Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Incidence of A.I. and TECD Assessment-Learning in University Students

Manco Chávez José Antonio[1], Galarza Espinoza Máximo Moisés[2], Sosa Daniel Alberto[3], Terrones Rojas Daniel Enrique[4], Licapa Tacuri David[5], Cerna Gonzales Carlos Héctor[6], Retamozo Riojas Danny[7]

Abstract

Currently it is seen a diversity in the use of digital tools emerging every day, so A.I. appears as an ally in the academic formation on the assessment-leaning and the TECD (Technology of digital knowledge empowerment). The main objective is to determine the incidence that exists between artificial intelligence and TECD assessment-leaning in the empowerment of digital knowledge in university students. The method used in the research is of basic type, with positivist paradigm of quantitative approach, because it measures the casual relationship that exists between the dependent variables, with non-experimental correlational causal design using surveys for data collection in the students at a university. In the results, it is obtained that 33.3% of students manage to empower themselves with digital knowledge creating materials within specific works according to their professional training lines; in the intermediate level, the result is that 35.9% of students manage to have a regular domain on programming systems and model new computer systems creating a computational system, neural network training and deep learning. In conclusion, data collection and analysis are powerful tools in the continuous improvement of education.

Keywords: *Artificial Intelligence, Technological Approach, Intelligent Computer, Robot Automata, Neural Intelligence.*

Introduction

Artificial Intelligence (I.A), is a tool designed by many scientists and engineers experts from different nationalities who invest in the development of technology, likewise this virtual space has allowed the growth by the global interconnection due to its relation with search engines allowing to join all information that the researcher or students wish to study and generating new contributions and development of knowledge of a scientific culture worldwide (Manco-Chávez et al; Flores-Vivar and García-Peñalvo; UNESCO. 2021; Escalante; Jaraba; Niss; Lin et al.,2023).

In a post pandemic COVID-19 context as mentioned by UNESCO (October 21, 2023) and Villegas-Chiroque (2020), mention that the new digital competences are increasingly integrative as the use of A.I. (Dimitriadou & Lanitis; Venter et al.,2023), for good academic performance as also mentioned for acquisition of new skills (Almenara, 2015; Molina ,2016; Rodríguez, 2017; Manco-Chávez et al; Ocaña-Fernández et al.,2020).

Similarly, in this research the development of TECD (Technology of digital empowerment) and artificial intelligence (A.I.), shows the importance of this study where the development of new technologies helps to improve the learning of students with technological resources and A.I. (Khan et al.,2023), the problematic reality found within the different engineering schools of universities show the lack of implementation of ICT resources and A.I., and usually teaching theoretical courses not applicable to ICT and A.I.

[1] Universidad Autonoma del Perú, https://orcid.org/0000-0001-9659-6037, Email: jmanco15@autonoma.edu.pe
[2] Universidad Nacional Tecnológica de Lima Sur, https://orcid.org/0000-0002-9276-4045, Email: mgalarza@untels.edu.pe
[3] Universidad Autonoma del Perú, https://orcid.org/0009-0006-6762-870X, Email: dsosa21@autonoma.edu.pe
[4] Universidad Autonoma del Perú, https://orcid.org/0000-0003-3229-3461, Email: dterronesr@autonoma.edu.pe
[5] Universidad Cientifica del Perú, https://orcid.org/0000-0002-1134-295X, Email:dlicapa@cientifica.edu.pe;
[6] Universidad Tecnológica del Perú, https://orcid.org/0000-0001-6594-7623, Email: e24244@utp.edu.pe
[7] Universidad Autonoma del Perú, https://orcid.org/0000-0002-0736-1605, Email: danny.retamozo@autonoma.pe

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

For the learning-teaching and development of new knowledge in their professional training with TECD and A.I. mentioned by Manco-Chávez et al (2023), it is significant as referred by Zúñiga (2016), because students have managed to integrate the use of educational technologies according to their areas of professional training (Acosta–Silva, 2017; Adarme et al.,2018; Armijo et al.,2019; UNESCO,2021; Álvarez-Cadavid et al ; Basilotta- Górriz et al., 2022; Alemanno et al.,2023).

Due to the need to improve the capabilities of students, experimental research was conducted to measure the use of technological tools based on the A.I., Manco-Chávez et al (2023), mention the use of new tools such as the Chatbot mentioned by (Tlili et al.,2023) and the use of programming as a tool to the growth of new approaches Khan et al (2023), to transmit knowledge through teachers, it is observed in the research formulated by Ortega (2021) and (Castellanos et al.,2017; Chiecher & Melgar,2018; Bonami et al.,2020; Cabero-Almenara et al.,2021; Caballero et al.,2023; Benvenuti et al.,2023).

This research on TECD integration in digital assessment-learning competencies in engineering students is justified because it finds a gap in knowledge about the use of these ICT tools and artificial intelligence, and the lack of mastery is about the management of programming languages that help them to model and generate new academic learning with computational solution, this investigation is feasible because it can be applied in students of engineering careers even having taken the course in the classroom is necessary to complement the mastery of the software. (Valbuena, 2021; Álvarez-Cadavid, 2022).

Theoretical Framework

At a theoretical-practical level this research is justified because it fits the theories of Constructivism, highlighting active learning, the construction of knowledge by the importance of connections and networks in learning, the interconnection of information of digital skills and autonomous learning theory, highlighting the ability of students to direct their own learning and the importance of the learning environment, emphasizing and encouraging autonomy provided by digital tools and artificial intelligence.

At the ontological level (Rodríguez et al.,2017), show through the study of Artificial Intelligence applied in classrooms and laboratories how to promote the use and application in the field of science and engineering and within them it is achieved the knowledge architecture in the machine-man and man-machine interaction providing the theoretical, methodological and practical bases, generating in the student's practice and organization of information.

The objectives set out in this research are developed as follows, general objective: to determine the incidence that exists between A.I. and assessment-learning of the TECD in university students and the specific objectives: to determine the incidence that exists between artificial intelligences and assessment-learning on the tool dimension; scientific modeling dimension, improvement of collaborative environments dimension; communicative dimension; ICT accessibility dimension; employability dimension and digital empowerment dimension with A.I. in university students.

Within the theoretical framework on the use of artificial intelligence in students' learning (Acosta & Upegui,2020; Araya,2022; Manco-Chávez et al.,2023), mention that it allows them to understand the research developed with A.I. and ICT as a significant contribution while in the practice, the Piaget constructivism allows improving the educational quality of the student through constructs and the ABC (Bærøeet al.,2020; Artiles Rodríguez et al.,2021; Ayuso et al.,2022).

Evaluating A.I. learning with instruments that measured the digital empowerment of the student, methodologically it is referred to Wilkins, (2019), who mentions the achievement of A.I. on machine learning, IOT (Internet of Things), robotics, deep learning, predictive analytics, and reinforced learning contributing to the education and professional training of students. According to Kant's epistemology mentioned by Mata, (2007), raises the possibility of universal knowledge through rationalism of A.I. (Coto,2021; Jiménez,2017; De la Fuente et al.,2022; Conde-Zhingre et al.,2022).

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

(Tenjo et al., 2020) stated that TEP are technologies of empowerment and participation reach this level of observation now with greater rigor (Becerra; Pollier et al., 2019) and (Granados, 2010), helping the student or teacher in the mastery of programs allowing the development of measurable, adjustable and high impact research work.

Larrea (2021), mentioned that once the global crisis occurred, it was observed the immediate reaction of teachers to implement their classes acquiring digital skills (Moyano et al.,2021) and (Nombela et al., 2023), changing the way of teaching; the research conducted was of a mixed approach and it showed that before the health crisis, even ICT were rejected by many teachers, once being the disease in every part of our society, educators had to use technologies so that education did not stop.

According to (MINEDU, 2021), at the national level there are current research based on the integration of ICT, considering that young students of this century are the digital natives, since they live in technological environments; the objective of MINEDU is to train school children with three types of technological skills, such as socialized competencies, development of creativity, and the search for entrepreneurship, creating innovations, as well as constant training in teachers to improve educational quality.

In addition, Guevara (2018) and Montero (2005), mentioned that Vygotski argues about the complex task of developing learning-teaching, due to his Marxist training that lead him to understand about human behavior, according to his psychological position and theory, he relates to the depth of the higher psychic functions, allowing him to develop competencies that internalizes them in the being, making the know-how his own.

The following background as the (UNESCO, 2021), referred in its study framework that digital competencies developed for teachers and students in schools need to be constantly changing according to the advances of technology (Ouyang et al.,2023), in addition there should be a whole planning for learning using A.I. (Artificial Intelligence) and be evaluated of student's learning.

At the Latin American level, ICT standards show that the skills or competencies developed by students in vocational education centers are of great importance in learning (Li,2023), from all levels, starting with basic to advanced learning; students and teachers appropriate these skills that make them unique in the market, as they develop collaborative, cooperative, psycho-educational, and leadership skills and their interactivity with students who are updated with new technologies (Yi et al.,2023), (UNESCO, 2021), (López et al.,2018) and (López & Giráldez, 2007).

The entity (UNICEF ; CEPAL, 2021) and (CEPAL,2014), showed that in Peru, Bolivia, Paraguay and El Salvador, children in their homes did not have internet connectivity, and due to this problem 90% of them could not carry out their studies, therefore it is necessary to manage educational policies that implement the use of ICT, despite the economic gaps of each country and the totally differentiated social groups; the information of knowledge guarantees temporal, and spatial changes, and the way to implement these technologies of knowledge of digital information allows to store, transmit, process and recover information, this cases us to face great challenges in the teaching-learning using technologies.

The approaches to the construction of knowledge mediated by ICT (Tobón,2007) and (Folegotto ,2005), who mentioned that competencies are cognitive learning skills or resources, bringing changes at all educational levels, since competencies have their principles based on the learning process.

Siemens (2004), mentioned that connectivism is the proposal of the digital era of learning; the author also defines it as the integration of exploration of theories based on networks or internet connectivity that helps the construction of new knowledge, being organized by different digital media, like the connectivity which is the ability to make network connections: it should also be taken into account that this connectivity occurs in different study environments (Sánchez,2019) and (Uribe-Rosales,2019).

Digital empowerment has a structure that allows developing the mastery of technologies based on its dimensions exposed such as the accessibility, employability and the equity that exists in the entrepreneurship

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

of building new challenges in technology (Perezchica-Vega ; Morales ; Avello-Sáez ; Salinas; Piernas; Numa-Sanjuán; Permisán et al.,2024) and (Torres, 2022; García ,2021; Engen, 2019; Jiménez et al., 2017).

Considering the new approaches and paradigms in the construction of this learning (Zambrano, 2007), based on technological resources, these developments are very important in the empowerment of digital competencies because they manage to create A.I. in engineering and science careers, university teachers seek to measure how much knowledge of these new paradigms have been developed for this purpose by building instruments for this purpose (Gil-Vera & Quintero-López, 2021; George & Glasserman, 2022; Gual,2023; Górriz et al.,2023).

According to Sánchez (2019), epistemology showed that ICT knowledge is a transformation of new ways of making knowledge, and how these forms of knowledge can be measured quantitatively, using scientific models (Moreno & Zelaida, 2019).

The epistemology of education in these times has been manifested through practical gnoseology; and virtual education is being carried out using technology focused to education that has allowed the development of education in the past and continues up to the present, (Saharrea, 2022;Reimers, 2022), also mentioned that great educational reforms have been achieved that allow deep learning (Gende;Tome; Saharrea, 2022), generating curricular changes which is now known as hybrid teaching, all these because of the COVID-19 situation which generated a new way of educating and training professionals (González; De Castro; Nuñez,2022) y (Luz, 2018).

Within the research proposal there are variables, dimensions and their respective indicators such as: the artificial intelligence variable which has the dimensions of supervised learning, reinforced learning, hybrid learning, unsupervised learning, and the TECD learning evaluation variable which has the dimensions of evaluation criteria, evaluation purpose, evaluation technique and instrument, evaluation results, evaluation forms, being the following TECD digital knowledge empowerment technology variable and its dimensions: A.I. tools, scientific modeling, improvement in collaborative, communicative and axiological environments, ICT accessibility, employability and digital empowerment (Silva-González et al.,2021; Rodríguez & Avila,2022 ; Sanabria-Navarro,2023).

According to the research, Valbuena (2021), determines Artificial Intelligence (A.I.) as the process of understanding, reasoning, comprehending, analyzing, thinking, and understanding thoughts by the construction of neural networks like the biological behavior of the brain system, in this sense, A.I., helps to improve the systematization of the problems to be solved with the use of models in neural networks.

Likewise, the variable evaluation of learning, according to Acebedo-Afanador et al (2017), in its first dimension, evaluation criterion, the author argues that it is the ability to develop rules allowing the possibility to observe or verify the degree of learning through achieved processes, and as the expected knowledge according to these teaching-learning rules and also refers to the intention of the teacher in the continuous evaluation and improvement of autonomous, deep and methodical learning, delivering guidelines or principles for a fair evaluation.

The third variable is TECD (Technology of digital knowledge empowerment), which will be defined by different authors helping the theoretical construction of the research.

TECD is defined as the technology of digital knowledge empowerment, it is the ability that enables students or groups of individuals in the mastery of technological resources and A.I., these technological resources used from practice are based on knowledge and understanding of digital information.

Methodology

The research was of basic type and explanatory level with a hypothetical deductive method and positivist paradigm of quantitative approach, the three variables established in this study will accept or reject the

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

hypothesis formulated regarding the general and specific problem, using a test that will be performed using tools of each variable validated by experts as referred (Hernández-Sampieri y Mendoza,2018).

The design is non-experimental with a causal correlation modality and intentional applied to engineering students of a higher education institution, the data was obtained from surveys that were not manipulated by any human or electronic means, without any change in terms of the independent variables where the "incidence of A.I. and assessment-learning of the TECD in university students" was treated, in other words, measuring how much the dependent variable affects the independent variable which are the TECD (Hernández-Sampieri y Mendoza,2018).

According to the methodologists (Hernández-Sampieri and Mendoza-Torres, 2018), the population is the union or set of all the participants of the engineering schools, such as: systems engineering, environmental engineering, electronic and telecommunication engineering, mechanical engineering, who answered the surveys that allowed conducting the research, the population of the university where it was applied is 2000 students.

(Hernández-Sampieri and Mendoza-Torres,2018), and Ñaupas et al (2014), stated that the sample is the data collected during a survey at the university established for this research, being 198 a representative and relevant amount of 2000 approximate students from the engineering schools (first 4 cycles) already mentioned above who answered the instrument that measured the three variables.

Three instruments were created for the research, variable 1: Artificial Intelligence which is responsible for measuring the contribution it generates through its dimensions such as supervised learning, unsupervised learning, reinforced learning, hybrid learning, each one with their respective indicators. Variable 2: Assessment-learning of the TECD, and its dimensions evaluation criteria, evaluation purpose, evaluation technique and instrument, evaluation results and evaluation form. Variable 3: TECD-Technology of digital knowledge empowerment, with its dimensions, incorporation of A.I. tools, scientific modeling, virtual environments, communication, axiology, accessibility, employability and digital empowerment. Employability, digital empowerment. See annexes to verify the construction of the instruments.

Hernández-Sampieri and Mendoza-Torres (2018), mentioned that the reliability is measured by the verification of Cronbach's Alpha which are used in the research through statistical tests, such as the pilot test on a group of students, in this case of 47 peer students belonging to another university of engineering careers answered 62 questions consisting of the following: 15 of artificial intelligence, 23 of TECD assessment-learning, 24 of TECD-technology of digital knowledge empowerment and in this way to perform the Cronbach's Alpha statistic for the three instruments that have been processed with the SPSS-26 reliability statistic considering the result in the tables (annexes 1,2,3), the dependability of the sample also obtained the same results showing that the research designed is dependable with regard to the instrument that collects the information as is the case of variable 1: reliability statistics of artificial intelligence, 943.Variable 2: reliability statistics of TECD assessment-learning, 934. Variable 3: reliability statistics of TECD-digital knowledge empowerment technology, 945.

This was the way in which the instruments or tools were applied in young university students classrooms of general studies of the engineering schools, where students answered each item to then process the data collected, the number of questions to answer is 62, being 15 of the first variable which is artificial intelligence, 23 of the second variable that is assessment-learning and 24 of the third variable which is (TECD) technology of digital knowledge empowerment.

In the data analysis, statistics were used in the variables and dimensions established in the research, such as frequency tables, hypothesis tests, the test statistic of linear regression was performed with a significance level $\alpha = 0.05$, as well as the comparison of dependence by chi-square, with results in Pearson's Rho and Deviance, and the Wald statistic for hypothesis testing, the Pseudo R-square was also performed in the research for the determination between variables giving results in Cox and Snell, Nagelkerke and McFaden.

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Results

Table 1. Level Of A.I. In University Students

Artificial Intelligence					
		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Basic	39	19,7	19,7	19,7
	Intermediate	123	62,1	62,1	81,8
	Advanced	36	18,2	18,2	100,0
	Total	198	100,0	100,0	

Image 1. Percentage of A.I. levels among university students

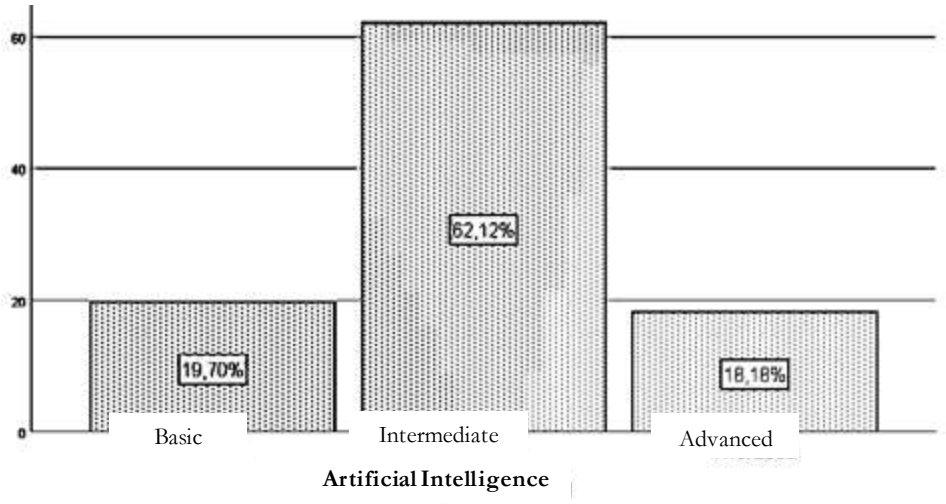


Table 1 and Image 1 identify the levels of use of artificial intelligences in university students, where 19.7% are at a basic level, while 62.12% are at an intermediate level and 18.18% at an advanced level, this implies that observing from the perspective of responding to the analysis, 198 students who responded to this study, approximately 35 of them are at an advanced level in the use of this A.I. tool.

Table 2. Level Of the Dimensions of Artificial Intelligence in University Students

Levels	Supervised learning		Unsupervised learning		Reinforced learning		Hybrid learning	
	fi	%fi	fi	%fi	fi	%fi	fi	%fi
Basic	28	14.1	54	27.3	75	37.9	33	16.7
Intermediate	108	54.5	109	55.1	77	38.9	110	55.6
Advanced	62	31.3	35	17.7	46	23.2	55	27.8
Total	198	100.0	198	100.0	198	100.0	198	100.0

Table 2 shows the levels of the artificial intelligence dimension of supervised learning, where 14.1% are at a basic level, 54.5% are at the intermediate level and 31.3% are at the advanced level. In the unsupervised learning dimension, 27.3%, 55.1% and 17.7% were obtained for the basic, intermediate and advanced level respectively. Likewise, in the reinforced learning dimension, 37.9% are at the basic level, 38.9% are at the intermediate level and 23.3% are at the advanced level. Finally, in the hybrid learning dimension, 16.7%,

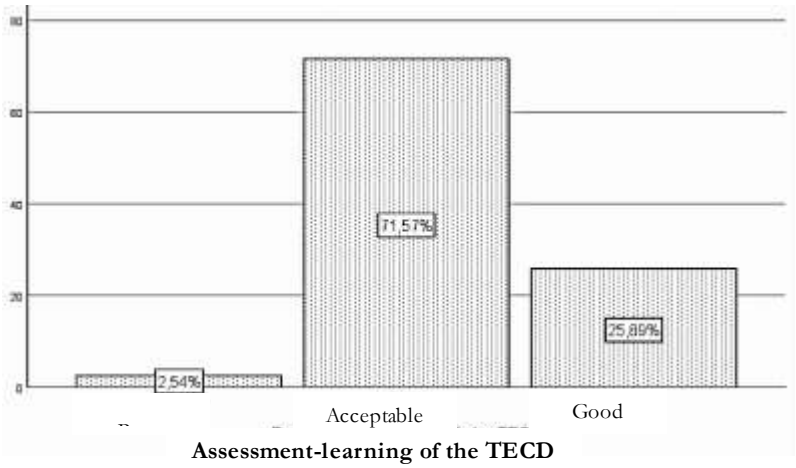
Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

55.6% and 27.8% were obtained for the basic, intermediate and advanced level respectively in university students.

Table 3. Level Of Assessment-Learning of TECD in University Students

Assessment-learning of TECD					
		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Poor	5	2,5	2,5	2,5
	Acceptable	141	71,2	71,6	74,1
	Good	52	25,8	25,9	100,0
Total		198	100,0		

Image 2. Assessment-Learning of The TECD in University Students



Assessment-learning of the TECD

In reference to the level of the assessment-learning of the TECD in university students in Image 2, 2.54% of them are at a poor level, 71.57% are at an acceptable level and 28.59% are at a good level, showing in the results that there is a significant learning in the development of new transversal competencies within the professional training as engineering students.

Table 4. Level of the Assessment-Learning Dimension of ECTD in University Students

Levels	Evaluation criteria		Evaluation purpose		Evaluation technique and instrument		Evaluation results		Evaluation method	
	fi	%fi	fi	%fi	fi	%fi	fi	%fi	fi	%fi
Poor	9	4.5	9	4.5	11	5.6	19	9.6	10	5.1
Acceptable	111	56.1	108	54.5	141	71.2	140	70.7	153	77.3
Good	78	39.4	81	40.9	46	23.2	39	19.7	35	17.7
Total	198	100.0	198	100.0	198	100.0	198	100.0	198	100.0

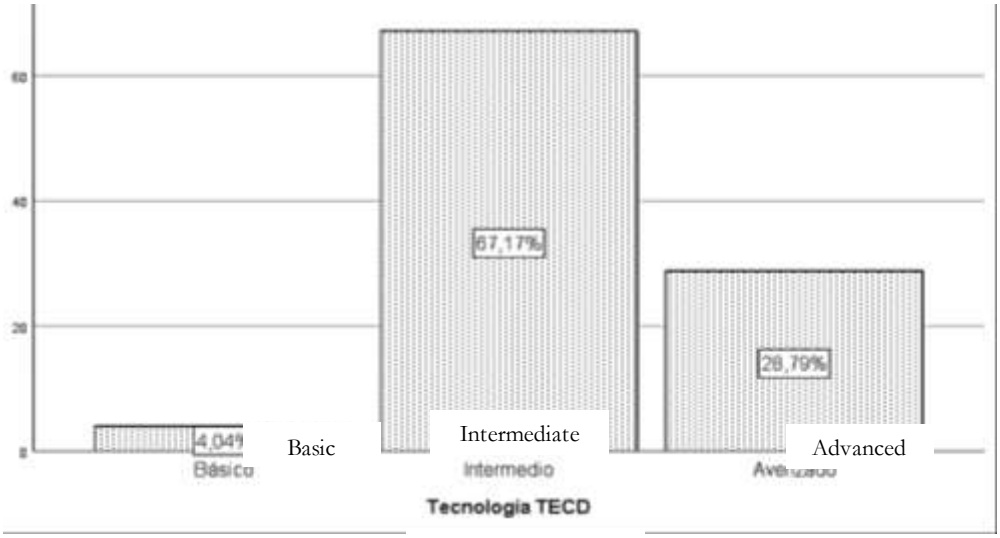
The results of the evaluation show a varied distribution of participants' performance levels. 4.5% performed poorly, while 56.1 had an acceptable performance, indicating a trend towards improvement. Only 39.4% achieved a good level. As the evaluations progress, there is a decrease in good results and an increase in acceptable results, which could suggest areas that need attention or adjustments in the evaluation methodology.

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Table 5. Levels of TECD

TECD technology					
		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Basic	8	4,0	4,0	4,0
	Intermediate	133	67,2	67,2	71,2
	Advanced	57	28,8	28,8	100,0
	Total	198	100,0	100,0	

Image 3. Frequency Distribution of Digital Knowledge Empowerment in University Students



TECD Technology

The analysis of TECD in university students snows a small percentage of 4.04%, which is at a basic level. The majority, 67.17%, are at an intermediate level, showing moderate digital competencies. On the other hand, 28.79% reach an advanced level, indicating a deeper mastery of digital tools. These data suggest that, in general, students have a solid understanding of the digital environment, although there are still areas to strengthen.

Table 5. Frequency Distribution by The Level of Digital Knowledge Empowerment Dimension in University Students

Levels	Incorporation of AI tools		Scientific modeling		Virtual environments		Communication		Axiology		ICTs accessibility		Employability		Digital empowerment	
	fi	%fi	fi	%fi	fi	%fi	fi	%fi	fi	%fi	fi	%fi	fi	%fi	fi	%fi
Basic	73	36.9	47	23.7	43	21.7	43	21.7	11	5.6	28	14.1	137	69.2	47	23.7
Intermediate	85	42.9	105	53.0	99	50.0	118	59.6	116	58.6	129	65.2	24	12.1	94	47.5
Advanced	40	20.2	46	23.2	56	28.3	37	18.7	71	35.9	41	20.7	37	18.3	57	28.8
Total	198	100.0	198	100.0	198	100.0	198	100.0	198	100.0	198	100.0	197	99.5	198	100.0

The analysis of the dimensions of digital knowledge empowerment in university students shows different levels of mastery. In the dimension of incorporation of A.I. tools, 36.9% are at a basic level, 42.9% at intermediate level and 20.2% at an advanced level. In scientific modeling, 23.7% are in basic, 53% in intermediate and 23.2% in advanced level. In the virtual environment, 21.7% are in basic, 50% in intermediate and 28.3% in advanced level. Other dimensions, such as the communicative and axiological dimension, also show a tendency towards intermediate and advanced levels, while employability shows 69.2% in basic.

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Table 6. Incidence Of Artificial Intelligences and Assessment-Learning of the TECD-Digital Knowledge Empowerment Technology

		TECD-digital knowledge empowerment technology			Total
		Low level	Intermediate level	High level	
		41	22	0	63
		16,2	22,3	24,5	63,0
	Low level	65,1%	34,9%	0,0%	100,0%
		20,7%	11,1%	0,0%	31,8%
		10	42	26	78
	Intermediate level	20,1	27,6	30,3	78,0
		12,8%	53,8%	33,3%	100,0%
		5,1%	21,2%	13,1%	39,4%
		0	6	51	57
	High level	14,7	20,2	22,2	57,0
		0,0%	10,5%	89,5%	100,0%
		0,0%	3,0%	25,8%	28,8%
Total		51	70	77	198
		51,0	70,0	77,0	198,0
		25,8%	35,4%	38,9%	100,0%
		25,8%	35,4%	38,9%	100,0%

From table 6 it is observed that there is a relationship between Incidence in A.I. and Assessment-learning of the TECD, at the high level it is observed in the cross table that 89.5% of students show mastery of the technologies of A.I., therefore there is a very significant relationship in learning and assessment mediated by A.I., likewise in the intermediate level of the cross table of the variables under study show that 53.8% of students know these technological tools which is significant in their professional development. Likewise in the low level according to the cross table, 65.1% of students know about this technological application in their professional development training.

Table 7. Model Setting Information

Model setting information				
Model	Log likelihood -2	Chi-square	gl	Sig.
Intersection only	134,262			
Final	21,583	112,679	4	,000
Link function: Logit.				

Comparison of dependence by Chi-square test shows the association between A.I. and TECD assessment-learning

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Table 8. Goodness-of-Fit Between the Study Variables

Goodness-of-Fit			
	Chi-square	gl	Sig.
Pearson	1,259	10	1,000
Deviation	1,746	10	,998
Link function: Logit.			

The goodness-of-fit analysis presents the results. For the Pearson test, the Chi-square value is 1,259 with 10 degrees of freedom (gl), and the significance value (Sig.) is 1.000, indicating that there is insufficient evidence to reject the null hypothesis, suggesting that the model fits the data properly. In the Deviance test, the Chi-square value is 1.746 with 10 gl, and the Sig. value is 0.998, also indicating an adequate fit of the model. The link function used is Logit, suggesting that a logistic regression model is being evaluated. Overall, the results imply a good fit of the model to the data.

Table 9. Parameter Estimates of Artificial Intelligences and Assessment-Learning of TECD in Digital Knowledge Empowerment

Parameter estimates					
Variables	Calculation	Desv. Error	Wald	gl	Sig.
[Knowledge empowerment]	-9,556	1,226	60,770	1	,000
[Artificial intelligences]	-5,891	1,185	24,708	1	,000
[Assessment-learning]	-1,583	,443	12,752	1	,000
Linking function: Logit.					
a. This parameter is set to zero because it is redundant.					

The results show the dependence of artificial intelligence and ECTD assessment-learning on digital knowledge empowerment, detected by Wald statistic >4.00 plus p_value <0.05.

Table 10. Incidence Of Artificial Intelligences and Assessment-Learning of the TECD* Incorporation of A.I. Tools Dimension

	Incorporation of A.I. tools dimension			Total
	Low level	Intermediate level	High level	
	30	30	3	63
Low level	16,5	25,8	20,7	63,0
	47,6%	47,6%	4,8%	100,0%
	15,2%	15,2%	1,5%	31,8%
	16	42	20	78
Intermediate level	20,5	31,9	25,6	78,0
	20,5%	53,8%	25,6%	100,0%
	8,1%	21,2%	10,1%	39,4%
	6	9	42	57
High level	15,0	23,3	18,7	57,0
	10,5%	15,8%	73,7%	100,0%
	3,0%	4,5%	21,2%	28,8%
Total	52	81	65	198

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

	52,0	81,0	65,0	198,0
	26,3%	40,9%	32,8%	100,0%
	26,3%	40,9%	32,8%	100,0%

The relationship that exists between the Incidence of artificial intelligences and Assessment-learning on the dimension of Tool Incorporation with the A.I., can be shown through the cross table demonstrating that, at the high level, there is, a very significant percentage of 73.7%, showing the direct relationship between them, likewise in the intermediate level, the cross table shows that 53.8% of students master in some way these tools, likewise the cross table show that there is a low level with 47.6% of students that do not use these tools of the A.I.

Table 11. Incidence of Artificial Intelligences and TECD*Assessment-Learning Scientific Modeling Dimension

	Scientific modeling dimension			Total
	Low level	Intermediate level	High level	
	59	4	0	63
	37,5	18,5	7,0	63,0
Low level	93,7%	6,3%	0,0%	100,0%
	29,8%	2,0%	0,0%	31,8%
	51	26	1	78
Intermediate level	46,5	22,8	8,7	78,0
	65,4%	33,3%	1,3%	100,0%
	25,8%	13,1%	0,5%	39,4%
	8	28	21	57
	34,0	16,7	6,3	57,0
High level	14,0%	49,1%	36,8%	100,0%
	4,0%	14,1%	10,6%	28,8%
Total	118	58	22	198
	118,0	58,0	22,0	198,0
	59,6%	29,3%	11,1%	100,0%
	59,6%	29,3%	11,1%	100,0%

From table 11, the cross table show that in the high level of the Incidences of Artificial Intelligences and Assessment-learning on the dimension Scientific Modeling, 36.8% of students can perform computational modeling of physics, mathematics and design algorithms using the tools of the A.I. as autonomous learning or machine training, likewise in the intermediate level of the cross table it is observed that 33.3% of the students have knowledge in development on algorithms or construction of machine language that allows them to give solutions to research problems using the tools of the A.I., in the same way observing the low level of the table presents 93.7% that do not know about the computational modeling which is the equivalent of the total of students surveyed, 29.8% being in this study an equivalent in number of students of 36 approximately, this implies that there is a direct relation of the incidence of the technologies on the academic development in the modeling of the physics and mathematics applied in the engineering.

Table 12. Incidence Of Artificial Intelligences and TECD Assessment-Learning* Virtual Environments Dimension

	Virtual environments dimension			Total
	Low level	Intermediate level	High level	

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Low level	57	4	0	61
	39,8	14,3	6,8	61,0
	93,4%	6,6%	0,0%	100,0%
	29,1%	2,0%	0,0%	31,1%
Intermediate level	56	17	5	78
	50,9	18,3	8,8	78,0
	71,8%	21,8%	6,4%	100,0%
	28,6%	8,7%	2,6%	39,8%
High level	15	25	17	57
	37,2	13,4	6,4	57,0
	26,3%	43,9%	29,8%	100,0%
	7,7%	12,8%	8,7%	29,1%
Total	128	46	22	196
	128,0	46,0	22,0	196,0
	65,3%	23,5%	11,2%	100,0%
	65,3%	23,5%	11,2%	100,0%

From table 12, through the cross table can be observed that in the high level, according to the Incidence of Artificial Intelligence and Assessment-learning on the dimension of improvement of collaborative environments, 29.8% of students constantly use virtual environments for their academic development, likewise, in the intermediate level, 21.8% of students use these environments for academic work. Similarly, at the low level, 93.4% of students represented by 29.1% of the total number of students give little importance to the use of these environments, from this it can be concluded that there is a direct relationship with virtual environments.

Table 13. Incidence Of Artificial Intelligences and Assessment-Learning of the TECD*Employability Dimension

		Employability dimension			Total
		Low level	Intermediate level	High level	
Incidence of Artificial Intelligences and Assessment-learning of the TECD (Incidences…)	Low level	44	18	1	63
		26,4	27,4	9,2	63,0
		69,8%	28,6%	1,6%	100,0%
		22,2%	9,1%	0,5%	31,8%
	Intermediate level	31	36	11	78
		32,7	33,9	11,4	78,0
		39,7%	46,2%	14,1%	100,0%
		15,7%	18,2%	5,6%	39,4%
	High level	8	32	17	57
		23,9	24,8	8,3	57,0
		14,0%	56,1%	29,8%	100,0%
		4,0%	16,2%	8,6%	28,8%
Total		83	86	29	198
		83,0	86,0	29,0	198,0
		41,9%	43,4%	14,6%	100,0%
		41,9%	43,4%	14,6%	100,0%

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Note. It is shown the cross table of Incidence of Artificial Intelligences and Assessment-learning of the TECD*EMPLOYABILITY DIMENSION.

Table 13 shows in the results that in the high level, 29.8% of students have jobs focused to their professional training because companies are currently looking for students or professionals who master the latest paradigms through programming and the use of A.I. on economics, medicine and other specialties, likewise at the intermediate level, 46.2% of the students have a regular command of the experts that are formed within the training schools in engineering on the use of these A.I tools, in the low level 69.8% of students, equivalent to 22.2% of those surveyed, have little mastery of the use of A.I. and few opportunities to get a job. This implies that the incidence of artificial intelligences, assessment of the TECD and the employability dimension are directly related, so that students who specialize in new approaches to technology have a better chance of getting jobs linked to these new paradigms.

Discussion

Manco-Chavez et al (2020), showed interesting results in his study concerning the integration of ICT and finding that students 6 months after the start of the COVID-19 pandemic, that 89.9% of them had a high development on digital skills, it is also shown that in the field of empowerment of digital skills there is a high level in the incorporation of the new paradigms of educational technology showing that 89.5% have a high level on TECD that allows them to develop algorithms, perform simulations at the level of conceptual understanding and industrial development as an autonomous learning, thus observing that after a post pandemic, the results are significant for the legacy of the machine-student linkage (Manco-Chávez et al.,2023).

Likewise, the results of (Manco-Chavez et al.,2020), showed that in the investigated dimension of digital skills and specifically the instrumental dimension, students had a high level of 94%, this is because the use of these tools are at the user level, while in this research it is shown that the dimension incorporation of A.I. tools should be included in vocational training and thus develop new advances in technology from the university classrooms due to at the high level it was found that 73.7% of students become aware of the use and mastery of these tools while at the intermediate level 53.8% have knowledge in training towards the mastery of these appliances, likewise in the basic level it was found that 20.5% of students know little about the management of these tools from the development of new algorithms and construction of a simulation in physics, mathematics, chemistry, and applications in engineering.

(Becerra Brito,2019), mentioned in the research paper regarding the use of ICT at the level of teachers and students who showed that the increase in the use of these technologies is due to the motivation dimension showing a 53%, in other words, it is necessary to be linked to new technological contributions, on the incorporation of the A.I. within the university classrooms, as a result it was obtained at a high level of 73.7% university students that take advantage of these tools applying them in their daily lives, modeling and including new solutions alternatives to physical, mathematical and engineering problems, but in general, this incorporation is given in the high level, having a percentage of 73.7% which is equivalent to 21.2% of the total of those investigated that have TECD as allies to their academic development, while in the intermediate level 53.8% show that there is a growth in the development of the application of the A.I. within the students of the engineering careers, and in the low level the incorporation of A.I. tools had a result of 20.5%, showing that there are few university students who are learning or are on the road to the use of these tools, showing that there is a direct and significant relationship on these results.

(Valencia Molina et al., 2016), mentioned that students are in the ability to integrate and incorporate technological tools that allow each student to design, implement, evaluate, and these likewise make them integrate, orient themselves, and show the evolution of learning, knowing, using, and transforming scientific modeling as autonomous learning, using programming language and being the students protagonist of these academic transformations with repercussion to the advance of the technologies, showing knowledge in the processes of professional formation, in this way they are able to implement, design and achieve the evaluation of the designs shown during the process of the investigation in students groups in the university classrooms.

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

It can be mentioned that students at universities, specifically students of engineering careers take advantage of new paradigms and approaches that make their professional training, a stable training with many opportunities to improve in educational quality, ready for a demanding market to new technologies within the industry and companies.

(Li & Wang,2023), mentioned that in the use of these technologies, there is a state of communication and development of technologies based on programming and interaction between teachers and students that helps them to improve the development of these skills because the professional training is based on academic cycles or semesters and teachers must implement a dynamic teaching and evaluation on students training them on these tools of A.I., causing good relationships in students and teachers' virtual environment according to the analysis of their research, determining the strengths of learning minimizing the difficulties of this process having as objectives the achievement of a collaborative unit from the virtuality in construction of simulations, modeling and among other technologies, allowing through this research the possibility to answer objective 3 in this way.

Likewise, in the high intermediate level, Table 10 shows that 29.8% equivalent to 8.7% of the total number of students present a high level of communication between students using virtuality, this is due to the fact that many of the students do not have the interpersonal skills that help them to improve their communication between groups or members of their academic community, and also in the high intermediate level it is shown a result of 6.4% equivalent to 2.6% of the total of respondents which indicates a low interaction of communication between students, this shows the little communication, in the same way it was obtained that in the low high level there are no students in the low state since the results show that there is 0% of communication indicating that in some way students communicate using technology.

(Ouyang et al.,2023), mentioned that A.I. predictive models are classified from the perspective of improving A.I. and the educational application of this, helping students' high communicative performance from where it makes them improve academically, this situation of A.I. models in communication system is made through algorithms, Bayesian networks, decision trees, vector machine system, deep learning, genetic programming, etc.

From table 11 in the communicative dimension, it was observed through the cross table at a high level, that 78.9% of students can communicate with a high performance, showing that there is an empowerment of digital knowledge allowing students to transmit the information of their work in the development of algorithms, neural networks and among other works carried out by A.I., as well was (Ouyang et al.,2023), also mentioned the advantages of using A.I. based learning; in the high intermediate level it was observed that from 35.9%, the equivalent of all the respondents is 14.1%, showing that from the 198 interviewees in this research, 24 students are in an intermediate level concerning the development of A.I. in their study applications while in the low high level there are 9.5% equivalent to 9 students who are in the process of learning A.I, and these TECD variables and their communicative dimension are important, thus determining the incidence of A.I. that exists among the TECD.

It can be mentioned that the research showed in Table 12, a high level of 19.9% respondents that are honest when declaring that they do no always comply with the ethical values of respecting the author's right, since they are still learning in the university classrooms and their research works are profiled to originality as time passes within the university classrooms representing 39 students who show that they do no research due to the lack of paraphrasing or improvement in the explanation of a specific content of the research. Likewise, in the high intermediate level, 34.6% represented by 27 surveyed students show that they respect author's rights, this is something good because in this way adequate professionals are formed, ideally the percentage would be higher but it must be taken into account that they are students who are gradually corrected through the use of the Turnitin tools of how much is their similarity and in this way they improve in their development of explanation of the contents of their research.

(Cabero-Almenara et al.,2021), stated in their research regarding the accessibility of digital tools such as MOCC, a result in its dimensions mentioned as: Technical aspects the student manages to have mastery

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

69%, in the ease of use of these tools 76%, and in the management of the diversity of technological resources acquired by students is 80%, and to achieve the quality of content or academic work is represented by 73%, this shows the accessibility of technologies mediated by a computer or other tool that is connected to the internet, showing a significant learning mediated by technology.

Likewise, the results of the research show that in the high level from the cross table, 71.9% representing 41 students show that they have access to internet, this indicates that not all students have good internet or that they do not have internet as their disposal due to the lack of economic resources, comparing with the results of the research of (Cabero-Almenara et al.,2021), it is very low and also for the fact that these are results related to the use of the tools at user level and not as the case of the results of thesis research presented, where the aim is to show how much is the incidence of the A.I. in the assessment-learning and TECD, this implies an improvement of the activities created by the development of a technology with the A.I. using deep learning based on neural networks and its improvement in academic performance in all areas of engineering, also in the intermediate high level it was shown as a result that 34.6% of students have access to the internet and digital tools equivalent to 27 students of the respondents, and in the low high level 19% of students have access to the internet, these results show a concern to seek to improve the interconnection of the student appliance and its connectivity, it is necessary to create academic improvements mediated by computers and thus generate knowledge, this implied that if there is a relative impact on ICTs with its ICTs accessibility dimension, direct and significant relationship, which shows the levels of access to the internet and the digital tools.

Conclusion

The result indicates that the behavior of the dependent variable "TECD" (Technology of Digital Knowledge Empowerment) is determined by 56.3% by the levels of artificial intelligences and teaching-learning assessment with a Wald value greater than 4.00 and a p-value less than 0.05; it is confirmed that these factors have a statistically significant impact on the model. This suggests a strong and reliable relationship between the variables analyzed in the study.

In the Tool with A.I. dimension, the incidence was 41.7% according to the Nagelkerke statistic, with a Wald value greater than 4.00 and a p-value less than 0.05, indicating a direct and significant relationship between A.I. and an improvement in the use of technological tools. In the Scientific Modeling dimension, the incidence was 48.1%, showing a significant improvement in the students' ability to model scientific processes using A.I.

In the Improving collaborative environments dimension, the incidence reached 46%, highlighting how AI favors interaction and collaboration among students. In the Communicative dimension, the incidence was 48.2%, reflecting a significant improvement in students' communicative skills thanks to the use of AI tools.

Regarding ICT accessibility, incidence of 21.6% was found in its first measurement and 29.1% in its improvement, highlighting how AI facilitates access to information and communication technologies. In the employability dimension, the incidence was 19.4%, indicating that the mastery of AI technologies can improve students' job opportunities. Finally, in the digital empowerment dimension, the incidence was 30.3%, emphasizing how the use of AI enables students to become digitally empowered.

These results, with Wald statistic values >4.00 and p-value <0.05, confirm that AI and assessment-learning have a significant and direct impact on various dimensions of learning and the development of technological competencies in university students.

References

Acebedo-Afanador, M., & Hinojo-Lucena, F. (2017). Instrumentos para la Evaluación del Aprendizaje Basado en Competencias: Estudio de caso. Información tecnológica, 28(3), 107-118. https://scielo.conicyt.cl/pdf/infotec/v28n3/art12.pdf

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Acosta, J., & Upegui, E.(2020). Determinación de procesos de remoción en masa utilizando técnicas de inteligencia computacional. Revista Ibérica de Sistemas e Tecnologias de Informação, (E28), 344-359. https://www.proquest.com/openview/b64fe75fd94f1f38492ef60729f69314/1?pq-origsite=gscholar&cbl=1006393

Acosta–Silva, D. (2017). Tras las competencias de los nativos digitales: avances de una metasíntesis. Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud, 15(1), 471-489. https://www.redalyc.org/journal/773/77349627031/

Adarme, M., Sánchez, Z., & López, H.(2018). Interpretación de las competencias digitales profesorales presentes en el contexto universitario. Revista Logos, Ciencia & Tecnología, 10(1), 41-51. https://www.proquest.com/docview/1994403960/17D4773F6D014A54PQ/3?accountid=37408

Alemanno, F., Camanzi, L., Manzan, G. y Tantari, D. (2023). Hopfield model with planted patterns: a teacher-student self-supervised learning model. arXiv preimpresión arXiv:2304.13710 . https://www.scopus.com/record/display.uri?eid=2-s2.0-85166486375&origin=resultslist&sort=plf-f&src=s&sid=fcc54b5276d79a3b513433bf64347796&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2Bscoexactkeywords%2C%22Learning+Systems%22%2Ct%2Bscolang%2C%22English%22%2Ct%2C%22Spanish%22%2Ct&s=TITLE-ABS-KEY%28artificial+intelligence%29&sl=38&sessionSearchId=fcc54b5276d79a3b513433bf64347796

Almenara, J. (2015). Reflexiones educativas sobre las tecnologías de la información y la comunicación (TIC). Revista Tecnología, Ciencia y Educación, (1). https://www.tecnologia-ciencia-educacion.com/index.php/TCE/article/view/27

Álvarez-Cadavid, G., & González-Manosalva, A. (2022). Apropiación de TIC en docentes de la educación superior: una mirada desde los contenidos digitales. Praxis educativa, 26(1), 77. https://dx.doi.org/https://doi.org/10.19137/praxiseducativa-2022-260104

Álvarez-Cadavid, G., & González-Manosalva, A. (2022). Apropiación de TIC en docentes de la educación superior: una mirada desde los contenidos digitales. Praxis educativa, 26(1), 77. https://dx.doi.org/https://doi.org/10.19137/praxiseducativa-2022-260104

Araya, C. (2022). Legal challenges of artificial intelligence in Chile. http://revistas.suiiurisasociacion.com/handle/123456789/15895

Armijo, F., Arellano, M., Salcán, H., Rodríguez, H., & Vélez, J. (2019). Digital tools in the university education of the students of the Business Administration course of UNIANDES Santo Domingo. Dilemas Contemporáneos: Educación, Política y Valore, 6(Special). https://www.proquest.com/docview/2245657290/17D4773F6D014A54PQ/46?accountid=37408

Artiles, J., Guerra, S., Aguiar, M., & Rodríguez, J. (2021). Agente conversacional virtual: la inteligencia artificial para el aprendizaje autónomo. Pixel-Bit. https://redined.educacion.gob.es/xmlui/bitstream/handle/11162/215463/Agente.pdf?sequence=1

Avello-Sáez, D., Lucero-González, N., & Villagrán, I. (2024). Desarrollo de una declaración de uso de inteligencia artificial con una perspectiva de integridad académica en educacióN MéDica y Ciencias De la Salud. Revista Médica Clínica Las Condes, 35(5-6), 412-420. https://www.scopus.com/record/display.uri?eid=2-s2.0-85208555130&origin=resultslist&sort=plf-f&src=s&sid=15c40a9ba04c68dad8bc7d5399d80ada&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+AND+artificial+AND+EDUCACI%C3%93N%29&sl=18&sessionSearchId=15c40a9ba04c68dad8bc7d5399d80ada&relpos=2

Ayuso, L., & del-Blanco, F. (2021). Aplicación de redes neuronales al diseño de vivienda colectiva. Procesos generativos de combinatoria y automatización mediante inteligencia artificial. rita_revista indexada de textos académicos, (16), 214-231. http://ojs.redfundamentos.com/index.php/rita/article/viewFile/595/528

Bærøe, K., Miyata-Sturm, A., & Henden, E. (2020). How to achieve trustworthy artificial intelligence for health. Bulletin of the World Health Organization, 98(4), 257. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7133476/

Basilotta-Gómez, V., Matarranz, M., Casado-Aranda, L., & Otto, A. (2022). Teachers' digital competencies in higher education: a systematic literature review. International Journal of Educational Technology in Higher Education, 19(1), 1-16. https://www.proquest.com/docview/2627006934/17D4773F6D014A54PQ/10?accountid=37408

Becerra, C. (2019). El uso de TIC, TAC y TEP: Una asignatura aún pendiente para el profesorado de inglés. https://riull.ull.es/xmlui/bitstream/handle/915/16809/El%20uso%20de%20TIC,%20TAC%20y%20TEP%20%20Una%20asignatura%20aun%20pendiente%20para%20el%20profesorado%20de%20ingles.pdf?sequence=1

Benvenuti, Cangelosi, A., Weinberger A., Mazzoni E., Benassi M., Barbaresi M., Orsoni M.(2023). Artificial intelligence and human behavioral development: A perspective on new skills and competences acquisition for the educational context. art. no. 107903. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85172478955&doi=10.1016%2fj.chb.2023.107903&partnerID=40&md5=09be1628f1b86a3bbfeb0df8af6a1cf0

Bonami, B., Piazentini, L., & Dala-Possa, A. (2020). Education, big data and artificial intelligence: mixed methods in digital platforms. Comunicar, 28(65), 43-52. https://www.proquest.com/docview/2445581678/17D4773F6D014A54PQ/78?accountid=37408

Caballero, B., Pachas, F., & Caballero, V.(2023). Estrategias de aprendizaje virtual y competencia digital en estudiantes de una universidad pública de Lima, 2022. VARONA, (76), 1-10.https://www.redalyc.org/journal/3606/360674839009/360674839009.pdf

Cabero-Almenara, J., Barroso-Osuna, J., Palacio-Rodríguez, A., & Llorente-Cejudo, C. (2021). Evaluación de t-MOOC universitario sobre competencias digitales docentes mediante juicio de expertos según el Marco DigCompEdu. Revista de Educación a Distancia (RED), 21(67).https://www.scopus.com/record/display.uri?eid=2-s2.0-85118608981&origin=resultslist&sort=plf-f&src=s&sid=236f98113d437461c8846eff742792a1&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2

Bscoexactkeywords%2C%22Digital+Skills%22%2Ct%2C%22Digital+Competence%22%2Ct%2Bscolang%2C%22Spanish%22%2Ct%2C%22English%22%2Ct%2C%22Portuguese%22%2Ct%2Bscosubjabbr%2C%22SOCI%22%2Ct&s=TITLE-ABS-KEY%28competencias+digitales%29&sl=37&sessionSearchId=236f98113d437461c8846eff742792a1

Castellanos, A., Sánchez, C., & Calderero, J. (2017). Nuevos modelos tecnopedagógicos. Competencia digital de los alumnos universitarios. REDIE. Revista Electrónica de Investigación Educativa, 19(1), 1-9.https://www.redalyc.org/pdf/155/15549650001.pdf

Cepal. (2014). La integración de las tecnologías digitales en las escuelas de América Latina y el Caribe: una mirada multidimensional. Consultado el 16 de julio de 2021. https://www.cepal.org/es/publicaciones/36739-la-integracion-tecnologias-digitales-escuelas-america-latina-caribe-mirada

Cepal. (2021). Universalizar el acceso a las tecnologías digitales para enfrentar los efectos del COVID-19. Consultado el 16 de julio de 2021. https://repositorio.cepal.org/bitstream/handle/11362/45938/4/S2000550_es.pdf

Chiecher, A., & Melgar, M. F. (2018). ¿Lo saben todo? Innovaciones educativas orientadas a promover competencias digitales en universitarios. Apertura, 10(2), 110-123. https://doi.org/10.18381/Ap.vl0n2.1374

Conde-Zhingre, L, Cueva-Alvarado, G, Chamba-Eras, L y Ureña-Torres, M. (junio de 2022). Impact of Artificial Intelligence in Basic General Education in Ecuador. [In 2022 XVII Iberian Congress of Information Systems and Technologies]. https://www.scopus.com/record/display.uri?eid=2-s2.0-85134851558&origin=resultslist&sort=plf-f&src=s&sid=b6a5a9aec35c6803681668db663b4168&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+artificial+educaci%C3%B3n%29&sl=48&sessionSearchId=b6a5a9aec35c6803681668db663b4168

Coto, Marvin. (2021). Consideraciones para la incorporación de la inteligencia artificial en un programa de pregrado de ingeniería eléctrica. Actualidades Investigativas en Educación, 21(2), 529-555. https://dx.doi.org/10.15517/aie.v21i2.44893

De-Castro, M., & Peñalvo, F. (2022). Metodologías educativas de éxito: proyectos Erasmus+ relacionados con e-learning o TIC. Campus Virtuales, 11(1), 95-114. https://dialnet.unirioja.es/servlet/articulo?codigo=8320805

De-la-Fuente, M., San, B., & Sánchez, J. (2022). Digital Skills and Technological Accessibility as Challenges for the Labour Market Insertion of People with Disabilities in the Audiovisual Sector. UCJC Business and Society Review, (73), 162-195. https://www.proquest.com/docview/2866478868/17D4773F6D014A54PQ/2?accountid=37408

Dimitriadou, E., & Lanitis, A. (2023). A critical evaluation, challenges, and future perspectives of using artificial intelligence and emerging technologies in smart classrooms. Smart Learning Environments, 10(1) doi:10.1186/s40561-023-00231-3

Engen, B., & Engen, B. (2019). Understanding social and cultural aspects of teachers' digital competencies. https://www.proquest.com/docview/2332338559/17D4773F6D014A54PQ/4?accountid=37408

Escalante, A. (2023). Propiedad intelectual e inteligencia artificial: protección de las obras creadas por sistemas de inteligencia artificial. https://riuma.uma.es/xmlui/bitstream/handle/10630/26422/TFG%20sin%20DNI%20NI%20FIRMA.pdf?sequence=4&isAllowed=y

Flores-Vivar, J., & García-Peñalvo, F. (2023). Reflexiones sobre la ética, potencialidades y retos de la Inteligencia Artificial en el marco de la Educación de Calidad (ODS4). https://repositorio.grial.eu/bitstream/grial/2738/1/10.3916_C74-2023-03.pdf

Folegotto, I., & Tambornino, R. (2005). Las TIC y los nuevos paradigmas para la educación. [In I Congreso en Tecnologías de la Información y Comunicación en la Enseñanza de las Ciencias]. http://sedici.unlp.edu.ar/bitstream/handle/10915/19534/Documento_completo__.pdf?sequence=1

García, K ., Ortiz, C, & Chávez, D. (2021). Relevancia y dominio de las competencias digitales del docente en la educación superior. Revista Cubana de Educación Superior, 40(3), e20. Epub 01 de julio de 2021. Recuperado en 13 de octubre de 2023, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0257-43142021000300020&lng=es&tlng=es.

Gende, I. (2022). Flexibilizar el proceso de enseñanza y aprendizaje en una universidad online. Edutec. Revista Electrónica De Tecnología Educativa, (79), 199-213. https://www.edutec.es/revista/index.php/edutec-e/article/view/2351

George, C., & Glasserman, L. (2022). Elaboración y análisis de confiabilidad de un cuestionario para medir desde la perspectiva del estudiante, las competencias digitales del docente en entornos no presenciales de enseñanza. Revista complutense de educación. https://www.scopus.com/record/display.uri?eid=2-s2.0-85133971842&origin=resultslist&sort=plf-f&src=s&sid=236f98113d437461c8846eff742792a1&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2Bscoexactkeywords%2C%22Digital+Skills%22%2Ct%2C%22Digital+Competence%22%2Ct%2Bscolang%2C%22Spanish%22%2Ct%2C%22English%22%2Ct%2C%22Portuguese%22%2Ct%2Bscosubjabbr%2C%22SOCI%22%2Ct&s=TITLE-ABS-KEY%28competencias+digitales%29&sl=37&sessionSearchId=236f98113d437461c8846eff742792a1

Gil-Vera, V., & Quintero-López, C. (2021). Predicción del rendimiento académico estudiantil con redes neuronales artificiales. Información tecnológica, 32(6), 221-228. https://dx.doi.org/10.4067/S0718-07642021000600221

Górriz, J., Álvarez-Illán, I., Álvarez-Marquina, A., Atzmueller, M., Ballarini, F., ... & Ferrández-Vicente, J. (2023). Computational Approaches to Explainable Artificial Intelligence:[Advances in Theory, Applications and Trends], 100 , 101945. https://www.scopus.com/record/display.uri?eid=2-s2.0-85166914338&origin=resultslist&sort=plf-f&src=s&sid=fcc54b5276d79a3b513433bf64347796&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2Bscoexactkeywords%2C%22Learning+Systems%22%2Ct%2Bscolang%2C%22English%22%2Ct%2C%22Spanish

%22%2Ct&s=TITLE-ABS-KEY%28artificial+intelligence%29&sl=38&sessionSearchId=fcc54b5276d79a3b513433bf64347796

Górriz, J., Álvarez-Illán, I., Álvarez-Marquina, A., Atzmueller, M., Ballarini, F., ... & Ferrández-Vicente, J. (2023). Computational Approaches to Explainable Artificial Intelligence:[Advances in Theory, Applications and Trends], 100 , 101945. https://www.scopus.com/record/display.uri?eid=2-s2.0-85166914338&origin=resultslist&sort=plf-f&src=s&sid=fcc54b5276d79a3b513433bf64347796&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2Bscoexactkeywords%2C%22Learning+Systems%22%2Ct%2Bscolang%2C%22English%22%2Ct%2C%22Spanish%22%2Ct&s=TITLE-ABS-KEY%28artificial+intelligence%29&sl=38&sessionSearchId=fcc54b5276d79a3b513433bf64347796

Granados, J., & Lamagrande, A. (2010). Un instrumento de análisis para la investigación del uso de las tic-tac en la enseñanza de la geografía para el desarrollo sostenible. https://eprints.gla.ac.uk/102150/1/102150.pdf

Gual, A. (2023). La inteligencia artificial y la educación médica (I): la revolución profesional. FEM: Revista de la Fundación Educación Médica, 26(2), 43-47. Epub 05 de junio de 2023. https://dx.doi.org/10.33588/fem.262.1271

Guevara, C. (2018). Estrategias de gamificación aplicadas al desarrollo de competencias digitales docentes (Master's thesis, Universidad Casa Grande. Departamento de Posgrado). http://200.31.31.137:8080/bitstream/ucasagrande/1429/1/Tesis1623GUEe.pdf

Hernández-Sampieri, R., & Mendoza-Torres, C. (2018). Metodología de la investigación, las rutas cuantitativas, cualitativa, y mixta (Primera edición). México. McGraw-Hill Interamericana editores, S.A. de C.V.

Jaraba, M. (2023). La La justicia y la consecución de la paz en la Agenda 2030 sobre Objetivos de Desarrollo Sostenible (ODS) de Naciones Unidas. Un derecho de las mujeres a través de la mediación. DERECHOS Y LIBERTADES: Revista de Filosofía del Derecho y derechos humanos, (49), 291-324. https://e-revistas.uc3m.es/index.php/DYL/article/view/7727

Jiménez, M., & Jaimes, J. (2017). Dimensiones del Empoderamiento Digital y Currículo para el Sector Universitario. Formación universitaria, 10(4), 55-66. https://dx.doi.org/10.4067/S0718-50062017000400006

Jiménez, M., & Jaimes, J. (2017). Dimensiones del Empoderamiento Digital y Currículo para el Sector Universitario. Formación universitaria, 10(4), 55-66. https://dx.doi.org/10.4067/S0718-50062017000400006

Khan, I., Mittal y Ansari, M. (2023). Aplicaciones del Diseño VLSI en Inteligencia Artificial y Aprendizaje Automático. Aprendizaje automático para el diseño de chips VLSI , 1-17. https://www.scopus.com/record/display.uri?eid=2-s2.0-85164989363&origin=resultslist&sort=plf-f&src=s&sid=26f65e48948b04db32147cc00197fa54&sot=b&sdt=b&s=TITLE-ABS-KEY%28ARTIFICIAL+INTELLIGENCE%29&sl=38&sessionSearchId=26f65e48948b04db32147cc00197fa54

Larrea, A. (2021). 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). https://revistas.siep.org.pe/index.php/RPIE/article/view/296/288

Li, X., Wang, P., Jin, X., Jiang, Q., Zhou, W. y Yao, S. (2023). Reinforcement learning architecture for cyberphysical-social AI: state of the art and perspectives. Artificial Intelligence Review, 1-34. https://www.scopus.com/record/display.uri?eid=2-s2.0-85150437034&origin=resultslist&sort=plf-f&src=s&sid=fcc54b5276d79a3b513433bf64347796&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2Bscoexactkeywords%2C%22Learning+Systems%22%2Ct%2Bscolang%2C%22English%22%2Ct%2C%22Spanish%22%2Ct&s=TITLE-ABS-KEY%28artificial+intelligence%29&sl=38&sessionSearchId=fcc54b5276d79a3b513433bf64347796

Lin, C., Huang, A y Lu, O. (2023). Inteligencia artificial en sistemas de tutoría inteligentes hacia una educación sostenible: una revisión sistemática. Entornos de aprendizaje inteligentes , 10 (1), 41. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85168920298&doi=10.1186%2fs40561-023-00260-y&partnerID=40&md5=192fe05d8f23fa1340cdf676463aa41b

López, M., Lovato, S., & Abad, G. (2018). El impacto de la cuarta revolución industrial en las relaciones sociales y productivas de la industria del plástico IMPLASTIC SA en Guayaquil-Ecuador: retos y perspectivas. Revista Universidad y Sociedad, 10(5), 153-160. http://scielo.sld.cu/scielo.php?pid=S2218-36202018000500153&script=sci_arttext&tlng=en

López, P., & Giráldez, J. (2007). La Tercera Revolución.: Comunicación, Tecnología y su Nomenclatura en Inglés. Netbiblo. https://ruc.udc.es/dspace/bitstream/handle/2183/11906/9788497452144.pdf

Luz, C. (2018). Educación y tecnología: estrategias didácticas para la integración de las TIC. Editorial UNED. https://books.google.com.pe/books?hl=es&lr=&id=KG5aDwAAQBAJ&oi=fnd&pg=PT5&dq=integracion+de+las+tic&ots=OvXRHt5sHB&sig=Zy7gJ8450ALdv8B1ZFhugBWXmsQ&redir_esc=y#v=onepage&q&f=false

Manco-Chávez, J, Arroyo, N., Saravia, R, Hinostroza, M, Montenegro, L, ... & Puga, N. (2023). Inteligencia artificial en el aprendizaje de ingeniería e informática: artículo de revisión sistemática. Revista Internacional de Ciencia y Tecnología de Membranas , 10 (3), 221-233. https://www.scopus.com/record/display.uri?eid=2-s2.0-85166289146&origin=resultslist&sort=plf-f&src=s&sid=e1e561e254d79cb817432ecabf1239fd&sot=b&sdt=b&s=TITLE-ABS-KEY%28Artificial+Intelligence+in+Engineering+and+Computer+Science+Learning%3A+Systematic+Review+Article%29&sl=110&sessionSearchId=e1e561e254d79cb817432ecabf1239fd

Manco-Chavez, J., Uribe-Hernandez, Y., Buendia-Aparcana, R., Vertiz-Osores, J., Isla Alcoser, S. D., & Rengifo-Lozano, R. A. (2020). Integration of ICTS and Digital Skills in Times of the Pandemic COVID-19. International Journal of Higher Education, 9(9), 11-20. https://files.eric.ed.gov/fulltext/EJ1281403.pdf

Mata, M., & Grosch, M. (2007). La epistemología y los sistemas de información basados en inteligencia artificial. Télématique: Revista Electrónica de Estudios Telemáticos, 6(1), 158-169. https://dialnet.unirioja.es/servlet/articulo?codigo=2964843

Minedu. (2021). Minedu impulsa uso de tecnologías digitales con nuevo Modelo de Inteligencia Digital. Consultado el 16 de julio de 2021. http://www.minedu.gob.pe/n/noticia.php?id=44247

Molina, O. (2016). Programa de Formación Docente de las Tecnologías del Aprendizaje y el Conocimiento (Tac) en la Universidad Pedagógica Experimental Libertador Núcleo Barinas (Venezuela). Revista Scientific, 1(1), 90-114. https://www.redalyc.org/jatsRepo/5636/5636602260007/563660226007.pdf

Montero, M. (2005). La obra de Vygotski y sus impactos en la Educación. http://biblioteca.clacso.edu.ar/Cuba/cips/20120824031011/ivet12.pdf

Morales, N. O., & García, P. A. O. (2024). Aplicación de modelos de inteligencia artificial en pruebas estandarizadas para la optimización del rendimiento académico en educación superior. European Public & Social Innovation Review, 9, 1-21. https://www.scopus.com/record/display.uri?eid=2-s2.0-85209819186&origin=resultslist&sort=plf-f&src=s&sid=15c40a9ba04c68dad8bc7d5399d80ada&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+AND+artificial+AND+EDUCACI%C3%93N%29&sl=18&sessionSearchId=15c40a9ba04c68dad8bc7d5399d80ada&relpos=1

Moreno, Á., & Zelaida, M. (2019). El teorema de Pitágoras en el marco del modelo de Van Hiele: propuesta didáctica para el desarrollo de competencias en razonamiento matemático en estudiantes de noveno grado de la Institución Educativa Anna Vitiello. Zona Próxima, (30), 33-62. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S2145-94442019000100033

Moyano, M., Camelo, A., & Chirivi, L. (2021). Análisis de las metodologías pedagógicas empleadas en el área de tecnología e informática para el fortalecimiento de las competencias digitales. Revista ProPulsión, 3(1), 9-24. http://ojs.revpropulsion.cl/index.php/revpropulsion/article/view/60

Nombela, D., Dominici, P., Bermúdez, M., Sarasqueta, G., Cuesta, J., & Silveira, M. (2023). The new online university education: from the emotional to the spectacular. Latin Magazine of Social Communication, (81), 508-536. https://www.scopus.com/record/display.uri?eid=2-s2.0-85165163473&origin=resultslist&sort=plf-f&src=s&sid=04399fd99afce4cc39b36878ad67dfbb&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2Bscoexactkeywords%2C%22Education%22%2Ct%2Bscolang%2C%22English%22%2Ct%2C%22Spanish%22%2Ct&s=TITLE-ABS-KEY%28TECHNOLOGICAL+SKILLS%29&sl=35&sessionSearchId=04399fd99afce4cc39b36878ad67dfbb

Numa-Sanjuán, N., Diaz-Guecha, L. Y., & Peñaloza-Tarazona, M. E. (2024). Importancia de la Inteligencia Artificial en la educación del siglo XXI. AiBi Revista de Investigación, Administración e Ingeniería, 12(2), 49-62. https://www.scopus.com/record/display.uri?eid=2-s2.0-85199537201&origin=resultslist&sort=plf-f&src=s&sid=15c40a9ba04c68dad8bc7d5399d80ada&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+AND+artificial+AND+EDUCACI%C3%93N%29&sl=18&sessionSearchId=15c40a9ba04c68dad8bc7d5399d80ada&relpos=12

Nuñez, Y. (2022). Aprendizaje significativo desde la praxis educativa constructivista. Revista Arbitrada Interdisciplinaria Koinonía, 7(13), 79-91. https://dialnet.unirioja.es/servlet/articulo?codigo=8336208

Ñaupas-Paitan,H.,Mejia-Mejia,E.,Novoa Ramírez y Villagomez Paucar,A. (2014).Metodología de la investigación cuantitativa-cualitativa y redacción de la tesis. Bogotá-Colombia. Ediciones de la U. https://books.google.com.pe/books?hl=es&lr=&id=VzOjDwAAQBAJ&oi=fnd&pg=PA1&dq=%C3%91aupas-Paitan,H.,Mejia-Mejia,E.,Novoa+Ram%C3%ADrez+y+Villagomez+Paucar,A.(2014).Metodolog%C3%ADa+de+la+investigaci%C3%B3n+cuantitativa-cualitativa+y+redacci%C3%B3n+de+la+tesis.+Bogot%C3%A1-Colombia.+Ediciones+de+la+U.&ots=RWOxaMc52U&sig=mP86JT9qyp-t-c_mRoGf6GvbVmw&redir_esc=y#v=onepage&q=%C3%91aupas-Paitan%2CH.%2CMejia-Mejia%2CE.%2CNovoa%20Ram%C3%ADrez%20y%20Villagomez%20Paucar%2CA.(2014).Metodolog%C3%ADa%20de%20la%20investigaci%C3%B3n%20cuantitativa-

Ocaña-Fernández, Y., Valenzuela-Fernández, L., & Morillo-Flores, J. (2020). La competencia digital en el docente universitario. Propósitos y Representaciones, 8(1). http://www.scielo.org.pe/pdf/pyr/v8n1/2310-4635-pyr-8-01-e455.pdf

Ortega, O. (2021). Gestión académica, educación superior virtual y el aprendizaje de los docentes en la UNTELS, 2020. https://repositorio.ucv.edu.pe/bitstream/handle/20.500.12692/60055/Ortega_GOA-SD.pdf?sequence=1

Ouyang, F., Wu, M., Zheng, L., Zhang, L., & Jiao, P. (2023). Integration of artificial intelligence performance prediction and learning analytics to improve student learning in online engineering course. International Journal of Educational Technology in Higher Education, 20(1) doi:10.1186/s41239-022-00372-4

Perezchica-Vega, J. E., Sepúlveda-Rodríguez, J. A., & Román-Méndez, A. D. (2024). Inteligencia artificial generativa en la educación superior: usos y opiniones de los profesores. European Public & Social Innovation Review, 9, 1-20. https://www.scopus.com/record/display.uri?eid=2-s2.0-85203587679&origin=resultslist&sort=plf-f&src=s&sid=15c40a9ba04c68dad8bc7d5399d80ada&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+AND+artificial+AND+EDUCACI%C3%93N%29&sl=18&sessionSearchId=15c40a9ba04c68dad8bc7d5399d80ada&relpos=0

Permisán, C. G., & Franco, C. V. (2024). Educación e Inteligencia Artificial: Un Análisis desde la Perspectiva de los Docentes en Formación. REICE: Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación, 22(2), 33-50. https://www.scopus.com/record/display.uri?eid=2-s2.0-85191379260&origin=resultslist&sort=plf-f&src=s&sid=15c40a9ba04c68dad8bc7d5399d80ada&sot=b&sdt=b&s=TITLE-ABS-

KEY%28inteligencia+AND+artificial+AND+EDUCACI%C3%93N%29&sl=18&sessionSearchId=15c40a9ba04c68dad8bc7d5399d80ada&relpos=18

Piernas, J. M. P., & del Mar Martín-García, M. (2024). Impacto y Perspectivas de la Inteligencia Artificial Generativa en la Educación Superior: Un Estudio sobre la Percepción y Adopción Docente usando el modelo AETGE/GATE. European Public & Social Innovation Review, 9, 1-21. https://www.scopus.com/record/display.uri?eid=2-s2.0-85203581621&origin=resultslist&sort=plf-f&src=s&sid=15c40a9ba04c68dad8bc7d5399d80ada&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+AND+artificial+AND+EDUCACI%C3%93N%29&sl=18&sessionSearchId=15c40a9ba04c68dad8bc7d5399d80ada&relpos=10

Pollier, K., & Zeballos, M. (2019). La información que se transforma en conocimiento para la participación: TIC, TAC y TEP en la formación docente. Revista Tecnológica-Educativa Docentes 2.0, 7(2), 33-44. https://ojs.docentes20.com/index.php/revista-docentes20/article/view/9

Reimers, F. (2022). Reformas educativas del siglo XXI para un aprendizaje más profundo: Una perspectiva internacional (Vol. 1). Narcea Ediciones. https://books.google.com.pe/books?hl=es&lr=&id=2TdcEAAAQBAJ&oi=fnd&pg=PT2&dq=+evaluacion+educativa+2022&ots=pBDICOqNTi&sig=fo-szyz1oo-2g76DINYXJW0oD_0&redir_esc=y#v=onepage&q=evaluacion%20educativa%202022&f=false

Rodríguez, L., González, D., & Pérez, Y. (2017). De la arquitectura de información a la experiencia de usuario: Su interrelación en el desarrollo de software de la Universidad de las Ciencias Informáticas. E-Ciencias de la Información, 7(1), 1-24. https://www.scielo.sa.cr/pdf/eci/v7n1/1659-4142-eci-7-01-00155.pdf

Rodríguez, M. (2017). Las TAC y los recursos para generar aprendizaje. Revista Infancia, Educación y Aprendizaje, 3(2), 771-777. https://simularevistas2.uv.cl/index.php/IEYA/article/viewFile/796/775

Rodríguez, M. (2021). Sistemas de tutoría inteligente y su aplicación en la educación superior. RIDE. Revista Iberoamericana para la Investigación y el Desarrollo Educativo, 11(22), e015. Epub 21 de mayo de 2021. https://doi.org/10.23913/ride.v11i22.848

Rodríguez, R., & Avila, C. (2022). Competencias digitales en estudiantes y docentes universitarios del área de la educación física y el deporte. Retos: nuevas tendencias en educación física, deporte y recreación, (43), 1065-1072. https://www.scopus.com/record/display.uri?eid=2-s2.0-85121874839&origin=resultslist&sort=plf-f&src=s&sid=236f98113d437461c8846eff742792a1&sot=b&sdt=cl&cluster=scosubtype%2C%22ar%22%2Ct%2Bscoexactkeywords%2C%22Digital+Skills%22%2Ct%2C%22Digital+Competence%22%2Ct%2Bscolang%2C%22Spanish%22%2Ct%2C%22English%22%2Ct%2C%22Portuguese%22%2Ct%2Bscosubjabbr%2C%22SOCI%22%2Ct&s=TITLE-ABS-KEY%28competencias+digitales%29&sl=37&sessionSearchId=236f98113d437461c8846eff742792a1

Saharrea, J. (2022). El aprendizaje fuera de lugar como una crítica pragmatista de las ciencias cognitivas. Sophia, Colección de Filosofía de la Educación, (32), 245-273. http://scielo.senescyt.gob.ec/scielo.php?script=sci_arttext&pid=S1390-86262022000100245

Saharrea, J. (2022). El aprendizaje fuera de lugar como una crítica pragmatista de las ciencias cognitivas. Sophia, Colección de Filosofía de la Educación, (32), 245-273. http://scielo.senescyt.gob.ec/scielo.php?script=sci_arttext&pid=S1390-86262022000100245

Saharrea, J. (2022). El aprendizaje fuera de lugar como una crítica pragmatista de las ciencias cognitivas. Sophia, Colección de Filosofía de la Educación, (32), 245-273. http://scielo.senescyt.gob.ec/scielo.php?script=sci_arttext&pid=S1390-86262022000100245

Salinas, G. C., & Andrade-Vargas, L. (2024). Los desafíos de la Inteligencia Artificial en la educación en un mundo tecnologizado. European Public & Social Innovation Review, 9, 1-15. https://www.scopus.com/record/display.uri?eid=2-s2.0-85205711380&origin=resultslist&sort=plf-f&src=s&sid=15c40a9ba04c68dad8bc7d5399d80ada&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+AND+artificial+AND+EDUCACI%C3%93N%29&sl=18&sessionSearchId=15c40a9ba04c68dad8bc7d5399d80ada&relpos=9

Sanabria-Navarro, J., Silveira-Pérez, Y., Pérez-Bravo, D., & de-Jesús, M. (2023). Incidencesofartificial intelligence in contemporary education. Comunicar, 31(77), 93-103. https://www.scopus.com/record/display.uri?eid=2-s2.0-85164599518&origin=resultslist&sort=plf-f&src=s&sid=b6a5a9aec35c6803681668db663b4168&sot=b&sdt=b&s=TITLE-ABS-KEY%28inteligencia+artificial+educaci%C3%B3n%29&sl=48&sessionSearchId=b6a5a9aec35c6803681668db663b4168

Sánchez, F. (2019). Fundamentos epistémicos de la investigación cualitativa y cuantitativa: Consensos y disensos. Revista digital de investigación en docencia universitaria, 13(1), 102-122. http://www.scielo.org.pe/scielo.php?pid=s2223-25162019000100008&script=sci_arttext

Sánchez, F. (2019). Fundamentos epistémicos de la investigación cualitativa y cuantitativa: consensos y disensos. Revista Digital de Investigación en Docencia Universitaria, 13(1), 102-122. https://dx.doi.org/10.19083/ridu.2019.644

Siemens, G. (2004). Conectivismo: Una teoría de aprendizaje para la era digital. Recuperado el, 15. https://skat.ihmc.us/rid=1J134XMRS-1ZNMYT4-13CN/George%20Siemens%20-%20Conectivismo-una%20teor%C3%ADa%20de%20aprendizaje%20para%20la%20era%20digital.pdf

Silva-González, S., Rodríguez-Chávez, M., & Polanco-Martagón, S. (2021). Implementación de una red neuronal artificial como módulo de dominio de un sistema de tutoría inteligente. Dilemas contemporáneos: educación, política y valores, 9(spe1), 00024. Epub 31 de enero de 2022. https://doi.org/10.46377/dilemas.v9i.2930

Tenjo, J., & Pérez, Ó. (2020). Perfil docente con visión inclusiva: tic-tac-tep y las habilidades docentes. [Encuentro Internacional de Educación en Ingeniería]. http://funes.uniandes.edu.co/22459/1/Diaz2020Dinamizacion.pdf

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 7712 – 7732
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5394

Tenjo, J., & Pérez, Ó. (2020). PERFIL DOCENTE CON VISIÓN INCLUSIVA: TIC-TAC-TEP Y LAS HABILIDADES DOCENTES. [Encuentro Internacional de Educación en Ingeniería]. http://funes.uniandes.edu.co/22459/1/Diaz2020Dinamizacion.pdf

Tlili, A., Shehata, B., Adarkwah, M., Bozkurt, A., Hickey, D., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. Smart Learning Environments, 10(1) doi:10.1186/s40561-023-00237-x

Tobón, S. (2007). Aspectos básicos en la formación basada en competencias. I+ T+ C-Investigación, Tecnología y Ciencia, 1(1). https://www.researchgate.net/publication/291353525_ASPECTOS_BASICOS_DE_LA_FORMACION_BASADA_EN_COMPETENCIAS

Torres, M., Martínez, A., Jaén, A., & Hermosilla, J. (2022). La percepción del profesorado de la Universidad Pablo de Olavide sobre su Competencia Digital Docente. Pixel-Bit. https://redined.educacion.gob.es/xmlui/bitstream/handle/11162/219854/Percepcion.pdf?sequence=1

UNESCO. (2021).El aporte de la inteligencia artificial y las TIC avanzadas a las sociedades del conocimiento.https://books.google.com.pe/books?id=9hpPEAAAQBAJ&printsec=frontcover&dq=creador+de+la+inteligencia+artificial+en+la+educacion&hl=es&sa=X&ved=2ahUKEwino86E6NL9AhV0GbkGHcRnDdIQ6AF6BAgEEAI#v=onepage&q&f=false

UNESCO. (21 octubre. 2023). Lanzamiento del proyecto "Impulsando las competencias digitales de docentes en Chile". https://www.unesco.org/es/articles/lanzamiento-del-proyecto-impulsando-las-competencias-digitales-de-docentes-en-chile

UNICEF. (2021). Evaluación formativa del aprendizaje en contextos de provisión remota de servicios educativos en América Latina y el Caribe. Consultado el 16 de julio de 2021. https://www.unicef.org/lac/media/20731/file/Evaluacion_formativa_aprendizaje_ALC.pdf

Uribe-Rosales, V. (2019). Augusto Comte y el Positivismo. Con-Ciencia Boletín Científico de la Escuela Preparatoria No. 3, 6(12), 62-64. https://repository.uaeh.edu.mx/revistas/index.php/prepa3/article/view/4242

Valbuena. (2021). Inteligencia artificial, investigación científica avanzada centrada en datos. https://books.google.com.pe/books?id=SoMTEAAAQBAJ&printsec=frontcover&dq=creador+de+la+inteligencia+artificial+en+la+educacion&hl=es&sa=X&redir_esc=y#v=onepage&q&f=false

Venter, R., Skelton, E., Matthew, J., Woznitza, N., Tarroni, G., Hirani, S. P., . . . Malamateniou, C. (2023). Artificial intelligence education for radiographers, an evaluation of a UK postgraduate educational intervention using participatory action research: A pilot study. Insights into Imaging, 14(1) doi:10.1186/s13244-023-01372-2

Villegas-Chiroque, M. (2020). Pandemia de COVID-19: pelea o huye. Revista Experiencia en Medicina del Hospital Regional Lambayeque, 6(1). http://rem.hrlamb.gob.pe/index.php/REM/article/view/424

Wilkins, N. (2019). Inteligencia artificial: una guía completa sobre la IA, el aprendizaje automático, el Internet de las cosas, la robótica, el aprendizaje profundo, el análisis predictivo y el aprendizaje reforzado. Bravex Publications.

Zambrano, H. (2007). El paradigma de las competencias hacia la educación superior. Revista de la Facultad de Ciencias Económicas: Investigación y reflexión, 15(1), 145-165. https://www.redalyc.org/pdf/909/90915108.pdf

Zúñiga, L. (2016). Las TIC y su relación con la elaboración de proyectos de matemática 3 en los estudiantes de la UNTELS, Villa Salvador 2015. https://repositorio.ucv.edu.pe/bitstream/handle/20.500.12692/8193/Z%C3%BA%C3%B1iga_FLA.pdf?sequence=1.