

Web information system and management of the graduate follow-up standard in a Public Institute of Higher Technological Education, Peru

Julio Macedo-Figueroa¹, Dennis Antunez-Carrillo^{1,2}, Enrique Diaz-Vega^{1,3}, William Marín-Rodriguez^{1,4,*}, Cesar Vasquez-Trejo¹, Julio Barrenechea-Alvarado¹

¹ Universidad Nacional Jose Faustino Sanchez Carrión. Huacho, Lima, Perú.

² Instituto Superior Tecnológico Público Huarmey. Ancash, Perú

³ Universidad Privada del Norte. Lima, Perú.

⁴ Universidad Tecnológica del Perú. Lima, Perú.

Abstract

The objective of the research was to establish the relationship between the web information system and the follow-up standards for graduates in a Public Higher Technological Education Institution, Peru, during 2022. Materials and Methods: It corresponds to a non-experimental design of descriptive correlational design. Results: It was shown that 67.4% of the graduates of this institution obtained a medium level in the use of the Web Information System, 19.6% acquired a higher level and 13.0% showed a minimum level, 50.0% of the graduates had a medium level, with respect to the graduate follow-up standard variable, 26.1% acquired a minimum level and 23.9% showed a high level. Conclusions There is a significant and positive relationship, obtaining a Spearman's Rho coefficient of 0.873, between the web information system and the graduate monitoring standards of the Public Higher Technological Education Institution, Peru.

Keywords: System, information, web, standards, monitoring.

Received on 27 April 2023, accepted on 12 September 2023, published on 19 September 2023

Copyright © 2023 Macedo-Figueroa *et al.*, licensed to EAI. This is an open access article distributed under the terms of the [CC BY-NC-SA 4.0](#), which permits copying, redistributing, remixing, transformation, and building upon the material in any medium so long as the original work is properly cited.

doi: 10.4108/eetsis.3903

*Corresponding author. Email: wmarin@unjfsc.edu.pe; C25859@utp.edu.pe

1. Introduction

Teachers have the great task of training the country's future professionals in their various areas and professions, whose performance in the classroom must guarantee a contribution to society; it must be in line with the advances in knowledge and teaching strategies, and they must be updated in such a way that they can provide quality care to students¹⁻³ This research is based on the relevance of an information system in the network with respect to the registration of our graduates, since this will make it possible to learn permanently and optimize the

study plans in accordance with the new requirements of social circumstances, because one of the strengths of this kind of system is that it makes it possible to know the state in which each graduate is and through the data collected it is possible to test the labor market.⁴⁻⁷

The web system developed will seek to update the information of the graduates who are not linked.^{8,9} The two processes are essential in the conceptualization of the personality of the graduate and their respective labor and institutional conditions, because if these data are not considered, it will not be possible to develop the following processes, such as the conceptualization and implementation of different types of software.^{10,11}

We can emphasize that the context of higher education has changed significantly, bringing as a consequence fundamental aspects that lead to changes that are framed to provide solutions to problems and requirements in a dynamic environment.¹²⁻¹⁴ Thus, today, higher education institutions invest great efforts in quality planning.¹⁵⁻¹⁷ However, the examination of quality brings as a consequence the specification of the web information system, which makes it possible to make decisions that are generated in higher educational institutions. In addition, the follow-up and identification of our graduates in the labor sector is of great importance, because it allows us to diagnose the efficiency of our curriculum.¹⁸⁻²²

For these reasons, it is fundamental for us to postulate the relevance of the web information system in the follow-up of the graduates of the Instituto de Educación Superior Tecnológico Público Huarney, a case that will allow us to establish a link between the graduates and the institute, the content is organized according to the study of the problems and theoretical aspects of the subject.

2. Methods

The research is basic, since the theoretical and practical knowledge of the web system was used. A non-experimental design, because the variables were not manipulated. The study was transversal because the instruments were applied at a single moment, with the purpose of looking for the correlation of the variables. The research is descriptive, because its intention was to investigate the event and values in which the variables are stated. After processing the questionnaires, we proceeded to analyze and describe the results, being represented with the respective tables and figures for this purpose we used Microsoft Excel software and the SPSS 25.0 statistical package for the respective validation, processing and contrasting of the hypotheses, with the statistical results we inferred the interpretations and decision making to contrast the hypotheses.

3. Results

Table 01. Web Information System and Alumni Tracking Standards

Correlations				
			Web Information System	Graduate follow-up standard
Spearman's Rho	Web Information System	Correlation coefficient	1,000	,873**
		Sig. (bilateral)	.	,000
		N	46	46

	Graduate follow-up standard	Correlation coefficient	,873**	1,000
		Sig. (bilateral)	,000	.
		N	46	46

** . Correlation is significant at the 0.01 level (bilateral).

Table 01 shows a correlation of $r=0.873$, with a sig. of less than 5%, which affirms the alternative hypothesis and refutes the null hypothesis. Therefore, there is a relationship between the web information system and the follow-up standards for graduates of the Instituto de Educación Superior Tecnológico Público Huarney, during 2022. The correlation evidences a very good magnitude."

Table 02. Web Information System and Alumni Profile

Correlations				
			Web Information System	Graduate profile
Spearman's Rho	Web Information System	Correlation coefficient	1,000	,865**
		Sig. (bilateral)	.	,000
		N	46	46
	Graduate profile	Correlation coefficient	,865**	1,000
		Sig. (bilateral)	,000	.
		N	46	46

** . Correlation is significant at the 0.01 level (bilateral).

Table 02 shows a correlation of $r=0.865$, with a sig. of less than 5%, which affirms the alternative hypothesis and refutes the null hypothesis. Therefore, there is a relationship between the web information system and the profile of the graduate of the Instituto de Educación Superior Tecnológico Público Huarney, during 2022. The correlation evidences a very good magnitude."

Table 03. Web Information System and Employment Status of Graduates

Correlations				
			Web Information System	Graduate's employment status
Spearman's Rho	Web Information System	Correlation coefficient	1,000	,781**
		Sig. (bilateral)	.	,000
		N	46	46

	Graduate's employment status	Correlation coefficient	,781**	1,000
		Sig. (bilateral)	,000	.
		N	46	46

** . Correlation is significant at the 0.01 level (bilateral).

Table 03 shows a correlation of $r=0.781$, with a Sig lower than 5%, which affirms the alternative hypothesis and refutes the null hypothesis. Therefore, there is a relationship between the web information system and the employment situation of the graduate of the Instituto de Educación Superior Tecnológico Público Huarney, during 2022. The correlation evidences a good magnitude."

Table 04. Web Information System and Employment Status of Graduates

Correlations				
			Web Information System	Satisfaction with the institution
Spearman's Rho	Web Information System	Correlation coefficient	1,000	,673**
		Sig. (bilateral)	.	,000
		N	46	46
	Satisfaction with the institution	Correlation coefficient	,673**	1,000
		Sig. (bilateral)	,000	.
		N	46	46

** . Correlation is significant at the 0.01 level (bilateral).

Table 04 shows a correlation of $r=0.673$, with a sig. of less than 5%, which affirms the alternative hypothesis and refutes the null hypothesis. Therefore, there is a relationship between the web information system and the satisfaction of the graduates with the Instituto de Educación Superior Tecnológico Público Huarney, during 2022. The correlation evidences a good magnitude."

4. Discussion

The new requirements associated with the sintering of the TICS in the solution of problems and the need to promote the growth of input skills and the use of data in work circumstances,²³⁻²⁵ varies the processes that go around it, also influencing the structuring of training processes in educational institutions.²⁶⁻²⁸

The results shown in the general hypothesis show that there is a relationship between the web information system and the control standards for graduates of the Instituto de Educación Superior Tecnológico Público Huarney, during 2022. The correlation shows a very good magnitude. Similarities are also found in the work of Maje (2020) in his research whose objective was: To develop and implement an Information System for Academic Management and Monitoring, to automate manual processes and provide complete, organized and reliable information to the ESFM - Warisata.^{29,30} Where he concludes with the implementation of the Academic Follow-up and Management Information System, he was able to improve the processes of academic procedures of the ESFM - Warisata, regarding the elaboration of academic records and semester grades and grade centralizers per semester and per subject, in addition to having reports and statistics per semester of the graduates, among others.³¹⁻³³

"In the specific hypothesis 1 it is evident that there is a link between the web information system and the profile of the graduate of the Instituto de Educación Superior Tecnológico Público Huarney, during 2020. The correlation shows a very good magnitude. In in the research of Guevara et al. (2019)³⁴ whose objective was to postulate a data system for the management of graduate control processes that makes it possible to optimize quality. Methodology: A survey of the entity's graduates was implemented, thus showing that the entity communicates with them, however, it is deficient in the sources used since they are not combined, which corresponds to the need to have a system that includes all the data that makes it possible to make educational decisions.³⁵ Results: The proposed system includes two aspects of relevant information, that of the graduates and that of the entity. Conclusion: Studies on graduate retention and labor market insertion are of enormous relevance for universities and Higher Technological Institutes (IES).³⁶ Through them, these IES are able to have data on the adaptation of their graduates in the labor market.³⁷⁻³⁹

Specific hypothesis 2 proves that there is a link between the web data system and the employment situation of the graduate of the Instituto de Educación Superior Tecnológico Público Huarney, during 2022. The correlation shows a good magnitude. Similarly in in his research Mendoza (2019)⁴⁰ entitled: "Transactional information system (SITE) to improve the follow-up of the graduate of the faculty of industrial engineering and systems of the Universidad Nacional Hermilio Valdizan de Huánuco". The purpose of the study was to determine the incidence of the transactional information system in the control of graduates. Methodology: an applied and correlational study of quasi-experimental type was carried out, 19 professors of the profession of Industrial Engineering were related to the study, which in different ways are included in the control of the graduate of the profession, the data collection was carried out after the implementation of the data system for 15 days as a pilot

test, pertinent time to know and value the virtues of this computer system, solving questions and attending to the suggestions of the professors. Results: 73.7% of the sample mentioned that they would use the information system, while 26.3% indicated that they would not use it. On the other hand, 68.4% of those sampled stated that this system makes it possible to know the professional growth of the graduate. In this sense, taking into account the results of the variables examined, it is worth mentioning that 68.4% say that they would use the transactional system because it makes it possible to include outgoing graduates in the labor market. Conclusion: Universities are undergoing different transformations in the way they provide education, due to the fact that globalization has widely influenced every educational design and data entry.^{41,42}

Specific hypothesis 3 shows that there is a linkage in the web information system and the satisfaction of the graduates with the Instituto de Educación Superior Tecnológico Público Huarmey, during 2022. The correlation shows a good magnitude. The same in Condori (2017)⁴³ in his research whose objective was: to determine whether the systematized information cooperates in the management of graduates. Methodology: The Extreme Programming methodology is used, which turns out to be the one that has the greatest distinction of the skillful processes in software development, with a Quasi-Experimental structure, where the possible proposal was statistically used. Results: The answers corresponding to "CA" (Totally agree) are 44.98 percent, the answers corresponding to "A" (Agree) are 40.82 percent, those corresponding to NAD (Sometimes agree sometimes disagree) are 14.29 percent, and those corresponding to "D" (Disagree) are 0.00 Conclusion: The information system cooperates with the management of the outgoing of the Professional School of Systems Engineering of the Universidad Nacional del Altiplano.

5. Conclusions

Regarding the first hypothesis it is concluded that. There is a relationship between the web information system and the follow-up standards for graduates of the Instituto de Educación Superior Tecnológico Público Huarmey, during 2022. The correlation shows a very good magnitude.

Regarding the second hypothesis it is concluded that. There is a relationship between the web information system and the profile of the graduate of the Instituto de Educación Superior Tecnológico Público Huarmey, during 2022. The correlation shows a very good magnitude.

Regarding the third hypothesis, it is concluded that there is a correlation between the web information system and the employment situation of the graduates of the Instituto de Educación Superior Tecnológico Público Huarmey, during 2022. The correlation shows a good magnitude.

Regarding the fourth hypothesis, it is concluded that there is a relationship between the web information system and the satisfaction of the graduates with the Instituto de Educación Superior Tecnológico Público Huarmey, during 2020. The correlation shows a good magnitude.

References

- [1] Silva-Sánchez CA. Psychometric properties of an instrument to assess the level of knowledge about artificial intelligence in university professors. *Metaverse Basic and Applied Research* 2022;1:14-14. <https://doi.org/10.56294/mr202214>.
- [2] Macea-Anaya M, Baena-Navarro R, Carriazo-Regino Y, Alvarez-Castillo J, Contreras-Florez J. Designing a Framework for the Appropriation of Information Technologies in University Teachers: A Four-Phase Approach. *Data and Metadata* 2023;2:53-53. <https://doi.org/10.56294/dm202353>.
- [3] Saltos GDC, Oyarvide WV, Sánchez EA, Reyes YM. Análisis bibliométrico sobre estudios de la neurociencia, la inteligencia artificial y la robótica: énfasis en las tecnologías disruptivas en educación. *Salud, Ciencia y Tecnología* 2023;3:362-362. <https://doi.org/10.56294/saludcyt2023362>.
- [4] Gutiérrez E, Larrosa JMC. Digital networks, social capital, and poverty. An analysis for the city of Bahía Blanca. *AWARI* 2022;3. <https://doi.org/10.47909/awari.154>.
- [5] Lepez CO, Eiguchi K. Labor market insertion, management and training by competencies: a current view in the Argentine context. *Data and Metadata* 2022;1:29-29. <https://doi.org/10.56294/dm202267>.
- [6] Martínez SM, Tobón ST, Gonzales-Sánchez A del C, López-Quesada G, Romero-Carrazas R. Training projects, Virtual Education and Pandemic by COVID-19: from opportunity analysis to strategic decision making. *Data and Metadata* 2022;1:40-40. <https://doi.org/10.56294/dm202278>.
- [7] Ríos NB, Mosca AM. Educación continua en el contexto actual, enfoque desde la enfermería. *Salud, Ciencia y Tecnología* 2021;1:29. <https://doi.org/10.56294/saludcyt202129>.
- [8] Silva LSM, Araújo GM de. Use of artificial intelligence in the passenger list of the Brazilian international private air system. *Advanced Notes in Information Science* 2023;4. <https://doi.org/10.47909/anis>.
- [9] Catrambone R, Ledwith A. Enfoque interdisciplinario en el acompañamiento de las trayectorias académicas: formación docente y psicopedagógica en acción. *Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria* 2023;3:50-50. <https://doi.org/10.56294/ri202350>.
- [10] Cano C, Castillo V. Mapping the structure of knowledge about Community and Home Care. *Community and Interculturality in Dialogue* 2022;2.
- [11] Pérez RC. Impacto de las lesiones domésticas en la salud pediátrica: una perspectiva epidemiológica. *Salud, Ciencia y Tecnología - Serie de Conferencias* 2022;1:30-30. <https://doi.org/10.56294/sctconf202230>.
- [12] Paredes FFO, Zuta MEC, Rios SWR, Achachagua AJY. Decision-Making in Tourism Management and its Impact on Environmental Awareness. *Data and Metadata* 2023;2:85-85. <https://doi.org/10.56294/dm202385>.
- [13] Oliva M, Sandes ES, Romero S. Application of social network analysis to the institutional relations of the Higher

- Education System in the Rivera region-Livramento. AWARI 2022;3. <https://doi.org/10.47909/awari.157>.
- [14] Ríos NB, Mosca AM. Influencia de factores personales, profesionales y motivacionales en la participación de enfermeros en educación continua. *Salud, Ciencia y Tecnología* 2022;2:93-93. <https://doi.org/10.56294/saludcyt202293>.
- [15] Montano M de las NV, Martínez M de la CG, Lemus LP. Interdisciplinary Exploration of the Impact of Job Stress on Teachers' Lives. *Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria* 2023;3:57-57. <https://doi.org/10.56294/ri202357>.
- [16] Miceli JE, Castro M, Cordova DD. When links build networks: brief history about the Antropocaos Group. AWARI 2020;1:e013-e013. <https://doi.org/10.47909/awari.61>.
- [17] Tito YMG, López LNQ, Gamboa AJP. Metaverse and education: a complex space for the next educational revolution. *Metaverse Basic and Applied Research* 2023;2:56-56. <https://doi.org/10.56294/mr202356>.
- [18] Soto IBR, Cañarte BJS, Cañarte PAS, Alfaro AC. Aporte al ejercicio del derecho humano a la educación: propuestas formadoras de docentes, instituciones educativas y docentes. *Salud, Ciencia y Tecnología* 2023;3:392-392. <https://doi.org/10.56294/saludcyt2023392>.
- [19] Gonzalez-Argote D. Thematic Specialization of Institutions with Academic Programs in the Field of Data Science. *Data and Metadata* 2023;2:24-24. <https://doi.org/10.56294/dm202324>.
- [20] Samuel AM, Garcia-Constantino M. User-centred prototype to support wellbeing and isolation of software developers using smartwatches. *Advanced Notes in Information Science* 2022;1:140-51. <https://doi.org/10.47909/anis.978-9916-9760-0-5.125>.
- [21] Cano C, Castillo V. Unveiling the Thematic Landscape of Cultural Studies Through Bibliometric Analysis. *Community and Interculturality in Dialogue* 2022;2.
- [22] Ríos Perea N. Implementación de un sistema de información egresados reino de Bélgica. masterThesis. Escuela de Ingenierías, 2018.
- [23] Adakawa MI. Relevance of Akerloff's theory of information asymmetry for the prevention and control of zoonotic infectious diseases in Sub-Saharan Africa: Perspective of Library and Information Services Provision. *Advanced Notes in Information Science* 2022;1:31-58. <https://doi.org/10.47909/anis.978-9916-9760-0-5.97>.
- [24] Chanes DV, Rivera PN. The importance of social ties in obtaining employment. AWARI 2022;3. <https://doi.org/10.47909/awari.155>.
- [25] Sánchez RM. Transformando la educación online: el impacto de la gamificación en la formación del profesorado en un entorno universitario. *Metaverse Basic and Applied Research* 2023;2:47-47. <https://doi.org/10.56294/mr202347>.
- [26] Benítez MA, Shifres F, Justel N. La relación de la educación musical con las habilidades cognitivas en niñas y niños de 6 a 8 años: un análisis comparativo entre músicos y no músicos. *Salud, Ciencia y Tecnología - Serie de Conferencias* 2023;2:51-51. <https://doi.org/10.56294/sctconf202351>.
- [27] Braga AEP, Muriel-Torrado E. Disinformation and censorship on the web: Ethical implications for Information Science. *Advanced Notes in Information Science* 2023;4. <https://doi.org/10.47909/anis.978-9916-9906-3-6.67>.
- [28] López-Belmonte J, Pozo-Sánchez S, Moreno-Guerrero A-J, Marín-Marín J-A. We've reached the GOAL. *Teaching Methodology for Transforming Learning in the METAVERSE. A teaching innovation project. Metaverse Basic and Applied Research* 2023;2:30-30. <https://doi.org/10.56294/mr202330>.
- [29] Montano M de las NV. A comprehensive approach to the impact of job stress on women in the teaching profession. *Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria* 2023;3:56-56. <https://doi.org/10.56294/ri202356>.
- [30] MAJE ALVAREZ JL. Sistema de información para la gestión y seguimiento académico. Tesis de Maestría. Universidad Pública de El Alto, 2020.
- [31] Kumar D, Haque A, Mishra K, Islam F, Mishra BK, Ahmad S. Exploring the Transformative Role of Artificial Intelligence and Metaverse in Education: A Comprehensive Review. *Metaverse Basic and Applied Research* 2023;2:55-55. <https://doi.org/10.56294/mr202355>.
- [32] Alvaro MJL, Presmanes JLL, Parrales LVS, Zambrano MTZ, Soto IBR. Curso de administración de redes utilizando antiguas técnicas y modernos medios. *Salud, Ciencia y Tecnología - Serie de Conferencias* 2023;2:197-197. <https://doi.org/10.56294/sctconf2023197>.
- [33] Prakash A, Haque A, Islam F, Sonal D. Exploring the Potential of Metaverse for Higher Education: Opportunities, Challenges, and Implications. *Metaverse Basic and Applied Research* 2023;2:40-40. <https://doi.org/10.56294/mr202340>.
- [34] Albán CSG, Galarza FPC, Fernández AR. Sistema de información para los procesos de seguimiento a graduados e inserción laboral del Instituto Tecnológico Superior Babahoyo. *Uniandes Episteme Revista de Ciencia, Tecnología e Innovación* 2019;6:499-512.
- [35] Sembay MJ, Macedo DDJ de. Health information systems: proposal of a provenance data management method in the instantiation of the W3C PROV-DM model. *Advanced Notes in Information Science* 2022;2:192-201. <https://doi.org/10.47909/anis.978-9916-9760-3-6.10>.
- [36] Caballero-Cantu JJ, Chavez-Ramirez ED, Lopez-Almeida ME, Inciso-Mendo ES, Vergaray JM. El aprendizaje autónomo en educación superior. *Revisión sistemática. Salud, Ciencia y Tecnología* 2023;3:391-391. <https://doi.org/10.56294/saludcyt2023391>.
- [37] Salazar ASC, Cevasco J. El impacto de las explicaciones causales y las emociones del lector en la efectividad de los textos de refutación para la comunicación y educación. *Salud, Ciencia y Tecnología - Serie de Conferencias* 2023;2:75-75. <https://doi.org/10.56294/sctconf202375>.
- [38] Justino T da S, Amaral RM do, Faria LIL de, Brito AGC de. Scientific collaboration analysis of Brazilian postgraduate programs in information science. AWARI 2021;2:e024-e024. <https://doi.org/10.47909/awari.85>.
- [39] Ferro YE, Trujillo DM, Llibre JJ. Prevalencia y asociaciones de riesgo del deterioro cognitivo leve en personas mayores de una comunidad. *Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria* 2022;2:12-12. <https://doi.org/10.56294/ri202212>.
- [40] Mendoza Jiménez D. Sistema de información transaccional (SITE) para mejorar el seguimiento al egresado de la facultad de ingeniería industrial y sistemas de la Universidad Nacional Hermilio Valdizan de Huánuco. Universidad Nacional Daniel Alcides Carrión 2019.
- [41] Furci V, Gambina A, Rosales J, Castro MVA de, Dunand E. Experiencia multidisciplinaria en Educación Ambiental

Integral para profesores en ejercicio en la provincia de La Pampa: una propuesta de articulación entre las Ciencias Sociales y las Ciencias Naturales. *Salud, Ciencia y Tecnología - Serie de Conferencias* 2023;2:132-132. <https://doi.org/10.56294/sctconf2023132>.

- [42] Ron M, Pérez A, Hernández-Runque E. Prevalencia del dolor músculo esquelético auto-percibido y su asociación con el género en teletrabajadores/as del tren gerencial de una empresa manufacturera de alimentos venezolana. *Interdisciplinary Rehabilitation / Rehabilitacion Interdisciplinaria* 2023;3:51-51. <https://doi.org/10.56294/ri202351>.
- [43] Condori Perez JB. Sistema de información para la gestión del seguimiento de egresados de la Escuela Profesional de Ingeniería de Sistemas de la UNA - Puno 2016. Tesis de Maestría. Universidad Nacional Del Altiplano, 2017.