Ecuador And Spain in the Digital Era. Discovering the Motivation and Satisfaction of Online Learning in Higher Education

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Abstract

The present study is focused on the digital transformation of higher education in Ecuador and Spain, and it analyses how this transformation is affecting both students and faculty members. On the one hand, this study aims to describe the motivation, satisfaction and assessment of online and face-to-face teaching of higher education students in educational degrees. On the other hand, it aims to compare the evaluation of online and face-to-face teaching between Ecuadorian and Spanish students in order to determine their educational preferences. Differences between Ecuadorian and Spanish students were analysed from a non-experimental approach, following a descriptive and inferential methodology, in which a questionnaire was administered through the Google Forms platform. The sample was constituted by 1,745 university students, of whom 72.1% were Ecuadorian and 27.9% were Spanish. The results indicate that online education presents unique challenges, such as the lack of physical interaction, the difficulty to keep the attention of the students, and the need to effectively use technological tools. The motivation and satisfaction of Ecuadorian and Spanish students vary as a function of teaching modality, with face-to-face teaching being preferred by the students. It is thus concluded that aspects such as autonomy, the search for information and the management of projects are the skills proposed to continue advancing. Our proposal is to continue to search for variables that favour subjective well-being, integrating the learning models with the social context, and advancing in didactic resources, digital pedagogies and describe the motivation, satisfaction and evaluation of new digital learning environments and face-to-face teaching of higher education students of educational degrees. To compare the evaluation of new digital learning environments and face-to-face teaching between Ecuadorian and Spanish students in order to determine their educational preferences.

Keywords: *Online Learning, Digitisation, Higher Education, Motivation, Satisfaction.*

Introduction

In the last years, the world has witnessed a drastic change in the way in which education is given and acquired, with universities transforming their educational practices and integrating the new digital resources (Coll et al., 2023). The global pandemic has forced the educational community and higher education (HE) to advance in the continuous change process of digital transformation in educational institutions, particularly universities.

Since the pandemic has also pushed us to incorporate online teaching methods, it is important to explore how these new learning methods affect future teachers, which resources are the most appropriate, what pedagogical benefits are involved, and how to design new learning methodologies (Crawford et al., 2020).

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This sudden change implies the need to reevaluate and modify the existing teaching models, in order to make the most of the opportunities of online education, as well as to overcome its challenges.

In this context, digitisation has become a central topic in the planning and implementation of educational processes in universities. The teaching approaches and models that were effective in a face-to-face environment need to be adapted and transformed in order to guarantee a successful learning experience in the virtual environment (Martín-Gutiérrez et al., 2022). It is essential to recognise that online education is not a mere translation of the traditional methodologies to the digital scope, but it implies the reinvention of the teaching and learning processes (Díaz-Noguera et al., 2022). Thus, although numerous studies and experiments have been conducted on HE with online and hybrid learning models, as was previously mentioned, it was the COVID-19 pandemic which revealed the real perceptions and needs of the students.

In Ecuador, as in Spain and other countries, students have highlighted several aspects in this regard. Firstly, with respect to the adaptation to the online modality, studies show that the sudden change to online learning has been a difficult adjustment, since the lack of direct interaction with peers and faculty members, the need for self-discipline and time management, and the adaptation to new technological platforms generated stress and anxiety in the students (Condori-Melendez et al., 2021). Secondly, regarding connectivity and access to the Internet, not all students have had a stable and quality connection, especially those from disadvantaged contexts, causing a direct impact on the acquired learning (Rochina-Chisag et al., 2022); for example, some students have not been able to access the resources and participate in the virtual lectures (Andrade-Vargas et al., 2021; Molina et al., 2021). The third determining factor is technological equipment. To this respect, not all students have had adequate technological devices; therefore, their participation has been severely affected, with some universities lending and donating equipment to their students (Tejedor et al., 2020). The fourth factor is interaction and participation. The lack of physical interaction in times of uncertainty and stress, the absence of face-to-face discussions, and the change of virtual environments generated a feeling of isolation and hindered the development of cooperative learnings (Rivera-Merino et al., 2022). Lastly, in relation to the lack of autonomy and self-regulation, online learning requires these two competences; some students have managed to keep themselves motivated and organised their learning without the structure and support of face-to-face lectures (Pillajo-Quisilema & Sierra-Mallamas, 2022).

In this sense, the experience during the pandemic varied depending on the personal circumstances and the alternatives provided by the institutions (Araujo-Silva et al., 2020). Some students adapted to the online modality and made use of the opportunities, whereas other students fell behind due to the significant difficulties they encountered (Santana-Sardi et al., 2020). For instance, in Ecuador, different strategies were implemented to support the students during this period; training courses on the use of digital tools were designed, the psychological support services were strengthened, and deadlines and evaluations were made more flexible (Fonseca-Páez & Saá, 2021; Diaz-Vera et al., 2020). Thus, there have been differences between Spanish and Ecuadorian university students in terms of the challenges and circumstances they have had to face in their online teaching-learning processes. About the challenges, it is worth pointing out the importance of evaluation processes, in both Spanish and Ecuadorian universities. In this regard, in Ecuador, the evaluation processes were characterised by having a continuous evaluation; that is, the students were evaluated periodically through partial exams, individual or group assignments, projects and presentations, and participation in the classroom and in other activities (Sánchez-Caicedo & Ruiz-Calvachi, 2021).

In conclusion, the need to change the teaching models is clear. Online education presents unique challenges, such as the lack of direct physical interaction, the difficulty to keep the attention of the

students, and the need to use technological tools effectively, with the latter aspect not being achieved by all faculty members (Mendoza et al., 2021; Rochina-Chisag et al., 2022; Tejedor et al., 2020). Therefore, it is fundamental to adopt pedagogical approaches and didactic strategies that are adapted to the digital environment and maximise the opportunities that they provide. The resources that universities have are a central topic in circumstances of world crisis. The studies of Mendoza et al. (2021) and Araujo-Silva et al. (2020) analyse the research conducted on this variable.

Motivation Toward Online Teaching in New Digital Learning Environments

Motivation is one of the most widely studied constructs in relation to learning. It is the tendency to strive when it comes to overcoming formative tasks with a high degree of difficulty. Therefore, if this variable is present in the formative process, since the formative itineraries can be manipulated and modified by the students, the latter can thus become either active or passive agents in the learning process. Student motivation has been an essential topic for decades. Pintrich (2004) designed a conceptual framework to evaluate the motivation of university students. In addition to the conclusions of the mentioned study, Zimmerman et al. (2005) understood evaluation as the process of regulatory self-efficacy that is strongly related to social cognitive perspective. In previous research, the learning strategies at the State University of Michigan have been described in a manual (Pintrich et al., 1991).

University students show dedication and commitment to attain academic goals when they find value and meaning in them. This is undoubtedly a complex topic, as is demonstrated in the existing scientific literature. To the question "*is motivation necessary for the generation of meaningful learnings?*", we find a 21st century filled with controversy. There are assertions in favour of the importance of motivation in the learning processes, although there are also declarations about the existence of learning without motivation. In this line, Ausubel (1981) stated that motivation influences learning, and this is currently the generalised purpose of educators, who seek the formula that leads them to motivate their students. This phenomenon consists of multiple elements that emerge and disappear depending on the circumstances governed by social, cultural and economic factors, and thus it requires a personalised approach.

As was stated by Ng (2018), when a student has an intrinsic motivation, she/he is motivated by the experience of the process, rather than by the achievements or results of such process; thus, the interest generated by the subject matter leads her/him to study, with the neuroscientific combination of growth mentality and intrinsic motivation. In this case, cognitive self-regulation, independence and self-determination are fundamental. Other studies conducted with university students, carrying out international comparisons (Llanes-Ordóñez et al., 2021), describe what motivation depends on and how it is built; therefore, as was previously mentioned, factors such as socioeducation and labour level are decisive in Latin America.

These extrinsic motivations (Fischer, 2019) can be strengthened if we add synergistic extrinsic engagements that are related to creativity and motivation. Consequently, these formative processes are open to improvement through creative commitment (Tan et al., 2023). The literature shows that students have felt loneliness during the pandemic, and the perceived cognitive learning and satisfaction of students in online courses has been effective when developed in a collaborative manner (Baturay, 2011).

There is a research line on the use of digital means and tools and their direct relationship with the motivation of university students (Liu et al., 2011). Infante-Moro et al. (2021) showed that the motivational factors related to the use of video calls to carry out tutorials in Spanish universities favoured the formative processes. Nowadays, faculty members are very concerned about innovating their teaching methods and offering dynamic, active and attractive environments (Lee & Hammer, 2011; Gómez-Paladines & Ávila-Mediavilla, 2021). The migration to new digital learning environments, promoted by the new COVID-19

health measures, was an inflection point for the promotion of their use (Almaiah et al., 2020). In this sense, new horizons appear where we can explore the best digitisation processes for universities, considering the recent experience of a pandemic that has accelerated the adoption of online education.

Previous studies have concluded that the teaching models must evolve to guarantee a quality education in the virtual environment, taking into account the key aspects that influence the effective learning, such as interaction, feedback, collaboration and personalisation (Almaiah et al., 2020; Fernández-Batanero et al., 2022; Kalsoom et al., 2022; Svihus, 2023), which entails satisfying the needs of the students and promoting a meaningful learning. Exploring and adopting the best digitisation processes will allow us to make the most of the advantages of online education, overcoming the physical barriers and offering accessible, flexible and interactive learning opportunities.

The literature review led us to formulate two research questions:

1. What was the perception of the students in terms of satisfaction and motivation of online teaching in new digital learning environments?
2. Were there differences in the perception of satisfaction and motivation between Spanish and Ecuadorian students after the use of the new digital learning environments?

Methodology

To respond to the research questions posed, the following objectives were set:

1. To describe the motivation, satisfaction and evaluation of new digital learning environments and face-to-face teaching of higher education students of educational degrees.
2. To compare the evaluation of new digital learning environments and face-to-face teaching between Ecuadorian and Spanish students in order to determine their educational preferences.

To this end, a study was carried out using a non-experimental approach, following a descriptive and inferential methodology. To attain the objectives set, a questionnaire was developed and administered through the Google Forms platform.

Sample

The questionnaire was aimed at university students. To this end, the participants were recruited by convenience sampling, that is, the faculty members were asked to disseminate the questionnaire to the students. A total of 1,745 students participated in the study, of whom 72.1 % were Ecuadorian and 27.9 % were Spanish, with 61.6 % women and 38.2 % men.

Instrument

An ad hoc questionnaire was developed for the objectives of the study. This questionnaire consisted of 32 questions on an ordinal scale, where 1 point indicated "strongly disagree" and 5 indicated "strongly agree", except in Item 6, where 1 corresponded to "extremely badly" and 5 corresponded to "extremely well". The questionnaire obtained a Cronbach's alpha of 0.792, and thus it can be considered an acceptable instrument (George & Mallery, 2019). The questionnaire was administered during May 2022 in Spain, and during July 2022 in Ecuador.

Procedure and Data Analysis

To respond to the first objective, a descriptive analysis (means and standard deviations) was conducted for each of the items of the questionnaire.

To respond to the second objective, a selection and classification of the items was carried out with the aim of simplifying the interpretations. For this purpose, a factor analysis of the questionnaire was performed with equamax rotation, which allows simplifying factors and variables by integrating the varimax and quartimax method (George & Mallery, 2019). The value of Kaiser-Meyer-Olkin measure of sampling adequacy was 0.85, indicating the applicability of the factor analysis (Table 1). Moreover, Bartlett's sphericity test was significant, confirming that the factor model is adequate to explain the data (George & Mallery, 2019).

Table 1: Kaiser-Meyer-Olkin and Bartlett's Tests.

Kaiser-Meyer-Olkin measure of sampling adequacy		**.850**
	Approx. Chi-squared	14110.978
Bartlett's sphericity test	df	496
	Sig.	.000

Eight factors were extracted from the matrix. After verifying their correlation matrix, it was concluded that 6 factors could be used to meet the objective of the analysis, which were calculated through the mean of the associated items. Table 2 shows the factor used and the corresponding items.

Table 2: Dimensions and Their Correspondence in Items of the Questionnaire.

Dimension	**Items**
Valuation of online teaching	6, 15, 18, 19, 20, 22.
Motivation with the subject	27, 28, 30, 31, 32.
Valuation of online learning	24, 25, 26.
Difficulty of online lectures	4, 16, 17, 23.
Need for closeness	10, 11, 12,13.
Preference for personal resources	2, 3, 5.
Search for support	7, 8, 9.

The obtained variables were used to calculate the difference between the Ecuadorian and Spanish students using Student's t-test. The items "*If I had had the chance to use the computers of the faculty-school instead of my own, I would have taken that opportunity*" and "*When I take exams, I think about the consequences of failing*", were not included in any factor, preserving their ordinal origin and using Mann-Whitney U-test.

Results

To respond to the first objective, i.e., "to know the motivation and satisfaction of Ecuadorian and Spanish students and their valuation of online and face-to-face education", a descriptive study was carried out using means (M) and standard deviations (SD).

Table 3 presents the items organised in the different dimensions extracted from the factor analysis. The items of the dimension *valuation of online teaching* obtained values close to the mean, and items 6, 15, 20 and 22 obtained less than 3 points, indicating less satisfaction with online teaching due to the lack of closeness with peers, poorer quality of teaching and a preference for face-to-face lectures in the future. Moreover, with regard to the standard deviation, there were dissimilar perceptions in this dimension.

Regarding the motivation for the subject, all items obtained scores above 4 points, that is, the students showed a strong motivation for the subject, as was the case for the dimension *valuation of learning*, except in item 26 ("*I believe I will obtain an excellent mark in this subject*") (M = 3.76; SD = 0.97), which obtained a lower score and a greater standard deviation. This could be due to the fact that external learning tests generate more uncertainty in the students than the perception toward learning, which depends on them.

The items of the dimension *difficulty of online lectures* received scores close to the mean, with standard deviations above 1, which indicates discrepancies in the opinions of the participants; that is, some students had more difficulties than others. Item 4 obtained less than 3 points (M = 2.91; SD = 1.262), suggesting that the platform was not the greatest problem during online lectures.

With regard to the need for closeness, all items were above 4 points, except for Item 11 (M = 3.99; SD = 1.187), which refers to the faculty's need to use the web cam, although its value was also high. This could be due to the fact that the participants granted more relevance to face-to-face interaction.

In the dimension *preference for personal resources*, there was greater disparity among the items. Items 2 (M = 3.91; SD = 1.055) and 3 (M = 4.05; SD = 1.009), which referred to the adequacy of personal resources and the preference for these over those of the university, obtained high scores. However, Item 4 (M = 2.91; SD = 1.262) received less than 3 points, indicating that the students had no difficulties with the platform. Lastly, the value obtained by Item 5 (M = 3.61; SD = 1.129) was slightly above the mean, suggesting that they will prefer to use their own resources in the future.

The items in the dimension *search for support* received values close to the mean, although Item 9 (M = 3.85; SD = 1.043) obtained a slightly higher score. The results indicate that the students did not always gathered to study or search for support during online lectures.

Lastly, Item 1 (i.e., "If I had had the chance to use the computers of the faculty-school instead of my own, I would have taken that opportunity") (M= 3.3; SD = 1.73) obtained a central valuation. The resources provided by the university may not have been better than those of the students. Item 29 (i.e., "When I take exams, I think about the consequences of failing") received a high score (M = 4.3; SD = 0.791), which suggests that the students considered the extrinsic consequences of failing.

Table 3: Descriptive Statistics Organised in the Extracted Dimensions.

ITEMS	M	SD
Valuation of online teaching		
6. How does online education affect your interaction with your classmates? (Extremely badly, extremely well).	2.77	1.178
15. I prefer online lectures in the future.	2.55	1.446
18. What degree of participation did you have during online lectures?	3.26	1.029
19. I think online education is useful.	3.28	1.163
20. What degree of enjoyment do you experience in online education?	2.98	1.206
22. I think that online teaching significantly improves the quality of university teaching.	2.86	1.232
Motivation with the subject		
27. Obtaining a good mark in this subject is currently the most satisfactory thing for me.	4.23	0.858
28. It is important for me to learn the topics of this subject.	4.44	0.752
30. I am very interested in the contents that I am studying.	4.32	0.757
31. I am sure I can do very well in the assignments and exams of this subject.	4.19	0.814
32. I believe that the material of this subject is useful for learning.	4.3	0.791
Valuation of online learning		
24. If I study adequately, I will manage to learn the material of this subject.	4.21	0.857
25. I believe that I will be able to use in other subjects what I learn in this one.	4.05	0.875
26. I think that I will receive an excellent mark in this subject.	3.76	0.906
Difficulty of online lectures		
4. How difficult is it to learn to use the digital environment of the platform?	2.91	1.262
16. How difficult is it to adapt to the situation of theoretical online lectures?	3.35	1.111
17. How difficult is it to adapt to online assignments-activities-practical workshops?	3.42	1.157
23. Online lectures are more boring than face-to-face lectures.	3.67	1.267
Need for closeness		

10. How much do you miss interacting face-to-face (without masks) with your classmates?	4.22	1.088
11. How important is it for you that the teacher uses the web cam during the lectures?	3.99	1.187
12. In my opinion, we learn more in face-to-face lectures than in online lectures.	4.29	1.064
13. How important is it for you to have weekly verbal contact with your faculty members?	4.34	0.822
Preference for personal resources		
2. My own devices-tools (computers, smartphones, tablets, etc.) help me to better learn the subjects compared to those provided by the faculty-school.	3.91	1.055
3. My devices-tools (computers, smartphones, tablets, etc.) met the requirements of the platform.	4.05	1.009
4. How difficult is it to learn to use the digital environment of the platform?	2.91	1.262
5. In the future, I would rather use my own resources (devices-tools: computers, smartphones, tablets, etc.) than those provided by the faculty-school.	3.61	1.129
Search for support		
7. How frequently do you ask your classmates for help during online education?	3.14	1.048
8. How much help did you search for from other students for studying purposes only?	3.19	1.014
9. How frequently were your online meetings with other students focused on studying?	3.85	1.043
Other items		
1. If I had had the chance to use the computers of the faculty-school instead of my own, I would have taken that opportunity.	3.3	1.73
29. When I take exams, I think about the consequences of failing.	4.3	0.791

Table 4 shows the descriptive statistics for the dimensions, distinguishing the Ecuadorian students from the Spanish students. On the one hand, the Ecuadorian students valued the dimensions *valuation of online teaching*, *motivation for the subject*, *valuation of online* learning, and *preference for personal resources* with a greater score than the Spanish students. On the other hand, the Spanish students gave a higher score to the dimensions *need for closeness* and *search for support*, which could be related to each other and would indicate a higher demand in the Spanish students for interaction and personal involvement. The Spanish students also valued with a higher score the *difficulties of online lectures*, indicating that the adaptation may have been more difficult in Spain.

Table 4: Descriptive Statistics of the Dimensions Differentiated by Country.

Dimensions	Country_survey	N	Mean	Standard deviation	Average standard deviation
Valuation of online teaching	Ecuador	1259	3.1583	.86900	.02449
	Spain	486	2.4071	.85266	.03868
Motivation for the subject	Ecuador	1259	4.3428	.60724	.01711
	Spain	486	4.1802	.59185	.02685
Valuation of online learning	Ecuador	1259	4.1014	.69052	.01946
	Spain	486	3.7654	.72167	.03274
Difficulty of online lectures	Ecuador	1259	3.2998	.84362	.02378
	Spain	486	3.4362	.84618	.03838
Need for closeness	Ecuador	1259	4.1029	.71489	.02015
	Spain	486	4.4779	.61166	.02775
Preference for personal resources	Ecuador	1259	3.9113	.77714	.02190
	Spain	486	3.7112	.78361	.03555
Search for support	Ecuador	1259	3.3545	.76332	.02151
	Spain	486	3.4959	.72327	.03281

To compare the results, a Student's t-test was carried out. The comparisons presented above were statistically significant (Table 5). To determine the effect size, Hedges' G was calculated, which is a measure that is employed to compare groups with different sample sizes (Lenhard & Lenhard, 2016).

The dimensions *motivation for the subject* (G_{Hedge} = -0.27), *difficulty of online lectures* (G_{Hedge} = 0.189), *valuation of online learning* (G_{Hedge} = 0.48), *preference for personal resources* (G_{Hedge} = -0.257) and *search for support* (G_{Hedge} = 0.188) obtained a small effect size. However, the dimension *valuation of online teaching* (G_{Hedge} = -0.869) showed a considerable effect size.

Table 5: Student's T-Test of The Dimensions Comparing Spanish Students with Ecuadorian Students.

Dimension	Levene		T-Test for Equality of Means					95% confidence Interval of the Difference		Hedges' G
	F	Sig.	t	df	Sig. (Bilateral)	Difference of Means	Standard Error Difference	Lower	Higher	
Valuation_teaching_1	1.71	.19	16.41	896.35	.000	.75	.046	.66	.84	-0.869
Motivation_subject_2	1.43	.23	5.11	901.84	.000	.16	.032	.1	.23	-0.27
Valuation_learning_3	.012	.91	8.82	847.57	.000	.34	.038	.26	.41	0.48
Difficulty_online_lectures_4	.043	.84	-3.02	878.7	.003	-.14	.045	-.22	-.048	0.169
Need_closeness_5	24.38	.00	-10.21	1743	.000	-.38	.037	-.45	-.3	0.545
Preference_personal_resource_6	.33	.58	4.79	874.59	.000	.2	.042	.12	.28	-0.257
Search_support_7	.127	.72	-3.6	925.74	.000	-.14	.039	-.22	-.06	0.188

Table 6 presents the results of the non-parametric tests of Items 1 and 29, which maintained their original measure scale. The Ecuadorian students gave a better score to Item 1 ("I would have rather used the resources of the Faculty"). On the other hand, the Spanish students assessed Item 29 with a higher score ("I think about the consequences of failing").

Table 6: Non-Parametric Tests for Items 1 And 29.

Item	Country_survey	N	Mean range	Sum of ranges	Mann-Whitney U	Wilcoxon's X	Z	Asymptotic sig. (bilateral)
1	Ecuador	1259	889.84	1120303.50				
	Spain	486	829.39	403081.50	284740.5	403081.5	-2.397	0.017
	Total	1745						
29	Ecuador	1259	811.40	1021547.00				
	Spain	486	1032.59	501838.00	228377	1021547	-8.743	0
	Total	1745						

Discussion

The present study responded to the objectives set. In response to the first objective, to describe the motivation, satisfaction and evaluation of new digital learning environments and face-to-face teaching of higher education students of educational degrees, the students were greatly satisfied with the subject and with the teaching-learning experience. However, the perceived difficulties derived from online teaching, such as the need for greater closeness, lower enjoyment compared to face-to-face teaching, and difficulties of the adaptation of face-to-face education to virtual environments. A study conducted by Salesforce.org evaluated the way in which the pandemic had modified the expectations of university students all over the world, with a large proportion of Spanish students (34%) stating that they wished their universities to provide a personalised experience adapted to their needs (Salesforce.org, 2023). This idea is also highlighted by Ecuadorian university students. As was described throughout the present study, there are a large number of university students who are not satisfied with virtuality and education

mediated by technologies. The perceptions of future teachers toward the experience of the pandemic left collateral damages regarding their positive well-being, which is required for the generation of meaningful learnings; therefore, it is necessary to develop subjective well-being, which can be achieved through quality social relations, and the importance of these can be compared with that of health and income (Maher et al., 2021; Zdravkovik et al., 2023; Intriago-Cedeño et al., 2022; Hidalgo-Fuentes et al., 2021).

The negative perceptions toward the different dimensions have been previously analysed with the following variables: isolation and associated emotions, rupture of traditional education with its face-to-face methodology, the problems of innovating in virtual teaching spaces, and the lack of human contact (Avendaño, 2021).

Other aspects that have been pointed out in previous studies (Diaz-Noguera et al., 2022; Martín-Gutiérrez et al., 2022; Hervás-Gómez et al., 2023) identified the difficulties of students to improve their performance in the formative processes, highlighting the lack of knowledge about the educational model, the methodology to be used, the lack of social contact and the pending debt with evaluation. Online exams have evolved from electronic exams, and the examination process is currently changing, adopting more adequate ways of evaluating, while guaranteeing the safety and well-being of the students (Khan et al., 2021), strengthening the meaningful learnings of university students through virtual groups (Makani et al., 2016). Therefore, the difficulties of the students would not be those related to the use of computer applications (Macías & Loor, 2021; Pérez-Escoda et al., 2021), but other educational difficulties that could not be successfully adapted from face-to-face teaching to online teaching.

In response to the second objective, to compare the evaluation of new digital learning environments and face-to-face teaching between Ecuadorian and Spanish students in order to determine their educational preferences, the students, the Ecuadorian students experienced greater satisfaction with online teaching. In previous studies, such as that of Tejedor et al. (2020), similar results have been obtained. A possible explanation is that, despite being a developing country, Ecuadorian students are more familiarised with learning through social media (Pérez-Escolda et al., 2021). Studies such as that of Borja-Solano (2023) show that Ecuadorian students have digital skills related to the search for information, communication and content creation; however, they also present limitations in terms of Internet safety and problem solving when relating digitisation to virtual environments.

Another difference between Spanish and Ecuadorian students regarding challenges and the different circumstances in online teaching-learning processes is that, for instance, the technological infrastructure was more developed in Spain than in Ecuador (Andrade-Vargas et al., 2021; Molina et al., 2021; Tejedor et al., 2020). This implies that Spanish students, on average, had better access to the Internet, greater connectivity, and better technological devices and digital resources. With regard to Ecuadorian students, previous studies have highlighted that they have: a worse connectivity to the Internet and worse connection quality (Rochina-Chisag et al., 2022), less resources and lower participation in virtual lectures (Andrade-Vargas et al., 2021; Molina et al., 2021), and fewer devices in optimal condition (Tejedor et al., 2020).

This suggests that they could afford to face the challenges of online learning. In Spain, universities had their learning platforms and resources before the pandemic. Spanish institutions provided institutional support, developed digital tools and designed online tutorial programmes. However, in Ecuador, the most shocking differences could be accompanied by the disparities of financial and technological resources, which were scarcer. In turn, this affected the participation of the Ecuadorian students, since they did not have adequate devices in their homes. Undoubtedly, the socioeconomic factors exert a great influence, with Spain having greater economic development than Ecuador. Nevertheless, these differences must not be applied to all students in every country, since there are clear individual and contextual variations.

Regarding Item 29 (i.e., "Are there greater requirements for passing in Spain?", "How is the policy on

grants?"), the grant policy in Ecuador has economic benefits for Ecuadorian university students, especially: Benito Juárez Grant, Universal Grant, and the Ecuadorian Grant Programme, which is managed by the Institute of Human Talent Promotion (IFTH). Moreover, most of the universities of Ecuador offer their own grants and economic support, and there are specific grants provided by the Ecuadorian Institute of Educational Loans and Grants (IECE). In Spain, the most popular grant is the one given by the Spanish Ministry of Education and Vocational Training. In both countries there are requirements of loans approved for their application (Resolution of March 15th 2023, of the State Secretariat of Education, which calls for general grants for the academic year 2023-2024, for students registered in post-compulsory studies; Secretariat of Higher Education, Science, Technology and Innovation, 2023), although the Spanish participants of this study were more concerned about the consequences of failing.

It is thus concluded that aspects such as autonomy, the search for information and the management of projects are the skills proposed to continue advancing (Flores et al., 2023). Our proposal is to continue to search for variables that favour subjective well-being, integrating the learning models with the social context, and advancing in didactic resources, digital pedagogies and evaluation (Guevara-Gómez et al., 2021). We recommend delving into the preferred areas that require special attention in online educational models such as the one analysed in the present study, taking into account student satisfaction (Akyuz et al., 2015), the meaning of "digital learning" (Bellal & Nader, 2014) and "collaborative learning" (Zheng et al., 2015), and the design and development of intelligent HE institutions adapted to the contexts of the different countries, without losing the capacity of facilitating quality human relationships (Ramirez-Hurtado et al., 2021).

Limitations

The results presented in this study have some limitations. Firstly, the field of knowledge in which the students were registered was not gathered, which could have provided new interpretations in the results. Secondly, the comparison between a developed country and a developing country is interesting to unravel the differences between them; however, other educational and sociodemographic variables, such as students from ethnic minorities or with functional diversity, would also expand the perspective of the analysis of motivation.

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