

Digital skills and job satisfaction among regular basic education teachers

Las competencias digitales y la satisfacción laboral en docentes de educación básica regular

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Abstract

In Peru, technological access gaps and limited teacher training restrict the development of digital skills, directly affecting teachers' job satisfaction. This study aimed to determine the relationship between digital skills and job satisfaction among teachers in Regular Basic Education during the 2025 academic year. A quantitative approach, descriptive-correlational in scope, and a non-experimental design were used. The population consisted of 282 teachers and the sample consisted of 162 participants. Data collection was conducted using previously validated questionnaires, and statistical analysis was performed using Spearman's correlation. The results showed a very favorable and high relationship ($\rho = 0.861$), demonstrating that greater development of digital skills is associated with increased well-being and job motivation. It is concluded that ongoing digital training is key to enhancing teacher satisfaction in increasingly technologically advanced educational environments.

Keywords: digital skills, job satisfaction, communication

Resumen

En el Perú, las brechas de acceso tecnológico y la limitada capacitación docente restringen el desarrollo de competencias digitales, afectando directamente la satisfacción laboral del profesorado. Este estudio tuvo como objetivo determinar la relación entre las competencias digitales y la satisfacción laboral en docentes de Educación Básica Regular durante el 2025. Se empleó un enfoque cuantitativo, de alcance descriptivo-correlacional y diseño no experimental. La población estuvo compuesta por 282 docentes y la muestra por 162 participantes. La recolección de datos se realizó mediante cuestionarios previamente validados, y el análisis estadístico se llevó a

cabo utilizando la correlación de Spearman. Los resultados mostraron una relación muy favorable y alta ($\rho = 0,861$), evidenciando que un mayor desarrollo de competencias digitales se asocia con un incremento en el bienestar y la motivación laboral. Se concluye que la formación digital continua es clave para potenciar la satisfacción docente en entornos educativos cada vez más tecnificados.

Palabras clave: competencias digitales, satisfacción laboral, comunicación

Introduction

Globally, the integration of Information and Communication Technologies (ICT) in education is key to innovating and optimizing learning. However, only 43% of secondary school teachers in the OCDE feel prepared, highlighting the need to enhance their digital competencies (OCDE, 2023). In the Latin American sector, digitization has promoted skills, but access gaps persist. In 2020, 24% of students had a computer, and 18% lacked stable internet connectivity (OCDE, 2020).

In Peru, the Ministry of Education (MINEDU) reported in 2019 that only 27.1% of public teachers received training in ICT (MINEDU, 2019). Furthermore, there was a noted lack of preparation for hybrid or remote modalities (Menacho et al., 2023). In regular basic education institutions in Peru, digital limitations intensify in private primary schools, where infrastructure and teacher training vary, affecting the effective integration of ICT. Meanwhile, regarding job satisfaction, international literature indicates that digital proficiency enhances teacher satisfaction by facilitating educational management, reducing administrative tasks, and strengthening relationships with students (Menacho et al., 2023).

Regarding previous studies, De la Torre (2020) presents a dissertation with a consolidated formative projection, offering an effective solution to the problem and proposing an appropriate pedagogical approach. According to Carrión (2020), the majority of students do not exhibit dependence on new technologies. In relation to this, Ballena (2021) found a moderate relationship ($r = 0.482$, Pearson) between digital competencies and academic satisfaction among students. Tandazo (2021) inferred that digital competencies significantly impact student satisfaction. Similarly, Mancha et al. (2022) determined that digital competencies are significantly related to student satisfaction. Llerena (2021) identified a strong relationship between virtual education and student satisfaction in secondary education. According to Villanueva et al. (2020), the educator's role, continuous training, and technological advancement influence the level of student satisfaction, strengthening education in virtual environments. In this regard, Saavedra et al. (2021) found that virtual education impacted student satisfaction.

Lanegri et al. (2019) concluded that digital environments are still adopted cautiously, but they represent an opportunity to break traditional structures. Crisol-Moya et al. (2020) determined that virtual education represents a transformative potential to achieve global goals and promote human diversity through cognitive and symbolic processes. Escoda (2015) concluded that educators feel inadequately prepared to teach complex digital competencies, as this requires additional training and extra time. Segovia and Said (2021) state that there is a close relationship between the quality of technological infrastructure, information, services provided, and formative interactions. Additionally, Cárdenas (2023) found a moderate favorable correlation between virtual education and student satisfaction. According to Bejar (2023), a significant correlation was inferred between virtual education and student satisfaction.

Concerning digital competencies, Marzal and Cruz (2018) argue that their development empowers individuals socially in politics, economics, employment, and culture. Furthermore, Durán et al. (2016) assert that it is a right that transcends the technical, integrating knowledge, ethics, collaboration, and responsibility. In this context, Gisbert and Esteve (2011) define them as skills and attitudes related to technology, information, digital media, and communication, constituting a complete and multifaceted digital literacy.

Regarding the theoretical models of the variable "digital competencies," Echtenbruck et al. (2025) propose the DaLI competencies model, which promotes data literacy through seven crucial areas, integrating ethical, legal, and social aspects. According to Ivanenko et al. (2025), digitization transforms labor competencies, demanding educational adjustments. Similarly, Salamzadeh (2024), in his study, validates digital leadership as a multidimensional concept through the e-CF framework, highlighting competencies such as innovation and change management. The DigComp 2.2 model of the Comisión Europea (2022) identifies five areas of digital competence, fostering skills to interact, create, protect, and ethically and critically manage information in digital educational and work environments. The dimensions of the variable "digital competencies" are:

Digital literacy. According to Vargas (2019), it is the teacher's ability to manage and evaluate relevant digital information in educational contexts. Burrola and Vera (2013) propose the dimension of information and literacy as a grouping of structured and contextualized digital data by the educator, to be transmitted during the teaching process.

Collaborative communication. Vargas (2019) notes that it involves the ability to distribute resources using digital platforms, establish connections, and provide support to others through technological means.

Creation of digital content. Vargas (2019) refers to it as the skill to edit and generate new digital material, combining and adapting existing cognitions and content. Burrola and Vera (2013) emphasize the importance of producing original content generated with ICT applied to various fields of study.

Security. Vargas (2019) defines it as the safeguarding of an individual's data and digital identity, as well as digital content, always promoting responsible and secure usage.

Regarding the second variable, "job satisfaction," Venegas et al. (2022) define it as the level of motivation and well-being experienced by workers in their jobs. Cabay-Huebla et al. (2022) explain that it is influenced by work stress and the benefits received. Furthermore, Barriga et al. (2022) note that it is linked to the perceived quality of service. According to Mariel and González (2022), it is affected by work pressure and institutional support. Sánchez and Castañeda (2022) assert that it is a crucial emotional state for organizational productivity and competitiveness. Additionally, Carrasco et al. (2020) argue that it is impacted by stress and working conditions, as seen during the pandemic. The theoretical models on job satisfaction indicate the following:

According to Herzberg et al. (1959), it is proposed that job satisfaction depends on two groups: motivational factors and hygiene factors. Its importance lies in the design of strategies to optimize employee well-being and productivity. Its dimensions are: method of performing work, opportunities for development, and subordinate-supervisor relationships.

Concerning the workplace well-being model, Warr (2011) posits that job satisfaction depends on organizational, emotional, and environmental factors. Its dimensions are: method of performing work, opportunities for development, and subordinate-supervisor relationships, which impact employee motivation, well-being, and commitment in a comprehensive approach.

The work-life balance model, Greenhaus and Allen (2011), asserts that job satisfaction is linked to the symmetry between individual and professional life, highlighting the relevance of flexible policies and proper time management to enhance well-being and motivation. Its dimensions are: work-life balance, perceived workload, and organizational support.

The psychological capital model, Luthans et al. (2007), indicates that job satisfaction depends on favorable psychological aspects such as hope, efficacy, resilience, and optimism. Its dimensions are: self-efficacy, resilience, and optimism.

As for the dimensions of the variable "job satisfaction":

Method of performing work. Cabanilla et al. (2022) refer to it as the way staff perceives their work environment, their relationship with supervisors and colleagues, and the opportunities to develop their skills and achieve their goals.

Opportunities for development. Mendoza (2022) states that these are the opportunities a company offers its employees to grow professionally, refine their skills, and achieve stability.

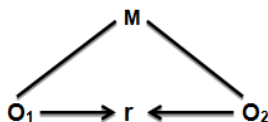
Subordinate-supervisor relationship. Corrales (2023) presents it as a key factor in the work environment, as it impacts staff satisfaction, communication effectiveness, and decision-making within an organization.

For all the above reasons, it is essential to examine the impact of digital competencies on job satisfaction among primary educators to design effective training plans. Thus, the general problem is proposed: What relationship exists between digital competencies and job satisfaction among regular basic education teachers in Peru?

Methodology

A non-experimental descriptive and correlational design was utilized, as data collection occurred at a specific point in time to analyze and detail the variables (Hernández & Mendoza, 2018). It was descriptive because it allowed for the identification and description of the unique features of the variables, and correlational because it aimed to establish their correlation coefficient (Hernández et al., 2014).

Figure 1
Methodological diagram



Note. Where: M: basic regular education teachers O1: Variable 1: digital competencies O2: Variable 2: job satisfaction r: Relationship between the variables

Population. Tamayo and Tamayo (2003) define the context of the event to be investigated, in which the elements comprising the population share a specific characteristic subject to analysis. In this case, there were 280 educators.

Sample. Hernández et al. (2014) conceptualize it as a section extracted from the population that shares identical characteristics, and it must be representative and appropriate. For this study, 162 educators were selected.

$$n = \frac{N \cdot Z^2 \cdot p \cdot q}{e^2 \cdot (N - 1) + Z^2 \cdot p \cdot q}$$

Substituting values:

$$n = \frac{280 \cdot 1.96^2 \cdot 0.50(1 - 0.50)}{0.05^2(280 - 1) + 1.96^2 \cdot 0.50(1 - 0.50)}$$

$$n = \frac{268.80}{1.66}$$

$$n = 162$$

Table 1

Description of schools

No.	Schools	No. Teachers
1	• I.E. "Innova Schools"	27
2	• I.E. "Santa Catalina"	27
3	• I.E. "San Pablo"	27
4	• I.E. "Divino Maestro"	27
5	• I.E. "San Vicente de Paúl"	27
6	• I.E. "San Luis Gonzaga"	27
	Total	162

The methods of information collection were surveys, which facilitate the exploration of perceptions and the acquisition of data from a large number of subjects (Ordoñez-Pacheco, 2025). The technique employed was a questionnaire, understood as a structured instrument that concentrates the indicators of the variables (Casas et al., 2003).

The digital competencies questionnaire included its dimensions and items: Digital Literacy (3), Collaborative Communication (6), Content Creation (4), Security (4), and Problem Solving (4). A Likert scale was used: Strongly Disagree (1), Disagree (2), Neither Agree nor Disagree (3), Agree (4), and Strongly Agree (5) (López & Terán, 2018).

The job satisfaction questionnaire included the following dimensions and items: Training and Job Performance (10), Opportunities for Development (8), and Subordinate-Supervisor Relationship. A Likert scale was used: Never (1), Almost Never (2), Sometimes (3), Almost Always (4), and Always (5) (López & Terán, 2018).

The validation of the instruments was conducted by three expert educators, who reviewed and evaluated their coherence and relevance. Reliability was assessed with a pilot test on 25 teachers using Likert scale questionnaires. The Cronbach's alpha was 0.965 for digital competencies and 0.969 for job satisfaction, confirming their reliability (George & Mallery, 2003).

Data processing and analysis were performed through a conclusive quantitative analysis with descriptive statistics and frequency tables to interpret the data, complemented by non-parametric statistics, hypothesis testing, and Rho coefficients.

Results and discussion

Table 2

Frequency of digital competencies

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Low	9	5,5	5,5
	Medium	14	8,6	14,1
	High	140	85,9	85,9
	Total	163	100,0	100,0

It is evident that a large portion exhibits a high level of digital competencies (85.9%, n=140), with a minority showing low levels (5.5%, n=9) and medium levels (8.6%, n=14), highlighting inequality in technological training.

Table 3
Frequency of the dimensions of digital competencies

		Count	% Total
Digital literacy	Low	13	8,0%
	Medium	12	7,4%
	High	138	84,7%
	Total	163	100,0%
Collaborative communication	Low	11	6,7%
	Medium	17	10,4%
	High	135	82,8%
	Total	163	100,0%
Content creation	Low	9	5,5%
	Medium	23	14,1%
	High	131	80,4%
	Total	163	100,0%
Security	Low	4	2,5%
	Medium	11	6,7%
	High	148	90,8%
	Total	163	100,0%
Problem solving	Low	7	4,3%
	Medium	12	7,4%
	High	144	88,3%
	Total	163	100,0%

A high level (80%) is revealed, persistently showing gaps in digital literacy (8.0% low) and collaborative communication (10.4% medium). Minorities with low levels (2.5% - 8.0%) face the risk of digital exclusion.

Table 4
Frequency of job satisfaction

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Low	9	5,5	5,5
	Medium	8	4,9	10,4
	High	146	89,6	100,0
	Total	163	100,0	100,0

The majority exhibits high levels (89.6%, n=146), indicating positive work environments, while a vulnerable minority (10%) shows dissatisfaction.

Table 5
Frequency of the dimensions of job satisfaction

	Count	% Total
Method of performing work	9	5,5%
	8	4,9%
	146	89,6%
	163	100,0%
Opportunities for development	9	5,5%
	15	9,2%
	139	85,3%
	163	100,0%
Subordinate-supervisor relationship	13	8,0%
	10	6,1%

140 85,9%
163 100,0%

It is confirmed that the majority reports high job satisfaction in performing their work (89.6% high). There are critical areas: subordinate-supervisor relationships (8.0%) and opportunities for development (9.2%).

Table 6
Normality tests

	Kolmogórov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Digital competencies	,156	163	,000	,933	163	,000
Digital literacy	,282	163	,000	,855	163	,000
Collaborative communication	,153	163	,000	,925	163	,000
Creation of digital content	,173	163	,000	,919	163	,000
Security	,140	163	,000	,939	163	,000
Problem solving	,192	163	,000	,930	163	,000
Job satisfaction	,156	163	,000	,939	163	,000
Work practices	,141	163	,000	,934	163	,000
Development opportunities	,167	163	,000	,931	163	,000
Subordinate-supervisor relationship	,181	163	,000	,933	163	,000

It is evident that the analyzed variables present values of 0.00 ($p < 0.05$), highlighting that the distribution does not follow a normal pattern, justifying the use of non-parametric methods for subsequent analyses.

Table 7
Correlation between digital competencies and job satisfaction

		Digital competencies/ Job satisfaction	
Spearman's Rho	Correlation Coefficient	1,000	,861**
	Sig. (two-tailed)		,000
	N.	163	163
Spearman's Rho	Correlation Coefficient	,861**	1,000
	Sig. (two-tailed)		,000
	N.	163	163

A strong positive correlation ($\rho = 0.861$) and significant ($p = 0.000$) ($N = 163$) is evident, revealing that strengthening digital competencies increases job satisfaction.

Table 8
Correlation between digital literacy and job satisfaction

		Digital literacy	Job satisfaction
Spearman's Rho	Correlation Coefficient	1,000	,682**
	Sig. (two-tailed)	.	,000
	N.	163	163
Spearman's Rho	Correlation Coefficient	,682**	1,000
	Sig. (two-tailed)		,000
	N.	163	163

A moderate to high positive correlation ($\rho = 0.682$) and significant ($p = 0.000$) is observed, indicating that strengthening digital literacy increases perceived job satisfaction.

Table 9
Correlation between collaborative communication and job satisfaction

			Collaborative communication	Job satisfaction
Spearman's Rho	Collaborative communication	Correlation Coefficient	1,000	,787**
		Sig. (two-tailed)	.	,000
		N.	163	163
	Job satisfaction	Correlation Coefficient	,787**	1,000
		Sig. (two-tailed)	,000	.
		N.	163	163

A high positive correlation ($\rho = 0.787$) and significant ($p = 0.000$) is reflected, indicating that effective collaborative communication increases satisfaction levels.

Table 10
Correlation between content creation skills and job satisfaction

			Content creation skills	Job satisfaction
Spearman's Rho	Content creation skills	Correlation Coefficient	1,000	,732**
		Sig. (two-tailed)	.	,000
		N.	163	163
	Job satisfaction	Correlation Coefficient	,732**	1,000
		Sig. (two-tailed)	,000	.
		N.	163	163

A high positive correlation ($\rho = 0.732$) and significant ($p = 0.000$) is revealed, indicating that those with greater skills in content creation tend to perceive higher job satisfaction.

Table 11
Correlation between security and job satisfaction

			Security	Job satisfaction
Spearman's Rho	Security	Correlation Coefficient	1,000	,811**
		Sig. (two-tailed)	163	,000
		N.	163	163
	Job satisfaction	Correlation Coefficient	,811**	1,000
		Sig. (two-tailed)	,000	,163
		N.	163	163

A strong positive correlation ($\rho = 0.811$) and significant ($p = 0.000$) is presented, indicating that as the perception of security increases, job satisfaction also rises.

Table 12
Correlation between problem solving skills and job satisfaction

			Problem solving	Job satisfaction
Spearman's Rho	Problem solving	Correlation Coefficient	1,000	,831**
		Sig. (two-tailed)	.	,000
		N.	163	163
	Job satisfaction	Correlation Coefficient	,831**	1,000
		Sig. (two-tailed)	,000	.
		N.	163	163

A consistent and significant positive correlation ($\rho = 0.831$; $p < 0.01$) ($N = 163$) is identified, indicating that employees with more digital skills tend to experience greater job satisfaction, though causality is not demonstrated.

According to the general hypothesis (GH), digital competencies are significantly related to job satisfaction among regular basic education teachers. A strong positive correlation ($\rho = 0.861$) was found, revealing that strengthening digital competencies increases job satisfaction. This corroborates Ballena (2021), who concluded that there is a moderate relationship ($r = 0.482$). Similarly, Tandazo (2021) determined that the digital competencies employed by educators in various virtual training contexts significantly impact university student satisfaction. They agree that teachers' digital competencies positively influence job or academic satisfaction.

The specific hypothesis (H1) shows that digital literacy is related to job satisfaction among teachers, with a moderate to high positive correlation ($\rho = 0.682$). This result was significant ($p = 0.000$) in a sample of 163 participants. Higher digital literacy is associated with greater perceived job satisfaction. Mancha et al. (2022) determined that the digital competencies of educators at UNA Puno are significantly related to student satisfaction. Likewise, Llerena (2021) inferred that there is a relationship between virtual education and student satisfaction in secondary education. They agree on recognizing the relationship between educators' digital competencies and satisfaction, whether occupational or academic, highlighting the impact of technological proficiency in teaching.

Regarding H2, collaborative communication is significantly related to job satisfaction, with a high positive correlation ($\rho = 0.787$). Effective communication fosters higher levels of satisfaction. This is corroborated by Ballena (2021), who concluded that there is a moderate relationship ($r = 0.482$) between the variables. Similarly, Crisol-Moya et al. (2020) concluded that virtual education represents a transformative potential to achieve global goals. They emphasize the importance of communication and digital skills in educational environments.

Concerning H3, content creation skills are significantly related to job satisfaction, with a high positive correlation ($\rho = 0.732$); those who excel in this competency tend to feel greater job satisfaction. This is corroborated by Tandazo (2021), who determined that digital competencies in virtual training impact student satisfaction. They emphasize the relevance of teachers' digital competencies, such as content creation, which contributes to job or academic satisfaction.

Regarding H4, security is significantly related to job satisfaction, with a high positive correlation ($\rho = 0.811$). As the perception of security in the work environment increases, job satisfaction rises. This is corroborated by Carrión (2020), who concluded that the majority of teachers do not exhibit dependence on new technologies. A consensus is recognized on the influence of the environment on the educational or work experience.

Finally, concerning H5, digital problem-solving skills are significantly related to job satisfaction, with a high positive correlation ($\rho = 0.831$); those with greater digital skills tend to experience higher job satisfaction. This is corroborated by Mancha et al. (2022), who concluded that the digital competencies of educators in Puno are significantly related to student satisfaction regarding their training; they agree that their development positively impacts both job satisfaction and student learning.

Conclusions

The development of digital competencies is positively related to educators' job satisfaction. This underscores their key role in technologically advanced educational environments. Digital literacy contributes to increased job satisfaction, strengthening teachers' confidence. Mastery of these skills allows for better performance in digital contexts. Effective collaborative communication significantly enhances job satisfaction. Teamwork solidifies the foundation of well-being in the educational field.

The ability to create digital content is associated with greater job satisfaction. This demonstrates its relevance in self-actualization and professional performance. It was concluded that digital problem-solving skills are positively related to job satisfaction, as they are associated with greater autonomy and effectiveness at work.

References

- Ballena, R. J. A. (2021). *Competencias Digitales Docente y Satisfacción Académica en Estudiantes de Ciencias de la Comunicación de una Universidad Privada de Trujillo, 2021*. [Tesis de Maestría, Universidad César Vallejo].
https://repositorio.ucv.edu.pe/bitstream/handle/20.500.12692/69820/Alfaro_BRJSD.pdf?sequence=1&isAllowed=y
- Barriga-Chambi, F., Ccami-Bernal, F., Alarcon-Casazuela, A. L., Copa-Uscamayta, J., Yauri-Mamani, J., Oporto-Arenas, B., & Quispe-Juli, C. U. (2022). Satisfaction of Healthcare Workers and Patients Regarding Telehealth Service in a Hospital in Perú. *Revista Peruana de Medicina Experimental y Salud Pública*, 39(4), 415–424. <https://doi.org/10.17843/rpmesp.2022.394.11287>

- Bejar, P. B. (2023). Educación virtual y satisfacción académica en estudiantes universitarios de la región puno. *Polo Del Conocimiento*, 8(3), 2098–2118. <https://doi.org/10.23857/pc.v8i3>
- Burrola, M., & Vera, J. Á. (2013). Study about ICT skills in junior high school teachers under Mexico's educational reform. *International Journal of Psychological Research*, 6(2), 59–70. <https://doi.org/10.21500/20112084.686>
- Cabanilla, G., Cando, C., & Valencia, M. (2022). Satisfacción laboral como determinante de la productividad del capital humano. *Braz Dent J.*, 33(1), 1–12. <http://scielo.sld.cu/pdf/rus/v14n3/2218-3620-rus-14-03-403.pdf>
- Cabay-Huebla, K. E., Noroña-Salcedo, D. R., & Vega-Falcón, V. (2022). Relación del estrés laboral con la satisfacción del personal administrativo del Hospital General Riobamba. *Revista Médica Electrónica*, 44(1), 69–83. <http://scielo.sld.cu/pdf/rme/v44n1/1684-1824-rme-44-01-69.pdf>
- Cárdenas, W. (2023). *La educación virtual y la satisfacción de los estudiantes de pregrado de la facultad de tecnología médica-UNFV, 2022*. [Tesis de Maestría, Universidad Nacional Federico Villarreal]. https://repositorio.unfv.edu.pe/bitstream/handle/20.500.13084/7627/UNFV_EUPG_Cardenas_Mendoza_Wilmer_William_Maestria_2023.pdf?sequence=1&isAllowed=y
- Carrasco, O. P., Castillo, E. F., Salas, R. M., & Reyes, C. E. (2020). Estresores laborales y satisfacción en enfermeras peruanas durante la pandemia de COVID -19. *Scielo Preprints*, 1(1), 1–14. <https://europepmc.org/article/ppr/ppr459293>
- Carión. (2020). Uso de las tac y su relación con las competencias digitales en estudiantes de educación de una universidad pública. *Journal of Chemical Information and Modeling*, 21(1), 1–9. <https://doi.org/10.1016/j.tmaid.2020.101607%0A>
- Casas, J., Repullo, J. R., & Donado, J. (2003). La encuesta como técnica de investigación. Elaboración de cuestionarios y tratamiento estadístico de los datos (I). *Atención Primaria*, 31(8), 527–538. [https://doi.org/10.1016/s0212-6567\(03\)70728-8](https://doi.org/10.1016/s0212-6567(03)70728-8)
- Corrales Hernández, L. C. (2023). *Relación entre el liderazgo y el desempeño laboral en el ámbito organizacional: revisión aplicada*. [Tesis de Pregrado, Universidad de Lima]. <https://repositorio.ulima.edu.pe/handle/20.500.12724/18258>
- Crisol-Moya, E., Herrera-Nieves, L., & Montes-Soldado, R. (2020). Virtual education for all: Systematic review. *Education in the Knowledge Society*, 21, 1–13. <https://doi.org/10.14201/eks.20327>
- De la Torre, J. (2020). *Estrategia Metodológica Para Fortalecer Competencias Digitales En Los Estudiantes Del Módulo I De La Carrera De Computación E Informática En Un Instituto Superior Privado De Lima*. [Tesis de Maestría, Universidad San Ignacio de Loyola]. <https://repositorio.usil.edu.pe/entities/publication/174ed3c3-2462-4750-ae66-9a4dfb0c16e8>
- Dig comp. (2022). *Digital Competence Framework for Citizens (DigComp)*. Joint-Research-Centre.Ec.Europa.Eu. https://joint-research-centre.ec.europa.eu/projects-and-activities/education-and-training/digital-transformation-education/digital-competence-framework-citizens-digcomp_en?utm_source
- Durán, M., Gutiérrez, I., & Prendes, M. (2016). Análisis conceptual de modelos de competencia digital del profesorado universitario. *Revista Latinoamericana de Tecnología Educativa (RELATEC)*, 15(3), 141–154. <https://doi.org/10.17398/1695>
- Echtenbruck, M. M., Fühles-Ubach, S., Naujoks, B., & Kaliva, E. (2025). A Data Literacy Competence Model for Higher Education and Research. *Technical Report*, 15. <https://arxiv.org/pdf/2504.15690>
- Escoda, A. P. (2015). *Alfabetización digital y competencias digitales en el marco de la evaluación educativa: estudio en docentes y alumnos de Educación Primaria en Castilla y León*. [Tesis de Pregrado, Universidad de Salamanca]. <http://hdl.handle.net/10366/128252>
- Ferrari, A. (2012). Digital Competence in Practice: An Analysis of Frameworks. *Oficina de Publicaciones de la Unión Europea*. <https://doi.org/https://dx.doi.org/10.2791/82116>
- George, & Mallery. (2003). *Alfa de Cronbach y consistencia interna de los ítems de un instrumento de medida* [Tesis de Pregrado, Universidad de Valencia]. https://www.academia.edu/14555316/Alfa_de_Cronbach_y_consistencia_interna_de_los_ítems_de_un_instrumento_de_medida
- Gisbert, M., & Esteve, F. (2011). Digital Learners: la competencia digital de los estudiantes universitarios. *Physics and Chemistry of Liquids*, 7, 48–59. <https://doi.org/10.1080/00319109408029542>
- Greenhaus, J. H., & Allen, T. D. (2011). Work-family balance: A review and extension of the literature. *Handbook of Occupational Health Psychology*, 2, 165–183. https://www.researchgate.net/publication/259280583_WorkFamily_Balance_A_Review_and_Extension_of_the_Literature

- Hernandez, R., Fernández, C., & Baptista, M. (2014). Metodología de la investigación. *Journal of Chemical Information and Modeling*, 53(9). <https://www.esup.edu.pe/wp-content/uploads/2020/12/2>.
- Hernández, R., Fernández, C., & Baptista, M. (2014). *Metodología de la investigación*. Mc Graw Hill. <https://www.smujuerescoahuila.gob.mx/wp-content/uploads/2020/05/Sampieri.Met.Inv.pdf>
- Hernández Sampieri R, & Mendoza Torres C. (2018). *Metodología de la Investigación*. McGraw-Hill. https://virtual.cuautitlan.unam.mx/rudics/wp-content/uploads/2019/02/RUDICSv9n18p92_95.pdf
- Herzberg, F., Mausner, B., Snyderman, B., & Wiley, J. (1959). *The Motivation to work*. 3. <https://doi.org/https://doi.org/10.7202/1022040ar>
- Ivanenko, N., Rud, A., Hurbanska, A., Cheban, Y., & Syrtseva, S. (2025). Evaluating Digitalization as a Core Requirement for Future Educational Systems. *Salud, Ciencia y Tecnología - Serie de Conferencias*, 4. <https://doi.org/10.56294/sctconf2025641>
- Lanegra, M. (2019). *Tipificación de la responsabilidad penal propia de la persona jurídica como solución a los problemas de aplicación de sus consecuencias accesorias*. [Tesis de Pregrado, Universidad Señor de Sipán]. <https://repositorio.uss.edu.pe/handle/20.500.12802/5953>
- Llerena Villamarin, J. Y. (2021). *La educación virtual y la satisfacción estudiantil en el área de historia, geografía y economía de los estudiantes del segundo año de nivel secundaria de la I.E.P. Juan Pablo Magno en el Distrito de Tiabaya, 2021*. [Tesis de Pregrado, Universidad José Carlos Mariátegui] http://repositorio.ujcm.edu.pe/bitstream/handle/20.500.12819/1146/Janett_tesis_titulo_2021.pdf?sequence=1&isAllowed=y
- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive Psychological Capital: Measurement and Relationship with Performance and Satisfaction. *Personnel Psychology*, 60, 541–572. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1010&context=leadershipfacpub>
- Mancha Pineda, E. E., Casa-Coila, M. D., Yana Salluca, M., Mamani Jilaja, D., & Mamani Vilca, P. S. (2022). Competencias digitales y satisfacción en logros de aprendizaje de estudiantes universitarios en tiempos de Covid-19. *Comuni@cción*, 13(2), 106–116. <https://doi.org/10.33595/2226-1478.13.2.661>
- Mariel, S., & González-argote, J. (2022). Sobrecarga laboral y satisfacción del personal de enfermería en un hospital público de Buenos Aires, Argentina. *Infodir (Revista de Información Para La Dirección En Salud)*, May-Ago(38), 1–9. <https://www.medigraphic.com/pdfs/infodir/ifd-2022/ifd2238h.pdf>
- Marzal, M., & Cruz, E. (2018). Gaming como Instrumento Educativo para una Educación en Competencias Digitales desde los Academic Skills Centres. *Revista General de Información y Documentación*, 28(2), 489–506. <https://e-archivo.uc3m.es/handle/10016/27855#preview>
- Menacho Vargas, I., Trujillo Medrano, B., Vásquez Ramos, S. P., Quispe Salazar, M. A., & Acero Apaza, I. M. (2023). Competencias digitales y desarrollo profesional en docentes de instituciones educativas públicas de Puno. *Horizontes. Revista de Investigación En Ciencias de La Educación*, 7(31), 2398–2410. <https://doi.org/10.33996/revistahorizontes.v7i31.672>
- Mendoza-Armijos, H. E. (2022). Impacto de la Capacitación en el Desarrollo Profesional en Organizaciones Ecuatorianas. *Revista Científica Zambos*, 1(2), 51–66. <https://doi.org/10.69484/rcz/v1/n2/27>
- MINEDU. (2019). *Estrategia nacional de las tecnologías digitales en la educación 2016-2021: de las TIC a la inteligencia digital*. MINEDU, 25. https://repositorio.minedu.gob.pe/bitstream/handle/20.500.12799/5937/Estrategia_nacional_de_las_tecnologias_digitales_en_la_educacion_2016-2021_de_las_TIC_a_la_inteligencia_digital.pdf?sequence=1&isAllowed=y
- OECD. (2020). *Making the Most of Technology for Learning and Training in Latin America*. Fundación Telefónica - España. https://www.oecd.org/en/publications/making-the-most-of-technology-for-learning-and-training-in-latin-america_ce2b1a62-en.html
- Ordoñez-pacheco, Á. F. (2025). Metodología de la Investigación Metodología académica con aplicación a las investigaciones sociales: enfoques, tipos, métodos y diseños. *Sociedad y Tecnología*, 8(2), 335–357. <https://institutojubones.edu.ec/ojs/index.php/societec/article/view/484>
- Peña Porras, J. (2019). *Liderazgo administrativo y la satisfacción laboral de los trabajadores del Centro Empresarial de San Isidro, 2016* [Tesis de Maestría, Universidad Nacional de Educación]. <https://repositorio.une.edu.pe/server/api/core/bitstreams/fb2bc108-cb2c-47d3-8354-0936c1e0b06e/content>
- Saavedra, N., Vásquez, G., Vásquez, M., Vílchez, C., & Ucharima, E. (2021). Educación virtual en la satisfacción escolar en estudiantes de una institución educativa secundaria de Ayacucho, 2021. *Ciencia Latina Revista Científica Multidisciplinar*, 5(6), 11919–11933. <https://doi.org/10.37811/rcm.v5i6.1206>

- Salamzadeh, Y. (2024). *Digital Leadership Competencies*. Reference Module in Social Sciences. <https://doi.org/10.1016/B978-0-443-13701-3.00156-0>
- Sánchez Macías, A., & Castañeda Santillán, L. L. (2022). Satisfacción laboral y burnout en personal docente. *Retos*, 12(24), 230–246. <https://doi.org/10.17163/ret.n24.2022.03>
- Segovia, N., & Said, E. (2021). Factores De Satisfacción De Los Alumnos En E-Learning En Colombia. *Revista Mexicana de Investigación Educativa*, 26(89), 595–621. https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1405-66662021000200595
- Tamayo & Tamayo. (2003). *El proceso de la investigación científica*, Limusa Noriega. <https://cucjonline.com/biblioteca/files/original/874e481a4235e3e6a8e3e4380d7adb1c.pdf>
- Tandazo Eras, D. A. (2021). *Competencias Digitales y Satisfacción Universitaria en Tiempos de Pandemia en una Universidad en el Ecuador, 2021*. [Tesis de Maestría, Universidad César Vallejo]. <http://repositorio.uncp.edu.pe/bitstream/handle/UNCP/3000/SilvaAcosta.pdf?sequence=1&isAllowed=y%0A>
- Vargas, C. (2019). *La competencia digital y el uso de aplicaciones web 2.0 en docentes de una universidad privada - 2018*. [Tesis de Maestría, Universidad Tecnológica del Perú]. https://repositorio.utp.edu.pe/bitstream/handle/20.500.12867/2159/CarlosVargas_Tesis_Maestria_2019.pdf?sequence=3&isAllowed=y
- Venegas, B., Rodríguez, M., Abril, R., & Calero, G. (2022). Motivación y satisfacción del personal de enfermería en la atención de tercer nivel. *Sapienza: International Journal of Interdisciplinary Studies*, 3(3), 2–15. <https://www.journals.sapienzaeditorial.com/index.php/SIJIS/article/view/390>
- Villanueva, G., Calcina, Kk., Chipa, K., Fuentes, A., & Suxso, J. (2020). satisfacción del estudiante respecto a la educación virtual en tiempos de covid-19. *Scientiarvm*, 1(1), 13–17. <https://doi.org/10.26696/sci.epg.0107>
- Warr, P. (2011). *Work, Happiness, and Unhappiness*. Lawrence Erlbaum Associates. https://api.pageplace.de/preview/DT0400.9781135599089_A24648742/preview9781135599089_A24648742.pdf