

Educational policies for e-learning teaching in universities after the pandemic

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Abstract

Introduction: In this article, based on the theoretical exploration, the need to propose proposals towards the construction of an educational policy of the minimum necessary for the e-learning modality in the university has been identified in the context of the Covid-19 pandemic. **Background:** Consequently, the heuristic and hermeneutical method were proposed, from which it follows that the virtualization of Peruvian education has meant an accelerated and unplanned process, from which the methodology applied in online teaching has evidenced great similarities with respect to face-to-face education.

Discussion: It is necessary to establish new basic conditions for the quality of the e-learning educational service at the higher university level, which allow university institutions to adapt both to the demands of the new educational market and to the profiles of their potential students. Likewise, for its part, each government in turn must develop the pertinent steps to generate optimal conditions that help reduce access gaps and that related to digital skills.

Keywords: e-learning; digital skills; higher education; distance education; educational policy.

Política educacional para una modalidad e-learning en la universidad a partir de la pandemia

Resumen

Introducción: En este artículo, basándose en la exploración teórica, se ha identificado la necesidad de plantear propuestas hacia la construcción de una política educacional de mínimos necesarios para la modalidad e-learning en la universidad en el contexto de pandemia por la Covid-19. **Antecedentes:** En consecuencia, se propuso como método el heurístico y el hermenéutico, a partir de los cuales se desprende que, la virtualización de la educación peruana ha significado un proceso acelerado y no planificado, a partir del cual la metodología aplicada en la enseñanza en línea ha evidenciado grandes similitudes respecto de la educación presencial. **Discusión:** Es preciso establecer nuevas condiciones básicas de calidad del servicio educativo e-learning en el nivel superior universitario, que permitan a las instituciones universitarias adaptarse tanto a las exigencias del nuevo mercado educativo como a los perfiles de sus potenciales estudiantes. Asimismo, por su parte, cada gobierno de turno debe desarrollar las gestiones pertinentes para generar condiciones óptimas que ayuden a reducir las brechas de acceso y aquella relacionada con las competencias digitales.

Palabras clave: e-learning; competencias digitales; enseñanza superior; educación a distancia; política educacional.

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Introduction

The first half of the year 2020 came to an end, and new challenges arose in the wake of a pandemic without precedent. Many countries around the world have been quarantined and, consequently, activities of all kinds have come to a standstill. In addition, the impact on various sectors of society, including education, has not yet been estimated. However, in this area, it is not difficult to predict that, due to the economic slowdown, budget cuts will be visible in the future, as well as an increase in student dropouts. However, this crisis can also serve as an opportunity to transform the way services are offered (Figallo et al., 2020) so that virtual education becomes a viable alternative in 21st Century education (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2020b).

The quarantine led to the closure of schools, universities, and higher education institutions as a contingency measure to curb, in some way, the advance of the infectious outbreak. In this regard, a UNESCO report (2020b) states that, by March 2020, 184 countries had closed their educational facilities, which meant that approximately 1.5 billion students were affected, in addition to considerable economic losses. Likewise, this situation, in the context of universities, has a remote precedent in the epidemic caused by the Black Death in England, which led to the temporary closure of the University of Cambridge in 1665 (Buendía, 2020).

On the other hand, in Peru, the reality of universities is similar to that of other countries, since it is estimated that around 650,000 Peruvian students will stop their studies: 350,000 university students and 300,000 institute students (Figallo et al., 2020). However, in this challenging context, Information and Communication Technologies (ICTs) emerge, giving prominence to online distance education as the only response to the situation caused by COVID-19 (Gortazar et al., 2020; Pedró, 2020). In this regard, on May 15, 2020, 59 licensed universities (26 public and 33 private) had already been registered to continue educational service through e-learning (Figallo et al., 2020).

However, the context of the pandemic has led the incipient virtualization of Peruvian education to an accelerated and unplanned process. This has led to reflection on the methodology applied in online teaching, which must show clear differences with respect to face-to-face education.

Moreover, the conditions under which this process is being carried out should not be overlooked, since the virtual modality applied in an emergency context does not, in itself, imply its full implementation or a real change in the institutional model (García-Peñalvo, 2020b). Consequently, the adoption of this emergency measure in an existing context of disparity in technological access and digital skills may increase the inequality gap in education (UNESCO, 2020a).

Therefore, the aim of this paper is to contribute to the exploration of one of the fields that has taken prominence in this context of health emergency: the search for an educational model of online teaching, which implies the implementation of policies that ensure quality education provided through the e-learning modality. For this purpose, a review of relevant literature from the last 10 years has been used as a frame of reference.

E-learning Modality in the University

Remote learning and its relationship with Information and Communication Technologies have introduced a series of terms and concepts that are of utmost importance to manage for their differentiation.

In this regard, Huertas et al. (2018) suggest taking into account relevant terminology:

- 1) distance learning courses: these are courses that are not taught on the university campus and require the Internet or printed material for their completion;
- 2) online courses: these are courses that require the Internet as the main mechanism for carrying out the pedagogical activities, which can be synchronous or asynchronous;
- 3) online programs: these are accredited programs taught online;
- 4) blended courses: the design of these courses combines online and face-to-face teaching. They are also called hybrid courses.

The term e-learning is used for online education and refers to the trend in which teaching and learning are carried out through electronic means

(García-Peñalvo, 2020b; Mora-Vicarioli, 2019). Likewise, Cevallos and Caraguay (2013) define it as a modality that uses computer networks, computer resources, and telecommunications to carry out the teaching and learning process of a course or training program for students who are geographically dispersed or who interact at different times from the teacher.

One of the benefits of this modality is that it favors the development of soft skills (García Peñalvo, 2020b; Mora-Vicarioli, 2019), including communication, teamwork, autonomous learning, disruptive thinking, etc. However, their use and development depend on the mediation and strategies used by the teacher (Mora-Vicarioli, 2019). These skills prepare students for employability and increase productivity in companies, resulting in a raise of the standard of living (Tito & Serrano, 2016).

The expansion of the e-learning modality in education has been going on for more than ten years approximately, although it is difficult to specify when it was first present in higher education. Possibly, with the implementation of ICTs and globalization, it was introduced discretely, initially in the private sector. In Latin America, the offer varies from region to region, although there is still no evidence of any consolidated experience. On the contrary, there has been incipient and unequal progress in this modality. Precisely, in this regard, the scarce supply is one of the factors why, in the context of the pandemic, there has not been good results in higher education (Pedró, 2020).

In the case of Peru, this modality has been introduced very recently and only in some higher education institutions. Unlike regular basic education in the public sector, several universities and institutes have implemented, for almost five years, such digital platforms as important resources for student learning, although not the majority: "In fact, not all universities have had previous experience with virtual courses; at least 70% of them had never implemented them" (Figallo et al., 2020, p. 26).

In the country, these institutions have started the process of migration to virtuality of a percentage of their curricula, as permitted

by the National Superintendence of University Higher Education. In this regard, article 47 of the New University Law No. 30220 mentions that universities may offer distance education programs through virtual environments subject to the same quality conditions as the face-to-face programs. In addition, it is specified that "Undergraduate distance education studies may not exceed 50% of credits of the total program under this modality; and in the case of master's and doctoral studies, they may not be taught exclusively under this modality" (Law No 30220, 2014).

The aforementioned article was modified in the context of the pandemic through a series of regulations. One of them was the Resolution of the Directive Committee No 039-2020-SUNEDU-CD (2020), which allows distance education without any restriction. Likewise, in May 2020, through Legislative Decree No 1496, three university study modalities were established: face-to-face, blended, and distance or remote, with the aim to expand access to quality education and respond to the new educational needs of students.

On the other hand, the gradual transition or implementation of virtuality in some institutions of higher education did not mean that the competencies of their professors also developed at the same speed or in parallel. This is still a process that the pandemic stopped half-way through. The same has happened with the acceptance of this modality by the educational agents involved, and its effectiveness is still questioned, as opposed to the face-to-face modality (Figallo et al., 2020).

The context of the pandemic has not stopped such questioning. On the contrary, it has generated much more distrust and negative reactions on the part of both students and their guardians. Among their main arguments are that "online education does not offer as much as face-to-face education, its costs are lower, reductions in tuition fees are not sufficient [...]" (Figallo et al., 2020, p. 24).

Educational Policy for a Quality E-learning Modality

The impact generated in the higher education sector by the change of methodologies to provide services in order to guarantee its continuity is still under evaluation. , Although there are others of

a different nature, this change in methodology inevitably affects two extremely important aspects: quality and equality (Pedró, 2020). Since the pandemic, the shortcomings and inequalities in these aspects have become more evident.

In this regard, Buendía (2020) states that in Latin American and Caribbean countries, as well as in Africa, there are problems that will intensify in the short term: "Growth without quality, inequities in access and learning achievements, and progressive loss of public funding [...]" (Buendía, 2020, p. 27).

For his part, Fernández (2020), in *An Unpredictable Pandemic has Brought the Predictable Gap*, mentions three gaps, whose existence dates back to long before the pandemic, but which undoubtedly became scandalously evident with it. One of them, which he calls the first-order gap, refers to access to technology, that is, to computers or the Internet. It also refers to the difficulty in accessing online learning materials and educational programs (Gortazar et al., 2020).

As for the second-order gap, he refers to the disparity in the use of the Internet, that is, the usefulness of the Internet for each type of family. Gortazar et al. (2020) complement this by referring to the time and quality of Internet use. In this regard, it is stated that families with a higher level of education and economic income have greater control over what their children do in front of the screens and have a wider range of alternatives for their leisure time (Fernández, 2020).

Finally, the third gap refers to teachers' digital competencies. Both Fernández (2020) and García-Peñalvo (2020a) coincide in pointing out the competency gap, which refers to the lack of digital competencies, which are more evident in the public educational sphere. Regarding the university sector, García-Peñalvo (2020a) states that the faculty is resistant to change and that the universities lack strategies to lead the way in the digital transformation.

In the same way, Pedró (2020) states that there are three reasons directly related to the gaps identified by Fernández and García: inequality in terms of access to technology, insufficient supply of distance higher education before pandemic, and teaching and student competencies with

respect to the modality in question. From these, he foresees a not-so-pleasant outcome as a result of the emergency measures taken for the continuity of pedagogical activities in higher education.

In the Peruvian context, these gaps are observed with their own particularities as follows: with respect to the use gap, for more than ten years, the use of the Internet has been regarded as a necessary, complementary, and important activity for students. In this sense, the population that uses the Internet on a daily basis uses it mostly for communication; secondly, for entertainment activities (video games, music, or movies); and thirdly, to obtain information (National Institute of Statistics and Data Processing [Instituto Nacional de Estadística e Informática, INEI], 2020). On the other hand, of the households that own a computer, 94% use it for academic activities; 5.7%, for the aforementioned and work; and 0.4% use it for work (INEI, 2020).

It is important to note that, in the previous study, a differentiation of use according to gender was identified, with the male population leading the way in Internet use. In addition, another important segment of users are young people and adolescents.

On the other hand, regarding the access gap, by June 2020, 95 out of 100 Peruvian households have at least some type of ICT; furthermore, access to ICTs depends on the level of education attained by the head of the household. In other words, those with higher education have 99.6% access. On the other hand, regarding the possession of computers, households in Metropolitan Lima are at the top of the list with 52.9%, while the rest of urban and rural households have 38.3% and 7.5%, respectively. Regarding Internet access, 62.9% of households in Metropolitan Lima have the service at home, 40.5% in the rest of urban areas, and 5.9% in rural households, although most use it through mobile phones (INEI, 2020).

These data reflect that the access gap in Peru has been considerably reduced in the city, which favors the implementation of the virtual modality in higher education; however, the great challenge is in the rural areas of the country. In addition, although the rate of Internet owners has increased to date, this has not meant that the rate of its proper use has also increased.

An important initiative regarding this last gap was when, in 2007, through the program “21st Century Teachers: A Laptop for Every Teacher,” the government granted bonuses to permanent teachers in public schools for the acquisition of laptops (Cuenca et al., 2009), a benefit that was complemented with a loan with a four-year repayment period from Banco de la Nación (National Bank of Peru). However, owning a laptop and developing digital skills must be complemented by high-speed, open-access connectivity on university campuses and research facilities. For example, Chile implemented, for the school sector, the project called Connectivity for Education 2030, intended to extend the service to more than 10,000 educational institutions within a maximum of ten years

(Information system for educational trends in Latin-America [Sistema de información de tendencias educativas en América Latina], 2020).

With regard to the third-order gap, which addresses the problem of the lack or inequality of digital competencies in both teachers and students, the Ministry of Education created an educational platform called *PeruEduca* in 2001 with the objective of sharing knowledge with the entire educational community. By 2016, this platform already had more than 6,388 digital educational resources for free downloading (Minedu, 2016b). These data are encouraging for the basic education level; however, it is necessary to consider the proposal of new criteria and relevant instruments that measure and promote the development of the digital competence of professors at the university level.

The 2016 version of the National Curriculum for Basic Education included for the first time the development of digital competencies for students through competency 28, which states that “they work in virtual environments generated by ICTs” (Ministry of Education [MINEDU], 2016a, p. 84). Likewise, for teachers, the 2019 Basic Curriculum Design for Initial Teacher Training at the pre-school, elementary, and intercultural bilingual levels includes the competency of “management of digital environments for professional development and pedagogical practice.” In addition, *PeruEduca* has already registered

more than 5,000 teachers who have completed the digital literacy course at the national level (MINEDU, 2019).

Digital Competencies

Digital competence is understood as the sum of a series of skills, knowledge, and attitudes in a technological and computer context (Gisbert & Esteve, 2011), which, nowadays, are no longer expectations that correspond exclusively to certain privileged groups of society, since globalization has made them one of the essential outcomes (National Institute of Pedagogical Technologies and Teacher Training [Instituto Nacional de Tecnologías Educativas y de Formación del profesorado, INTEF], 2017; Gisbert & Esteve, 2011) that every graduate from basic education must achieve to enter adult life and successfully respond to its demands. These acquired skills will not only guarantee the ability to take advantage of the benefits of new digital technologies and their challenges, but will also make them participants in the new knowledge society (INTEF, 2017; Gisbert & Esteve, 2011).

Faced with this outlook, teachers are responsible for ensuring the development of these new competencies in students. That is why it is teachers who must first acquire the ability to become guides adapted to the new media and with mastery of the relevant knowledge and skills, especially those related to knowledge management (INTEF, 2017). The development of the aforementioned competencies must become a priority within their areas or specializations. Therefore, there is a need to pay close attention to teacher training systems and to recognize their professional development (INTEF, 2017; Rangel & Peñalosa, 2013).

In 2008, UNESCO established three aspects or dimensions of digital competencies: 1) understanding and integration of technological competencies; 2) resolution of concrete problems with technological knowledge; and 3) production of new knowledge based on that already generated. Therefore, the development of teachers' digital competencies that enables them to design and manage programs of the same nature should be part of the implementation of new e-learning

training policies. These competencies should be focused on the design of teaching and learning strategies, such as collaborative work, the dissemination of the habit of reading and research, the development of student autonomy, and the design of new assessment methods (Yong et al., 2017).

Likewise, Durán et al. (2016) carried out a comparative analysis of the different models of digital competence with the aim of obtaining a standard for university professors based on three dimensions: the basic one, which involves performing in technological, communicative, informational, and multimedia settings, among other; specific, such as the management and evaluation of learning supported by the use of ICTs, as well as the identification of their didactic potential, their implication in building, and acquiring knowledge and developing student creativity; and concrete, related to research and innovation based on the use of ICTs and the promotion of their use by generating publications and disseminating them on the internet.

In addition, García-Quismondo and Cruz-Palacios (2018) point out that digital competencies in the education sector are essential tools that promote the development of skills and new competencies linked to knowledge transfer and innovation. Also, Iordache et al. (2017) state that these should be considered as measurable learning outcomes in terms of digital literacy. On the other hand, digital competencies should integrate, as a whole, knowledge and skills of a technological nature that should be taught and learnt as a priority in higher education and through the implementation of tools of high technological complexity, but for teaching purposes (Ocaña-Fernández et al., 2019).

With respect to teachers, the new educational policies regarding digital competencies should be oriented towards a clear demand for the use of ICTs and a favorable attitude towards them, the development of skills in computer techniques (instrumental competence), constant training, and knowledge management (Rangel & Peñalosa, 2013).

As for students, one of the objectives of the new educational policies for the e-learning modality must be the design of standardized learning

strategies that guarantee the acquisition of the digital competence in university students (Gisbert & Esteve, 2011) in order to achieve the learning outcomes of university training and, along that path, the design of the relevant assessment consistent with the methodology used in this modality (Mora-Vicarioli, 2019). Therefore, the final assessment process for digital competence in students must be streamlined and operationalized at each educational level, since the acquisition of these competencies not only ensures a good university life, but also prepares for the demands of the labor market (Gisbert & Esteve, 2011).

Finally, for Rodríguez (2015), the importance of these competencies lies in the fact that they can motivate students and teachers in ICT innovation. Likewise, teachers assume new roles for which they need psycho-pedagogical and technological training based on professional development, which also enables the transformation of information into critical knowledge while students are provided with self-management competencies (learning to learn).

Evaluation in the E-Learning Modality

The policies implemented to build the quality of the e-learning modality by the institutions must provide support to educational agents and newly incorporated teachers; they must also design quality courses with adequate technological infrastructure, where the student evaluation process is conducted considering its authentication, the authorship of the work, and a security test, as well as adequate electronic security measures and access to education for students with disabilities, illness, or extenuating circumstances (Huertas et al., 2018).

Furthermore, Huertas et al. (2018) state that educational institutions should ensure that teaching encourages students to lead their own learning process (autonomy). In this sense, assessment should reflect this tendency. However, flexibility and autonomy in this modality could also imply a risk of dropping out of courses due to the perception of detachment. For this reason, time management must be taken into account (García-Peñalvo, 2020b) with appropriate communication strategies for students in order

to promote their prospective adaptation to the modality. Here, synchronous tools (real time) as spaces for interaction between teachers and students could play an important role, as they facilitate timely feedback (Mora-Vicarioli, 2019).

The evaluation should be oriented to take as a starting point the student's previous knowledge (diagnostic assessment). In this way, the teacher can make changes according to the student's needs, which reaffirms the importance of flexibility in the e-learning modality that allows to adjust content and activities on the fly (Mora-Vicarioli, 2019). Likewise, this modality facilitates continuous evaluation and the leading role of the student in collaborative activities (Fardoun et al., 2020) that mobilize and develop, in turn, soft skills (Mora-Vicarioli, 2019; García-Peñalvo, 2020b).

Finally, it is essential to believe that the assessment of learning outcomes in a virtual environment must be redesigned to move away from the shadow of the face-to-face modality; therefore, it requires the analysis of a series of aspects such as the educational level achieved, the geographical location of the students evaluated, the attitude of those involved in the use of ICTs, the technology to be used, the methodology and management (Fardoun et al., 2020).

Challenges

It is important to assume that the process of migrating strategies and methodologies from face-to-face to virtual modality will not happen quickly, as very important gaps must be overcome first (Sterzer, 2020).

This implies a total reform of the system of each institution, since it is not only a matter of migrating from one platform to another, as some claim that has occurred in this time of pandemic, coining the term "Coronateaching" (Ramos, 2020), but of transforming each instance involved in the educational service provided so that each one aims for the same goal (García-Peñalvo, 2020b). For this reason, it is important to consider that each education level offers the university sector a varied range of experiences, since students, despite belonging to the same group, present marked differences in terms of learning autonomy, level of knowledge, and mastery of certain skills

(Sánchez et al., 2020). Likewise, professors are a key element in this transition process, as long as they are trained in digital methodologies (Hurtado, 2020).

It is also necessary to consider some flexibility in terms of the process of evaluating the quality of service in universities. For this reason, Alcántara (2020) proposes the implementation of competency-building initiatives to facilitate the transition to online learning.

In this regard, García-Peñalvo (2020b) proposes a reference model for non-face-to-face education, in which he proposes the following elements: identity, features typical of face-to-face institutions materialized in image design, a website and social media; technological structure (involving management, physical and logical infrastructure); support services (confidentiality, analysis of academic information, user service); contents, which, by themselves, do not lead to academic success (García-Peñalvo, 2020b; Huertas et al., 2018), on the contrary, they require management by specialists, updates, recognition of authorship, and complements with multimedia that require continuous or final evaluations; pedagogical model, which is the sum of the design of training actions, contents, service, and technology. All these academic services must be aligned, in their totality, with the nature of the modality, policy, and strategy oriented to a true institutional project that leads to a digital transformation of the institution and involves all its members (García-Peñalvo, 2020b).

Therefore, enhancing collaborative work among faculty, rethinking learning outcomes and the way of assessing students, and adopting the blended modality as a strategy are three of the main challenges that must be taken into account for the design and management of virtual classrooms in higher education (De Vincenzi, 2020).

On the other hand, in the process of transition of universities to the e-learning modality, Alcántara (2020) argues that governments should fund (through loans) citizens studying or teaching as a stimulus, a measure that should be linked to free connectivity in study and research facilities.

In addition, the importance of the contribution that universities and other higher education

institutions can make in the different professional areas should be highlighted so that they get involved and stay updated in the use of ICTs through training (World Bank Group, 2020). In terms of the struggle for equality of service in higher education and accessibility to all, universities must play an important role and assume their responsibility in the face of social needs (Gu, 2020). This makes it necessary to analyze its role in society and its contribution to the search for solutions to the problems of the pandemic and post-pandemic context.

For this reason, the creation of a strategic alliance between universities to share good practices in virtual education appears to be a convenient response. In this regard, Chile has built bridges between public and private universities to share good practices and promote faculty training for those institutions not participating in this alliance, with the mediation of its respective Ministry of Education (UNESCO & International Institute for Higher Education in Latin America and the Caribbean, IESALC, 2020). It would also be pertinent to consider the creation of virtual higher education commissions that can provide guidance and answer doubts regarding operativity (technological support in virtual platforms) and recommend methodologies already used in teaching and learning in this modality (multiplier effect of the strategic alliance).

The challenge of digital literacy for both professors and students in university education is a high priority. Although the need for these skills has always been latent, now, in the face of the pandemic context, it is urgent to implement them (Sterzer, 2020). For this reason, there is a need to train students in digital competencies starting from the elementary level (basic education) so that this will have an impact on higher education. Uruguay and Argentina demonstrate this through national digital policies: Plan Ceibal and Educ.ar, respectively (Information system for educational trends in Latin-America, 2020). These initiatives have resulted in timely responses to the COVID-19 health crisis.

For García-Peñalvo (2020b), virtual education could improve considerably if the group size of students (from 30 to 40) is defined, if the

teacher's response time on asynchronous activities is defined, if a realistic weekly workload is established, if the authorship and licensing of materials is respected, if evaluation is carried out according to student profiles, and if teachers are accredited in teaching technology.

However, before considering any successful method capable of improving the practice of e-learning, Pedró (2020) states that it is important for university institutions to record the pedagogical changes implemented during the pandemic to encourage internal reflection on their own teaching and learning models in order to learn from their mistakes, allowing a true scaling up to digitalization.

Discussion

Based on the findings, it can be assured that it is of utmost importance to consider the three gaps: access, use, and competence that Fernández (2020), García-Peñalvo (2020), and Pedró (2020), in a sort of complement, have identified within the educational context in times of pandemic. In that sense, it is necessary to establish new basic conditions of quality for the e-learning educational service at the university level, since the existing ones were developed on the basis of face-to-face education with a minimum percentage of virtuality, as it is established in Article 47 of the New University Law, Law No 30220 (2014).

Thus, the adoption of alternative modalities based on virtuality will depend on the university institutions, as well as their adaptation to the demands of the new educational market and to the profiles of their potential students. Consequently, these changes must bring with them not only innovation and the adaptation of the educational service to the new contexts, but also the improvement of the quality of service to eradicate those ideas questioning it (Figallo et al., 2020).

The expansion of the e-learning educational offer is based on some benefits that it generates in the student as communicative potentialities (interaction and collaboration) subject to the teaching role and didactic strategies (Fardoun

et al., 2020; Mora-Vicarioli, 2019). However, good performance in this environment requires that educational agents possess and use digital competencies.

However, given the deficiencies in digital competencies of educational agents to adequately perform in the new virtual context, it is essential and urgent to implement much more intensive digital literacy programs, as well as to see a personal and radical change of paradigm about current education. Almost 20 years have passed since the creation of the Huascarán Project, the *PeruEduca* portal, the provision of vouchers and loans for the acquisition of laptops, and the purchase of XO laptops, to mention a few initiatives; however, to date, more than one of the above-mentioned is part of the failed attempts at digital literacy insertion.

Regarding government intervention, Alcántara (2020) suggests it participates through programs that contribute to access to technology by means of government loans to citizens involved in education. In this regard, as noted in previous pages, in 2007, the Peruvian government granted a voucher so that permanent teachers could acquire a laptop (Cuenca et al., 2009). It is here that the government missed a valuable opportunity to strongly start promoting the development of digital literacy.

In addition to the above, there is the need for high-speed connectivity that should be freely accessible on university campuses and in teaching and research facilities, as Chile has done for the school sector (Information system for educational trends in Latin-America, 2020).

In addition, it can foster strategic alliances between universities to share good practices in virtual education, as has been done in Chile (UNESCO-IESALC, 2020). Moreover, a complement to these alliances would be the creation of virtual higher education commissions that can guide and answer doubts regarding operativity (technological support in virtual platforms) and recommend methodologies already used in teaching and learning in this modality (multiplier effect of the strategic alliance).

It should also give greater impetus to training in digital competencies from basic education, a

good start being competency 28 of the National Curriculum Design (MINEDU, 2016a). However, more actions are required in order to have a positive impact on higher education. In this regard, both Uruguay and Argentina are showing signs of real digital policies at the national level through Plan Ceibal and Educ.ar (Information system for educational trends in Latin-America, 2020), respectively, which have allowed timely responses to the health crisis caused by COVID-19.

The design of new standardized teaching and assessment instruments and strategies, the management and implementation of online sessions, collaborative work, among others, should be the main competencies to be developed in teachers, without neglecting the technical aspect, such as the mastery and knowledge of a range of digital tools for e-learning. All of this should point to the implication of an educational policy that builds the new profile of the professors at the university level, since this is one of the fundamental axes for the successful transition of the teaching-learning process.

As for students, it is the duty of universities to be at the forefront with regard to the development of digital competencies of their student population. However, for this to become a reality, the new educational policies for e-learning teaching must implement assessment standards that measure the development of these competencies, as well as teaching tools that are compliant with the basic conditions of quality.

In addition, the specialists agree that its quality would be sustained inasmuch as institutions seek to aim for the following proposals: regarding students, the group size should not exceed 40; the weekly workload should be planned according to the reality of each group, and the evaluation should be based on diversity, course competencies, the number of face-to-face hours, and student identification (Huertas et al., 2018); and the control of their environment. As for professors, they must be accredited and continuously training in teaching technologies, pedagogical models, and pedagogical innovations; use tools to detect plagiarism and watch for the correct use of authorship; and provide feedback to their students within a maximum response time to

achieve the course learning outcomes (García-Peñalvo, 2020b).

Finally, it should be noted that, before taking these proposals into account, it will be extremely important to look at the experiences from the pandemic; to gather the pedagogical strategies applied during it, taking into account successes and mistakes; and to encourage reflection in each institution regarding their teaching and learning models in order to access a true digital transformation (Pedró, 2020).

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