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Web system in the management of Preprofessional internship in students at the Private University of Trujillo

[Sistema web en la gestión de Prácticas Pre Profesionales en los estudiantes de la Universidad Privada de Trujillo]

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Resumen

El objetivo de este estudio es mejorar la gestión de las prácticas preprofesionales para estudiantes de la Universidad Privada de Trujillo. La Dirección de Desarrollo Profesional y Bolsa de Trabajo, encargada de conectar a los estudiantes con las empresas para sus prácticas preprofesionales, realiza una serie de procesos manuales para tal fin y los difunde a través de publicaciones impresas en los periódicos murales de la universidad, donde en muchas ocasiones pasan desapercibidos. Sumado a esto, los estudiantes no necesariamente tienen clases programadas todos los días de la semana, perdiendo la oportunidad de postular a una oferta laboral que haya sido publicada recientemente y cuyo tiempo para la presentación del expediente sea en un corto período de tiempo. Al tratarse de publicaciones impresas, existe un riesgo mínimo de que se pierdan, estropeen o manipulen intencionadamente, sin que la dirección sea consciente de ello. Con la llegada de la pandemia del COVID-19 y todo lo que esto implicó, desde que el actual gobierno declaró el estado de emergencia nacional, la Dirección vio una disminución en la población de estudiantes elegibles para prácticas preprofesionales. El estudio corresponde al tipo correlacional transversal, con una población variante para cada indicador identificado. Para el análisis estadístico se utilizó el programa SPSS Static 21 y para la prueba de hipótesis se utilizó la prueba de normalidad de Kolgomorov-Smirnov, la prueba t de Student y Wilcoxon para muestras relacionadas. Los resultados mostraron que el tiempo dedicado a la búsqueda de información antes de la implementación del sistema web es mayor que el tiempo dedicado a la búsqueda después de la implementación del sistema web (p=0,00). Se utilizó la metodología de desarrollo de software Rational Unified Process, soportada en el lenguaje de modelado unificado (UML). Por otro lado, el tiempo en registrar anuncios de prácticas preprofesionales antes de la implementación del sistema web es mayor que el tiempo en buscar después de la implementación del sistema web (p=0,00). También el grado de satisfacción del usuario antes de la implementación del sistema web es menor que el grado de satisfacción del usuario después de la implementación del sistema web (p=0,00). Se concluye en una disminución del 83,02% en el tiempo de búsqueda de anuncios; una disminución del 57,40% en el tiempo para publicar anuncios, y un aumento del 45,51% en el nivel de satisfacción de los usuarios. Todo esto lleva a concluir que la implementación de un sistema web mejora la gestión de las pasantías preprofesionales de los estudiantes de la Universidad Privada de Trujillo.

Palabras clave: Sistema web; prácticas preprofesionales, estudiantes, universidad.

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Abstract

The objective of this study is to improve the management of preprofessional internships for students at the Private University of Trujillo. The Directorate of Professional Development and Job Board, in charge of connecting students with companies for their pre-professional internships, carries out a series of manual processes for this purpose and disseminates them through printed publications in the university's wall newspapers, where on many occasions they go unnoticed. In addition to this, students do not necessarily have classes scheduled every day of the week, losing the opportunity to apply for a job offer that has been recently published and whose time for submitting the file is in a short period of time. As these are printed publications, there is minimal risk of them being lost, damaged or intentionally tampered with, without the management being aware of it. With the arrival of the COVID-19 pandemic and everything that this entailed, since the current government declared a state of national emergency, the Directorate saw a decrease in the population of students eligible for pre-professional internships. The study corresponds to the cross-sectional correlational type, with a variant population for each identified indicator. For statistical analysis, the SPSS Static 21 program was used and the Kolgomorov-Smirnov normality test, Student's t test and Wilcoxon for related samples were used to test the hypotheses. The results showed that the time spent searching for information before the implementation of the web system is greater than the time spent searching after the implementation of the web system (p=0.00). The Rational Unified Process software development methodology was used, supported by the unified modeling language (UML). On the other hand, the time to register pre-professional internship advertisements before the implementation of the web system is greater than the time to search after the implementation of the web system (p=0.00). Also the degree of user satisfaction before the implementation of the web system is lower than the degree of user satisfaction after the implementation of the web system (p=0.00). It concludes with a decrease of 83.02% in the time spent searching for ads; a 57.40% decrease in the time to publish ads, and a 45.51% increase in the level of user satisfaction. All this leads to the conclusion that the implementation of a web system improves the management of pre-professional internships of students at the Private University of Trujillo.

Keywords: Web system; preprofessional internships; students; university.

1. Introduction

An essential requirement for students to obtain a bachelor's degree in any of the careers offered by the Private University of Trujillo is "to have carried out pre-professional practices as established in the Study Plans...", for which they must have approved a minimum of credits according to the respective study plan (Resolution of the Board of Directors 012-2018-UPRIT, 2018).

According to Varguillas et al. (2020), Latin America has approved in recent years a series of laws and regulations that make internships or pre-professional practices mandatory for students as a requirement to obtain a university degree. In the case of students at the Private University of Trujillo, they must pass a minimum of credits in accordance with the study plans of each degree program so that they can begin carrying out pre-professional practices.

According to Sifuentes et al. (2021), the pre-professional internship experience is defined as an opportunity for students to integrate their work experience and knowledge into a university degree through planned and supervised exposure to real professional work.

For Albán et al. (2020) internships and/or pre-professional internships are learning activities aimed at applying knowledge and developing competencies and skills in their professional field, which provide students with the opportunity to integrate into the work environment with the support of institutions or companies in the sector. public and/or private.

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According to Medina et al. (2019), by reconceptualizing the substantive tasks of universities in relation to professional communication, the relationship between universities and companies is necessary to find the bases of professional practice to achieve efficiency.

According to Rodríguez et al. (2019), the course provides the theoretical elements that students need to learn during the semester as part of the training philosophy, while the pre-professional practices allow students to test this learning content in interaction with students. The context of future actions is not sudden but is determined by certain indicators that in turn determine their practice.

Consequently, pre-professional practices must be continuous to reflect the cognitive, personal and moral aspects of the subject, in addition, one must reflexively understand what was done, why it was done and how it relates to the profession (Ruiz et al., 2019).

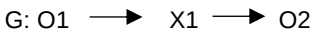
Due to the COVID-19 pandemic, the Peruvian state issued Supreme Decree 044 of 2020 [Presidency of the Council of Ministers], declaring a state of national emergency. March 15, 2020 and Legislative Decree 1465 of 220 [President of the Republic] by which measures are established to guarantee the continuity of the educational service within the framework of the government's preventive actions. April 19, 2020.

2. Materials and Methods

This research is of an applied type because based on basic, pure or fundamental research based on facts or formal science, it raises questions or working hypotheses to solve problems of productive life in society (Esteban, 2018).

The Pre-Test and Post-Test approach was applied to evaluate the indicators produced by the specific objectives, to contrast the hypothesis; a quasi-experimental research design which is characterized by the manipulation of at least one independent variable and the measurement of at least one dependent variable, although the homogeneity of the groups cannot be guaranteed because they are formed before the intervention (Guerrero et al., 2020).

The design graphically is as follows:



Where:
G: Students eligible to carry out pre-professional internships in the 2020-II period.
O1: Administrative processes to obtain pre-professional internships before the implementation of the web system.
X1: implementation of a web system in the Labor Exchange area.
O2: Administrative processes for obtaining pre-professional internships after the implementation of the web system.

For this purpose, the variable operationalization matrix used in this research is described:

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Table 1. Variable and Dimensions

Variable	Dimensions	Indicators	Measurement scale
Dependent variable (y): Administrative processes for the management of pre-professional practices	Agility in searching for advertisements for pre-professional internships	Time searching for ads for pre-professional internships	Ratio scale – time (minutes)
	Agility in publishing advertisements for pre-professional internships	Time in publishing advertisements for pre-professional internships	Ratio scale – time (minutes)
	User satisfaction	User satisfaction level	Ordinal Scale – Likert scale from 1 to 5

The unit of analysis is the students at the Private University of Trujillo. According to the Directorate of Professional Development and Labor Exchange at the Private University of Trujillo, it provides information on 88 students who accumulated the minimum number of credits to be able to carry out their pre-professional internships, which is an essential requirement for obtaining a university degree, in the academic period 2020-II.

Population
The population for each indicator is determined as follows:

Indicator 01: Agility in searching for advertisements for pre-professional internships

$$N = \frac{88\ searches}{week}\ x\ 16\ weeks$$

$$N = 1408\ searches$$

Indicator 02: Agility in publishing advertisements for pre-professional internships

$$N = \frac{9\ publications}{week}\ x\ 16\ week$$

Indicator 03: User satisfaction
The population is taken as students suitable to carry out their pre-professional internships.
N = 88 users

Sample
The sample is determined based on the population according to whether the population is less than 80 (N<80), the sample is assumed to be equal to the population (n = N), otherwise the finite sample calculation formula is applied:

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

Where:
n: Sample
N: Population
Z: 1.96 with an α = 0.05 error
p: success ratio (0.5)
q: failure ratio (1 – p)
e: sampling error (0.05)

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Indicator 01: Agility in searching for advertisements for pre-professional internships.
Being the population (N) of 1408 searches that exceeds 80, the value of the population sample (n) applying the aforementioned formula is 303 searches.

Indicator 02: Agility in publishing advertisements for pre-professional internships
Being the population (N) of 144 publications that exceeds 80, the value of the population sample (n) applying the aforementioned formula is 106 publications.

Indicator 03: User satisfaction
Being the population (N) of 88 users that exceeds 80, the value of the population sample (n) applying the aforementioned formula is 73 users.

Sampling
Indicator 1: Agility in searching for advertisements for pre-professional internships
Simple random probabilistic sampling was used.
Indicator 2: Agility in publishing advertisements for pre-professional internships
Simple random probabilistic sampling was used.
Indicator 3: User satisfaction
Purposive non-probabilistic sampling was used

Table 2. Scoreboard

N°	Indicator	Variable type	Unit of measurement	Instrument	Operability
1	Agility in searching for advertisements for pre-professional internships (ABA)	Quantitative	Seconds	Chronometer	$I_1 = (\sum_{i=1}^{n} ABA_i)/n$
2	Agility in publishing advertisements for pre-professional internships (APA)	Quantitative	Seconds	Chronometer	$I_2 = (\sum_{i=1}^{n} APA_i)/n$
3	User satisfaction (SU)	Qualitative	Likert scale	survey	$I_3 = (\sum_{i=1}^{n} SU_i)/n$

Techniques and instruments
Regarding data collection, it was obtained in the following way:

Table 3. Techniques and Instruments

Techniques	Instrument	Source
Document review	Registration sheet	Directorate of Professional Development and Job Board
direct observation	Data collection sheet	Directorate of Professional Development and Job Board
Survey	Survey Guide	Directorate of Professional Development and Job Board

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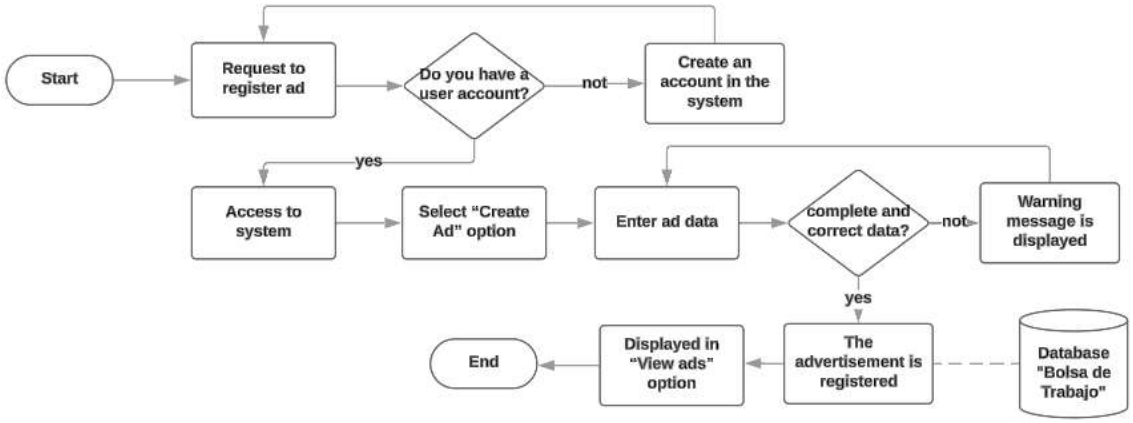

Figure 1. Flow chart of the web system for pre-professional practices

3. Results

Normality test is applied for each of the indicators, for which the Kolgomorov - Smirnov test is used for a sample (n) greater than 50, and the Shapiro - Wilk test for a sample (n) less equal to 50.
Indicator 01: Time searching for advertisements for pre-professional internships.
Normality Test
As n>50, the Kolgomorov - Smirnov normality test is applied, posing the hypotheses:
Ho: the data follows a normal distribution
Ha: the data does not follow a normal distribution

The level of significance used was α=0.05.

Decision criterion:
If p<=0.05, Ha is accepted, and Ho is rejected.
If p>0.05, Ho is accepted, and Ha is rejected.

Table 4. Normality test for indicator 01

	Kolmogorov-Smirnov[a]		
	Statistical	**gl**	**Sig.**
Search before web system implementation	,091	303	,000
Search after web system implementation	,108	303	,000

Since p<=0.05, Ha is accepted and Ho is rejected, which means that the data do not follow a normal distribution, so the non-parametric Wilconxon test will be used.

Hypothesis testing
Hypothesis
Ho: the time spent searching for information before the implementation of the web system is equal to the time spent searching after the implementation of the web system.
Ha: the time spent searching for information before the implementation of the web system is greater than the time spent searching after the implementation of the web system.

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Significance level: If the probability of asymptotic significance (ρ) is less than or equal to 0.05, we accept Ha and reject Ho.

Table 5. Wilconxon test for indicator 01

	Search_Post - Search_Pre
Z	-15,088[b]
Sig. asintót. (two tailed)	,000

Decision
Since the p value is less than 0.05, therefore, Ha is accepted and Ho is rejected.

Indicator 02: Time in publishing advertisements for pre-professional internships
Normality Test
As n>50, the Kolgomorov - Smirnov normality test is applied, posing the hypotheses:
Ho: the data follows a normal distribution
Ha: the data does not follow a normal distribution

The level of significance used was α=0.05.

Decision criterion:
If p<=0.05, Ha is accepted, and Ho is rejected.

If p>0.05, Ho is accepted, and Ha is rejected.

Table 6. Normality test for indicator 02

	Kolmogorov-Smirnov[a]		
	Statistical	**gl**	**Sig.**
Publish announcement before web system implementation	,076	106	,151
Publish announcement after web system implementation	,087	106	,047

Since one of the results has p>0.05 and the other p<=0.05, Ha is accepted and Ho is rejected, which means that the data do not follow a normal distribution, so the non-parametric Wilconxon test will be used.

Hypothesis testing
Hypothesis
Ho: The time in registering advertisements for pre-professional internships before the implementation of the web system is equal to the time in the search after the implementation of the web system.
Ha: the time in registering advertisements for pre-professional internships before the implementation of the web system is greater than the time in the search after the implementation of the web system.

Significance level: If the probability of asymptotic significance (ρ) is less than or equal to 0.05, we accept Ha and reject Ho.

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Table 7. Wilconxon test for indicator 02

	Publish_Post - Publish_Pre
Z	-8,938[b]
Sig. asintót. (two tailed)	,000

Decision
Since the p value is less than 0.05, therefore, Ha is accepted and Ho is rejected.

Indicator 03: User satisfaction level
Normality Test
Being a qualitative indicator, the following survey was applied to collect data.

N°	**Question**	**TA**	**AC**	**AD**	**DE**	**TD**
		5	**4**	**3**	**2**	**1**
1	Is the search process quick for you?					
2	Is it easy for you to search for information?					
3	Is the information organized?					
4	Is the information reliable?					
5	Is the information useful to you?					
6	Is the information available during the call process?					
7	Are you satisfied with the information available?					
8	Are you satisfied with the current information search model?					

Where:
TA: Totally agree.
AC: Okay.
AD: Neither agree nor disagree.
FROM: Disagree
TD: Totally disagree.

Table 8. Results of the survey application

NSUA		**NSUP**		**Impact level: increase**	
Score 15.9	Percentage (%)	Score	Percentage (%)	Score	Percentage (%)
	39.76	34.11	85.27	18.21	45.51

Where:
NSUA: User Satisfaction Level Before the implementation of the web system
NSUP: User Satisfaction Level After the Implementation of the Web System

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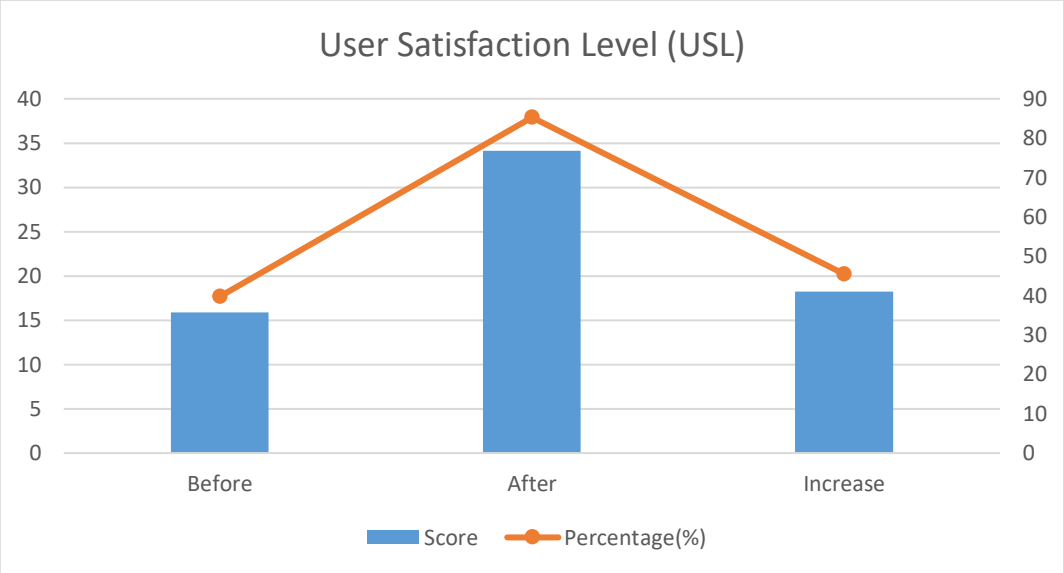

Figure 2. Results of the survey application

As n>50, the Kolgomorov - Smirnov normality test is applied, posing the hypotheses:
Ho: the data follows a normal distribution
Ha: the data does not follow a normal distribution

The level of significance used was α=0.05.

Decision criterion:
If p<=0.05, Ha is accepted, and Ho is rejected.
If p>0.05, Ho is accepted, and Ha is rejected.

Table 9. Normality test for indicator 03

	Kolmogorov-Smirnov[a]		
	Statistical	**gl**	**Sig.**
User satisfaction before the implementation of the web system	,104	73	,049
User satisfaction after the implementation of the web system	,143	73	,001

Since the results are p<=0.05, Ha is accepted and H0 is rejected, which means that the data do not follow a normal distribution, so the non-parametric Wilconxon test will be used.

Hypothesis testing
Hypothesis
Ho: the degree of user satisfaction before the implementation of the web system is equal to the degree of user satisfaction after the implementation of the web system.

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Ha: the degree of user satisfaction before the implementation of the web system is lower than the degree of user satisfaction after the implementation of the web system.

Significance level: If the probability of asymptotic significance (ρ) is less than or equal to 0.05, we accept Ha and reject Ho.

Table 10. Wilcoxon test for indicator 03

	Satisfaction_Post - Satisfaction_Pre
Z	-7,440b
Sig. asintót. (two tailed)	,000

Decision
Since the p value is less than 0.05, therefore, Ha is accepted, and Ho is rejected.

4. Conclusions

Based on the research carried out, it is concluded that the implementation of a web system improves the management of Pre-Professional Practices in the students at the Private University of Trujillo. Originally, the average time to search for ads for pre-professional internships was 138.27 seconds, equivalent to 100% of the operational time. However, with the implementation of the web system, this time was reduced to 23.48 seconds, representing 16.98% of the previous time. This considerable decrease of 114.79 seconds, which corresponds to 83.02%, has resulted in a substantial improvement in ad search times. Similarly, the average time to publish pre-professional internship ads was 249.29 seconds, equivalent to 100% of the operational time. However, with the implementation of the web system, this time was reduced to 106.21 seconds, representing 42.60% of the previous time. This considerable decrease of 143.08 seconds, which corresponds to 57.40%, has resulted in a substantial improvement in ad serving times. On the other hand, the user satisfaction level was 15.90 points, which represented 39.76% of the maximum score. However, with the implementation of the web system, this score increased to 34.11 points, representing 85.27% of the previous score. This considerable increase of 18.21 points, which corresponds to 45.51%, has resulted in a substantial improvement in user satisfaction levels.

5. Acknowledgments

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