and Correspondence

Detailed and updated information, including names and contact addresses of the editorial team is available at <http://www.tuningjournal.org/>. Editorial correspondence should be sent to the Editor (Professor Mary Gobbi, mary.gobbi@deusto.es) and or Managing Editor (see below). The mailing address of the editorial office is the following:

Ladislas Bizimana, PhD
Managing Editor, *Tuning Journal*
DEIKER-OTRI & Publications
University of Deusto
Avenida de las Universidades, 24
48007 Bilbao, Spain
Tel: (+34) 944 139 003 (ext. 3048)
Email: ladislas.bizimana@deusto.es
          tuningjournal@deusto.es

TJHE
Ethical Guidelines
for Publication

TJHE Ethical Guidelines for Publication

Final Version (March 2015)

Tuning Journal for Higher Education (TJHE), Tuning Journal in short, is an international journal publishing in English original research studies and reviews in all aspects of competence-based, student-centred, and outcome-oriented education reforms at university level across the globe. It is published by the University of Deusto's Publications department on behalf of the International Tuning Academy (Tuning Academy in short), a jointly managed project of the Universities of Deusto (Spain) and Groningen (The Netherlands). The Journal, essentially an open access, online and peer-reviewed publication, is committed to maintain the highest ethical standards. Hence, the involvement of any stakeholder in any function connected with TJHE, including acting as an editor, the reviewing of manuscripts, the management and production of the Journal and the authorship and submission of manuscripts implies acceptance of and adherence to **TJHE Ethical Guidelines for Publication**.

* The term *Editor(s)* as used below refers to Editors, Advisory Editors, Guest Editors, and Editorial Board members when delegated to serve in an editorial capacity.

1. Publishers, Managing Board, Editorial Board

1.1. The Editorial Board is appointed by the Tuning Academy in consultation with the Universities of Deusto and Groningen.

1.2. The Editorial Board is responsible for setting policy, appointing the Editor and Advisory Editors of the Journal.

1.3. The Editor is responsible for ensuring that publication policies set by the Editorial Board are carried out.

1.4. The Management Board is appointed by the Tuning Academy in consultation with the Universities of Deusto and Groningen.

1.5. The Managing Board is responsible for the commercial management of the Journal and appointing a Managing Editor.

1.6. The Managing Editor is responsible for ensuring that the commercial policies set by the Management Board are carried out.

1.7. Members of the Editorial or Management Boards or employees and, or members of the Tuning Academy should not intervene in or comment on editorial decisions on individual manuscripts.

2. Editors, Advisory Editors, and Guest Editors

2.1. *Editors* of the Journal and Specialist Volumes are expected to carry out editorial duties in a manner consonant with policies set by the Editorial Board.

2.2. The Editor has full responsibility, which he/she may delegate to an Advisory Editor, for editorial and technical decisions on Journal and specialist volume content.

2.3. *Editors* will give manuscripts unbiased consideration.

2.4. *Editors* should process manuscripts expeditiously.

2.5. The Editor has sole responsibility for acceptance or rejection of a manuscript. Manuscripts should have peer review, but the Editor may reject any manuscript for other causes (inappropriate for journal, clearly of poor quality, contents previously published elsewhere, etc.)

2.6. The Editor should not disclose information about submitted manuscripts except to reviewers, Advisory Editors, Editorial Board members, and staff at the University of Deusto's Publications department. Information about a manuscript may be shared after electronic publication (e.g., news releases or inclusion in a list of contents, etc.).

2.7. Manuscripts submitted by an *Editor* should be delegated to another Advisory Editor or Editorial Board member.

2.8. An *Editor* should not handle manuscripts for which there is a real or perceived conflict of interest. Examples include, but are not restricted to, past (within the last 5 years) or current collaboration, employer or employee, close friend, family relationship, institutional relationship, past or present graduate advisor or advisee, someone with whom the reviewer has had a past or on-going academic controversy, or situations where the *Editor* could stand to gain or lose economically or in any other way by publication or rejection of the manuscript. Editorial responsibility should be delegated to another Editor, Advisory Editor, or Editorial Board member.

2.9. An *Editor* must not use information, data, theories, or interpretations of submitted manuscript in her/his own work unless that manuscript is in press, published or the author has given permission to do so.

2.10. If an *Editor* is presented with convincing evidence that the main substance or conclusions of a publication is/are erroneous, he/she should facilitate publication of a report (e.g., correction, follow-up manuscript, or other appropriate means) pointing out the error and, if possible, correcting it. The report may be written by the person who discovered the error or by the original author. The original publication does not disappear from the published record.

3. Authors and Co-authors

3.1. Manuscripts should contain original, new results, data, ideas and/or interpretations not previously published or under consideration for publication elsewhere (including electronic media and databases).

3.2. Authors should be encouraged to avoid fragmentation of their work where practical, so that the submitted manuscript is as comprehensive and authoritative as possible.

3.3. Authors should inform the Editor of related manuscripts under consideration elsewhere and provide copies if requested.

3.4. Fabrication of data, results, selective reporting of data, theft of intellectual property of others, and plagiarism are unethical practices and unacceptable.

3.5. Information obtained privately (e.g., in conversation, correspondence, or discussion with third parties) should be avoided as it is not in the public domain and is thus unverifiable. If considered necessary, it should not be used or reported in a manuscript without explicit permission from the party with whom the information originated. Information obtained in the course of confidential services (e.g., refereeing manuscripts or grant applications) should be treated similarly.

3.6. Manuscripts will contain proper citation of works by others, especially publications of the original hypotheses, ideas, and/or data upon which manuscript is based or addresses.

3.7. Authorship

a) Authorship should be limited to those who have made significant contributions to the concept, design, execution or interpretation of the work reported in a manuscript; others who have contributed should be acknowledged;

b) Author order should be agreed on by all authors as should any changes in authors and order that occur while the manuscript is under review or revision. Changes in authorship must be submitted to the Editor in writing and must be signed by all authors involved.

c) Authors and co-authors should review and ensure the accuracy and validity of results prior to submission; co-authors should have opportunity to review manuscript before submission.

3.8. Authors should reveal to the Editor any potential conflict of interest (e.g., a consulting or financial interest in a company) that might be affected by publication of the results contained in a manuscript. The authors should ensure that no contractual relations or proprietary considerations exist that would affect the publication of information in a submitted manuscript.

3.9. Authors are encouraged to disclose major funding sources (e.g., government agencies, private foundations, private industry, and universities) for reported research.

4. Reviewers

4.1. A reviewer should disclose real or perceived conflict of interests to the Editor before agreeing to write a review. Examples include, but are not restricted to, past (within the last 5 years) or current collaboration, close friend, employer or employee, family relationship, institutional relationship, past or present graduate advisor or advisee, someone with whom the reviewer has had a past or on-going scientific controversy, or situations where the reviewer could stand to gain or lose economically or in any other way by publication or rejection of the manuscript. The Editor will decide if the conflict is severe enough to prevent the reviewer from writing a fair, objective review.

4.2. A reviewer should decline to review a manuscript if she/he feels technically unqualified, if a timely review cannot be done, or if the manuscript is from a competitor with whom the reviewer has had an acrimonious professional relationship or a conflict of interest as defined above (section 4.1).

4.3. Reviewers should be encouraged, but not required, to sign reviews. The Editor will preserve anonymity of reviewers should a reviewer elect to remain anonymous.

4.4. Reviewers must treat the manuscript as confidential.

4.5. Reviewers must ask the Editor for permission to discuss the paper with others for specific advice, giving names and reasons for such consultation.

4.6. Reviewers must not pass the manuscript to another to carry out the review without permission from the Editor.

4.7. Reviewers must not use information, data, theories, or interpretations of the manuscript in their own work unless that manuscript is in press, published or the author has given permission to do so.

4.8. Reviewers should clearly support and justify the basis for their review analysis.

4.9. Reviewers should alert the Editor to similar manuscripts published or under consideration for publication elsewhere in the event they are aware of such. However, it is the responsibility of the Editor, not the reviewer, to decide on the proper course of action once so informed.

5. Citation Manipulation

5.1. Citation manipulation is considered unethical. Manipulation may include adding citations not contributing to a manuscript's content or solely aiming at increasing an author's or a journal's citations.

6. Sanctions

6.1. Suspected breaches of this policy may be handled by the Editor or may be forwarded to the Editorial Board for review and recommendation.

6.2. If an *Editor* is determined to have violated the **TJHE Ethical Guidelines for Publication**, the matter will be referred to the Editorial Board.

6.3. If an author is determined to have violated the **TJHE Ethical Guidelines for Publication**, TJHE reserves the right to impose sanctions, which may include restriction from further consideration of accepting the author's work, retraction of a published paper, or withdrawal of a submitted paper.

Date: 16 March 2015

Approved by the TJHE Editorial Board and signed on behalf of the Tuning Academy by:

Pablo Beneitone
Director, Tuning Academy (Deusto)

Robert Wagenaar
Director, Tuning Academy (Groningen)
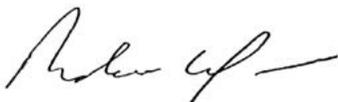
Acknowledgements

Contact Details

Tuning Journal (www.tuningjournal.org)

Editorial Office

Ladislas Bizimana, PhD
Managing Editor, *Tuning Journal*
DEIKER-OTRI & Publications
University of Deusto
Avenida de las Universidades, 24
48007 Bilbao, SPAIN
Tel: (+34) 944 139 003 (ext. 3048)
Email: ladislas.bizimana@deusto.es
        tuningjournal@deusto.es

International Tuning Academy (www.tuningacademy.org)

Deusto International Tuning Academy (DITA)	International Tuning Academy Groningen
University of Deusto	University of Groningen
Avenida de las Universidades, 24	Oude Kijik in't Jatstraat, 26
48007 Bilbao, SPAIN	9712 EK Groningen, THE NETHERLANDS
Tel: (+34) 944 139 467 (direct)	Tel: (+31) 503 636 059
Tel: (+34) 944 139 003 (ext. 3147)	E-mail: tuningacademy@rug.nl
E-mail: dita@deusto.es	

Student and Teacher perceptions and experiences: How do they align?

Contents

Deusto
University of Deusto

university of groningen