

<https://doi.org/10.23913/ride.v12i23.1005>

*Artículos científicos*

## **Educación en línea y evaluación del aprendizaje: de lo presencial a lo virtual**

*Online education and learning assessment: From face-to-face to virtual*

*Avaliação da educação e aprendizagem online: do presencial ao virtual*

**Yasmín Ivette Jiménez Galán**

Instituto Politécnico Nacional, México

[yjimenezg@ipn.mx](mailto:yjimenezg@ipn.mx)

<https://orcid.org/0000-0003-0575-7283>

**Josefina Hernández Jaime**

Instituto Politécnico Nacional, México

[johernandezja@ipn.mx](mailto:johernandezja@ipn.mx)

<https://orcid.org/0000-0001-8299-3736>

**Eduardo Rodríguez Flores**

Instituto Politécnico Nacional, México

[erodrigrezf@ipn.mx](mailto:erodrigrezf@ipn.mx)

<https://orcid.org/0000-0003-0562-2282>

### **Resumen**

En el mes de marzo de 2020, la situación de contingencia sanitaria, a nivel mundial y en México particularmente, exigió nuevas formas de articular los procesos de enseñanza – aprendizaje para evitar la cancelación del ciclo escolar; para el Instituto Politécnico Nacional supuso aprovechar al máximo las tecnologías de la información y la comunicación. Para ello puso a la disposición de los docentes y alumnos recursos digitales didácticos, objetos de aprendizaje, cursos y tutoriales para el manejo de plataformas educativas como CLASSROOM, MOODLE, EDMODO, entre otras. Con lo que se pretendía que las clases presenciales fueran sustituidas por clases en línea.

Para conocer cuáles fueron las adaptaciones pedagógicas que realizaron los docentes para impartir sus cursos en línea y con la finalidad de analizar cuáles fueron los principales obstáculos que



enfrentaron, y las formas de evaluación de los aprendizajes que implementaron, se diseñó esta investigación exploratoria – descriptiva que tuvo por objetivo explorar la percepción de 15 docentes relacionada con el diseño de sus clases en línea, durante marzo – julio del 2020. Los resultados muestran que el 13% considera que los alumnos en este esquema en línea están aprendiendo igual o más que en sus cursos presenciales y el 87% restante opina que los alumnos están aprendiendo menos porque no están acostumbrados a ser autodidáctas y tienen un aprendizaje conductivo dependiente del docente. Por otro lado, al preguntarles su percepción sobre qué les hizo falta durante este periodo de clases en línea, 47% consideró que desarrollar más materiales didácticos digitales e interactivos, 27% consideró que desarrollar una planeación didáctica más efectiva, al 13% les hizo falta infraestructura porque en las sesiones mediante la plataforma Zoom se les caía el Internet; y 13% enfatizó que les hizo falta más capacitación en herramientas de gestión de las TIC.

Se concluye que la evaluación del proceso de aprendizaje sigue siendo la mayor área de oportunidad para lograr elevar la calidad de la enseñanza – aprendizaje en línea. Asimismo, no existe prueba de que los docentes hicieran uso de la tecnología para diversificar sus prácticas evaluativas, al solamente trasladar lo que ya se tenía planeado en clases presenciales y montar los materiales y actividades en una plataforma educativa.

**Palabras clave:** aprendizaje, educación en línea, instrumentos de evaluación, plataformas educativas, proceso de evaluación.

## Abstract

In the month of March 2020, the health contingency situation, worldwide and in Mexico particularly, demanded new ways of articulating the teaching-learning process to avoid the cancellation of the school year; for the National Polytechnique Institute it meant making the most of ICT. For this, it made educational digital resources, learning objects, courses and tutorials available to teachers and students for the management of educational platforms such as CLASSROOM, MOODLE, and EDMODO.

In order to find out what were the pedagogical adaptations that teachers made to teach their online courses and to analyze what were the main obstacles they faced, this exploratory – descriptive research was designed that aimed to explore the perception of 15 teachers related to the design of their online classes, during March - July 2020, and the forms of evaluation of the learning they implemented. The results show that 13% consider that students in this online scheme are learning the same or more than in their face-to-face courses and the remaining 87% believe that students

are learning less because students are not used to being self-taught and have a conductive learning, dependent on the teacher. Finally, when asked their perception about what they needed during this period of online classes, 47% considered that developing more digital and interactive teaching materials, 27% considered that developing more effective teaching planning, 13% lacked infrastructure because in the platform Zoom sessions were dropping the internet; and 13% emphasized that they needed more training in ICT management tools.

There is no evidence that teachers made use of technology to diversify their assessment practices, by only transferring what was already planned in face-to-face classes and uploading materials and activities on an educational platform; therefore the evaluation of the learning process continues to be the greatest area of opportunity to achieve raising the quality of online teaching – learning .

**Keywords:** learning, online education, evaluation instruments, educational platforms, evaluation process.

## Resumo

Em março de 2020, a situação de contingência em saúde, mundial e principalmente no México, exigia novas formas de articular os processos de ensino-aprendizagem para evitar a extinção do ciclo escolar; Para o Instituto Politécnico Nacional, significou valorizar as tecnologias de informação e comunicação. Para isso, disponibilizou recursos digitais educacionais, objetos de aprendizagem, cursos e tutoriais a professores e alunos para o gerenciamento de plataformas educacionais como SALA DE AULA, MOODLE, EDMODO, entre outras. Com o que se pretendia que as aulas presenciais fossem substituídas por aulas online.

Com o objetivo de conhecer quais foram as adaptações pedagógicas que os professores fizeram para ministrar seus cursos online e para analisar quais foram os principais obstáculos que enfrentaram e as formas de avaliação da aprendizagem que implementaram, esta investigação exploratório-descritiva foi elaborada. teve como objetivo explorar a percepção de 15 professores em relação ao design das suas aulas online, durante o período de março a julho de 2020. Os resultados mostram que 13% consideram que os alunos neste regime online estão a aprender o mesmo ou mais do que no presencial cursos e os 87% restantes acreditam que os alunos estão aprendendo menos porque não estão acostumados a serem autodidatas e têm aprendizagem comportamental dependente do professor. Por outro lado, quando questionados sobre a percepção do que precisavam durante esse período de aulas online, 47% consideraram que desenvolver materiais didáticos mais digitais e interativos, 27% consideraram que desenvolvendo um

planejamento didático mais eficaz, 13% necessitavam de infraestrutura porque em as sessões por meio da plataforma Zoom largaram da Internet; e 13% enfatizaram que precisam de mais treinamento em ferramentas de gestão de TIC.

Conclui-se que a avaliação do processo de aprendizagem continua sendo a maior área de oportunidade para se alcançar a elevação da qualidade do ensino - aprendizagem online. Da mesma forma, não há evidências de que os professores tenham feito uso da tecnologia para diversificar suas práticas avaliativas, apenas transferindo o que já estava planejado nas aulas presenciais e montando os materiais e atividades em uma plataforma educacional.

**Palavras-chave:** aprendizagem, educação online, instrumentos de avaliação, plataformas educacionais, processo de avaliação.

**Fecha Recepción:** Octubre 2020

**Fecha Aceptación:** Agosto 2021

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## Introduction

The knowledge society and the advancement of ICT have strongly influenced higher education institutions (HEIs) to reformulate their graduation profiles towards competent professionals to solve the various problematic situations in their field and skilled in the management of ICT (Alvarado , 2014; Bautista, Borges and Forés, 2006). Additionally, ICTs have revolutionized face-to-face, blended and online educational modalities to provide greater coverage to the population. Therefore, Alvarado (2014) advocates that the vision be extended that ICT, more than a support tool for education, be considered as an opportunity to enhance the capacity of institutions that promote knowledge, hence the IES have been working gradually towards this objective.

However, the health crisis caused by covid-19 forced a drastic change from face-to-face classes to online classes, which accelerated the incorporation of ICT in teaching-learning processes to provide a satisfactory response to the modified context. This incorporation implies that both teachers and students develop digital skills (Lazcano and Vilanova, 2017; Moreira and Delgadillo, 2014) to ensure that teaching and learning are efficient and effective, since such skills will allow graduates to enter the labor field more easily (Alvarado, 2014).

It is not risky to assure that the impulse provided by ICT has gained more relevance and presence within the educational field every day, so that its use is seen as something permanent in the teaching-learning processes to the extent that institutions and institutions homes are equipped with technology (software, hardware, applications, etc.).

Specifically, within the advantages of online education, overcoming barriers of distance and the rigidity of class schedules are emphasized, as well as asynchronous communication and the handling of more varied information to achieve an objective or goal (Bautista , Borges and Forés, 2006; Moreira and Delgadillo, 2014; Ruiz, 2013).

Despite all the advantages, online education also has disadvantages for both students and teachers. In general, students face three major challenges in relation to face-to-face classes: instructional inflexibility that can turn the teaching-learning processes into a cluster of tasks with start and due dates; a low articulation between the totality of the knowledge acquired during their academic training; and a low sense of achievement despite having partial results from each activity or project delivered.

For their part, for teachers who are not trained, online education can be experienced as an overwhelming experience in which tasks, activities, practices or projects are being graded all the time (Lazcano and Vilanova, 2017). In this sense, and for the purposes of this research, the following theoretical references could be adopted: a) the evaluation of learning in the online mode is one of the aspects that has represented the greatest challenges for teachers and b) teachers have had to modify the way they had been giving the face-to-face classes to be taught online.

According to Lazcano and Vilanova (2017), Álvarez and Álvarez (2012), Escudero (2010) and Bautista, Borges and Forés (2006), the quality of higher-level education is multifactorial because the curriculum, programs of studies, didactic methodology, resources, facilities, teachers, etc. However, Barberá (2006) emphasizes that there are specifically three aspects that could represent a greater potential for online education: the adjustment on the content of learning, the development of collaborative work and the evaluation of learning. The three aspects are closely interrelated, although the evaluation process is the unifier of the teaching-learning processes and, therefore, of the achievement of the development of the specific competences of each subject. That is, of all the sine qua non factors to achieve the professional graduation profiles of people (competent, autonomous, responsible, ethical and committed to their professional development, among others) it is essential that teachers design a learning evaluation system aligned and coherent with the curricular mesh of educational institutions.

Thus, the evaluation of learning becomes the central axis of teaching as it is an obligatory process that allows establishing a harmony between the competences to be developed in the students, the strategies and the learning products that will be requested throughout the cycle. school, and have a proactive effect on students, since it tells them a priori what they are expected to learn (Escudero, 2010; Lazcano and Vilanova, 2017). Let us remember that in online education

there is no face-to-face interaction between teachers and students, so evaluation becomes the most important factor in generating self-motivation in students for their training (Anijovich and Cappelletti, 2017).

For this, the evaluation of learning in virtual environments requires that teachers know and understand from the graduation profile, the curriculum map, the pedagogical model to the study program, in such a way that allows them to have a vision of the whole of the subjects and how each of them contributes to the formation of the student. Within this context, e-evaluation is understood as the process of assessing learning mediated by technology that seeks to promote the development of the competencies of each subject. This must be based on clear objectives and developed through an interactive pedagogical mediation seeking the harmony of knowing, knowing, knowing, knowing how to be and be so that students can perform successfully both in school and in the workplace (Alvarado, 2014 ; Lazcano and Vilanova, 2017; Ruiz, 2013).

It is important to highlight that technology has brought at least three changes and advantages in the evaluation of students: automatic evaluation based on multiple choice electronic tests by means of which the student obtains an immediate result of their qualification; Encyclopedic evaluation based on individual essay-type works, and collaborative evaluation based on discussion forums or work groups where co-evaluation can be established and the opportunity to evaluate teamwork performance is possible (Barberá, 2006; Lazcano and Vilanova , 2017). Consequently, a more complete assessment of the students can be carried out by evaluating not only their products or results, but the processes carried out to reach those objectives.

Although technology allows optimizing and diversifying the evaluative practices of online course teachers (Escudero, 2010; Ruiz, 2013), it is reiterated that these must be contextualized and aligned with the educational model and the competencies to be developed in each subject, Therefore, each evaluation must respond to what, for what, how, when and with what to evaluate (Anijovich and Cappelletti, 2017).

On the other hand, some researchers emphasize that in virtual learning environments, evaluation is recognized, but not practiced with the multidimensionality that this concept implies. According to Barberá (2006), evaluation has four dimensions that must be deliberately addressed by the teacher and practiced by students and teachers. A first dimension is the evaluation "from learning", in such a way that it helps students to connect what they have previously learned in their academic trajectory with new knowledge; Thus, the new could become significant because it allows them to establish a scaffolding of knowledge.

The second and third dimension of the evaluation is "of learning" that allows assessing how students are performing, and "for learning" whose primary basis is feedback on the performance of both teachers and students. With the feedback, it is possible to establish a teacher-student dialogue organized around the thematic contents and offer help tailored to the individual needs of the students so that they can develop the competencies of each learning unit and, as a whole, those of their own. graduation profile. Finally, the fourth dimension is related to evaluation "as learning", which helps students to regulate their own learning to achieve educational purposes (this last dimension is only made possible by some instruments or evaluation techniques).

There is a wide variety of ICT-mediated and student-centered assessment strategies and instruments that allow teachers to verify their progress throughout the academic career; Among the most important for developing competencies, the following could be mentioned: objective tests, project development, forums, wikis, evidence portfolios, rubrics and checklists (Escudero, 2010; Lazcano and Vilanova, 2017). In particular, the evidence portfolio, rubrics, and checklists are recognized as the most powerful in regulating learning and promoting autonomy and self-direction by motivating students to be responsible for their own development.

So that evaluation in virtual learning environments does not lose its richness in the training of students, teachers are required to design an evaluation model and a methodology that includes various types of instruments and techniques. Additionally, given that the formative evaluation is given greater weight in the weighting of the final grade of the course because it is on which the construction of new knowledge and significant learning is based, the teacher of online courses must be particularly willing to provide feedback on the performance of the students. This feedback must be continuous, clear, timely, sufficient and pertinent on the progress, arrests or omissions they have (Alvarado, 2014; Álvarez and Álvarez, 2012; Lazcano and Vilanova, 2017; Quezada, 2006).

Learning feedback will be the way for teachers to progressively lead and redirect learning when a student loses sense of the activities, tasks or projects to be done, thus helping them to achieve better performance. In this sense, the teacher must be competent to communicate effectively with the students not only when developing the thematic contents of their course, but particularly when feeding back the activities, tasks and projects (Alvarado, 2014; Bautista, Borges and Forés, 2006; Moreira and Delgadillo, 2014).

Although the problems faced by teachers in structuring their online courses are varied, one of the most important is the design of the evaluation process, the central theme of this work. Researchers such as Alvarado (2014), Bautista, Borges and Forés (2006), Álvarez and Álvarez (2012), among others, report that despite the boost that online education has received, the learning

evaluation process is only transferred from face-to-face to virtual format without creativity, innovation or changes in its design. Likewise, Barberá (2006) emphasizes that currently teachers have successfully mastered both the planning of thematic contents and the sequential structuring of teaching and learning, but evaluation continues to be a great area of opportunity for online education to achieve that the teaching-learning processes are of quality.

Within this context, the National Polytechnic Institute (IPN), attentive to changes in the environment and seeking the relevance of its mission in the education of the Mexican population, incorporated the mixed and online modality since the beginning of the year 2000, offering baccalaureate and some bachelor's degrees. Likewise, it has encouraged the incorporation of ICT in classrooms by equipping academic units with television, cannons, digital screens, internet, among others. However, these have been incorporated, mainly, to provide access to information and communication, and not so much to manage virtual learning environments. In this sense, Jaramillo (2005) indicates that ICTs are generally used with a philosophy of learning focused on the transmission of knowledge, so the true potentialities of ICTs are wasted.

In March 2020, the health contingency situation demanded worldwide (and particularly in Mexico) new ways of articulating the teaching-learning processes to avoid the cancellation of the school year, which for the IPN was a valuable opportunity to make the most of ICT. For this, it made educational digital resources, learning objects, and courses and tutorials available to teachers and students for the management of educational platforms such as Classroom, Moodle, Edmodo, among others. This was intended to replace face-to-face classes with online classes.

According to Torres, Prieto and López (2012), the proper use of ICT for teaching is, without a doubt, an advantageous option for both teachers and students; However, the development of digital skills and ease of use of tools requires a period of adaptation, which was not had. Therefore, for the IPN teachers, this represented various challenges that included everything from adapting their teaching resources to modifying their assessment practices.

Therefore, the objective of this research was to explore the perception of IPN teachers regarding the design of their online classes during March-July 2020, as well as the strategies they implemented to assess learning.



## Materials and methods

The type of study was exploratory-descriptive. Exploratory because the research problem is recent and little explored, since it was caused by covid-19, which forced the articulation of online courses that were previously face-to-face. In addition, it is descriptive because it sought to contribute with the results to the critical mass of the e-assessment problem, detailing the difficulties, challenges and interpretation of everyday life (Tamayo, 2006) that teachers faced to structure their online courses. Likewise, it was based on a non-experimental transectional design (Hernández, Fernández & Baptista, 2014) carried out in June 2020.

The research design was qualitative because it tried to understand, from the teachers' perspective, how they articulated and why they decided their evaluative practices for their respective courses. The information collection method was the interview, for which reason a semi-structured interview script was developed that allowed both teachers and researchers to further investigate issues related to the respective courses.

Because it is an exploratory study, the sampling was non-statistical for convenience, given the accessibility and willingness of teachers to be included in the research; Likewise, it was considered important to have the perception of teachers from the four academic departments of a higher level academic unit of the IPN.

The interview script was designed in two sections: the first was to collect general information from the surveyed teachers; the second (see table 1) was based on the dimensions of the evaluation proposed by Barberá (2006). The interview script was sent by email to 20 teachers, of whom only 15 accepted the interview, which was conducted through the Zoom platform, with an average duration of 40 minutes.

**Tabla 1.** Diseño de la segunda sección del guion de entrevista

Sección	Categorías de análisis	Preguntas
Segunda	Estrategias de enseñanza	4
	Retroalimentación	3
	Instrumentos de evaluación	6
	Percepción docente sobre la enseñanza-aprendizaje en línea	4

Fuente: Elaboración propia

Within the teaching strategies, teachers were asked about the adjustments made to the content of their courses aimed at meaningful online learning; for feedback, the techniques and means implemented to redirect learning were investigated; Regarding the assessment instruments, it was asked about their suitability for online classes; Finally, the teachers were asked their perception of the students' learning level - in comparison with face-to-face classes - and the challenges they faced.

## Results

15 teachers belonging to the four academic departments of the academic unit were interviewed. Table 2 summarizes the characteristics of the teachers interviewed.

**Tabla 2.** Características de los docentes entrevistados

Sexo	Mujeres (47%)		Hombres (53%)	
Edad (años)	30 a 35 13 %	36 a 40 13 %	41 a 45 20 %	46 en adelante 54 %
Años en la docencia	1 a 5 7 %	6 a 10 20 %	11 a 15 13 %	16 en adelante 60 %
Departamento académico	Formación institucional 7%	Formación científica básica 13%	Formación profesional 67%	Formación terminal e integración 13%
Número de materias	Una 46 %	Dos 27 %	Tres 20 %	Cuatro 7 %
Número de grupos atendidos	Uno 20 %	Dos 46 %	Tres 27 %	Cuatro 7 %
Plataforma utilizada	Moodle 27 %	Classroom 53 %	Edmodo 7 %	Teams 13 %
Videoconferencias	Zoom 66 %	CISCO 7 %	Webex 7 %	Teams 20 %

Fuente: Elaboración propia

Regarding the dynamics and planning of the contents that were taught, 40% of the teachers interviewed opted for asynchrony in their courses, so they uploaded files, readings, activities and tasks to the educational platform with due dates and the students were doing them. at their own pace. Of the six teachers who chose this scheme, four uploaded the contents and materials for the entire period to the platform, and only two were uploading the files weekly: "I uploaded all the contents and activities so that the students can perform them asynchronously" (2 /fifteen). "Every

week, on Monday, they are sent a pdf with the information from the class, with what they would have to do, which are basically programs to develop a distributed system" (11/15).

On the other hand, 60% of the teachers, in addition to uploading content and activities, scheduled face-to-face sessions at the times they already had assigned to interact with students synchronously, either by giving the class by videoconference (four teachers) or by solving doubts about the videos that they had previously shared with their groups (five teachers). Within this group, the teacher (9/15) stated:

The dynamics of the classes begins with the planning of the topic, I check if the material I have is adequate; if not, I modify it to make it more concrete and fill it with examples. I schedule the face-to-face sessions through the Zoom platform and invite them through Facebook, I see how many have already seen it. I divide the sessions: five minutes greetings, ten minutes I ask how they are, what they did, what are their plans, how are they doing, let everyone speak, feel confident and are listened to. For the subject, I generally share the screen with the presentations that are a maximum of 10 or 12 slides. Sessions are scheduled, two a week.

Another teacher explained:

In the Classroom platform I structured the topics, put the exercises; I give sessions through the Zoom platform, but they are sessions that serve to explain the content, I do not solve the exercises because it is intended that they learn. The answered exercises are uploaded to the platform and then I give them feedback (14/15).

The teaching-learning method that teachers mostly followed was deductive and project development (67% of those interviewed). Regarding the type of learning evidence they used, 60% of the teachers interviewed used at least four types: questionnaires, project or problems, practices and presentation of some thematic content; 33% additionally included a knowledge test and 7% only evaluated their students with the development of a project. In relation to the evaluation instruments they used, only 33% said they had used rubrics and 67% checklists and knowledge exam with automatic feedback through the platform. Of the five teachers who used rubrics, only three reported that their students did know them beforehand.

The means used to provide feedback on the performance or doubts of the students were, mainly, the platform chosen when rating the activities or tasks (53%), through email and platform (27%), and the remaining 20% used, in addition to the platform and email, instant messaging applications such as Whatsapp or Facebook Messenger. That is, the performance was fed back through the platform and the doubts were answered by mail or courier.

To explore the perception of the interviewed teachers related to the evaluation of learning, they were asked about the modification they made on the fly when changing from a face-to-face scheme to an online one, and for the degree of satisfaction they felt for said changes; that is, their perception of the relevance of said modifications to assess the learning of their students. Table 3 shows the teachers' responses.

**Tabla 3.** Formas de evaluación del aprendizaje

N.º	Del 1 al 10 (donde 1 es poco y 10 es mucho), ¿qué tanto modificó su forma de evaluar a sus estudiantes?	Del 1 al 10 (donde 1 es poco y 10 es mucho), ¿qué tan satisfecho se siente con la forma que implementó para evaluar a sus estudiantes?
1	4 / Aunque traté de apegarme a lo del principio, las prácticas disminuyeron en profundidad, pero las estructuré mejor; no voy a hacer examen.	6 / Por dos razones: 1. Falta de tiempo, no puedo tener más contacto, lo noto en las dudas que expresan mis alumnos por la plataforma Zoom. 2. Las rúbricas son muy puntuales.
2	2 / No apliqué exámenes semanales.	10 / Bien, porque siento que mi forma de trabajo no se modificó, por lo que los alumnos no se están sorprendiendo.
3	3 / Cambié la estrategia, ahora tengo que dejar tareas; en presencial no dejaba tareas, en el salón se hacía todo.	7 / Porque no tengo experiencia docente, los estudiantes proponen cambios y no los acepto. De momento no podría manejarlos.
4	5 / No he revisado el segundo entregable del proyecto empresa, la presentación de ellos no es lo mismo, no les puedo evaluar el desarrollo de competencias directivas.	8 / Soy muy flexible, quizá demasiado. Están en cuarto nivel y siento que necesitan mayor presión...
5	2 / Las evaluaciones y criterios son los mismos. El examen se les mandó y fue a libro abierto, el control fue diferente. Es muy complicado resolver las dudas de forma inmediata.	10 / Creo que en comparación con la forma presencial, me mantengo dentro de lo que se pretende desarrollar en los estudiantes.
6	1 / Se siguió con lo mismo, el curso se había planeado para que los alumnos mostraran un proyecto final por micromódulos. Como no voy a poder ver lo que hicieron agregué una práctica.	9 / Primera vez que utilizo Edmodo, me siento muy satisfecho porque todo está concentrado y a la mano. Me facilitó la vida.
7	3 / Como se evalúa por proyectos no fue mucho el cambio.	8 / Porque me he dado cuenta que la clase queda grabada en video y ellos pueden consultarla continuamente. Si ha funcionado, los ejercicios los están haciendo muy bien. Me sorprendió gratamente que

		algunos alumnos estaban aprendiendo más por los videos.
8	7 / En la modalidad presencial era muy estricta con tiempos. Yo evaluaba conocimiento, desempeño y actitud. Ahora diseñé actividades cortas, los tiempos de entrega no son tan importantes. Las participaciones tienen menor peso que en presencial.	5 / Porque al interactuar con ellos califico su conocimiento, pero así no sé si ellos están haciendo las tareas y los ejercicios. Se los pido a mano para checar que ellos lo hagan, pero no lo puedo asegurar.
9	7 / La UA está pensada para que sea presencial, por lo que se cambiaron las sesiones y se eliminaron los temas de autoestima porque en clases en línea no se pueden valorar.	4 / Porque he tenido que improvisar, a pesar de que he tomado cursos, creo que no son suficientes, nunca se pensó que algo así pudiera suceder.
10	5 / No he aplicado exámenes, la retroalimentación no es la misma.	7 / Porque considero que hay aspectos que no se tenían contemplados. Esto nos agarró sobre la marcha, y pues ni modo... tuvimos que hacerlo.
11	2/ Por la asistencia, ahorita no la tomo en cuenta.	6 / Porque en lo presencial yo puedo valorar cuando trabajan en equipo, ahorita no sé si todos hayan trabajado.
12	8 / No hay examen. El examen valía 50 % y ahora evalúo con prácticas.	8 / Por lo del examen.
13	2 / Tuve que buscar videos en Youtube para anexarlos a las prácticas.	8 / Por lo del examen que tuve que modificar. Lo demás siguió igual.
14	5 / No les he hecho examen, que valía 5 puntos de su calificación.	2 / Me siento altamente insatisfecha, la UA requiere que esté supervisando los ejercicios y les resuelva dudas específicas, no lo he podido hacer a distancia por falta de tiempo. Me consume muchísimo tiempo preparar el material.
15	2 / Eliminé los exámenes semanales.	9 / Bien, porque siento que mi forma de trabajo no se modificó mucho. Los alumnos ya estaban acostumbrados.

Fuente: Elaboración propia

A very important aspect that was addressed in the interview was the opinion of the teachers about the level of learning of the students. In this regard, 13% consider that the students in this online scheme are learning the same or more: “Ten, because it is difficult for them to attend in person, they are young people who already work; this is forcing them to be more self-taught. They are taking responsibility for their education”(6/15); “A nine, although I have more scattered grades. In the face-to-face mode, the average is seven. Now the average is still seven, but there are about eight or nine, and the lowest are five or four”(2/15). The remaining 87% think that students are

learning less: “I would say seven, because I don't know if they pay attention, I know they attend because they appear connected. I ask them theory questions through Kahoot, but the interaction is low. I am not sure that they are attending and understanding what is being explained ”(12/15); “Between four or five, for self-taught students this modality is perfect for them; but there are students who have not contacted me or have not understood. It is actually difficult to know ”(1/15); “Mmm... four, for students who are behaviorists they are learning very little, for those who are of another type they are learning more. On average my students are 75% behaviorists ”(13/15).

Finally, when asked their perception about what they needed during this period of online classes, 47% considered that developing more digital and interactive teaching materials, 27% developing more effective teaching planning, 13% lacked infrastructure because in the Sessions on the Zoom platform dropped the internet, and 13% emphasized that they needed more training in ICT management tools.

## Discussion

It is surprising that although the implementation of online education that was followed due to COVID-19 was emerging for face-to-face courses, only 13% of the teachers interviewed expressed concern about lacking the necessary training to structure online courses, although It is worth noting that 40% did not adapt their thematic contents and only 20% stated that the modification of their evaluative practices was notorious compared to their face-to-face courses. Regarding collaborative work, it is necessary to emphasize that all teachers already implemented it in their courses. That is, despite the fact that 87% did not feel the need for training, the reality is that teachers need to understand and reflect on the benefits and difficulties of online education; otherwise, technology would only be used to reinforce proven methods in face-to-face classes (Jaramillo, 2005).

Therefore, it can be indicated that the benefits of the use of ICT are a reality; However, educational institutions have not been able to establish effective training policies to develop digital skills in teachers, especially in the skills of developing virtual learning environments (Álvarez and Álvarez, 2012).

In this sense, the results of the research show that the evaluation was the Achilles heel for the teachers interviewed, since almost half of them showed minor changes in their ways of evaluating, which would lead us to reflect on the relevance of said evaluation. evaluation for not having carried out the required contextualization. In fact, only 20% reported important changes to

adapt assessment to online education, such as eliminating the exam, designing shorter learning activities or increasing tasks.

This shows that teachers are not aware of the importance of contextualizing their assessment practices, since only 33% expressed a notorious dissatisfaction assigning a failing grade to these practices. In this sense, the greatest satisfaction they feel in relation to evaluation refers to the automation of the process thanks to ICT.

The low recognition by teachers that the evaluation process was not carried out as a multidimensional process (Barberá, 2006; Lazcano and Vilanova, 2017) could have an impact on the loss of integrality in the training of students, but on all in the null innovation that this requires for students to reflect "from learning" to achieve their autonomy.

The information obtained shows that there is confusion among teachers about distance and online education, which generated a discrepancy in the courses, since some were taught by Moodle asynchronously and others through videoconferences (synchronous). This could cause discrepancies in the quality of learning, although the final result can only be assessed in its full magnitude as students continue to advance in their academic trajectory.

Even so, the formative learning was adequately addressed through ICT, since all of the teachers provided feedback, at least, through messages through the chosen educational platform and more than half additionally used email or messaging applications instantaneous to solve doubts of the students.

One issue put up for discussion was whether online learning exceeded or equaled that achieved in the face-to-face mode, which generated a division among the teachers interviewed. The theoretical premise, according to Moreira and Delgadillo (2014), was that teachers accustomed to face-to-face classes believed that online learning is less due to the scarce contact with students and because the experience in face-to-face modalities could influence in your perception; In this sense, it was surprising that 13% agreed that online learning is better because students have the materials and videos at their disposal for when they want to consult them and continue learning.

## Conclusions

It is important to emphasize that the scope of an exploratory investigation serves to generate hypotheses that will have to be tested later through larger investigations. In this sense, derived from the results of this research, three hypotheses can be made. The first is that “the training required by teachers to articulate their online courses must be focused on three pedagogical aspects: the development of interactive teaching material, adaptation of thematic contents and mainly in the development of an evaluation model pertinent to the online classes ”. Although the great utility of ICT is recognized to optimize the process through automatic evaluation, it will be the teachers who align the intended competencies with the activities, products and feedback provided to the performance of their students. The results of this exploratory research indicate that the evaluation of the learning process continues to be an area of opportunity to raise the quality of online teaching-learning. Likewise, there is no evidence that teachers used technology to diversify their assessment practices if they only converted what they had planned for face-to-face classes into digital materials and activities.

A second hypothesis would be that "the evaluation of learning needs to be adapted to the virtual environment", because if the health contingency continues, for subsequent courses the educational institutions will have to generate processes of greater reflection on the implications of the few changes in the evaluation practices of the students. teachers, since what works to assess in person is not as efficient in a virtual way.

Finally, the third hypothesis would be that “online courses achieve learning of the same quality as face-to-face courses”, provided that teachers and students cover a profile and a change is achieved in the teaching-learning paradigms.

## Future lines of research

Derived from this research, there are at least three lines of research that are of high interest for the educational community:

1. Analysis of the profile of the online teacher: This will allow to determine what are the digital skills that teachers need according to the requirements of the context where they work. Even this line of research will open the way to training courses and professional training for teachers.



2. The process of evaluating learning in online education: This will serve to delve into the problems faced by teachers in the conceptualization, development and use of various instruments and the implications of their evaluative practices to achieve quality learning.
3. Creativity and innovation in the migration from face-to-face modalities to online modalities: Undoubtedly, online education cannot be a continuum of face-to-face teaching-learning strategies, so it requires the development of studies that allow creativity to be correlated and innovation with the effective use of technology to adapt or design new strategies.

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Rol de Contribución	Autor (es)
Conceptualización	Yasmín Ivette Jiménez Galán
Metodología	Yasmín Ivette Jiménez Galán, Josefina Hernández Jaime (igual)
Software	NO APLICA
Validación	Yasmín Ivette Jiménez Galán, Josefina Hernández Jaime (igual)
Análisis Formal	Yasmín Ivette Jiménez Galán, Josefina Hernández Jaime (igual)
Investigación	Yasmín Ivette Jiménez Galán (principal) y Eduardo Rodríguez Flores (apoya)
Recursos	Yasmín Ivette Jiménez Galán (principal), Josefina Hernández Jaime y Eduardo Rodríguez Flores (apoyan)
Curación de datos	Yasmín Ivette Jiménez Galán (principal) y Eduardo Rodríguez Flores (apoya)
Escritura - Preparación del borrador original	Yasmín Ivette Jiménez Galán (principal), Josefina Hernández Jaime y Eduardo Rodríguez Flores (apoyan)
Escritura - Revisión y edición	Yasmín Ivette Jiménez Galán, Josefina Hernández Jaime (igual)
Visualización	Yasmín Ivette Jiménez Galán, Josefina Hernández Jaime (igual)
Supervisión	Yasmín Ivette Jiménez Galán
Administración de Proyectos	Yasmín Ivette Jiménez Galán
Adquisición de fondos	NO APLICA