
Volume 18

Issue 5 *The cross-cultural effects of COVID-19
on higher education learning and teaching
practice*

Article 13

2021

Online assessment in higher education during Spanish confinement by COVID-19: The view of students

Enrique Díez-Gutiérrez

Universidad de León, Spain, ejdieg@unileon.es

Katherine Gajardo Espinoza

Universidad of Valladolid, Spain, katherine.gajardo@usach.cl

Follow this and additional works at: <https://ro.uow.edu.au/jutlp>

Recommended Citation

Díez-Gutiérrez, E., & Gajardo Espinoza, K. (2021). Online assessment in higher education during Spanish confinement by COVID-19: The view of students. *Journal of University Teaching & Learning Practice*, 18(5). <https://doi.org/10.53761/1.18.5.13>

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

Online assessment in higher education during Spanish confinement by COVID-19: The view of students

Abstract

The purpose of this study is to describe how university students rate the evaluation systems and strategies that have been proposed for use in Higher Education during the period of COVID-19 confinement and online teaching as a result of the coronavirus crisis in Spain. For this purpose, we prepared a descriptive study by means of an online questionnaire, specifically designed on the basis of evaluation and qualification proposals made by REACU (Spain), ANECA (Spain), UNESCO, and the Spanish Ministry of Universities. The results obtained, after applying them to a sample of 1008 students from different universities in Spain, and covering most of the Autonomous Communities (17), indicate that students agree with and value the changes recommended by agencies and agree that the assessment should be flexible, diverse, formative and continuous. On the other hand, their experiences indicate that the Universities have not yet applied some of the suggested recommendations.

Practitioner Notes

1. The results obtained, after applying them to a sample of 1008 students from different universities in Spain, and covering most of the Autonomous Communities (17), indicate that students agree with and value the changes recommended by agencies and agree that the assessment should be flexible, diverse, formative and continuous.
2. On the other hand, their experiences indicate that the Universities have not yet applied some of the suggested recommendations.

Keywords

University, e-evaluation, online learning, meaningful learning, e-learning, survey



Volume 18

Issue 5 *The cross-cultural effects of COVID-19
on higher education learning and teaching
practice*

Article 13

2021

Online assessment in higher education during Spanish confinement by COVID-19: The view of students

Enrique Díez-Gutiérrez

Universidad de León, Spain, ejdieg@unileon.es

Katherine Gajardo Espinoza

Universidad of Valladolid, Spain, katherine.gajardo@usach.cl

Follow this and additional works at: <https://ro.uow.edu.au/jutlp>

Recommended Citation

Díez-Gutiérrez, E., & Gajardo Espinoza, K. (2021). Online assessment in higher education during Spanish confinement by COVID-19: The view of students. *Journal of University Teaching & Learning Practice*, 18(5). <https://ro.uow.edu.au/jutlp/vol18/iss5/13>

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

Online assessment in higher education during Spanish confinement by COVID-19: The view of students

Abstract

The purpose of this study is to describe how university students rate the evaluation systems and strategies that have been proposed for use in Higher Education during the period of COVID-19 confinement and online teaching as a result of the coronavirus crisis in Spain. For this purpose, we prepared a descriptive study by means of an online questionnaire, specifically designed on the basis of evaluation and qualification proposals made by REACU (Spain), ANECA (Spain), UNESCO, and the Spanish Ministry of Universities. The results obtained, after applying them to a sample of 1008 students from different universities in Spain, and covering most of the Autonomous Communities (17), indicate that students agree with and value the changes recommended by agencies and agree that the assessment should be flexible, diverse, formative and continuous. On the other hand, their experiences indicate that the Universities have not yet applied some of the suggested recommendations.

Keywords

University, e-evaluation, online learning, meaningful learning, e-learning, survey

Introduction

The COVID-19 pandemic has had devastating effects in all social, economic and cultural spheres, including education. The worldwide spread of the SARS-CoV-2 virus, the origin of this disease, led to the closure of schools and universities around the world, affecting 1,576 million students in 191 countries, 91% of the total on the planet (Burgess & Sievertsen, 2020). This has been a truly global challenge for educational communities (Sahu, 2020).

In much of the world and in Spain, face-to-face teaching in universities has been suspended, which has caused a drastic change in both teaching and evaluation in educational institutions (Cotino Hueso, 2020). In higher education, it is estimated that 20,000 institutions and around 200 million students were confined and had to continue their work online (UNESCO, 2020). This led to the need to establish unified criteria on how to educate students. Education had to continue to be delivered remotely to homes by institutions that could afford it. According to UNESCO (2020), 90% of institutions decided to use distance learning and/or e-learning tools for this purpose, and it seems that there will be no return to face-to-face either immediately or in the same way.

It is difficult to successfully implement such a radical change in a short time and in such a drastic way. Especially when programs developed to be remote often go through different processes than those for teaching in-person (Means et al., 2014). There must be at least six to nine months of previous planning for an effective distance education program. That includes the tools and platforms known to the educational community. It also requires positive attitudes towards online education (Hodges et al., 2020). Unfortunately, amid a global pandemic, not all institutions had these positive factors.

In this context, the adaptation of remote assessment systems is one of the aspects that has generated much debate among the scientific community (Burgess & Sievertsen, 2020; García-Peñalvo et al., 2020). This is mainly because universities had to define adequate institutional strategies to completely redesign remote assessment systems, which might negatively impact the generations that graduate during the pandemic (Llorens-Largo & Fernández, 2020).

Educational evaluation in universities is a widely studied topic (Marsh, 2007). Most universities were conceived as face-to-face educational institutions. Although virtual campuses have been implemented for years in most of the world, the assessment paradigms have not fundamentally changed. Therefore, face-to-face exams have continued to predominate as the basic assessment tool in both distance and/or online universities (Vlachopoulos & Makri, 2017).

Traditionally, there has been a tendency in higher education to reduce assessment to examinations and grading (Bryan & Clegg, 2019). But the confinement caused by the pandemic and the move to distance learning has forced the incorporation of online assessment proposals and experiences. This has significantly expanded traditional assessment strategies and practices, incorporating much of the philosophy of a more comprehensive approach to assessment that promotes strategic, autonomous learning and even moving towards self-regulation of the learning process itself. The autonomy of universities and the diversity of fields of study that coexist in the same institution often give way to diverse and focused assessment methods and instruments.

Educational assessment processes are essential for the learning processes of university students. Assessment powerfully conditions students learning, their strategies and efforts, highlighting what is considered essential to learn (Álvarez, 2003). If the evaluation is reduced to a memorised exam

model, students will conclude that learning is reproducing the information received and memorised. However, if the evaluation is oriented to application tasks, such as solving problems, students will understand that learning is using the knowledge to build something new (Ashford-Rowe et al., 2014). According to Entwistle (1991), perceptions of how education and assessment are conducted in universities directly impact student learning. Although students need to retain concepts and facts, learning is not reduced to this. Students also need to develop and integrate capabilities, strategies, and skills for understanding and participating in the world, solving problems, applying knowledge in contextualised ways, innovating and creating new solutions, etc. (O'Sullivan & Dallas, 2017). Therefore, changes experienced during the COVID-19 pandemic may be an opportunity to refocus assessment as learning (Canabal & Margalef, 2017) by incorporating formative assessment strategies that promote and maximise learning opportunities, as opposed to reducing assessment to testing and certifying acquired knowledge through summative assessment (Keppell et al., 2006).

In a comprehensive systematic review of the literature, Struyven, Dochy, & Janssens, (2005) argue that the recent expansion of evaluation methods has enriched universities' evaluative environments. This change caused the replacement of traditional multiple-choice tests and written essays with project papers, peer reviews, co-evaluations, self-evaluations, and so forth. Students' experiences with the new forms of evaluation have made them perceive multiple-choice testing as superficial or inappropriate (Struyven, Dochy, & Janssens, 2005). However, when given a choice between the new forms of evaluation and a multiple-choice test, students often choose multiple-choice testing because other evaluation forms (such as the written essay or research paper) are more demanding (Birenbaum & Feldman, 1998; Drew, 2001).

The COVID-19 pandemic suddenly affected institutions and led to the need to establish unified criteria for educating students. For institutes that could afford it, education needed to be moved to students' homes. According to UNESCO (2020), 90% of institutions decided to employ remote learning and/or e-learning tools.

Adapting evaluations to the new learning requirements was applied differently by universities around the world. So far, the diffusion of varied experiences can be observed. Often, educators and institutions have exposed the changes made as a reactionary measure in the face of the pandemic (Ferdig et al., 2020). These publications show precisely how, through alternative forms of assessment that are flexible and adapted to the student body, a more comprehensive evaluation is accomplished with a student body affected by a global pandemic (Fardoun et al., 2020; Mateo-Berganza et al., 2020). Experiences that focus on the features of technological tools used in the evaluation processes and not their direct impact on student learning can also be observed (Fardoun et al., 2020; Teräs et al., 2020).

University/higher education in Spain consists of 82 public universities and 32 private universities, with national headquarters, in the 17 autonomous communities of the country. Currently, more than 1.3 million students are studying for an undergraduate degree, 200,000 are studying for a master's degree, and 80,000 are pursuing a doctorate (EDUCAbase, 2020). Of these, 77% do so in public universities and 23% in private universities. In general, Spanish education is mainly face-to-face. In 2019, approximately 80% of university students had enrolled in the face-to-face modality. However, when comparing groups of students, 12% of students who attend public universities do so remotely, while 30% of students attending private universities attend classes through remote learning systems (EDUCAbase, 2020).

On March 14, 2020, after a state of alarm and the mandatory lockdown, about one million university students in Spain went from face-to-face education to virtual education (Gobierno de España, 2020).

The first indications of the adjustments to be made in university evaluation came from non-governmental organisations, such as UNESCO (2020), which proposed that institutions combine different evaluation tests, adapt to the psychosocial situation of the students, take measures to ensure the inclusion of diversity, and select technologies that guarantee data protection. The recommendations of Spanish organisations began to appear as of March 30, 2020. The Conference of Rectors (CRUE) asked universities to have alternative evaluation tools to face the situation, insisting on continuous evaluation as the main evaluation strategy. In April, the guidelines were unified in the documents published by the Spanish Network of University Quality Agencies (REACU, 2020a; 2020b), the National Agency for Quality Assessment and Accreditation (ANECA, 2020), and the Ministry of Universities (Ministerio de Universidades, 2020). The key recommendations called for universities to adopt evaluation methodologies that comply with the quality standards of the European Higher Education Area (hereafter termed ‘Agency Guidelines’), highlighting the following criteria (Rodríguez-Conde & Herrera, 2010):

- 1) Promote an assessment of students that is consistent with the learning situation experienced.
- 2) The use of different evaluation methods as alternatives to the single exam, with the encouragement of formative, continuous evaluation techniques, with direct follow-up, individual or group work, and interviews.
- 3) The methods and instruments must allow assessment of the acquisition of competencies and learning outcomes of the subjects and not only knowledge and content. Complementary methods such as, for example, the use of peer evaluation or co-evaluation should also be used.
- 4) The criteria and methods of evaluation must be made public in advance using rubric systems and evaluation scales.
- 5) The evaluation methods must be safe and have alternatives to demonstrate the unequivocal authorship of the students, respecting equity and equal access to them.
- 6) Institutions must ensure that all students have an appropriate and, above all, fair evaluation.

Given the principle of autonomy of Spanish universities, the recommendations were applied to a greater or lesser extent, mainly through continuous evaluation and by proposing that the grades be distributed among different activities that could be carried out at different times, thus reducing the weight of the final exam (Abella-García et al., 2020).

The above meant a substantial change as evaluation in higher education in Spain has traditionally favoured the type of summative and final evaluation (Álvarez, 2003). This type of evaluation places great importance on the grade obtained from the exams at the end of a learning process. In many cases, that mainly corresponded to multiple-choice exams (Calderón & Escalera, 2008). However, in the last decade and with the implementation of the recommendations by the European Higher Education Area, this approach has been changing, questioning the low value it gave to the learning process (López-Pastor, Sonlleve Velasco, & Martínez Scott, 2019). Hence, many innovations in higher education have proposed a learning-oriented assessment model (Brown & Glasner, 2007), which focuses more on formative aspects and continuous evaluation systems (Sambell, McDowell, & Montgomery, 2013).

Formative evaluation involves information gathering and analysis during the learning period, intending to reorient and improve the training process, unlike summative evaluation, which focuses on the results independently of the process (del Canto et al., 2015). Continuous assessment is organised throughout the school year. It corresponds to evaluating all activities, assignments, and

products that make up a learning process, unlike the final evaluation, which consists of collecting and assessing data at the end of a scheduled learning period (Castillo & Cabrerizo, 2006).

The strengths identified regarding this model of formative and continuous evaluation are diverse (Anijovich, 2017): (1) It increases the involvement of students in the learning process; (2) It favours the understanding of complex learning; (3) It promotes the development of metacognitive skills strategies; (4) It consolidates clarity in the evaluation criteria; (5) It gives value to feedback; and (6) It promotes dialogue between students and teachers. However, there are studies (Brookhart, 2013) that also identify weaknesses: (1) The inexperience of students with alternative evaluation methods prevents their effective development; (2) The perception of students and teachers is that it involves an excessive workload; (3) Students often make little use of the feedback received; (4) The difficulty of changing deeply ingrained habits of a traditional evaluation culture centred on multiple-choice exams and grades.

Despite these weaknesses, formative and continuous evaluation has long been recommended by the European Higher Education Area and in the procedures manuals for evaluating Spanish universities (Rodríguez-Conde & Herrera, 2010). However, like any process, change requires time and practice, which is why summative and final evaluation models still coexist with those models more oriented towards a formative and continuous evaluation.

The COVID-19 pandemic and the need to adapt educational programs to the remote modality has been presented as an opportunity to move towards this more formative and continuous evaluation. As seen during the pandemic, the recommendations published by government agencies, such as the Spanish Network of University Quality Agencies (REACU, 2020a; 2020b), the National Agency for Quality Assessment and Accreditation (ANECA, 2020), international non-governmental organisations such as UNESCO (2020) and even the Ministry of Universities of Spain (Ministerio de Universidades, 2020) have been in line with the proposals suggested by the formative and continuous evaluation model mentioned in previous paragraphs.

However, these guidelines have been applied differently by higher education institutions (García-Peñalvo et al., 2020; Torrecillas, 2020). Therefore, it is necessary to observe the impact produced from the point of view of the various agents, especially of the students who have gone through the experience (García-Peñalvo, 2020).

Evaluation processes in higher education in times of crisis

The impact of the COVID-19 pandemic has led to a large amount of scientific literature on the subject (Torres-Salinas, 2020) in a short time. However, there is still a lack of studies regarding educational evaluation in higher education.

When reviewing publications in international databases, two main lines of research can be found: (1) a theoretical line (Hodges et al., 2020), in which articles develop models of action in the face of emergency remote learning, and (2) an empirical line (Chick et al., 2020; Gewin, 2020) where articles by educational administrations prevail in specific contexts. These articles explain how distance evaluations are developed.

The empirical research generally narrates extraordinary protocols for evaluating practices and/or final exams without risk of contagion (Boursicot et al., 2020; Mian & Khan, 2020) or describe strategies and experiences for telematic education using technological tools such as Zoom, WhatsApp, Skype, Virtual Classrooms, and Chats (Gonzales-Zamora et al., 2020; Hickey et al.,

2020). In these studies, various descriptions of alternatives are offered, but the direct impact of the strategies on the evaluation of students is not analysed.

In Spain, the publications mainly address recommendations to carry out a formative and comprehensive evaluation of the situation of students based on the principle of equality (Díez-Gutiérrez & Gajardo, 2020). An example of this is the texts developed by Abella et al. (2020), Peñalvo et al. (2020), or García-Peñalvo (2020), who offer guidance to adapt teaching methodologies, tests, exams, among others, always paying attention to evaluation criteria based on continuous assessment, the reduction of the weight of final evaluations, the use of technologies already available in universities, the promotion of co-evaluation or peer evaluation, and the generation of spaces of flexibility for the special needs of the students.

There is a lack of studies that analyse the perceptions and evaluations of educational actors on the changes implemented in education in times of crisis, especially of students. Studies analysing students' perceptions have been mainly local, in universities or groups of students of specific degrees (González-Calvo et al., 2020; Rodicio-García et al., 2020) and focus specifically on the impact of the pandemic on the performance and psychological conditions of people.

Research Questions

Based on this context, the study set out to understand university students' perceptions and assessment of the evaluation process implemented by universities during the COVID-19 pandemic. The following research questions guide the study: (1) Do university students agree with the Agency Guidelines? (2) What were the major differences between the recommended evaluation guidelines and actual institutional practice during the shift to universal distance learning? (3) Has the type of university (private or public) or the type of study (Bachelor's, Master's, or Doctorate) impacted the students' perceptions of the changes implemented for evaluation during the pandemic? By answering these questions, the study seeks to generate a discussion about students' most urgent needs and issues that can lead to investigations that deepen the study's findings.

Methods

Sampling

A total of 1008 students enrolled in undergraduate and postgraduate degree programs in public and private universities from 17 autonomous communities of Spain participated in this study. Convenience sampling was used, and participation was voluntary. With the help of researchers and teachers from all over the country, in May 2020, invitations were published on 25 universities portals and formal student groups in social networks (Facebook and Instagram).

Data collection

The study was carried out by applying a quantitative and qualitative approach, and data were collected through an electronic survey from an ad hoc questionnaire. The questionnaire had three blocks: (1) evaluation online, (2) grading online, and (3) students' participation in the evaluation processes. The questionnaire validation process consisted of four phases: (1) Compilation of a wide range of questions generated by the research team based on the institutional guidelines established by the competent Spanish organisations (REACU, 2020a, 2020b; ANECA, 2020; UNESCO, 2020; Ministerio de Universidades, 2020). (2) The questions were grouped into a first questionnaire evaluated using a Delphi technique (Reguant Álvarez & Torrado Fonseca, 2016) involving 12 experts in university education and educational evaluation and allowing the most appropriate questions to be selected by criteria of relevance and clarity. (3) A pilot test was conducted with a sample of 23 students using the second questionnaire model. (4) Applying the latest changes, the

final version was reached, consisting of 32 single-selection questions and two open-ended questions. In the single-selection questions, the following was investigated: the sociodemographic characterisation of the sample; their perceptions regarding the measures taken by universities concerning online assessment during lockdown; the evaluation instruments that students consider to be the fairest; their opinion of continuous evaluation, online peer evaluation, and co-evaluation; what students think about the control and surveillance mechanisms in online evaluation; and what students think about Rubrics and online evaluation scales. In the two open-ended questions (non-mandatory), participants were invited to write down their experiences and concerns about online evaluation during the pandemic.

Data analysis

The data was exported from the Google Forms platform to the IBM® Statistical Package for Social Sciences (SPSS) 26. Through this tool, the cases were coded, recoded, and the missing (n=12) and duplicate (n=28) cases were eliminated, obtaining a total of 1008 cases which were grouped to proceed with descriptive statistical analysis and non-parametric hypothesis tests. With the open-ended questions (where the participants wrote down their concerns and experiences with assessment during the pandemic), due to its non-binding nature, there were 358 responses. A qualitative content analysis (Abela, 2002) was undertaken to identify the differences between Agency Guidelines and university assessment practices during the shift to distance learning.

Results

Characteristics of the sample

The sample comprises students from 17 autonomous communities of Spain.

Table 1.
Sociodemographic characteristics of the sample.

Autonomous Community	N	%	Gender	N	%
Castile and León	429	42.6	Female	748	74.2
Andalusia	176	17.5	Male	260	25.8
Community of Madrid	58	5.8	Age	N	%
Asturias	57	5.7	18 or younger	57	5.7
Galicia	47	4.7	19-20	280	27.8
Valencian Community	44	4.4	21-22	319	31.6
Catalonia	37	3.7	23 or older	352	34.9
Canary Islands	35	3.5	Degree of study	N	%
Cantabria	21	2.1	Bachelor's Degree	930	92.3
Castile La Mancha	21	2.1	Master's degree	70	6.9
Basque Country	20	2.0	PhD	8	0.8
Extremadura	18	1.8	Type of College/University	N	%
Murcia	15	1.5	Public	980	97.2
Aragon	12	1.2	Private	28	2.8
La Rioja	8	0.8			
Navarre	5	0.5			
Balearic Islands	5	0.5			

The questionnaire response rate was 40%. The sample comprises 74% female and 26% male. The average age of the respondents was 21.4 years, and the ages ranged from 17 to 56 years.

The autonomous communities of Castile and León and Andalusia made up a greater percentage of the respondents due to greater outreach by the study’s collaborators. Additionally, there was an overrepresentation of students from public universities, a figure consistent with the national total of university students in the country, representing 83% in Spain (EDUCAbase, 2020). Concerning the type of studies that the participants were taking, some data were not consistent with the national total. The sample presents an overrepresentation of undergraduate students compared to the national level, where 80% of all university students study for a bachelor's degree, 14% for a master's degree, and 5% for a doctorate (EDUCAbase, 2020).

Distance Education Assessments and Evaluation in Times of COVID-19

The study participants offered their assessments concerning the evaluation proposals generated by the organisations (Agency Guidelines) during the shift to remote learning due to COVID-19. The information offered varied with the practices of the universities in the context of evaluation during the pandemic. The following section reviews the main findings of the research in relation to each Agency Guideline.

Agency Guideline 1. Always promote an evaluation consistent with the learning situation experienced.

The Agency Guidelines recommended that institutions continue their lecture and evaluation activities during the pandemic. Students broadly agreed with this recommendation: 73% of the sample (n=739) agrees (Agrees / Strongly Agrees) to continue the teaching activity online in the context of pandemic and lockdown and 72% of students agrees that the evaluation in this situation must be carried out online.

Table 2.
Student agreement with Agency Guidelines 1, by type of college and degree

Item	% Agree (1 or 2)	Overall Mean (SD)	Private Mean (SD)	Public Mean (SD)	Private – Public	Bach. Mean (SD)	Ms. Mean (SD)	Doc. Mean (SD)	Bach – Grad – Doc.
Lecture should continue online	73.3%	1.9 (1.0)	1.8 (1.0)	1.9 (1.0)	<i>ns</i>	1.9 (1.0)	2.0 (1.0)	1.7 (0.7)	<i>ns</i>
Assessment should continue online	72.0%	2.0 (0.8)	1.8 (1.1)	2 (0.8)	<i>ns</i>	2.0 (0.8)	1.9 (0.9)	2.0 (0.7)	<i>ns</i>
Assessment should be suspended until it is possible to resume it face-to-face	24.7%	3.0 (0.9)	3.0 (1.1)	3.0 (0.9)	<i>ns</i>	3.0 (0.9)	3.1 (0.9)	2.8 (0.9)	<i>ns</i>
Universities must guarantee access to technological resources	99.5%	1.0 (0.0)	1.0 (0.1)	1.0 (0.0)	<i>0.01**</i>	1.0 (0.0)	1.0 (0.0)	1.0 (0.0)	<i>ns</i>
Universities must guarantee a subsequent face-to-face evaluation, without penalty	94.4%	1.0 (0.2)	1.0 (0.2)	1.0 (0.2)	<i>ns</i>	1.0 (0.2)	1.0 (0.1)	1.1 (0.3)	<i>ns</i>

Regarding the measures taken by universities, respondents in 99.5% (n=1003) of the cases consider that universities are responsible for ensuring access to technological resources for students when they do not have them, a fact that is recommended by agencies, but which, according to the students (in the open-ended questions) in 15 cases, was not effectively carried out by some institutions:

*I saw that every so often they published that they were helping (...) when I had a problem with the data system, I contacted them. They took a long time to answer me, but they didn't give me a solution either' (Man, Castile and León).
'They did not offer me any help and what I most lacked was having access to bibliography and the occasional book because the library closed (Female, Catalonia).*

When the groups are compared by type of university (private or public), statistically significant differences are observed in the perceptions of the obligation of universities to guarantee access to technological resources. So, the type of university that impacts the students' perception of the responsibility of institutions to lend computers, tablets, or mobile internet to their students in the context of the pandemic can be indicated.

Another aspect pointed out in 94% of the cases indicate that universities must guarantee a subsequent face-to-face evaluation, without penalising those who have been unable to participate or have been harmed by the online evaluation, and 94% suggest that higher education institutions should postpone tests or assignments that need to be done face-to-face.

Agency Guideline 2. Use of different evaluation methods, alternative to the single exam. Use formative, continuous evaluation techniques.

Regarding the need for a continuous and formative evaluation in times of the pandemic (Table 3), a large percentage of the sample members in this study, 79% (n=799), gave the highest score (4/5 or 5/5) to the approach of an evaluation that offers different possibilities and ways of evaluating acquired knowledge, as recommended by Agency Guidelines. Therefore, it is noted that the students consider that offering different evaluation possibilities allows them to assess more adequately the learning acquired rather than "putting all their eggs in one basket" in an exam, as usually happens in the summative and final evaluation.

Table 3.
Student agreement with Agency Guideline 2, by type of college and degree

Item	% Agree (3, 4, or 5)	Overall Mean (SD)	Private Mean (SD)	Public Mean (SD)	Private – Public	Bach. Mean (SD)	Ms. Mean (SD)	Doc. Mean (SD)	Bach – Grad – Doc.
Assessment should be continued and formative	79.0%	4.2 (0.9)	4.1 (1.0)	4.2 (0.9)	ns	4.2 (0.9)	4.4 (0.8)	3.8 (1.7)	0.031* *
Continuous evaluation was effective and important for my learning	79.5%	4.2 (0.9)	4.2 (0.8)	4.2 (0.9)	ns	4.2 (0.9)	4.4 (0.8)	3.8 (1.7)	0.041* *

At this same point, in many cases narrated by students (N= 65) in the open-ended questions, the claim was not to have had formative and continuous evaluation during the lockdown period, keeping the exams as the only alternative to qualify the learnings obtained:

Online tests are not a training experience. They have no feedback on mistakes or the wrong answers. Apparently, it only matters to get a rating (Female, Valencia).

The evaluation that is based solely or for the most part on an online exam affects us negatively since any mistake leads us to fail. In my case, I live in a rural area, and the Wi-Fi fails very often (Female, Canary Islands).

Concerning this aspect, it is important to mention that the study participants indicated that continuous evaluation was effective and important for their own learning, but, in the open-ended questions, more than 20 cases stated that without proper management of the institutions, the workload increased significantly, especially if added to the traditional exam format:

Teachers who do not understand the situation send papers that do not count for grades but that, if you do not do them, you fail; exams with short questions and tests where you have 30 seconds per question, exams with calculation exercises or clinical cases in which you have just 1 minute to think and solve, it is something unsustainable (Female, Madrid).

We carry out many assignments that take a long time for continuous evaluation, but those are hardly taken into account if you fail to pass the exam (Male, La Rioja).

This means that in some universities (20 cases according to the study's data), the management of continuous evaluation using various evaluation methods was inadequate, which led to students having their learning process hindered.

When comparing the groups with Agency Guideline 2 (Table 2), no significant differences were observed between the groups attending private universities or the groups attending public universities. Differences did exist between the groups pursuing a bachelor's, master's, or doctoral degree. This indicates that perceptions about the effectiveness of continuous and formative evaluation in the context of a pandemic are different among students pursuing various degrees.

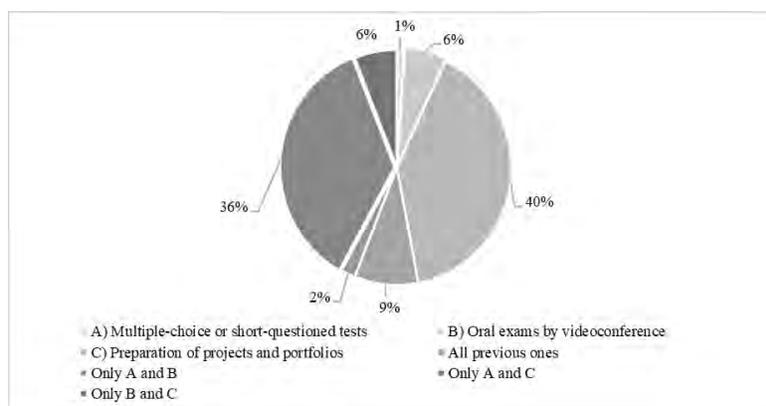
Concerning the use of instruments that assess competencies and skills rather than content and knowledge (Figure 1), students consider, like Agency Guidelines, that the evaluation of the learning process should be carried out in varied formats and different moments, ranging from the delivery of assignments to the carrying out of projects or the presentation of portfolios (n=401). In this sense, although there is no disagreement with the use of multiple-choice exams, it is argued that these should be complemented with assignments (n=368), reducing the weight burden of the tests overall.

The exam was the instrument with the most mentions (n=78) in the texts generated by the students in the open-ended questions. In general, students state that educational institutions have poorly managed the design and implementation of online exams, which has caused damage in their learning process:

They tell us that until 2 days before, we will not know the time or the mode of examination that we will have (Male, Santiago de Compostela)

I have had problem tests where they give me 20 minutes to understand it, do it, take a photo / scan it (Female, Castile and León)

Figure 1
With which resource to evaluate in higher education (%)



In some responses and comments in the open-ended questions (n=31), criticisms of educational institutions were observed regarding the need to educate in more comprehensive, cross-sectional and global and less memory-based ways, especially in the context of the pandemic, since, according to their viewpoint, in some cases, only the memory capacity of people was evaluated instead of the learning process and progress in it:

The exams they made us take during this period were like vomiting, you drop everything, and then you are left with nothing. They are not useful for learning (Male, Andalusia).

In this time, I have lost many learnings, skills, and the most significant knowledge of the contents (...) when studying only from home we can only read and memorise (Male, Aragon).

Agency Guideline 3. Use of methods and instruments that allow assessing the acquisition of competencies. Use of peer evaluation or co-evaluation

Regarding the use of methods that assess skills and learning outcomes, students were asked to assess one of the alternatives recommended by Agency Guidelines: co-evaluation (also called a peer review).

Concerning the usefulness of online peer co-evaluation, the students' views are positive but with nuances. 82% of the students consider it useful to develop skills such as reflective and critical thinking about the learning process itself, to stimulate the ability to learn, to value the progress of oneself and others, to develop the argumentation around the criteria and the meaning of the evaluation, even to understand the evaluation from a more global point of view, etc. But also, in 85% of the cases, the students point out that the use of this alternative is not applicable in all learning situations.

Table 4.
Student agreement with Agency Guideline 3, by type of college and degree

Item	% Agree (1 or 2)	Overall Mean (SD)	Private Mean (SD)	Public Mean (SD)	Private – Public	Bach. Mean (SD)		Ms. Mean (SD)	Doc. Mean (SD)	Bach – Grad – Doc.
Assessment should be establishing mechanisms for co-evaluation	59.5%	2.3 (1.0)	2.3 (0.9)	2.3 (1.0)	<i>ns</i>	2.3 (0.9)		2.3 (1.0)	1.7 (0.7)	<i>ns</i>
Co-evaluation enhances comprehension of one's own learning (metacognition)	73.3%	2.0 (0.8)	1.5 (0.6)	2.0 (0.8)	<i>0.03**</i>	2.0 (0.8)		1.8 (0.9)	1.3 (0.5)	<i>ns</i>
Co-evaluation involves the student more with their learning	70.3%	2.1 (0.9)	1.9 (0.8)	2.1 (0.9)	<i>ns</i>	2.1 (0.9)		2.0 (1.0)	1.6 (0.7)	<i>ns</i>
Co-evaluation is not suitable in every situation	85.3%	1.6 (0.8)	1.6 (0.8)	1.6 (0.8)	<i>ns</i>	1.6 (0.8)		1.7 (0.8)	2.0 (0.9)	<i>ns</i>
Co-evaluation is useful for developing fundamental skills (reflective and critical thinking, arguing, evaluating...)	82.2%	1.8 (0.8)	1.7 (0.7)	1.8 (0.8)	<i>ns</i>	1.8 (0.8)		1.7 (0.8)	1.0 (0.0)	<i>ns</i>
During co-evaluation, students lack the knowledge to judge, assess, and grade their peers' work	61.1%	2.2 (0.9)	2.3 (0.9)	2.2 (0.9)	<i>ns</i>	2.1 (0.9)		2.5 (0.9)	1.5 (0.7)	<i>0.001**</i>
The evaluation function is mainly the responsibility of the teaching staff, not the students	57.9%	2.2 (0.9)	2.5 (0.9)	2.2 (0.9)	<i>ns</i>	2.2 (0.9)		2.5 (1.0)	2.6 (0.7)	<i>ns</i>

This last point was contrasted with the answers to the open and closed questions of the study. Two probable explanations were found: (1) It is considered that the evaluation function is mainly the responsibility of the teaching staff (58% of the sample agreed with this statement), and (2) Students consider that there is a lack the knowledge or experience to judge, assess and qualify fairly and adequately the work done by their peers (61% of the sample agreed with this statement):

I believe that co-evaluations have a good impact on metacognition and self-involvement, but I believe that they cannot replace in any way the evaluation of the teaching staff (Female, Catalonia).

The co-evaluation can be positive, but it has to be totally anonymous so that each student does not know to whom he makes suggestions or corrections. Unfortunately, we are in a very competitive society, and people are not going to be benevolent correcting if they know that they can disturb others (Male, Galicia).

The students did not recount any experience with co-evaluation in their formative process during the pandemic, so it could not be ascertained whether co-evaluation actually took place in the universities during the COVID-19 pandemic and lockdown.

Agency Guideline 4. Publication of evaluation criteria and methods through rubric systems and evaluation scales.

Regarding the use of rubrics and online evaluation scales, one of the instruments recommended by Agency Guidelines for the communication of evaluation criteria and methods, students usually agree or strongly agree that these are necessary for a more objective evaluation. In the majority of cases, this choice is because it is considered that being provided with clear expectations and indications of the specific objectives of the evaluation, makes it easier for every student to self-evaluate and review their work before handing it in. Also, 84% of those surveyed indicate that having rubrics makes it easier to see what difficulties and successes they have had when planning study strategies.

Table 5.

Student agreement with Agency Guideline 4, by type of college and degree

Item	% Agree (1or 2)	Overall Mean (SD)	Private Mean (SD)	Public Mean (SD)	Private – Public	Bach. Mean (SD)	Ms. Mean (SD)	Doc. Mean (SD)	Bach. – Grad. – Doc.
Rubrics and/or evaluation scales must be developed to specify the evaluation and rating criteria	97.1%	1.2 (0.5)	1.3 (0.6)	1.2 (0.5)	<i>ns</i>	1.3 (0.5)	1.2 (0.5)	1.5 (0.7)	<i>ns</i>
Rubrics and/or evaluation scales allow for a more objective evaluation	85.0%	1.6 (0.8)	1.6 (0.8)	1.6 (0.8)	<i>ns</i>	1.6 (0.8)	1.5 (0.7)	1.5 (0.7)	<i>ns</i>
Rubrics and/or evaluation scales provide clear expectations about objectives and how to achieve them	85.4%	1.6 (0.8)	1.7 (0.8)	1.6 (0.8)	<i>ns</i>	1.6 (0.8)	1.4 (0.7)	1.2 (0.4)	<i>ns</i>
Rubrics and/or evaluation scales facilitate self-evaluation and self-review	87.0%	1.6 (0.8)	1.7 (0.8)	1.6 (0.8)	<i>ns</i>	1.6 (0.8)	1.4 (0.6)	1.1 (0.3)	<i>ns</i>
The rubrics clearly outline the difficulties and successes, so they assist with improvement	84.4%	1.6 (0.8)	1.8 (0.9)	1.6 (0.8)	<i>ns</i>	1.7 (0.8)	1.5 (0.7)	1.6 (1.0)	<i>ns</i>

When comparing the groups, no statistically significant differences in the variables are observed, so the type of university or the kind of degree studied does not affect the perceptions about the benefits of the use of rubrics and evaluation scales in the learning processes during the pandemic.

Regarding the use of rubrics and scales of evaluation in the universities, the students pointed out that on 15 occasions, despite the institutions using this method (use of rubrics and scales), they did not create them clearly enough or with enough time:

I saw problems in the rubrics, which were elaborated and explained superficially, without time, and then they asked me for a lot more than what was indicated in them (Female, Andalusia).

In the rubrics, you have to be careful to put things clearly and not in an ambiguous way. This has caused me some damage (Female, Galicia).

Agency Guideline 5. Use of safe assessment methods with alternatives to demonstrate the unequivocal authorship of the students.

Less than half of the students in the sample feel that technological tools (such as facial recognition or virtual surveillance programs) are necessary for the evaluation to protect their safety and to prove their authorship during the exams, which contrasts with the Agency Guidelines (Table 6).

Table 6.
Student agreement with Agency Guideline 5, by type of college and degree

Item	% Agree (1or 2)	Overall Mean (SD)	Private Mean (SD)	Public Mean (SD)	Private – Public	Bach. Mean (SD)	Ms. Mean (SD)	Doc. Mean (SD)	Bach. – Grad. –Doc.
The evaluation should use programs that certify authorship and surveillance during exams	44.9%	2.5 (0.9)	2.6 (0.9)	2.5 (0.9)	ns	2.6 (0.9)	2.3 (1.0)	2.3 (1.0)	0.046* *
The programs do not guarantee that third parties will not intervene	74.4%	2.0 (0.8)	1.7 (0.6)	2.0 (0.8)	ns	2.0 (0.8)	2.0 (0.8)	2.1 (0.6)	ns
The programs do not guarantee that there will be no plagiarism	77.3%	1.8 (0.8)	1.7 (0.9)	1.8 (0.8)	ns	1.8 (0.8)	2.0 (0.8)	2.3 (0.7)	ns
The use of programs conveys distrust about the student's integrity	81.3%	1.7 (0.9)	1.6 (0.8)	1.7 (0.9)	ns	1.7 (0.9)	2.4 (1.0)	2.6 (1.1)	ns

Participants state that this distrust stems from a perception of the real usefulness of these programs. In more than 70% of the instances, the students point out that technological tools do not prevent plagiarism or third-party intervention.

At this same time, some of the experiences narrated in the open-ended questions by the students indicate that, although the use of these tools were agreed, the very process of evaluation using the tools tends to make them feel uncomfortable. The dominant perception is the feeling of mistrust by educational institutions about their students (81% of the general sample indicates this, and in 15 responses to open-ended questions, this issue is addressed), followed by a feeling of discomfort and nervousness in the face of surveillance (reported in 12 replies to the open-ended questions), which runs counter to the request by Agency Guidelines of making students feel safe:

The main problem has been the lack of confidence that has been projected from the university towards students with this issue, the use of cameras and anti-plagiarism forms (Male, Canary Islands).

As far as I'm concerned, the fact that they force me to show my room when we do exams or suspect me when they hear a noise only makes me nervous (Female, Castile and León).

When comparing the groups, it was possible to identify statistically significant differences between the groups by type of study (bachelor's, master's, doctorate) regarding the necessity of using programs that certify authorship and conduct surveillance during the exams. The kind of survey impacts the perception of the need to use surveillance software programs and tools during the evaluation processes. However, there were no differences in the rest of the items in this section.

Agency Guideline 6. Use of appropriate and fair evaluation.

The Agency Guidelines state that alternatives must be provided for the evaluation to be fair. However, there is no clear outline of what a fair evaluation is. Nevertheless, the agencies mention the use of self-evaluation, co-evaluation, feedback, and alternative generation options when students are not able to perform optimally, and this has been discussed with students (Table 7).

Table 7.

Student agreement with Agency Guideline 6, by type of college and degree

Item	% Agree (1or 2)	Overall Mean (SD)	Private Mean (SD)	Public Mean (SD)	Private – Public	Bach. Mean (SD)	Ms. Mean (SD)	Doc. Mean (SD)	Bach. – Grad. –Doc.
Fair evaluation must integrate self-evaluation	66.7%	2.1 (0.9)	2.0 (1.0)	2.2 (0.9)	ns	2.2 (0.9)	2.1 (1.0)	1.8 (0.6)	
Fair evaluation must integrate feedback	99.3%	1.1 (0.3)	1.0 (0.2)	1.1 (0.3)	ns	1.1 (0.3)	1.1 (0.4)	1.1 (0.3)	ns
Fair evaluation promotes second chances	95.2%	1.2 (0.5)	1.3 (0.6)	1.2 (0.5)	ns	1.2 (0.5)	1.3 (0.5)	1.3 (0.7)	ns

When the participants were asked which would be the most appropriate options for the online evaluation to be fairer, it was agreed that self-evaluation (66.7%) as a mechanism would make the online evaluation fairer. Another element demanded to make the evaluation fairer (99.3%) is

feedback to the students in a direct and informed way about the evaluation carried out and how to improve their performance. Additionally, the students requested the existence of second chances in case of failure.

Likewise, to promote an evaluation favouring justice, students indicate that universities must allow enrolment in the following academic year, even if the minimum number of credits required has not been met. This requirement is currently established in Spanish legislation, given the current pandemic situation that has affected the educational process and the results of the evaluations.

When comparing the groups, there were no statistically significant differences between the groups. The perception about the suitability of self-evaluation, the incorporation of feedback, offering second chances, or the advancement of students even if the credits required for a fairer evaluation are not exceeded is not impacted by the type of university or type of degree studied.

Finally, on 21 occasions, regarding university institutions' perceptions of the level of justice in online evaluation processes during the pandemic, the students wrote experiences in the answers to the open-ended questions that made them feel the online evaluation implemented during the lockdown was unfair. The main reasons focused on virtual media ensuring that fraudulent methods are not used; that the external context of the pandemic impacts the students' performance; or that mismanagement of evaluation tools, especially exams, can mean that people who actually learned cannot demonstrate their learning process and achievements:

Online evaluation is not fair. There is no way to ensure that students take the exams in a non-fraudulent manner, and that implies that the assessments do not reflect either effort or knowledge (Female, Andalusia).

After the effort made, it is unfair that because of a situation beyond our control, a pandemic, we are the ones who pay the consequences (Male, Asturias).

In online evaluation, teaching should be based on continuous learning. I consider it unfair that a single final evaluation test is carried out (Female, Canary Islands).

Discussion and conclusions

The impact of the COVID-19 pandemic on formal education has led thousands of higher education students in Spain to face their formative processes in a way that no previous generation has experienced. Given the extraordinary situation, it has become necessary to explore and learn about their vision and experiences regarding the online evaluation measures implemented by the country's higher education institutions.

Students saw how higher education moved from a face-to-face format to an online format. This has meant a change in the usual forms of evaluation used in universities. It has also led to a restructuring of their way of working and evaluation that was initially developed for face-to-face way study and evaluation (Blackman et al., 2020). This change also affected distance or online universities because these mostly based their evaluation processes on formats that required the physical presence of students (García-Peñalvo et al., 2020).

This new reality is an unexpected situation for higher education students who, in addition to attending to their personal and family situation, have found themselves with the responsibility of

continuing the learning process and passing their subjects to be able to advance to the next course or to obtain a degree, in the case of finishing their studies.

In the context of the pandemic, the study has verified that students prefer to follow their training remotely and not suspend academic activity, maintaining the evaluation online. However, the students note that the evaluation activities requiring their presence should be carried out after the pandemic. In all the sections analysed, students agree with the Agency Guidelines regarding emergency online educational assessment. However, if further evaluation is required during a situation such as the one experienced during the pandemic, the results show that educational authorities should guarantee access to technological resources to students who do not have them.

Students in this research were able to assess and give their opinions on concepts such as justice in the evaluation, which, while mentioned in Agency Guidelines, are not defined beyond the general recommendations made. Thus, the participants of this study consider that a fair evaluation must be a formative and continuous online evaluation that uses a diversity of strategies and evaluation instruments (Yuste, Alonso & Blázquez, 2012). This way allows the assessment of progress and the work developed during the learning process, which facilitates distributing the weight of the final grade among the different evaluation actions carried out. However, exams are not discarded as another tool. It is suggested that they should be substituted or complemented with the delivery of work, projects or portfolios for the final grade. In other words, the online evaluation is oriented towards a formative and comprehensive evaluation (Villarroel & Bruna, 2019), which accounts for the entire learning process through various instruments and is also useful for students to know their strengths and weaknesses.

Regarding the online evaluation control processes recommended by Agency Guidelines, young people do not fully trust virtual surveillance or plagiarism control programs. However, it is agreed that the latter should be used to prevent copying. In light of recent research that confirms that cheating is not a specific problem of online exams (Rivera-Mata, 2020), it can be hypothesised that young people are likely to distrust these programs both because of their potential effectiveness and preconceived expectations about their practices and honesty (Harwell, 2020). What is certain is that facial recognition or remote virtual surveillance technologies during examinations are questioned more because of their reliability than because of their ethical questionability. In short, ambiguity can be detected between the positions that question or cast suspicion on virtual surveillance and those that defend control and rigorous examination. This debate is likely to continue to be present in the future, given the increasingly sophisticated mechanisms of video surveillance that are integrated into the classrooms of the world (Canella, 2018).

Regarding the progressive introduction of learning-oriented assessment strategies - such as student participation in their own assessment process or feedback- opinions have been diverse and, at times, discrepant. Only one party supports online co-assessment mechanisms to complement teacher assessment and grading. This rejection of peer co-evaluation is argued on the grounds that evaluation is a task for teachers and that students do not consider themselves prepared to evaluate their own peers. There is more consensus in introducing self-evaluation as an evaluation mechanism. But above all, feedback and e-rubrics (Ferreiro Concepción & Fernández Medina, 2020) are valued as a source of feedback and consensus on joint evaluation criteria between teachers and students.

This study has also made it possible to understand, in an exploratory and qualitative way, from some of the students' narratives the successes and flaws of the changes implemented in the evaluation processes of the Spanish higher education institutions. And also whether the universities have made the changes recommended by agencies of great relevance in the country. As a synthesis, it can be

observed that in a pandemic context, summative and final evaluations continue to be maintained and applied through online test-type examinations. On top of this, some universities lack clarity or transparency regarding evaluation criteria before major evaluations or poor planning for ongoing evaluations, which, on many occasions, generated criticism from students.

On the other hand, in some of the narrated experiences, students saw, in a virtual evaluation context, one of the main weaknesses that continuous and formative evaluation can entail: increased perceived workload (del Canto et al., 2015). In this context, it is essential that, in a future situation, institutions can pre-define this problem so that students can face evaluation more appropriately, especially in a crisis context.

To conclude, it is necessary to ensure in this context of crisis and after it the right to higher education for all people in a framework of equal opportunities and non-discrimination (UNESCO, 2020), which involves implementing pedagogical measures and strategies to move from a culture of examination to a *culture of assessment for learning*.

References

- Abela, J.A. (2002). *Las técnicas de análisis de contenido: Una revisión actualizada*. University of Granada.
- Abella-García, V., Grande de Prado, M., García-Peñalvo, F. J., & Corell Almuzara, A. (2020). *Guía de recomendaciones para la evaluación online en las Universidades Públicas de Castilla y León*. USAL. <https://bit.ly/3gC4ko5>
- Álvarez, J.M. (2003). *La evaluación a examen. Ensayos críticos*. Miño y Dávila.
- ANECA. (2020). Estrategia de la ANECA para el aseguramiento de la calidad en la enseñanza virtual [PDF file]. <https://bit.ly/2Nan1iO>
- Anijovich, R. (2017). La evaluación formativa en la enseñanza superior. *Voces de la educación*, 2(3), 31-36. <https://bit.ly/32JeOtx>
- Birenbaum, M. & Feldman, R. A. (1998) Relationships between learning patterns and attitudes towards two assessment formats, *Educational Research*, 40(1), 90-97. <https://doi.org/10.1080/0013188980400109>
- Boursicot, K., Kemp, S., Ong, T. H., Wijaya, L., Goh, S. H., Freeman, K., & Curran, I. (2020). Conducting a high-stakes OSCE in a COVID-19 environment. *MedEdPublish*, 9. <https://doi.org/10.15694/mep.2020.000054.1>
- Brookhart, S. M. (2013). *How to create and use rubrics for formative assessment and grading*. Ascd.
- Brown, S. & Glasner, A. (2007). *Evaluar en la Universidad. Problemas y nuevos enfoques*. Narcea.
- Burgess, S., & Sievertsen, H. H. (2020). Schools, skills, and learning: The impact of COVID-19 on education. *VOX EU*. <https://bit.ly/2K2GnrI>
- Calderón, C. & Escalera, G. (2008). La evaluación de la docencia ante el reto del Espacio Europeo de Educación Superior (EEES). *Educación XXI*, 11, 237-256. <https://doi.org/10.5944/educxx1.11.0.316>
- Castillo A., S. y Cabrerizo D., J. (2006). *Formación del profesorado en educación superior. Didáctica y currículum*. Mc Graw Hill.
- Chick, R. C., Clifton, G. T., Peace, K. M., Propper, B. W., Hale, D. F., Alseidi, A. A., & Vreeland, T. J. (2020). Using technology to maintain the education of residents during the COVID-19 pandemic. *Journal of Surgical Education*, 4, 729-732. <https://doi.org/10.1016/j.jsurg.2020.03.018>
- Cotino Hueso, L. (2020). La enseñanza digital en serio y el derecho a la educación en tiempos del coronavirus. *Revista de educación y derecho Education and law review*, 6(21), 1-29. <https://doi.org/10.1344/REYD2020.21.31283>
- del Canto, P., Gallego, I., López, J. M., Mora, J., Reyes, A., Rodríguez, E., Sanjeevan, K., Santamaría, E., & Valero, M. (2015). La evaluación en el contexto del Espacio Europeo de Educación Superior. *Revista De Educación a Distancia (RED)*, 1, 2-18. <https://bit.ly/3gPJWAb>
- Díez-Gutiérrez, E., & Gajardo Espinoza, K. (2020). Educar y evaluar en tiempos de Coronavirus: la situación en España. *Multidisciplinary Journal of Educational Research*, 10(2), 102-134. <https://doi.org/10.17583/remie.2020.5604>
- Drew, S. (2001). Perceptions of what helps learn and develop in education. *Teaching in higher education*, 6(3), 309-331. <https://doi.org/10.1080/13562510120061197>
- EDUCAbase (2020). Titulaciones impartidas [Dataset]. <https://bit.ly/2ZZYJz3>
- Entwistle, N. J. (1991). Approaches to learning and perceptions of the learning environment: Introduction to the special issue. *Higher education*, 201-204. <http://www.jstor.org/stable/3447172>
- Fardoun, H., González-González, C. S., Collazos, C. A., & Yousef, M. (2020). Estudio exploratorio en Iberoamérica sobre procesos de enseñanza-aprendizaje y propuesta de evaluación en

- tiempos de pandemia. *Education in the Knowledge Society*, 21, 17. 1-17. <https://doi.org/10.14201/eks.23437>
- Ferdig, R.E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R. & Mouza, C. (2020). *Teaching, technology, and teacher education during the COVID-19 pandemic: Stories from the field*. Association for the Advancement of Computing in Education. <https://www.learntechlib.org/p/216903/>.
- Ferreiro Concepción, J. F., & Fernández Medina, C. R. (2020). Una mirada a la evaluación por rúbricas a través de las TIC. *Mendive. Revista de Educación*, 18(1), 92-104. <https://bit.ly/2QUhaU3>
- García-Peñalvo, F. J. (2020). Modelo de referencia para la enseñanza no presencial en universidades presenciales. *Campus Virtuales*, 9(1), 41-56. <https://doi.org/10.35381/r.k.v5i1.786>
- García-Peñalvo, F. J., Abella-García, V., Corell, A., & Grande, M. (2020). La evaluación online en la educación superior en tiempos de la COVID-19. *Education in the Knowledge Society*, 21, 1-12. <https://doi.org/10.14201/eks.23086>
- Gewin, V. (2020). Five tips for moving teaching online as COVID-19 takes hold. *Nature*, 580(7802), 295-296. <https://doi.org/10.1038/d41586-020-00896-7>
- Gobierno de España (2020). Real decreto 463/2020, de 14 de marzo, por el que se declara el estado de alarma para la gestión de la situación de crisis sanitaria ocasionada por el COVID-19. *Agencia Estatal Boletín Oficial del Estado*. <https://bit.ly/3bZDDnD>
- Gonzales-Zamora, J. A., Alave, J., De Lima-Corvino, D. F., & Fernandez, A. (2020). Videoconferences of infectious diseases: An educational tool that transcends borders. A useful tool also for the current COVID-19 pandemic. *Le infezioni in medicina*, 28(2), 135-138. <https://bit.ly/3aCRzFT>
- González-Calvo, G., Barba-Martín, R.A., Bores-García, D. and Gallego-Lema, V. (2020). Aprendiendo a Ser Docente Sin Estar en las Aulas. *International and Multidisciplinary Journal of Social Sciences*, 2(9), 152-177. <https://doi.org/10.17583/rimcis.2020.5783>
- Harwell, D. (2020). Mass school closures in the wake of the coronavirus are driving a new wave of student surveillance. *Washington Post*. <https://cutt.ly/Md0rUlB>
- Hickey, D., Duncan, J., Gaylord, C., Hitchcock, C., Itow, R. C., & Stephens, S. E. (2020). gPortfolios: a pragmatic approach to online asynchronous assignments. *Information and Learning Sciences*, 121, 7, 273-283. <https://doi.org/10.1108/ILS-04-2020-0094>
- Hodges, C., Moore, S., Lockee, B., Trust, T., and Bond, A. (2020). *The difference between emergency remote teaching and online learning*. Educause Review. <https://bit.ly/3aIIWc0>
- Llorens-Largo, F., & Fernández, A. (2020). Coronavirus, la prueba del algodón de la universidad digital. *Universidad*. <https://bit.ly/2Rm917X>
- López-Pastor, V. M., Sonlleve Velasco, M., & Martínez Scott, S. (2019). Evaluación formativa y compartida en educación. *RIEE. Revista Iberoamericana de Evaluación Educativa*. 12(1), 5-9. <https://revistas.uam.es/riee/article/view/10844>
- Marsh H.W. (2007). Students' evaluations of university teaching: Dimensionality, reliability, validity, potential biases and usefulness. In R.P. Perry & J.C. Smart (eds.), *The scholarship of teaching and learning in higher education: An evidence-based perspective* (pp. 319-320). https://doi.org/10.1007/1-4020-5742-3_9
- Mateo-Berganza Díaz, M. M. y Lee, C. (2020). *What technology can and can't do for education. A comparison of 5 stories of success*. IDB. <http://dx.doi.org/10.18235/0002401>
- Means, B., Bakia, M., & Murphy, R. (2014). *Learning online: What research tells us about whether, when and how*. Routledge.
- Mian, A., & Khan, S. (2020). Medical education during pandemics: a UK perspective. *BMC medicine*, 18(1), 1-2. <https://doi.org/10.1186/s12916-020-01577-y>

- Ministerio de Universidades (2020). *Informe de iniciativas y herramientas de evaluación online universitaria en el contexto del Covid-19*. Ministerio de Universidades. <https://bit.ly/3dkDsUw>
- Peñalvo, F. J., Corell, A., Abella-García, V., & Grande, M. (2020). La evaluación online en la educación superior en tiempos de la COVID-19. *Education in the Knowledge Society*, 21, 1-12. <https://doi.org/10.14201/eks.23013>
- REACU (2020a). *Comunicado de REACU ante la declaración del estado de alarma en el ámbito de la actividad docente en educación superior*. REACU. <https://bit.ly/2UY5KOa>
- REACU (2020b). *Acuerdo de REACU de 3 de abril de 2020, ante la situación de excepción provocada por el COVID-19*. REACU. <https://bit.ly/3deDjld>
- Reguant Álvarez, M., & Torrado Fonseca, M. (2016). El método Delphi. *REIRE. Revista d'Innovació i Recerca en Educació*, (9) 2, 87-102. <https://doi.org/10.1344/reire2016.9.1916>
- Rivera-Mata, J. (2020). How to teach online? Recommendations for the assessment of online exams with university students in the USA in times of pandemic. *IJERI: International journal of Educational Research and Innovation*, 15, 188-202. <https://doi.org/10.46661/ijeri.5003>
- Rodicio-García, M. L., Ríos-de-Deus, M. P., Mosquera-González, M. J., & Penado Abilleira, M. (2020). La brecha digital en estudiantes españoles ante la Crisis de la Covid-19. *Revista Internacional De Educación Para La Justicia Social*, 9(3), 103-125. <https://doi.org/10.15366/riejs2020.9.3.006>
- Rodríguez-Conde, M. J. & Herrera García, M. E. (2010). El Espacio Europeo de Educación Superior. In S. Nieto Martín & M. J. Rodríguez-Conde (Eds.), *Investigación y evaluación educativa en la sociedad del conocimiento* (pp. 213-238). Universidad de Salamanca.
- Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus*, 12(4), 1-6. <https://doi.org/10.7759%2Fcureus.7541>
- Sambell, K., McDowell, L. & Montgomery, C. (2013). *Assessment for learning in higher education*. Routledge
- Struyven, K., Dochy, F., & Janssens, S. (2005). Students' perceptions about evaluation and assessment in higher education: A review. *Assessment and Evaluation in Higher Education*, 30(4), 325-341. <https://doi.org/10.1080/02602930500099102>
- Teräs, M., Suoranta, J., Teräs, H., & Curcher, M. (2020). Post-Covid-19 education and education technology 'solutionism': A seller's market. *Postdigital Science and Education*, 1-16. <https://doi.org/10.1007/s42438-020-00164-x>
- Torrecillas, C. (2020). El reto de la docencia online para las universidades públicas españolas ante la pandemia del Covid-19. *Instituto Complutense de Estudios Internacionales*, 16, 2-4. <https://bit.ly/3034UCO>
- Torres-Salinas, Daniel (2020). Ritmo de crecimiento diario de la producción científica sobre Covid-19. Análisis en bases de datos y repositorios en acceso abierto. *El profesional de la información*, 29, 2, 1-6. <https://doi.org/10.3145/epi.2020.mar.15>
- UNESCO (2020). *COVID-19: 10 Recommendations to plan distance learning solutions*. UNESCO. <https://bit.ly/2UY3fvd>
- Villarroel, V., & Bruna, D. (2019). ¿Evaluamos lo que realmente importa? El desafío de la evaluación auténtica en educación superior. *Calidad en la educación*, (50), 492-509.
- Yuste, R., Alonso, L., & Blázquez, F. (2012). La e-evaluación de aprendizajes en educación superior a través de aulas virtuales sincronicas. *Comunicar*, 20(39), 159-167. <https://doi.org/10.3916/C39-2012-03-06>