



Technological Platforms of the “Aprendo en Casa” [Let’s Learn at Home] Strategy Perceived and Desired Changes 2020–2021

Luis-Rolando Alarcon-Llontop¹(✉) and Mirtha-Rafaela Carrasco-Yovera²

¹ Universidad Privada del Norte, Trujillo, Peru
luis.alarcon@upn.edu.pe

² Universidad Nacional de Piura, Castilla, Peru
mcarrascoyo@unp.edu.pe

Abstract. In order to evaluate changes in the “*Aprendo en Casa*” [Let’s learn at home] strategy in Peru, between its first and second year, the three platforms that integrate it: radio, television, and web, were compared in their educational purposes, within the framework of one of the meanings of digital interconnection. The study was based on the interpretive paradigm, qualitative approach, and phenomenological typology, using the technique of interviewing thirteen experts in school education who dialogued based on data from a previous macro study and their own experience. The changes perceived were that platforms in general improved in organization and arrangement of materials but not in contents that did not overcome initial biases of centralism and thematic adaptation. Accordingly, the expected changes point to overcoming the described deficiencies, as well as unifying the didactic resources equally for all subjects and providing accurate feedback to students on the use of the platforms. The conclusions are: a) the technological resources of the strategy lack what is found in the rest of the Region, which calls the attention of those responsible for educational systems to better address national virtual educational strategies; b) a methodology that could be used in similar contexts is left behind; and c) specifically for Peru, the results can be used by the teachers’ supervisors, due to the valuable information provided.

Keywords: Technological tools · communicative tools · educational strategy · educational media · digital interconnection

1 Introduction

1.1 ICTs, Education and COVID-19

At present, it is well known that information and communication technologies (ICT) contribute to, support, and enhance formal education, creating a strong combination and always presenting important challenges so that educational learning under the interaction with technologies can be the best possible [1].

Successful experiences in the use of ICTs in education had been widely reported in several studies before the COVID-19 pandemic [2]. But, undoubtedly, the clo-sure of

schools due to the health emergency caused by the pandemic prompted states to resort massively to the help of technology [3] and accelerated the pro-cesses of educational digitalization [4].

Incursions in the use of ICT in school education facing the COVID-19 have swept practically all corners of the world, and have generated a new educational model of response on the fly, although of gradual, unexpected, and confrontational changes, which in turn requires work between educators and students [5, 6].

In any case, the role of educational institutions regarding the use of ICT in these times of pandemic regarding the creation of virtual learning environments raises the question of how they are educating students in times of crisis [7, 8].

In Latin America, depending on each country in particular, but in common as a continent in general, the use of ICT as a school educational response to the COVID-19 pandemic has taken place within a framework of contextual characteristics of adaptations, pressures, difficulties, and gaps that are not easily over-come [9–12].

1.2 The Real Answer: Media and ICT at School

At the beginning of the pandemic, several studies were optimistic about the opportunity to incorporate technological resources in a framework of creative virtuality to find an unprecedented educational path for schools [13, 14], soon vulnerabilities were recognized in the praxis of ongoing technological innovations [15] and the role of teachers was called upon to strengthen new educational practices [16]; a year later, the possible integration of traditional schemes with the experienced remote ones was reviewed [17]. More recent research does not hesitate to recommend training in the use of ICTs, implementing strategies to overcome connectivity gaps, improving virtual environments and addressing teacher overload [18].

It is notorious the distances that the media find in their mediating role in the classrooms still, for questions of the same technologies, for their adaptation to the educational task, for practical accesses. Even in times of crisis due to the COVID-19 pandemic, the media as informative agents have been known to proceed well and to provide better citizen responses, more certainly for the analogical ones and a little less with the digital ones, as several measurements prove [19–23].

1.3 Peru: A Proposal Within the Framework of Digital Interconnection

For Peru, the strategy was called “*Aprendo en Casa*” [Let’s learn at home]. It involved three platforms (television, radio, and web), all of which were linked from an online portal and aimed to cover the five school levels and their grade levels, some of them according to the specific medium, in a progressive manner [24].

The experience, indirectly, was framed in the concept of digital interconnection, but not in the meaning that links it to the Internet of Things or IoT [25], but to the relationships that, at the educational level, makes possible between teachers, students and parents the integration of digital tools in the classroom to provide teaching-learning resources in a more interactive way [26, 27].

The objective of this study is to compare the three platforms of the “*Aprendo en Casa*” strategy regarding their educational purposes between its implementation in 2020

and its second year in 2021, based on the changes perceived and de-sired by expert educators. Each platform (radio, TV and web) opened two specific objectives, one aimed at perceived changes and the other at desired changes. Thus, there were six specific objectives in total and six specific questions, whose answers are integrated to cover the general objective.

2 Materials and Methods

The research was approached from the interpretive paradigm, both constructionist (the world results from the meanings given) and relativist (realities vary according to who lives them) [28]; qualitative approach, since its findings do not derive from numerical or statistical processes [29] and under the phenomenological typology, since the essence of what was found gathers intersubjective human experiences [30]. Its design combined grounded theory and narrative: the resulting reality was produced after joining meanings and situations, consensus and coincidences from analyzing data extracted from life experience narratives [31].

The category of analysis was outlined as the changes in the platforms of the “*Aprendo en Casa*” strategy, and, as pre-categories: a) perceived changes and b) desired changes. No traits were predefined; the possibility was left for the study to arrive at these changes as findings. With these two pre-categories, two research questions or reagents were formulated for each platform: “Regarding the year 2020, in your opinion how did the (radio, TV, or web) platform of “Let’s learn at home” change in 2021 for educational purposes?” and “In your opinion what changes would you have expected to be implemented in 2021 for the (radio, TV, or web) platform and were not done?”. Thus, six questions were directed toward the results sought.

For the universe of informants, the sample followed the possibilities of qualitative typology, in fact, a criterion sampling, based on specific selection guidelines and defined for this research; and, for convenience, in this case, due to their location close to the researchers [32].

Thirteen expert educators were selected based on the following inclusion criteria: belonging to the public education sector in order to have used the platforms provided by the strategy, having ongoing or completed training in the sector (master’s or doctoral studies, diplomas, etc.), meeting proportional gender quotas and working in the region where the researchers are located. Exclusion criteria: teachers with no work activity in one or both periods of the strategy, teachers with directive or middle or high management positions, due to their possible political bias.

The interview technique was used and a semi-structured questionnaire was used as an instrument. The interviews were conducted remotely using the Zoom Platform during the first three days of April 2022 (first group) and half of June 2022 (second group). The interview guide focused on two central questions following the planned pre-categories described above.

As a methodological procedure: 1) informants were located by contact networks; the objectives were explained to them and their participation was requested; 2) a summary of findings on the first year of the strategy was shared with them, starting from a previous information base obtained through interviews to experts and other educational actors of

the experience in order to provide a con-text and to be the basis for coincidences and new data (this is a first research on the subject, whose author is the principal investigator of this research [33]); 3) the virtual meetings were developed based on two general questions and the six derived questions; 4) the resulting information was transferred to matrixes looking for keys of coinciding answers, examples, and contributions; 5) the results were generated manually, without advanced software, but in Word templates, which facilitated interpretations of the findings; 6) a matrix of final resulting categories was generated, which served for results and conclusions.

3 Results and Discussion

3.1 A Distant Radio

The expert teachers agreed that radio had not been considered an adequate re-source in the strategy, even though, as a medium of greater reach and massification, it was initially assumed to be the main axis, especially in rural areas, as it has been demonstrated from its social typology throughout its history [34], and even more today, with its migration to the web in undeniable media innovation [35]. Lack of coverage and insufficient broadcasting stations were the main reasons for this low use. Radio did not cover all school subjects either, but only those considered “the main ones”. In addition, teachers did not consider it to be an entirely didactic or dynamic resource: since it was only auditory, students were easily dis-tracted and failed to understand some complex areas such as mathematics. This reality describes how limiting educational technology can be when establishing learning relationships that enrich cognitive experiences and processes when the appropriate platform or medium has not been well selected [36], when it is expected that in the teaching- learning processes, the technological approach is be-tween teachers and students, making such processes more flexible and responsive [37]. Despite this, it is recognized that in 2021 some materials such as podcasts, useful for teachers and easily accessible to students, were included. In the alternative basic level, in its first year, very relegated, its time slot was increased and the content was directed to students and their families. Thus, it is emphasized that the use of these digital tools should not be limited to transferring traditional educational models, but should seek ways to reorient innovative designs toward true learning experiences in new virtual environments [36] (Fig. 1).

Regarding expectations about changes in the use of radio, the opinion was that even with eventual improvements, the medium would still not be the most suitable for teaching,

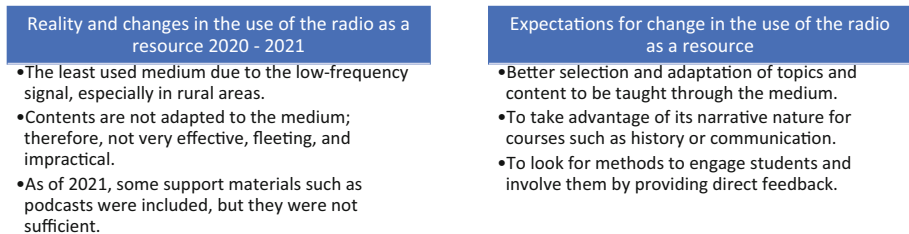


Fig. 1. Summary of perceived and desired changes on the radio in “Aprendo en Casa” 2020–2021 in the digital interconnection framework.

because it is “impractical” and “fleeting”, ineffective at levels such as kindergarten, where visual and motor skills are essential. This current vision of the medium is far from the initial conception of it: to be an extension and complement of formal education for those who had no possibility of access to a school [38]. Teachers would have expected, moreover, a more adequate selection and adaptation of the topics taught through the radio, and better use of its narrative nature, exploited in subjects such as history or communication, where stories are a fundamental part of the content. In this sense, it is agreed that educational technology challenges its function of humanizing the teaching-learning process by generating new ways of adapting to the circumstances and realities of both students and teachers so that the role of both actors can be performed most optimally [39]. It was also necessary to look for ways to generate greater participation that would engage the student, since there was no feedback or interaction of any kind, making the radio a distant means of communication.

3.2 A Better TV But Not Enough

The interviewees perceive that TV was a medium that was not fully accepted by students and teachers. Reasons such as the poor coverage of the State channel, interruption of classes due to special transmissions, or the lack of televisions or electricity in rural or peripheral areas did not allow it to be presented as a resource of massive reach, a situation that contrasts with the figures on ownership that show that 100% of households have at least one television set [40], but do not consider whether they work, are in good conditions, or if they detect the frequencies. However, improvements were observed from one year to the other, which were in the organization and structure of the classes, but not in the content itself or the teaching method. It is recognized that in 2021 there was better planning: the programs, themes, and contents were uploaded in advance to the web page, which allowed a more ordered preparation of classes, contrasting with the progress of the previous year. The experience for its implementation always had to consider the need to correctly articulate the management processes of the education systems involving factors such as planning, equity, quality, and resource management, in order to obtain better results in the implementation of educational services [41].

The changes that expert teachers would have expected to occur with TV as a platform for the strategy focused on a better methodological and content execution, better selection of the topics worked on (in some subjects, such as science and technology, several were included in only half an hour) and diversified to the different realities of the country. Centralism continued to be confined to the capital and urban reality, without considering geographic differences and gaps in educational level (not all students, even in the same area, share the same learning needs). It can be stated then that although the educational role of television is active in terms of teaching-learning due to the sensory perception of the information, its success lies in how it is used: everything will depend on the adequate selection of contents [33]. Teachers would also have liked the replacement of TV presenters, who were not teachers and who, because they did not handle the appropriate pedagogical practices, were not able to engage the students. Finally, the lack of interaction that would generate feedback mechanisms from the student to the environment is emphasized, although it did take place with the teacher. This need is validated by the significant function of the feedback process in learning as an instrument

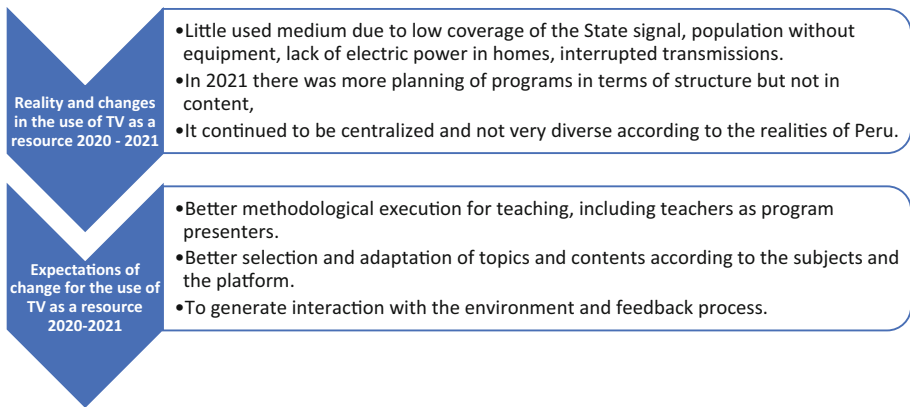


Fig. 2. Synthesis of perceived and desired changes regarding TV in “Aprendo en Casa” 2020–2021 in the digital interconnection framework.

for the student to identify and compare if what he or she understood in class is really what he or she should have understood, and if the proposed goal was achieved, or to identify deficiencies that can be remedied with improvement plans [42] (Fig. 2).

3.3 The Web Platform and the Gaps Still Remain

The web platform presented the greatest change according to the teachers interviewed. Change focused on organization and planning, but not on its use by students. In the same line of inaccessibility of radio and TV, the web was even more elusive for most students due to the digital gaps that affect the country as well as others in the region. Even though internet use has increased since the implementation of the experience in 2020, mainly through cell phones (87.7% of Peruvians access the internet), the rural area continues to face serious complications to enjoy these services and only increased to 9.2% compared to 5.9% in 2019 [43]. For teachers, with differentiated digital access and greater training in digital uses compared to the starting year, the web platform became their best ally because of the resources available, such as sessions, guides, materials; but they had to be the link with students, involving another technology not foreseen by the strategy: WhatsApp, which was combined with phone calls and even visits, thus responding to the development of their digital skills, fueled by the pandemic, as in the rest of the world [44]. This corresponds to the fact that the ability to adapt on the part of teachers allowed them to learn or improve their skills for the use and handling of the different technological tools for educational purposes, an adaptation that went hand in hand with the methodology that each teacher implemented individually, according to the context and reality of each student group, in order to provide their students with the most didactic content [8]. Teachers recognize that the quality of content and its timely availability improved, which helped them to adapt and contextualize materials as appropriate. The negative aspect was that the process of accessing the web platform became more tedious; now a series of steps had to be followed to get to the main page, generating confusion for parents and students.

Interviewees agreed that the needs addressed in general by the web platform fill the gaps observed. But, although the content and resources improved, they were still, in some cases, dense and extensive for the students, so teachers would have expected a more careful treatment, a job that fell on them.

Thus, the important role they played in the need to coherently organize and manage the information provided according to the results they expected to achieve with their students was highlighted, bringing with it a prior decision-making process to discern what will be learned, how it will be done and how it will be evaluated, having to select those contents or concepts more in line with the realities and levels of their students [29]. In some subjects (such as English, work education, physical education), there was no integration with the work of the other subjects: at the time of creating learning products, the so-called “main areas” relied on unified evidence while the others had to follow other criteria, which was expected to improve. The need for feedback with the medium, which in the case of the web had the spaces and ways to be implemented, is reemphasized. Finally, it is observed the impact on the expectation for the three tools of having had feedback that went beyond that which was provided by the teacher, the final, and perhaps the most important, process to verify the direction that the student was taking, and that provided information on what to correct or review and served as a specific guide for their own needs [45].

3.4 Finally, Cross-Cutting Results

In addition, a striking result that appears to be transversal is that teachers did not perceive as a change in the platforms a substantive improvement in the interaction between them in terms of the extension of topics and resources, nor a greater and transcendent interaction of the platforms with the target actors of the strategy, being still far from what is desired by what we assume as digital interconnection [26, 27]. But on the positive side, some experts interviewed validated that the three platforms -together- had managed in one year to motivate and initiate in their students a more autonomous learning process with a greater protagonist role, which would be the basis for a new way of working, something seen in different degrees in other experiences [5, 6] (Fig. 3).

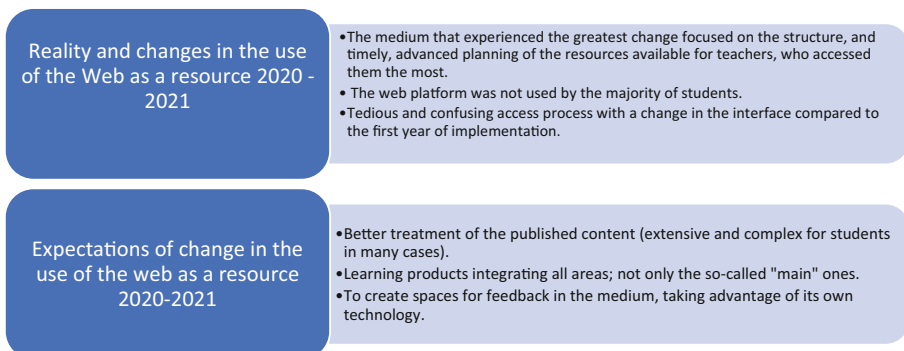


Fig. 3. Synopsis of perceived and desired changes on the “Aprendo en Casa” website 2020–2021 in the digital interconnection framework.

Finally, the specialists consulted analyzed the lack of knowledge and management of technologies at the time of integrating them into the educational field, recognizing that their use was limited and even scarce and that even after the implementation of the experience there is a need to update their skills in the use of the various tools that ICTs make available to facilitate and integrate the learning processes. This coincides with what has been found in other investigations as well [15–18].

4 Conclusions

From the analysis of results, according to the changes perceived and desired by expert teachers regarding the technological platforms used in the “*Aprendo en Casa*” strategy in Peru between 2020 and 2021, the following is obtained:

- With specificities for the case of Peru, the findings are consistent with those of other research on the development and state of technological resources available for similar strategies in the rest of Latin America, especially in countries closer to the region where the problems of digital divides, didactic use of ICT by teachers, and the responses of students in terms of use are similar. This leaves an inescapable lesson for those responsible for education systems: national virtual education strategies need continuous attention and improvement.
- The methodology used brings to the same object of study previously addressed by the researchers - the “*Aprendo en Casa*” strategy - the evaluation of one more resource that was not previously analyzed: the web platform. By having the three resources -radio, TV and web- studied this time, we have a more comprehensive diagnosis, which is also done at a second moment with respect to the first research, thus conferring a sort of longitudinal character to the findings. There are no similar evaluations of the strategy. At the methodological level, the experience could be used to study similar cases in other countries.
- By collecting data from a sample of the most relevant central actors of the strategy in Peru, the school teachers themselves, at the urban and rural level, who are responsible for articulating the incursion in practice, this research guarantees information that, delivered in a systematized manner as it is done here, can be used by their superiors -school principals, directors of Local Educational Management Units (UGEL), Ministry of Education- in the design, implementation, control and improvement of the program.
- The research, whose main limitation this time was to reduce - for logistical, time and operational reasons - the presence of other active actors in the strategy, such as students and parents, always leaves the door open for future studies to fill these gaps by focusing on their participation, hopefully integrated and exploring other more participatory scientific methodologies such as, from the qualitative, ethnographic and action research studies that can reach and implement even real proposals for improvement.

References

1. J.J. Monedero-Moya, D. Cebrián-Robles, P. Desenne, Usabilidad y satisfacción en herramientas de anotaciones multimedia para MOOC, *Comunicar Revista Científica Iberoamericana de Comunicación y Educación* (44) (2015) 55–62. <https://doi.org/10.3916/C44-2015-06>
2. V.I. Marín, O. Zawacki-Richter, A.P. García, J. Salinas, Tendencias en el ámbito de la Tecnología Educativa en Iberoamérica: 20 años de la revista *EduTec*, *EduTec Revista Electrónica de Tecnología Educativa* (59) (2017) 1–24. <https://doi.org/10.21556/edutec.2017.59.836>
3. M. Álvarez, E. Arias, S. Rieble-Aubourg, C. Rivera, A. Viteri, A. López, M. Pérez, M. Vásquez, A. Bergamaschi, A. Noli, M. Ortiz, R. Scannone, Education in Times of Coronavirus: Latin America and the Caribbean Education Systems in the Face of COVID-19, *Inter-American Development Bank* (2020).
4. F. Frantani, The Acceleration of digitalisation within education as a result of COVID-19, *Global Focus The EFMD Business Magazine* 15 (1) (2021) 1-4.
5. C. Harris, The Role of ‘Rich Tasks’ an interdisciplinary and digital approach to learning post-COVID-19, *Pixel-Bit Revista de Medios y Educación* (61) (2021) 99–130. <https://doi.org/10.12795/pixelbit.88209>
6. R. Santa Medina, El e-learning en Educación Primaria como consecuencia de la situación generada por el COVID-19: un estudio de caso, *Revista Interuniversitaria de Investigación en Tecnología Educativa* (10) (2021) 121–136. <https://doi.org/10.6018/riite.439831>
7. D. Cueva, La Tecnología educativa en tiempos de crisis, *Revista Conrado* 16 (74) (2020) 341-348.
8. A.J. Medina Marín, Herramientas tecnológicas en la gestión docente del proceso de formación: plan la universidad en casa y educación a distancia. *Universidad y Sociedad* 13(4) (2021) 258–266.
9. C. Hordatt, T. Haynes, Latin American and Caribbean teachers’ transition to online teaching during the COVID-19 pandemic: Challenges, changes and lessons learned, *Pixel-Bit Revista de Medios y Educación* (61) (2021) 131–163. <https://doi.org/10.12795/pixelbit.88054>
10. S. Jaramillo, COVID-19, and Primary and secondary education: The impact of the crisis and public policy implications for Latin America and the Caribbean, *United Nations Development Programme*, 2020.
11. M. Lloyd, Desigualdades educativas y la brecha digital en tiempos de COVID-19, in H. Casanova Cardiel (Coord.), *Educación y pandemia: una visión académica*, Universidad Nacional Autónoma de México, Instituto de Investigaciones sobre la Universidad y la Educación, Mexico, 2020, pp. 115–121.
12. L.M. Velázquez, ¿Virtualizar o precarizar? Consecuencias de la pandemia, *Cotidiano Revista de la Realidad Mexicana* 35(221) (2020) 61-67.
13. Z. Almazán, A. Loeza, V. López, Aprender e innovar en la pandemia, *El Mundo de la educación* (17) (2020) 54–58.
14. S. Correa, La Innovación educativa en los tiempos del Coronavirus, *Salutem Scientia Spiritus* 6(1) (2020) 14-26.
15. R. Camacho Marín, C. Rivas Vallejos, M. Gaspar Castro, C. Quiñonez Mendoza, Innovación y tecnología educativa en el contexto actual latinoamericano, *Revista de Ciencias Sociales* 26 (2020) 460 – 471.
16. C. Sandoval, La Educación en tiempo del Covid-19 Herramientas TIC: El Nuevo rol docente en el fortalecimiento del proceso enseñanza aprendizaje de las prácticas educativas innovadoras. *Revista Tecnológica-Educativa Docentes 2.0* 9(2) (2020) 24–31. <https://doi.org/10.37843/rtd.v9i2.138>
17. A. Rodríguez Jiménez, La COVID-19, motor de cambio de la transformación educativa más grande de los últimos siglos, *Hachetepepe Revista científica de educación y comunicación* 23 (2021) 1–11. <https://doi.org/10.25267/Hachetepepe.2021.i23.2203>

18. J.-C. Mateus, P. Andrada, C. González-Cabrera, C. Ugalde, S. Novomiski, Perspectivas docentes para una agenda crítica en educación mediática post COVID-19. Estudio comparativo en Latinoamérica, *Comunicar* 70(30) (2022) 9-19. <https://doi.org/10.3916/C70-2022-01>
19. E. Rodero, Radio: the medium that best copes in crises. Listening habits, consumption, and perception of radio listeners during the lockdown by the Covid-19, *El profesional de la información* 29(3) (2020) 1–15. <https://doi.org/10.3145/epi.2020.may.06>
20. G. Roman, M. Álvarez-Rementería, E. Pérez-Izaguirre, M. Dosil, El Rol de los medios de comunicación en situaciones de crisis sanitaria. La Percepción de la población en torno al control y las normas sociales durante la pandemia del COVID-19, *Revista Latina de Comunicación Social* 78 (2020) 437–456. <https://doi.org/10.4185/RLCS-2020-1484>
21. H. Navarro Guere, Cómo es la información que recibimos sobre la COVID-19. Estudio de percepción y consumo, *Chasqui Revista Latinoamericana de Comunicación* 1(145) (2020) 67–92. <https://doi.org/10.16921/chasqui.v1i145.4326>
22. P. Lázaro-Rodríguez, E. Herrera-Viedma, Noticias sobre Covid-19 y 2019-nCoV en medios de comunicación de España: el papel de los medios digitales en tiempos de confinamiento, *El profesional de la información*, 29 (3) (2020) 1-11. <https://doi.org/10.3145/epi.2020.may.02>
23. A. Casero-Ripollés, The Impact of Covid-19 on journalism: a set of transformations in five domains, *Comunicação e Sociedade* 40 (2021) 53-69.
24. Ministerio de Educación, *Aprendo en casa*, 2020.
25. R.B. Usca-Veloz, J.C. Muyulema-Allaica, C.G. Espinosa-Ruiz, R.A. Sánchez-Macías, G.A. Velasteguí-Bósquez, W.M. Caspi-Pilamunga, La Interconexión digital de objetos habituales con Internet y sus aplicaciones para la empresa y la Industria 4.0: Review, *Revista Internacional de Investigación e Innovación Tecnológica* (41) (2019) 1–19.
26. P.A. Arias Arroyo, M.M. Merino Zurita, Integración de las nuevas tecnologías al contexto educativo: Una visión desde el diseño curricular, *Didasc@lia: Didáctica y Educación* VII(6) (2016) 143–152.
27. VASS, *La transformación digital en la educación*, VASS Company, 2018.
28. K. Batthyány, M. Cabrera (edits.), *Metodología de la investigación en Ciencias Sociales. Apuntes para un curso inicial*, Universidad de la República, Montevideo, 2011.
29. A. Strauss, J. Corbin, *Bases de la investigación cualitativa. Técnicas y procedimientos para desarrollar la teoría fundamentada*, Universidad de Antioquia, Medellín, 2002.
30. A. Ortiz Ocaña, *Enfoques y métodos de investigación en ciencias sociales y humanas*, Ediciones de la U, Bogotá, 2015.
31. C.M. Arispe Alburqueque, J.S. Yangali Vicente, M. A. Guerrero Bejarano, O. Rivera Lozada de Bonilla, L.A. Acuña Gamboa, C. Arellano Sacramento, *La Investigación científica. Una aproximación para los estudios de posgrado*, Universidad Internacional del Ecuador, Guayaquil, 2020.
32. S.H. Benites Romero, L. Villanueva López, *Retroceder investigando ¡nunca! Rendirse con la tesis ¡Jamás! Metodología de la investigación en comunicación social*, Fondo Editorial Cultura Peruana, Lima, 2015.
33. L.R. Alarcón Llontop, *La Radio y la televisión en “Aprendo en Casa”: Un análisis comunicacional y evaluación cualitativa desde los actores centrales de la estrategia*, CONCORTV, Lima, 2020.
34. M.J. Hermosín-Mojeda, B. Mora-Jauregui, “Radioenseñanza” an educational experience for adults through radio in Huelva at the end of Francoism, *Social and Education History* 8(2) (2019) 170-196.
35. M. Mendonça, C. Domingos, S. Do Ramo, E. Da Silva, P. Pereira, A. Sena, J. Victor, C. Antônio, A. Correira, M. Vinícios, *The Educational technology of radio in the European Union*, 13th Iberian Conference on Information Systems and Technologies, 2018.

36. L. Guánchez, Y. Herrera, La Evaluación de los procesos de enseñanza – aprendizaje con uso de los entornos visuales. Taller de renovación didáctica universitaria, uso y diseño de medios tecnológicos, Publicaciones MPPEU, 2020.
37. K.F. Alhumaïd, Evaluación cualitativa: Efectividad de la utilización de medios digitales y sociales en la educación, *Utopia y Praxis Latinoamericana* 25 (6) (2020) 466-476. <https://doi.org/10.5281/zenodo.3987663>
38. A. Merayo, Identidad, sentido y uso de la radio educativa, in: III Congreso Internacional Cultura y Medios de Comunicación, Ediciones de la Universidad Pontificia, Salamanca, 2000.
39. E. Baran, A Review of research on mobile learning in teacher education, *Educational Technology an Society* 17(4) (2014) 17-32.
40. Consejo Consultivo de Radio y Televisión, Estudio cuantitativo sobre consumo televisivo y radial en adultos. Perú, 2019.
41. C. Carriazo Díaz, M. Pérez Reyes, K. Gaviria Bustamante, Planificación educativa como herramienta fundamental para una educación con calidad, *Utopía y Praxis Latinoamericana* 25(3) (2020) 87–94. <https://doi.org/10.5281/zenodo.3907048>
42. L.A. Tamez Vargas, F.G. Lozano Martínez, Retroalimentación Formativa para estudiantes de educación a distancia, *RIED Revista Iberoamericana de Educación a Distancia*, 17(2), (2014) 197–221. <https://doi.org/10.5944/ried.17.2.12684>
43. Instituto Nacional de Estadística e Informática, Nota informativa: Se incrementó la población que utiliza internet a diario, Perú (26 de marzo de 2021).
44. A.J. Centurión Larrea, Competencias digitales docentes en época de emergencia sanitaria: necesidades y oportunidades para estudiantes de educación secundaria en Lambayeque, *Revista Peruana de Investigación Educativa* 13(14) (2021) 107–131. <https://doi.org/10.34236/rpie.v13i14.296>
45. V. Shute, Focus on formative feedback. *Review of Educational Research* 78 (1), (2008) 153–189. <https://doi.org/10.3102/0034654307313795>

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