



Digital Competence, New Perspectives for Teaching in Contexts of Social Isolation¹

Competencia digital, nuevas perspectivas para la docencia en contextos de aislamiento social

Received: October 02, 2020 – Accepted: November 03, 2020

María Amelia Cruz Cobeñas²

Id. Orcid: <https://orcid.org/0000-0001-9663-2819>

Wilfredo Carcausto-Calla³

Id. Orcid: <https://orcid.org/0000-0002-3218-871X>

Universidad César Vallejo, Perú

Abstract

The article reviews the problem of digital competences from the digital constructivist learning approach for digital empowerment from formative education of the dimensions: (a) personal, (b) ethical, (c) professional, as opposed to the structuralist definition or functionalist of the connectivist approach, which prioritizes the professional and functional dimension of the competences in the use of information and communication technologies. Digital competences are established as the skills to achieve integration, accessibility, employability and equity of digital communities, valued in the context of the current pandemic and in virtual education, doors of a future of sustainable health and citizenship.

Keywords: Connectivism; Digital Constructivism; Creation of Digital Contents; Digital Citizenship; Digital Competences; Remote Education; Virtual education; Digital Empowerment.

Resumen

El artículo revisa la problemática de las competencias digitales desde el enfoque de aprendizaje constructivista digital para el empoderamiento digital desde la educación formativa de las dimensiones: (a) personal, (b) ética, (c) profesional, en contraposición a la definición estructuralista o funcionalista del enfoque conectivista, la cual prioriza la dimensión profesional y funcional de las competencias en el uso de las tecnologías de la información y la comunicación. Se establece a las competencias digitales como las destrezas para lograr la integración, accesibilidad, empleabilidad y equidad de las comunidades digitales, valorados en el contexto de la pandemia actual y en la educación virtual puertas de un futuro de salud y ciudadanía sostenibles.

Palabras clave: Ciudadanía Digital; Competencias Digitales; Conectivismo; Constructivismo Digital; Creación de Contenidos Digitales; Educación Remota; Educación Virtual; Empoderamiento Digital.



Attribution -Non Comercial-NoDerivates 4.0 International

¹ This is a research product derived from the doctoral thesis: Professional culture and digital competence in primary education teachers of REI 16, Carabayllo-2020.

² E-mail: ccobenasm@ucvvirtual.edu.pe, mariacruz0568@gmail.com.

³ E-mail: wcarcaustocalla@ucvvirtual.edu.pe

I. Introduction.

The possibilities of continuing in the jobs of private and public educational institutions are increasingly unlikely, since the SARS-CoV-2 pandemic has been established in Peru, taking root different factors external to the schools themselves that prevent the execution of the teaching task effectively in digital communities: (a) Teaching exercise, (b) Potential for empowerment, (c) Resilient attitudes, (d) Lack of Internet data, (e) Minority economies. These factors have appeared in this context, due to the initial limitations reflected in all sectors for development, particularly in Peruvian education, the compulsory social isolation determined by the National Government (DS N ° 046-2020-PCM), has confined teachers forcing them to exercise the teaching task in virtual environments, which has required putting digital competences into practice, being the capacities that many mastered up to a year before the appearance of the virus in our territory, as well as the skills of others, who know little about their own mastery of these competences, placing their job position in their schools in a risk zone.

Problems and initial perspectives

Remote education or virtual education has been implemented in different countries from two training and instructional modalities: (a) asynchronous, (b) synchronous (Cantián, 2 de abril, 2020). This has required teachers to develop their competences, exercised in the virtual teaching plane with different pedagogical nuances, so they need knowledge of different tools, as well as adopting strategies for their use. This is important since the European Commission (2009) had raised new curricular requirements for educational organizations and institutions in the world, in which the development of new profiles is introduced to form the teaching profile of future professionals. Thus, he considers some of them as: (a) Communication and collaborative work, (b) Mastery of digitization content, (c) Information literacy, (d) Problem solving, this has also been consistent with the proposals of others authors who highlight its usefulness in the formation of the educational profile (Larraz et al., 2019; Garzón et al., 2020; Pugacheva et al., 2020; Tourón et al., 2018). These proposals bring new concerns to Peruvian education, since these perspectives were little conceived, and apparently, the new teaching has adapted to the context of remote education by obligation, although this is not an obligation for everyone, but rather a defect of the educational system itself, which has not forged them in these competencies effectively.

It is important to know that more than 70 % of the adult population, who are teachers in our territory, consumed daily hours of the Internet until 2019, although it is known that more than 20 % of the Peruvian population did not use it for academic purposes, more on the contrary, only for leisure activities (Instituto Nacional de Estadística e Informática del Perú, INEI, 2019). This is paradoxical, since only 18 % of this population used virtual environments for personal communication, or even for teaching. On the other hand, more than 95 % of Peruvian schools have some technological tool, be it personal computers, laptops, tablets, among others (INEI, 2019). This should be analyzed, since the educational processes in the current pandemic would be oriented towards the disuse of technologies, since the technology exists, but other resources of high importance for its operation such as Internet data, wiring, mobile phones for m-learning, being so, in other contexts it has been found that people with few possibilities to use technologies are those who precisely have few digital skills to teach or learn in virtual media (Domingo-Coscollola et al., 2020), generating in other cases the digital exclusion of minority societies (Chib et al., 2019).

Regarding this situation, it is necessary to review the theoretical concepts and approaches that support digital competence, as it is considered part of the teacher's training profile today.

Economies and digital integration processes for empowerment require the development of these competencies, the achievement that these are as domains, skills, attitudes and abilities to obtain better opportunities in the labor sector, for which the theoretical documentary review of the concepts related to its theoretical conception This description will allow starting from the substantive bases that all teachers must know in order to achieve their digital competences and their future personal development.

Digital competences: findings and perspectives

Studies on digital competences have determined that the variables related to age, the degree of training and digital culture are related to digital competences, especially in people of legal age (Holguin-Alvarez et al., 2020; Pozo et al., 2020), which have problems interacting with current technological devices, virtual applications and personal interaction tools (Pozo et al., 2020). Although it has also been found that there is a lot of irresponsibility with respect to professional culture, and therefore, the digital culture that they present before their teaching task, even more so when they no longer have many expectations of personal improvement, with little positive motivation prevailing (Saltanat et al., 2016; Vargas, 2016). On the other hand, other evidences separate these more humanistic components, finding relationships between digital competences and ICT training (Gallego-Arrufat et al., 2019; Zempoalteca et al., 2017), although more concrete evidences have been found than argue that the lack of digital culture (Gallego-Arrufat et al., 2019), implies greater risks in the use of this culture in the teaching and learning media. These problems are related to the lack of capacities to solve problems, such as to apply digital security as important components, especially in people of legal age, who work in institutions of basic or higher education.

The possibilities to achieve effective social empowerment from digital empowerment are those that start from the use of these competences, which appear in the community to allow four dimensions for sustainable social development (Delgado, 2018; Jiménez et al., 2017): (a) accessibility, (b) employability, (c) equity. Therefore, social actors who want to emerge in current digital communities need to find means and strategies based on the use of specific resources, such as the connection to the network, data consumption and devices based on artificial intelligence.

For the promotion of employment (item c), it is necessary to implement the training of digital competences in the institutional curriculum, although at this point there are many doubts that it is only established at the university level, when school groups also need its approach and development. On the equity side, it is necessary to adapt the platforms to give students the opportunity to develop their skills based on egalitarian learning rhythms; this reduces digital gaps, avoiding the digital exclusion of future professionals, as has already been seen in other studies (Chib et al., 2019).

In a later work, Jiménez-Pitre et al. (2017) propose another important dimension, coining it to these three as one of the axes of social development, this being item (d): integration. This is important, since many disadvantaged contexts are outside the framework of digital inclusion promoted by the European Community, if they are served late by schools and universities. This means, collaborative work is needed in the teaching and learning networks, teachers must learn from their students, and vice versa, thus becoming another student, the principle of digital academic retribution is exercised. Much of the current evidence affirms that digital competences allow professional development, although some studies have shown this, achieving that a small percentage of the population acquires these possibilities if these skills are in a formative gap (Guizado et al., 2019; Pozos & Tejada, 2018; Oppl & Stary, 2018). Therefore, we can affirm that digital competences are inherent competences in

the social development that is sought today, since technologies, virtual media and artificial intelligence become necessary elements to achieve that students immerse themselves in digital communities, but above all, empower yourself to captivate others in these environments.

Digital competence is that knowledge and skill that the human being uses to use virtual media for the purpose of obtaining, analyzing, organizing, distributing, teaching, evaluating and guiding the information found in such digital spaces, therefore, it is considered competition for social support in contemporary times. Now, digital competences as didactic equipment for teaching are the set of skills and concepts to use information for training, evaluative and feedback purposes in collaborative teaching and learning platforms (Aristizabal & Cruz, 2018; Choudrie et al., 2018; Engen, 2019; Garzón et al., 2020). For this reason, it is understood as the induction towards learning using virtual media or platforms in different modalities: (a) self-training, (b) co-training, (c) heteroformation (Choudrie et al., 2018; Engen, 2019; Engeness et al., 2020; Girón-Escudero et al., 2019; Garzón et al., 2020). Although some theorists explain that they are known as the basic skills for the use of information and communication technologies (ICT) (Lakkala & Kantosalo, 2011), ignoring the development and adaptation capacities of these ways to achieve learning through domain of digital information, as suggested by other studies based on digital socio-constructivism and humanist connectivism (Pachis & Zonneveld, 2018; Pugacheva et al., 2020; Tourón et al., 2018). Digital competences are the constructivist domains of the teacher in digital media that allow them to learn, diversify and reward knowledge through interactions based on development, the thinking about digital competences here is more humanistic than structuralist.

Some concepts of the structural or functional position of connectivism are substantial, this is due to the fact that digital competences exercise practical functionalities for the business and work profile, since they allow the adoption of work consistent with the profile of the personnel of educational institutions (Lakkala & Kantosalo, 2011; Sabaliauskas & Pukelis, 2006). Although at present, competences are sought that strengthen the sense of humanity, beyond job positioning, which is part of the integrationist proposals that competencies can generate for digital social empowerment (Choi et al., 2017; Gisber & Lázaro, 2015; Jiménez-Pitre et al., 2017; Käck, 2012).

In this sense, it is necessary to accept that given the various dangers in virtual communication environments (social networks), the speed with which information is entered into these media, the applications arising from the artificial intelligence approach and 4g and 5g technologies, An integrationist approach is needed, with merit in the search for healthy competences, which allow, in principle, the personal dimension as well as the social dimension, rather than professional training in an ethical sense of a sustainable educational line.

Tourón et al. (2018) has defined digital competences as the skills for the participation of different communities, for the purposes of empowerment in networks, teaching based on the management of information in a sustainable way; and the application of these concepts for the formation of digital citizenship. Among its dimensions, it agrees with other authors and organizations that highlight these components (Comisión Europea, 2009; Choi et al., 2018; Choi et al., 2017; Garzón et al., 2020; Pugacheva et al., 2020): (a) Information management, (b) Communication and collaboration, (c) Creation of digital content, (d) Security, (e) Problem solving. Regarding the first, he considers it as that human skill to acquire information in different media, use it for educational purposes, and provide feedback on learning, as well as teach others to acquire it by their own means. Regarding the second (communication and collaboration), the capacities revolve around the use of their skills to communicate interactively, multilaterally, in collaboration, managing to overcome obstacles to

intimate safely with others, which improves the contributions to achieve empowerment and empower others on different platforms and social networks.

The creation of digital content (item c), allows educators to capture ideas through the use of graphic elements in the media, which allow user-friendly access on platforms, and allow representing the educational objectives of the students. In this case, the applications or benefits of the platforms themselves are used to dynamize the information; transform it in such a way as to achieve impacts on the source's receivers (Spante et al., 2018; Tourón et al., 2018). In this regard, we can affirm in terms of security competence that it is the ability to provide means that protect consumer information, information from platforms, information from different learning objectives (OVA), and the repositories in which they will be added, with didactic purposes in which the ethical sense of digital training is implied. In this case, it is clear from the authors that this is the point from which the humanistic sense of digital competences starts (Comisión Europea, 2009; Choi et al., 2018; Choudrie et al., 2018; Engen, 2019; Garzón et al., 2020; Pachis & Zonneveld, 2018; Pugacheva et al., 2020; Spante et al., 2018; Tourón et al., 2018), so they depart from the functionalist sense of their training requirement. Many of the current problems are related to urgent social problems, among them: (a) cyber bullying, (b) the adoption of identity, (c) the hijacking of information, (d) SEO positioning, (e) Couple cyber dating. Therefore, it is important to develop competence for the use and acquisition of information by students.

Finally, problem solving has been the concern of teachers in different learning fields, which is why it is considered a highly complex skill for its development.

It is the ability to recognize obstacles, analyze them, study their solution possibilities, and execute them through the use of virtual tools, in environments that require their application, considering ethical elements for their execution. This review emerges from the connectivist approach to learning (Downes & Siemens, como se citó en Lasso et al., 2017) for education in a humanistic sense (Aristizabal & Cruz, 2018; Choudrie et al., 2018; Engen, 2019; From, 2017; Spante et al., 2018; Tourón et al., 2018), since current contexts need these competences to generate new opportunities from virtual environments in communities that are socially isolated, withdrawn to the use of unique devices for pedagogical development in the education sector. Many of the deficiencies of digital competences are configured as the main obstacles to achieve the social empowerment of learning communities. Teachers need these competences to strengthen themselves, and strengthen these communities as a mission that unifies the sense of equity and ethics in the training of child, school or university students.

II. Conclusions.

Digital skills can be understood in the humanistic approach, with a sense of reevaluation of the human being to obtain empowerment opportunities in virtual environments, which allow their personal, social and professional growth, being the main axes to be developed in current virtual education. Furthermore, in the pandemic context in which we find ourselves.

From what has been reviewed, digital competences can be defined as the main elements with which teachers are trained in awareness of the opportunities that interact in networks represent, and from whose collaboration spaces, activities are derived for the use of the information to acquire diverse knowledge.

Digital competences are defined in humanistic components for the acquisition of information, personal improvement and the training of digital citizenship, with a view to being used for remote

education or virtual education, as they are emerging variables in states of public health situation. As well as being usable human resources at any stage of human development in posterity.

III. References.

- Aristizabal, P. & Cruz, E. (2018). Development of digital competence in the initial teacher education of early childhood education. *Pixel-bit- revista de medios y educacion*, 52, 97-110. <https://doi.org/10.12795/pixelbit.2018.i52.07>
- Cantián, F. (2020, 4 de abril). ¿A qué modelo educativo lleva la Covid-19?. *La Vanguardia*. <https://www.lavanguardia.com/participacion/cartas/20200404/48283729781/debate-modelo-educativo-presencial-a-distancia-virtual-pandemia-covid-19.html>
- Chib, A.; Bentley, C. & Wardoyo, R.J. (2019). Entornos digitales distribuidos y aprendizaje: Empoderamiento personal y transformación social en colectivos discriminados. *Comunicar*, 58(XXVII), 51-61, <https://doi.org/10.3916/C58-2019-05>
- Choi, M.; Glassman, M.; & Cristol, D. (2017). What it means to be a citizen in the internet age: Development of a reliable and valid digital citizenship scale. *Computers & Education*, 107, 100-112. <https://doi.org/10.1016/j.compedu.2017.01.002>
- Choi, M.; Cristol, D.; & Gimbert, B. (2018). Teachers as digital citizens: The influence of individual backgrounds, internet use and psychological characteristics on teachers' levels of digital citizenship. *Computers & Education*, 121, 143-161. <https://doi.org/10.1016/j.compedu.2018.03.005>
- Choudrie, J.; Pheeraphuttharakoon, S.; & Davari, S. (2018). The digital divide and older adult population adoption, use and diffusion of mobile phones: A Quantitative Study. *Information Systems Frontiers*, 21(98), 1-29. <https://doi.org/10.1007/s10796-018-9875-2>
- Comisión Europea (2009). *Marco estratégico Educación y Formación 2020 (ET2020)*. España.
- Delgado, L. (2018). *TIC para la educación y aprendizaje digital*. Universidad Antonio de Nebrija.
- Domingo-Coscollola, M.; Bosco-Paniagua, A.; Carrasco-Segovia, S.; & Sánchez-Valero, J.-A. (2020). Fomentando la competencia digital docente en la universidad: Percepción de estudiantes y docentes. *Revista de Investigación Educativa*, 38(1), 167-182. <https://doi.org/10.6018/rie.340551>
- Engen, B. (2019). Understanding social and cultural aspects of teachers' digital competencies. *Comunicar*, 27 (61), 9-19. <https://doi.org/10.3916/C61-2019-01>
- Engeness, I.; Norh, M.; Bahadur, S.; & Morch, A. (2020). Use of videos in the Information and Communication Technology Massive Open Online Course: Insights for learning and development of transformative digital agency with pre- and in-service teachers in Norway. *Policy Futures in Education*, 18(4), 497 – 516. <https://doi.org/10.1177%2F1478210319895189>
- From, J. (2017). Pedagogical Digital Competence—Between Values, Knowledge and Skills. *Higher Education Studies*, 7(2). <http://doi.org/10.5539/hes.v7n2p43>
- Gallego-Arrufat, M. J., Torres-Hernández, N. & Pessoa, T. (2019). Competence of Future Teachers in the Digital Security Área. *Comunicar*, 61(37). <https://doi.org/10.3916/C61-2019-05>
- Garzón, A.; Sola, M.; Ortega, M.; Marín, M.; & Gómez, G. (2020). Teacher Training in Lifelong Learning—The Importance of Digital Competence in the Encouragement of Teaching Innovation. *Sustainability Journal*, 12(7), 1-13. <https://doi.org/10.3390/su12072852>
- Girón-Escudero, V.; Cózar, R.; González-Calero, J. (2019). Análisis de la autopercepción sobre el nivel de competencia digital docente en la formación inicial de maestros/as. *Revista Electrónica Interuniversitaria de Formación del Profesorado*, 22(3), 193-218. <https://doi.org/10.6018/reifop.373421>
- Gisbert, M. & Lázaro, L. (2015). La formación permanente en competencia digital docente y la mejora de la calidad del centro educativo desde la perspectiva de los docentes: un estudio de caso. *New Approches in Educational Research*, 4(2), 124-131. <http://naerjournal.ua.es/article/viewFile/v4n2-7/157>
- Guizado, F. Menacho, I. & Salvatierra, A. (2019). Competencia digital y desarrollo profesional de los docentes de dos instituciones de educación básica regular del distrito de Los Olivos, Lima-Perú. *Hamut'ay*, 6(1), 54-70. <http://dx.doi.org/10.21503/hamu.v6i1.1574>
- Gobierno del Perú (2020). *Decreto Supremo N° 046-2020-PCM*. <https://www.gob.pe/institucion/pcm/normas-legales/462244-046-2020-pcm>
- Holguin-Alvarez, J.; Manrique-Alvarez, G.; Apaza-Quispe, J.; & Romero-Hermeza, R. (2020). Digital competences in the social media program for older adults in vulnerable contexts. *International Journal of Scientific and Technology Research*, 9(5), 228-232. <http://www.ijstr.org/paper-references.php?ref=IJSTR-0620-36916>
- Instituto Nacional de Estadística e Informática (INEI, 2019). *Estadísticas de las Tecnologías de Información y Comunicación en los Hogares*. <https://www.inei.gob.pe/media/MenuRecursivo/boletines/ticdiciembre.pdf>
- Jiménez, I.A.; Martelo, R.; & Jaimes, J.D.C. (2017). Dimensiones del Empoderamiento Digital y Currículo para el Sector Universitario. *Formación Universitaria*, 10(4), 55-56. <http://dx.doi.org/10.4067/S0718-50062017000400006>
- Jiménez-Pitre, I.A.; Martelo, R.; Chiquillo, J.; Lloreda, D.; Morales, M.S. (2017). Estrategias para el empoderamiento digital y la integración de universidades con sectores clave para la sociedad colombiana. *Revista Lasallista de Investigación*, 14(1), <http://dx.doi.org/10.22507/rli.v14n1a10>
- Käck, A. (2012). *Digital kompetens i lärutbildningen*. Studentlitteratur.

- Lakkala, M., Ilomäki, L., & Kantosalo, A. (2011). *Which areas of digital competence are important for a teacher?* In: European schoolnet. <https://pdfs.semanticscholar.org/1aec/5078d57d4d9d70e6d34a7603cf8609579bea.pdf>
- Larraz Rada, V., Álvarez Herrero, J. F., Espuny Vidal, C., & González Martínez, J. (2019). La evaluación de la competencia digital y de la competencia digital docente. En Gisbert Cervera, M. Esteve-González, V., Lázaro Cantabrana, J. L. (Eds.) (2019). *¿Cómo abordar la educación del futuro? Conceptualización, desarrollo y evaluación de la competencia digital docente*. Octaedro pp.169-182.
- Lasso, E.; Munévar, P.; Rivera, J.; & Sabogal, A. (2017). *Estado del arte sobre la articulación de modelos enfoques y sistemas en educación virtual*. UNAD. <https://hemeroteca.unad.edu.co/index.php/book/article/view/1969>
- Oppl, S. & Stary, Ch. (2018). Game playing as an effective learning resource for elderly people: encouraging experiential adoption of touchscreen technologies. *Universal Access in the Information Society*, 69(40), 1-16, <https://doi.org/10.1007/s10209-018-0638-0>
- Pachis, J. & Zonneveld, K. (2018). Comparison of Prompting Procedures to Teach Internet Skills to Older Adults. *Journal of Applied Behavior Analysis*, 5(1), 173-187, <http://dx.doi.org/10.1002/jaba.519>
- Pozo, S., López, J., Fernández, M., & López, J. A. (2020). Análisis correlacional de los factores incidentes en el nivel de competencia digital del profesorado. *Revista Electrónica Interuniversitaria De Formación Del Profesorado*, 23(1), 143–159. <https://doi.org/10.6018/reifop.396741>
- Pozos, K. V. & Tejada, J. (2018). Competencias digitales docentes en educación superior: niveles de dominio y necesidades formativas. *Revista digital de Investigación en docencia universitaria*, 12(2), 59-87. <http://dx.doi.org/10.19083/ridu.2018.712>
- Pugacheva, N.; Kirillova, T.; Kirillova, O.; Luchinina, A.; Korolyuk, I.; & Lunev, A. (2020). Digital Paradigm in Educational Management: The Case of Construction Education Based on Emerging Technologies. *International Journal of Emerging Technologies in Learning*, 15(13), 96-115. <https://doi.org/10.3991/ijet.v15i13.14663>
- Sabaliauskas, T., Bukantaitė, D., & Pukelis, K. (2006). Designing teacher information and communication technology competencies' areas. *Vocational Education: Research & Reality*, 12, 152-165.
- Saltanat, A.; Zhanar, S.; Kulzhan, A.; Zhannur, B.A.; & Adanov, K.B. (2016). Pedagogical System of Future Teachers' Professional Thinking Culture Formation. *International Journal of Environmental & Science Education*, 11(10), 3562-3574. <http://www.ijese.net/makale/558.html>
- Spante, M.; Hashemi, S.; Lundin, M.; & Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education Journal*, 5 (1). 1-21. <https://doi.org/10.1080/2331186X.2018.1519143>
- Tourón, J.; Martín, D.; Navarro, E.; Pradas, S.; & Íñigo, V. (2018). Validación del constructo de un instrumento para medir la competencia digital docente de los profesores (CDD). *Revista Española de Pedagogía* 76, 25-54. <https://doi.org/10.22550/REP76-1-2018-02>
- Vargas, R. (2016). La cultura docente en la Universidad Nacional del Altiplano de Puno – Perú, 2012. *Comuni@cción: Revista De Investigación En Comunicación y Desarrollo*, 4(2), 5-14. Recuperado de <https://www.comunicacionunap.com/index.php/rev/article/view/42/42>
- Zempoalteca, B. Barragán, J. Gonzales, J. & Guzmán, T. (2017) Teaching training in ICT and digital competences in Higher Education System. *Revista Apertura*, 9(2) <http://dx.doi.org/10.32870/Ap.v9n1.922>