

Virtual education in the Colombian context: teaching practices in public and private education

Abstract: As a result of the global pandemic, Colombian education is facing great challenges in the virtual world. Currently, social, economic and cultural gaps are widening, especially between public and private universities in Colombia. It is therefore necessary to investigate teaching practices in the virtual world under different social conditions. This article aims to describe and analyze experiences, which constitute a baseline for the projection of didactic and pedagogical strategies for the teaching of disciplinary knowledge in the human and exact sciences. This research is of a qualitative nature and is developed under a descriptive perspective of experiences with interdisciplinary contributions from the human and exact sciences. Among the experiences, the gamification and reasonable adjustments needed to universalize learning in the classroom stand out.

Keywords: Virtuality. Methodological innovation. Colombian university. Public university. Private university.

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Educação virtual no contexto colombiano: experiências de ensino na educação pública e particular

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Resumo: A partir da pandemia mundial, a educação colombiana atravessou grandes retos na virtualidade. Principalmente, concentrou-se em grupos sociais, econômicos e culturais, superando a universidade pública e privada na Colômbia. Por tanto, se faz necessário pesquisar sobre as práticas de ensino na virtualidade sob condições sociais diferentes. O presente artigo pretende descrever e analisar as experiências de aula, os conteúdos constituídos por uma linha de base para a projeção de estratégias didáticas e pedagógicas para a disciplina dos conhecimentos disciplinares nas ciências humanas e exatas. Esta pesquisa é de caráter qualitativo e se desenvolve sob uma perspectiva descritiva das experiências com contribuições interdisciplinares das ciências humanas e exatas. Dentro das experiências são destacadas a gamificação e configurações de aula razoáveis para universalizar a aprendizagem na aula.


Palavras-chave: Virtualidade. Inovação. Universidade

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colombiana. Universidade pública. Universidade privada.

Educación virtual en el contexto colombiano. Experiencias de enseñanza en la educación pública y privada

Resumen: A raíz de la pandemia mundial, la educación colombiana atraviesa grandes retos en la virtualidad. Actualmente se acentúan las brechas sociales, económicas y culturales, sobretodo entre la universidad pública y privada en Colombia. Por lo que se hace necesario indagar sobre las prácticas de enseñanza en la virtualidad bajo condiciones sociales diferentes. Este artículo pretende describir y analizar experiencias, las cuales constituyen una línea base para la proyección de estrategias didácticas y pedagógicas para la enseñanza de los saberes disciplinares en las ciencias humanas y exactas. Esta investigación es de carácter cualitativo y se desarrolla bajo una perspectiva descriptiva de experiencias con contribuciones interdisciplinarias de las ciencias humanas y exactas. Dentro de las experiencias se destacan la gamificación y los ajustes razonables necesarios para universalizar el aprendizaje en el aula.

Palabras clave: Virtualidad; Innovación metodológica; Educación superior colombiana; universidad pública; universidad privada.

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1 Introduction

In accordance with the world situation of the SARS-Cov-2 pandemic, Colombian universities have had to resort to virtuality, to give continuity to the academic calendars proposed at the beginning of the year 2020. However, this proposal accentuates the social, economic and cultural gaps, of those who participate in the practices of teaching, learning and their families. These gaps are seen above all between the public and private universities in Colombia. For this reason, it is necessary to investigate the practices of teaching in the virtual world under different social conditions.

This article intends precisely to become a reflection of teaching and learning practices in virtuality, for which it proposes to describe and analyze experiences, which constitute a base line for the projection of didactic and pedagogical strategies for the

teaching of disciplinary knowledge in the human and exact sciences. For this, we start from the characterization of Colombian higher education and its denominations according to the legal nature. Then we present a context of the implications of the pandemic based on national directives. Next, we present a context of Colombian higher education, in which we recognize the current measures against acting in the virtual world, and then place this experience in two universities located in two different Colombian regions. Under this perspective, the analysis of each of the experiences of these universities is proposed, which will provide necessary elements for discussion and future research under this perspective.

2 Colombia and Higher Education Institutions - HEIs

According to the National Accreditation Council (CAN), an entity that is part of the Ministry of National Education - MEN, Colombia is divided into 32 departments and a capital district (Bogotá) and is organized in 1,098 municipalities plus the capital district. Population density is an average of approximately 42,888,592 inhabitants, although according to sources from the National Administrative Department of Statistics-DANE as of 2020, Colombia currently has 48,258,494 (DANE, 2020). In this same order of ideas, the population between 0 and 14 years old reaches 33%, the group between 15 and 64 years old is 62% and those with more than 65 years represent 5% of the total population. The economy is dominated by the Colombian peso, which is equivalent to 0.00025 US dollars, it means, with one dollar, today, \$ 3,973 Colombian pesos are purchased according to the exchange houses (TMR, 2020).

On the other hand, Higher Education Institutions (HEIs) are entities that have, based on legal norms, official recognition to be providers of the public service of higher education in the Colombian territory (MEN, 2020a). Likewise, they are classified according to their academic character and legal nature. The first one constitutes the main feature since the constitution that allows it to offer and develop higher education programs in one or another academic modality governed by Law 30 of 1992.

As for its legal nature, it defines the main characteristics, from the legal and administrative, that distinguish one and another legal person and has to do with the

origin of its creation. Thus, based on this last aspect, higher education institutions are private or public, an aspect of interest in this article, because their contexts give a contrast between these two types of HEIs in this paper. Since HEIs of private origin must be organized as legal entities of common utility, not for profit, organized as corporations, foundations, or institutions of solidarity economy, these have not yet been regulated. On the contrary, public, or state higher education institutions are classified, in turn, into public establishments and autonomous university entities.

3 Proposal of virtuality from national policies

Towards March 12th of 2020, the Presidency of the Republic of Colombia issued Presidential Directive No. 02 (Presidency of the Republic, 2020), whose main suggestion focused on the ICT tools use, which could minimize the impact of the current situation in the provision of all public services. Thus, in the case of the education sector, ministerial directive No. 4 (MEN, 2020b), proposed the use of technologies in the development of face-to-face academic programs to carry out the continuity of academic programs with qualified registration in the face-to-face modality during the emergency period, with a scheduled duration from March 12th to May 30th, that is, from the start of the health emergency and extended whenever the existence of the health emergency is considered.

It is worth mentioning that, to safeguard the fundamental right of education, the directors only assumed Ministerial directive No. 4. In this sense, the Ministry of National Education ignored all the basic technology concepts necessary for virtual, remote or assisted education, which refers to the need to overcome the digital gap, by assuming that in the public universities all the actors (Students, Teachers and Managers) had crossed such problematic threshold.

According to the Ministry of Science and Technology (MINTIC), the digital gap is characterized by the socioeconomic differences of the communities to access Information and Communication Technologies, as well as the "differences that exist between groups according to their ability to use ICTs effectively, due to different levels of literacy and technological capacity" (2019). In such order of ideas, this implies that the aforementioned gap is not closed in Colombia, as evidenced by the report on the

digital gap monitoring project (MINTIC, 2019b), but that until now the data on the gap is being configured digital to project the taking of actions during this annuity. Despite this reality, the decision at the global level was to continue with the virtual media classes regardless of the socio-economic reality of each of the regions, and Colombia was not the exception.

4 Blended Learning experiences at the Colombian university

In order to present the context of the development of current education, the experiences of two professors and researchers who develop initiatives in universities located in two different contexts, namely, in human sciences and exact sciences, from public and private universities, are described below, which are constituted in blended training actions that incorporate methodological innovations in the development of classrooms.

4.1 State University: Universidad de Pamplona

Universidad de Pamplona is located in the department of Norte de Santander, in the municipality of Pamplona, founded by the presbyter José Rafael Faría Bermúdez, according to a biographical sketch of Flórez-Pabón, without having a preponderant religious link other than the occupation that had its founder (2019, p. 19). The founding process narrates that the Casona, (the first headquarters of the University), was the first public house in the North of Santander with a public character in which it refers to HIEs. Before Faría's death, in 1970, it was converted into a public university of a departmental order, through decree No. 0553 of August 5, 1970, and in 1971 the Ministry of National Education empowered it to grant professional degrees according to Decree No. 1550 of August 13. This means that, according to Law No. 30 of 1992, the Universidad de Pamplona is identified as a special regime entity, with administrative, academic, financial autonomy, independent patrimony, legal status and belonging to the Ministry of National Education (University de Pamplona, 2020).

4.1.1. Platforms and tools in teaching practices in Human sciences

Likewise, it must be said that, among public universities, the Universidad de Pamplona has experience in developing virtual subjects, supported by its own tools such as Academusoft 4.0, through Moodle. Notwithstanding, programming the courses on this Java platform and integrating them with these interfaces requires time to prepare the flexible content, methodology and assessment systems, which was not available if wanted to take the virtual education in the midst of the pandemic. So other tools such as Microsoft Teams and Avaya were chosen, which were suggested for the development of the classes by the University administration. However, at the time of receiving this suggestion, the teachers had already implemented their classes in other alternative academic services such as Google Classroom, under the modality of a personal account and not Google for Education, sometimes mediated by some remote form of communication, call Webex, Zoom or Skype. But that, in turn, have time or user limitations for not having the paid licensed version. For example, Zoom with 40 minutes of free connection, or the case of Webex or Skype that consumes network resources and become invasive of the system, which makes them hardly viable tools for teaching.

So, it was assumed, at least in the case of the teaching of philosophy, the use of Classroom and Google services for education (G-suite), which have been a fundamental part of the teaching of Latin as classical languages of the Philosophy program. Subject that will be privileged in the story of this experience, due to this would require flexible and innovative tools that would prevent the defects of face-to-face education from being transferred to virtual education because its teaching process becomes monotonous and somewhat tedious.

In this sense, it was determined that the best way to take the classical languages course was under the Blended Learning practices where the intuitive, synchronous, and asynchronous elements could be combined in the Classroom platform. In the case of training in philosophy, the transformation of the face-to-face course into digital environments went from virtual classes to remote (synchronous) classes assisted by Google Meet, and in the asynchronous part, the Classroom platform would support the other processes. This situation, with the passing of the weeks, generated discomfort in

some students because the first phase was proposed asynchronously, to explore the best synchronous option in terms of teacher self-training to assume this new methodology.

4.1.2. Teaching and learning practices: Philosophy, classical languages, and Classics I

For the first phase of the virtual classes, a totally asynchronous training was prepared that included Podcasts (in Mp3 format), accompanied by a guide in Word to strengthen listening and reading skills in students of classical language. However, this asynchronous strategy was not enough, as some students expressed discomfort with this methodology for not seeing the teacher since they believed that they were not educating themselves in this way. This was verified with a questionnaire in Google Forms in which a self-evaluation of the methodology with a survey was proposed, and, as a result, it was concluded that the students are not properly prepared for an asynchronous methodology and urgently required face-to-face synchronous sessions.

In order to realize this idea, the teacher contacted professors from other universities who had access to 'Google Meet for education' in favor of starting the second synchronous educational phase, since, at the time these educational bets were developed, the Meet of Google was not Open Access, and support was requested for teaching with this tool, because, of course, in this experience, not all tools work in all courses, therefore, something agile and secure like what the Meet offered would be required. In this way, having solved all these synchronous and asynchronous training problems, another question arose, namely, how to evaluate the contents and processes? since another perspective was wanted. So, faced with self-taught processes, the teacher chose to explore gamification, as suggested by de Zaldívar (2015), Kuo and Chuang (2016), Barata *et al* (2017), Urh *et al* (2015).

According to Deterding (2011), gamification is the "use of game design elements to motivate user behavior in non-game related contexts", which has been explored as teaching didactic since before the 2010s Which has resulted in an increase in the experience and commitment of the user of this teaching process (Domínguez *et al*, 2013) and extending his practice in various areas of knowledge as described by Pedreira *et al*

(2015). From the above, it was decided to apply this evaluative methodology for the classical language courses, and another subject called communication philosophy.

The first thing, in this sense, was to decide which platform was going to be used to carry out the objective, because there are various online tools that are found for this work, some free license and others paid license. This being the criterion used to decide which ones to choose since in the context of public education there are no financial resources to offer the educational tools that are desired. Secondly, the free Open Access tools were explored, among which Genially, Mobbyt and Quizizz were reviewed. Taking as a criterion of choice that they were intuitive and flexible for use by the student and, in the same way, in the teaching interface because some applications require very technical elements for use by any of the actors in the educational process.

Finally, a roadmap was proposed on how to carry out the general evaluation, which took into account: the contents to be evaluated, the competencies that were to be developed in the evaluated students, the participants, the game design, the evaluation rubric or that it wanted to rate, the results of the evaluation and the socialization of this process with the same students to reach the conclusion of whether or not to continue using it in the assigned courses.

In the case of classical languages, the subject in which the gamification process was used the most as evaluation, first, it was considered what contents would be evaluated since tools such as Classroom Google forms did not allow the flexibility that was required for the educational process. So, at first, the Genially platform was chosen creating a game about the grammatical sentence, which was solved with extreme ease among the students in the class. This experience served as a criterion for not directly using Mobbyt or continuing to use the Genially tools for evaluations because these two have a pedagogical level focused on primary and secondary education without directly offering a university education perspective.

This does not imply, however, that they cannot be used, but that another kind of gamification approach would be required for it to be effective. Based on the above, the Quizizz application was, among many, the one that offered the level of complexity necessary for the undergraduate training process. In this order of ideas, the contents

evaluated were those of the first two academic cuts, it means, undergraduate university training in Colombia is divided into 16 weeks of class per semester, which means that every five weeks an exam must be taken to evaluate the knowledge acquired in this period. The third academic cut was also evaluated under the game modality, but a direct platform was not used, an experience that was resumed because some students between the first and second cuts stated that their data plans were not sufficient to carry out these activities, so it was decided by another methodology without abandoning the didactic element of the game in the subject.

Subsequently, it was decided that the competences to be developed in this kind of evaluation were interpretive and purposeful in the use of these heuristic forms of assessment. Since the Educational Project of the Philosophy Program (PEP) seeks to promote three competences in any course in a transversal manner, namely, arguing, interpreting, and proposing (Philosophy Program, 2020).

It was then thought that Classics I students were ideal candidates for this type of assessment because they were first semester students without any university testing experience, wishing that they would not be impregnated with face-to-face testing practice as they would have been with later semester students, so we proceeded with a robust 50-question game design, with the category of easy to difficult, to get the highest score. As they had not interacted with the platform, another evaluative element was included, which is training through error processes, for this reason, two attempts were made and the highest mark in the process would be recorded, according to the rubric of the contents taught. As a result, in the evaluation and socialization process, the majority of the students expressed their liking for and feeling stimulated by this kind of process, for which the gamification dynamic was evaluated as a positive experience for public university higher education.

4.2 Private University: Universidad del Norte

The Universidad del Norte was born as an idea of leaders and businessmen led by Karl C. Parrish, in early 1966, as a symbol of the progress and economic growth of the city of Barranquilla. In 1973, the university settled in the now-known headquarters at

kilometer 5 of the highway to Puerto Colombia (Atlántico-Colombia). Towards the month of August 1999, it received the Luis López de Meza medal and a scroll to the Universidad del Norte, accrediting it as one of the best universities in the country for the high levels of educational quality achieved. The Universidad del Norte Foundation is a private higher education institution subject to inspection and surveillance through Law 1740 of 2014 and Law 30 of 1992 of the Ministry of Education of Colombia, in addition, it has high-quality institutional accreditation and has recently been considered one of the ten best universities in Colombia for its comprehensiveness and academic excellence. Among the training objectives of the Universidad del Norte is the training of suitable citizens, such as thinking, analytical people and people with solid ethical principles, who devise innovative ideas so that they participate actively, entrepreneurial, responsible, honest, critical and pragmatic in the process of social, economic, political and cultural development of the community.

4.2.1. Platforms and tools in teaching practices in Basic sciences

As a result of the pandemic, the rectory of the Universidad del Norte (Colombia), since March 17th, 2020, sent its teaching, administrative and managerial staff to do work at home, a modality that is not new because the University has the Family Responsible Corporation program (EFR at Spanish), certified by support of the Colombian Technical Standards Institute (ICONTEC), which involves the flexi-academy where it is possible to reconcile between family, personal and work life outside the university campus. Therefore, the change from face-to-face teaching to virtual teaching took place under a process of adapting the academic schedule in two weeks of class, adding two weeks to the initial semester to give a good end to it. During that time, the professors of the Universidad del Norte had the opportunity to rethink the syllabus corresponding to each subject, now with the university's own digital alternatives, and many others that were found along the way.

To accompany face-to-face classes, the university has the Blackboard platform that offers different alternatives for its use, for example, the teacher uses this tool to provide complimentary materials to students or to assign tasks that they can deliver

online for a certain time. This implies that, before going to blended mode, students were already using the basic resources of this platform. The platform has tools for publishing content class by class (Link to content), daily or weekly notices (announcements), communication between students and teachers (discussion forums, messages or external mail), consultation tools in the Virtual Library, help-seeking, evaluations and grades, and the Blackboard Collaborate Ultra interface, where virtual meetings are scheduled and developed.

The latter has been of great advantage when making the synchronous connection with the students because it allows the viewing of documents, sharing the screen with students to interact with them and during the class, the session can be recorded for those who cannot access the moment that the virtual class is offered because the connection prevents it at that moment. However, this platform is very robust, due to its resources, so it is not easy to maintain the connection with students for long periods of time, and less with students with low internet speeds. These classes are recorded, downloaded, and saved in the Universidad del Norte's own (unlimited) drive, which has high storage capacity, to offer the access link to the students.

4.2.2 Teaching and learning practices: Geometry for designers

One of the challenges of virtuality presupposes the paradigm shift in the teaching and learning of mathematics (Flórez-Pabón & Acevedo-Rincón, 2020a) since the first thing to think about in the face of millennial practices involving board and scoreboard is the replica of the formulas that are had in the face-to-face practices. In this way. In the particular case of this article, we relate the development of the Geometry course that was designed so that Graphic Design students could make compressions on the classic Euclidean Geometry and its development through the use of three-dimensionality, based on the principles of Dynamic Geometry.

So, the new virtual environment implied the development of other ways to involve the student in their learning. For this, constructions were designed with dynamic geometry software called Geogebra which allows constructions to be made online or by downloading the application, without limiting its free resources. This

resource has privileged the use of classic shape constructions, such as the characterization of new Applets (applications built within the resource) which allow us to see geometric objects in 2D and 3D, for example, the square of the circle through software (Flórez-Pabón, 2020). On some occasions, the classes involve video tutorials for the identification of the resource and primary constructions of known elements, these are elaborated with the Screen Recorder Launcher. Thus, the students also participate in the asynchronous explanations of the workshops carried out by them in Geogebra, showing video tutorials of their constructions through the same tool.

Synchronous classes are distributed in two workspaces, one of 1 hour on Monday and the other of 2 hours on Thursday. In the first class, in general, new concepts are developed through an exemplified explanation with Applets, lasting a maximum of 30 minutes synchronously, because students must carry out independent work during the rest of the time, without depending on a connection in real-time. The Thursday class is used to develop other concepts, under the group work structure of the Blackboard Collaborate Ultra platform, which allows collaborative tasks to be developed and delivered during the development of the class (Echeverría *et al*, 2011), so the duration of this class is two hours long, taking into account that the work is in connection with small groups and that it depends on the work rhythm of its members.

On the other hand, this course has two students diagnosed with Autism Spectrum Disorder (ASD) and one with a mild cognitive deficit, who are supported by the Resource Center for Student Success, university well-being and the Uninorte Inclusive committee for teachers and students, which implies close communication with these departments to make the pertinent curricular adjustments for the proper development of learning. From the above, it is important to highlight that this way of working has allowed us to propose a flexible and universal learning experience that benefits all students, offering various forms of presentation and representation of information, multiple opportunities for expression and action, and multiple forms of commitment to learning, in accordance with what is proposed in the Universal Learning Design (ULD) framework from CAST (2008).

Finally, all this work has also been supported through the use of the WhatsApp “groups” tool, whose means of communication reinforces what has been said by email, and in the announcements section of the platform, for those who do not have immediate access to the Internet, but yes to a data plan. It is also necessary to think that this type of proposal is only achieved to the extent that there is sensitivity to the recognition of the difference of the other, it means until heterogeneity is recognized in the classroom, it will be difficult to think that students are different and have diverse skills that they can develop at various times. Only under this structure, it is possible to think about constructing a proposal for a differentiated course and rethinking the teaching and learning of the exact sciences, such as Geometry constitute.

Another important factor in the development of this experience was that it started from the need to identify students with their professional profile, because, to the extent that they are present in their role, they can live the experience differently. Therefore, with each step taken inside the course, they know they have a purpose. In this way, both in the development of the face-to-face course, as well as the virtual and/or remote course, the students identified in-class activities the contribution to their professional profile and were projected into the role, from this first semester of their career. For this, the development of specific tasks, which contain knowledge about the professional profile, occurs to the extent that tasks are proposed from the didactic-pedagogical knowledge and from the mathematical knowledge of the Mathematics Teacher Specialized Knowledge (MTSK) model, such as it is proposed in Acevedo-Rincón (2020a).

Although the students characterized within ASD had the student tutoring service (accompaniment twice a week to reinforce concepts), these services were used only during the first three weeks of admission to the university, because the students were gaining autonomy in the development of tasks. Even one of the students with Asperger, who started the course with anxiety for not having enough bases to face Geometry, was the one who gained more autonomy and successful participation in the development of their Geometry training. Even though his strokes improved a little, this will be achieved over the course of the career, when he takes more courses that hone those skills, as recommended in Acevedo-Rincón (2020b). As a teacher in this population, the students'

progress is really felt, making a comparison between what they received on the first day and the skills they have developed so far to face a path of professional training.

5 Discussion

Virtualization, in most of the Public and Private Universities of Colombia, was unexpected, there were no studies that allowed characterizing the conditions of the students to be able to decide. It was an aporia in which the Ministry of National Education decided to opt for the continuity of a virtual job following an international trend. However, it presupposes a good start towards this path of virtualization of education. Likewise, the MEN proposal ignores the country's socio-economic reality, namely poverty, the Colombian topography, in addition to the failure of some strategies of previous governments that promised things such as Computers to educate, the Internet for all, among others. Well, believing that they were successful, at least on paper, now allows them to catch up with the trend of virtuality in First World countries.

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Now, in the opposite case, if other more real criteria had been implemented, what would have happened if education had been suspended during this time of pandemic? Would the health crisis have deepened due to the lack of employment of teachers and students? Would other social crises have unleashed? It seems that families were not intended to propose a model of homeschooling as an alternative pedagogical model to propose an adequate and accessible education for all.

Likewise, the great “digital gap” in the country is undeniable. In addition to that presented between the education model of public and private universities. In private universities, it is not so evident, but it does occur. This implies segregation of the poor, but also of those who do not have the technological access to education, of those who only have a computer with several children studying, of those who do not have adequate infrastructure for work: this is the case of parents, children, students and teachers. In the case of teachers, the lack of teaching experience in virtual education in the areas of Mathematics and Philosophy in the undergraduate and graduate areas is evident, as mentioned in Acevedo-Rincón & Flórez-Pabón (2019).

Likewise, a new virtual space generates nostalgia for the physical, both on the part of the teacher and the student, since we are real beings who need real spaces. This proposal for remote education mediated by the virtual presupposes curricular, academic-administrative, and pedagogical flexibility in the ways of teaching and evaluating. To this we must add that, in the mentality of the student and of some parents, it is that virtual education does not appear as real and quality education, because it is necessary, for some, the physical space, the blackboard and the teacher to "watch and punish" if necessary. So, teaching and learning as a strategic activity are subordinated to specific contexts, which require a self-regulation system to plan and supervise the actions undertaken.

The system, as it is currently proposed, still requires a mediator, teacher or professor who always reviews, explains, is behind the forum, the work, the evaluations, etc. Even the educational model of virtuality that we have today cannot think of suppressing the figure of the teacher in University, and perhaps it is not possible to think of suppressing the human factor in education, because otherwise what would education be? At this point, the autonomy of student learning must be considered as the university objective to promote comprehensive training. This autonomy will allow it to be the center of education based on the decisions, interpretations and operations-oriented by the teaching practice that the university grants, by allowing virtual education as the educational model of future generations.

Gamification, as an evaluative process, is an experience that speaks of another model of education that is traditionally customary in universities, whether they are from the public or private system in higher education in Colombia. It is an experience that motivates the educational process in students and that allows for a more comprehensive evaluation of the instructional processes that arise in virtual education amid the health crisis. However, for these processes to be successful, it is necessary to count on the fact that the digital gap in university education is overcome, for example, data plans are precarious to take on this kind of education that is intended to be implemented. In this sense, without access to adequate logistical means in the students, knowledge would not be democratized, but rather education would be to elityze, blurring a right in an economic means of access, which should be avoided. Reason why. In the evaluative

experience of the third cut, it was proposed in another sense, without abandoning the game, but aware that it is first necessary to overcome access to the media to speak of quality higher education.

6 Conclusions

This situation corresponds to specific courses in two Colombian universities, so it must be understood that not all public universities carried out the experiences expressed here, nor did all private universities have the means to develop what is proposed here. Each university has its own characteristics, and even each course at both universities complies with this, since the educational institutions have university autonomy, and the proposal for each course is in keeping with the institutional philosophy, but above all, with the social, cultural and economic conditions of those who participate in the pedagogical practices. Therefore, it would be interesting to investigate the conditions of other universities in Colombia. Likewise, to recognize the panorama of educational practices at the Latin American level, since its regions present diverse conditions, under similar economies.

Curricular flexibility must become an educational policy for Colombian universities today and must permeate the evaluation system. An evaluation that transcends flexibility and that allows the student to complete their educational achievements, without standardizing the conditions in a traditional numerical way, for example, thinking of a more formative evaluation system that offers real feedback, in the approved or failed concept as some universities are already proposing it.

This implies that the learning takes place in a decentralized space of the teacher and that the student assumes his/her own education, with all the commitment that is required. What has been said for decades, namely, that the student is the center of education and the protagonist of it. In other words, the knowledge mediation processes with virtual tools presuppose a change in the traditional teaching of philosophy and mathematics where the archetypes of classical teaching centered on the teacher have to transform and be led by the student and their interrelation with the technology. Additionally, gamification should be proposed as the evaluative and educational model

of virtuality, either in the midst of the pandemic or outside it, because this model allows pedagogical and didactic actions according to the new times where technology is the protagonist.

On the other hand, being prepared for virtual education would, ideally, imply that the digital gap is overcome. Otherwise, education will only be at the service of those who can access an internet plan, a computer, a tablet, or a smartphone. This accentuates socioeconomic inequalities, which are not properly caused by the health crisis, but by inadequate administrative management of education for decades.

Despite this, some national and departmental government strategies have offered some cell phone plans or Internet plans for low-income families, focused on students in basic secondary education. In other cases, distance education was chosen for basic primary education, as was done in the country in the past, with good results. But what about higher education, especially in the perspective of public education, no action was taken beyond the guidelines set forth by the rectors. This situation suggests, based on the strategies mentioned by the current government for basic secondary and primary education, that it would be interesting to investigate later if this type of palliative responds to the deeper needs of society, or if it at least diminishes the possible inequalities (digital divide) that exist in society as means for higher and secondary education. For we must bear in mind that Internet plans without a computer or telephone plans, without a mobile phone, are the same as nothing in this abnormal educational situation in the midst of the health crisis.

Finally, it is necessary to affirm that, in face-to-face classes, knowledge is also far from the Colombian reality, but it is access to knowledge considered democratic, for those who can access a university. There are not-fully-seen gaps or differences in the classroom. On the contrary, it could be thought that everyone is equal in virtuality, but, in the current Colombian digital gap, the knowledge imparted in this model departs and accentuates, even more, the social reality that the nation lives.

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