Virtual Platforms and Academic Satisfaction in Medical Students at a Peruvian University

Plataformas virtuales y satisfacción académica en estudiantes de medicina en una universidad peruana

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Abstract

The objective of this study was to determine the relationship between the use of virtual platforms and the academic satisfaction of medical students at a Peruvian university during the year 2024. To this end, a descriptive, correlational, and cross-sectional study was carried out, with a sample made up of all third-year students of the Human Medicine career in 2024 (n=57). A unified questionnaire with high reliability (Cronbach's α: 0.955 for virtual platforms and 0.956 for academic satisfaction) was used, and descriptive and inferential statistics were applied for data analysis, determining significance with p<0.05. As a result, a positive and significant relationship was found, with a moderate-high degree of association, between the use of virtual platforms and academic satisfaction. In addition, it was observed that the most frequent level of use of these platforms was medium and that most students presented a medium level of academic satisfaction. Likewise, a significant moderate-high relationship was identified between all dimensions of the use of virtual platforms and academic satisfaction. Therefore, it is concluded that there is a positive relationship between the use of virtual platforms and academic satisfaction. Likewise, a higher prevalence of the average use of virtual platforms and a medium level of academic satisfaction were found. Finally, it was determined that the dimensions of the use of virtual platforms with the greatest association with academic satisfaction were virtual teaching collaboration and virtual student accompaniment.

Keywords: virtual platforms, academic satisfaction, collaboration.

Resumen

El objetivo de este estudio fue determinar la relación entre el uso de plataformas virtuales y la satisfacción académica de los estudiantes de medicina en una universidad peruana durante el año 2024. Para ello, se realizó un estudio descriptivo, correlacional y transversal, con una muestra constituida por todos los estudiantes de tercer

año de la carrera de Medicina Humana en 2024 (n=57). Se utilizó un cuestionario unificado de alta confiabilidad (α de Cronbach: 0,955 para plataformas virtuales y 0,956 para satisfacción académica) y se aplicó estadística descriptiva e inferencial para el análisis de los datos, determinando la significancia con p<0,05. Como resultado, se encontró una relación positiva y significativa, con un grado de asociación moderado-alto, entre el uso de plataformas virtuales y la satisfacción académica. Además, se observó que el nivel de uso más frecuente de estas plataformas fue medio y que la mayoría de los estudiantes presentaron un nivel medio de satisfacción académica. Asimismo, se identificó una relación significativa moderada-alta entre todas las dimensiones del uso de plataformas virtuales y la satisfacción académica. Por lo tanto, se concluye que existe una relación positiva entre el uso de plataformas virtuales y la satisfacción académica. Asimismo, se encontró una mayor prevalencia del uso promedio de plataformas virtuales y un nivel medio de satisfacción académica. Finalmente, se determinó que las dimensiones del uso de plataformas virtuales con mayor asociación con la satisfacción académica fueron la colaboración virtual en la enseñanza y el acompañamiento virtual de los estudiantes.

Palabras clave: plataformas virtuales, satisfacción académica, colaboración.

Introduction

For Medrano and Pérez (2010), academic satisfaction is considered a dynamic process that can be affected both by the characteristics of the institution and by the way in which students perceive and understand their learning environment. According to Rodríguez (2009), among the main causes are virtual platforms, which we can define as: A wide range of computer applications installed on a server whose function is to facilitate the creation, administration, management and distribution of courses through the Internet. In this context, numerous studies have addressed the academic satisfaction of students in various universities and regions of the world, exploring the factors that influence their positive or negative perception of virtual learning platforms.

Internationally, multiple studies carried out in different groups of Health Sciences students show favorable results regarding the relationship between the use of virtual platforms and academic satisfaction. So much so, that we appreciate it in the studies carried out in universities in India by Kanagaraj et al (2022) and in Puerto Rico by Iraola (2022); who found percentages of academic satisfaction greater than 50%. Similarly, an analysis in nine countries, including China, India, Italy, and the United Arab Emirates, found that academic satisfaction fluctuated between 65% and 99%, highlighting the influence of teaching roles, quality of service, and access conditions according to Sharif et al (2023).

Tehran, Dargahi et al. (2023) in their research found academic satisfaction of more than 60%, and it was observed that the virtual platforms most used by students were: Skype, Microsoft, and Zoom. On the other hand, studies carried out in Croatia by Puljak et al. (2020) pointed out that one of the most important factors in student satisfaction with virtual platforms was the way in which classes are conducted; This included feedback, organization, and adaptation of the teaching model.

Contrasting this information, research was found where the results showed completely opposite panoramas. Among them, at a university in India, Nambiar et al. (2020) conducted cross-sectional and observational research and found that only 13% of the sample of health sciences students were academically satisfied with the use of virtual platforms; The reasons for these findings were attributed to the need for greater autonomy and self-regulation on the part of students.

In the Peruvian context, research in various universities, such as in Arequipa by Gonzáles (2022) and in Tarapoto by Rojas (2022), identified a positive relationship between virtual education, meaningful learning, and academic satisfaction. In addition, in universities in Lambayeque according to Ramos and Chafloque (2022) and in the city of Lima Távara and Viera (2020) and Aguinaga (2023), they found that satisfaction was directly associated with faculty support, collaboration between peers and active learning. However, in a university in Lima in the study conducted by Sotelo (2021), it was observed that factors such as rural residence, low socioeconomic status, and poor virtual education were statistically associated with academic dissatisfaction in medical students.

In recent years, learning platforms have become increasingly important in our society. The implementation of these platforms and their relationship with academic satisfaction represent an emerging challenge. To do this, it will be necessary to study and know what factors and contexts intervene in successful academic satisfaction, since, as evidenced by the background, these are numerous and complex. However, the paucity of research on this topic in the Cajamarca region is notable. These factors are the main reasons that drive the need to carry out this research; whose general objective will be to evaluate the relationship between the use of virtual platforms and the academic satisfaction of medical students at a Peruvian university in 2024.

In addition, specific objectives are to determine the prevalence of the degrees of use of virtual platforms in medical students; to determine the levels of academic satisfaction in medical students; and to determine which

dimension of the use of virtual platforms is most significant in academic satisfaction. In addition, it is proposed as a general hypothesis, there is a significant positive relationship between the use of virtual platforms and academic satisfaction in medical students at a Peruvian university in the year 2024.

Methodology

This study, conducted between January and March 2024, adopted a quantitative approach and a non-experimental design to explore the relationship between the use of virtual platforms and academic satisfaction. The data were collected objectively through a survey, without altering any variable, to reflect the objective reality of academic satisfaction and how it is affected by the use of virtual platforms.

The study variables included the use of virtual platforms, defined by Medrano and Pérez (2010) as the use of tools that facilitate the creation, administration, and management of courses, as well as the academic satisfaction variable, which refers to how students perceive and understand their learning environment. The study population consisted of 57 third-year students from the Academic School of Human Medicine of the National University of Cajamarca. A non-probabilistic sampling was used for convenience, seeking the participation of all third-year students.

For data collection, a survey was used that uses the Likert scale to assess each response. The questionnaire consisted of 48 questions and 7 dimensions, and was obtained from a study conducted in Juliaca, Peru, by Gonzales (2023). The instruments had a reliability (Cronbach's alpha) of 0.955 for virtual platforms and 0.956 for academic satisfaction.

The data analysis was carried out using Infostat version 2020 statistical software, applying descriptive techniques to find percentages and showing them in frequency tables. Inferential statistics were also used to define the relationship between the variables and respond to the objectives of the project, using the Pearson Chi-square test with a significant value of $p<0.05$. In the variable use of virtual platforms, three grades were categorized using the scale method, finding a high use (88-120), medium use (56-87), and low use (24-55). In the same way, three grades were categorized as the academic satisfaction variable: High satisfaction (120-88), medium satisfaction (56-87), low satisfaction (24-55)

In ethical terms, the privacy and confidentiality of the data obtained through the surveys was guaranteed. Participant integrity and data validity were of paramount importance throughout the study.

Results and discussion

Table 1
Dependence table between the variables of virtual platforms and academic satisfaction (partition by gender)

			Academic satisfaction				
		gender	High	Middle	Low	Total	Statistical
Virtual platforms	Male	High	1	1	0	2	P=0.001 Coef. Pearson's contingency=0.68
		Middle	0	21	3	24	
		Low	0	3	8	11	
	Female	High	1	1	0	2	p=0.0067 Coef. Pearson's contingency =0.64
		Middle	0	11	1	12	
		Low	1	1	4	6	

From Table 1, it can be concluded that there is a significant moderate-high positive correlation ($p<0.05$), in all partitions, between the variables use of virtual platforms and academic satisfaction. A greater significance and positive association are observed in the male group compared to the female group. From the statistical results obtained from this research, it can be said that the hypothesis raised is correct, which states that there is a positive relationship between the use of virtual platforms and academic satisfaction in medical students who are in the third year of a Peruvian university in 2024.

These findings are supported by previous research, which also highlights the relevance of the use of virtual platforms in academic satisfaction, among which we can mention the findings of two studies carried out in Lambayeque by Aguinaga (2020) and Juliaca by Gonzáles (2023), who, in the same way, point out that there is a highly positive relationship between the use of virtual platforms and student academic satisfaction.

Table 2
Dependency table between the dimensions of the use of virtual platforms and the variable academic satisfaction

	Dimensions		High	Middle	Low	Total	Statistical
			Academic satisfaction				
Virtual platforms	Virtual teaching collaboration	High	4	4	1	9	p<0.0001 Coef. Pearson's Contingency =0.64
		Middle	0	29	6	35	
		Low	0	3	10	13	
	Virtual accompaniment to the student	High	2	1	1	4	p<0.0001 Coef. Pearson's Contingency 0.64
		Middle	2	27	2	31	
		Low	0	8	16	24	
	Competences	High	4	7	1	12	p<0.0001 Coef. Pearson's Contingency =0.59
		Middle	0	27	8	35	
		Low	0	2	8	10	
	Computer Learning Resources	High	2	2	1	5	p<0.0001 Coef. Pearson's Contingency =0.61
		Middle	2	27	1	30	
		Low	0	7	15	22	

From table 2, it can be stated that the p value for all correlations between the dimensions and the variable are less than 0.001, consequently, it is concluded that there is a significant positive relationship between academic satisfaction and the dimensions of the use of virtual platforms, with virtual teaching collaboration and virtual student accompaniment presenting the most positive association. having a Pearson coefficient of 0.64.

Regarding the inferential analysis of the results, we can determine that there is a significant positive relationship between the variables use of virtual platforms and academic satisfaction of students, which is of a moderate-high degree. These results are supported by the findings of research conducted in Juliaca in 2023 by Gonzales (2023) and research conducted at the Universidad Peruana de los Andes by Ureta (2019), which also found a positive relationship, but with a higher degree of association. These differences in the degrees of association can be explained by the sample sizes and the population surveyed.

In another research carried out at a university in the city of Lima, by Cochachi (2022) a high level of association was found, this was attributed to the ability of virtual platforms to generate a safer environment where students could express themselves freely. From these results and the studies observed, we can infer that students who use virtual platforms to a greater degree tend to have a higher level of academic satisfaction, which coincides with the study of the dimensions of the variable use of virtual platforms carried out by Cabanilla (2021).

Regarding the dimensions of the use of virtual platforms, two of them had greater relevance with respect to academic satisfaction, virtual teaching collaboration and virtual student accompaniment, both presenting a moderate-high degree of association. The importance of virtual teaching collaboration in academic satisfaction was also described by studies carried out on students from two IESTPs in which a degree of association determined by Cabanillas (2021) and Valdez (2018) was found. Virtual collaboration is relevant in academic satisfaction due to its ability to allow the development of interaction and search for knowledge in a social way in the student, as determined by García and Suarez (2019).

In addition, Meirinhos and Osório (2009) described that the capacity of virtual collaboration between students and tutors to form "Learning Communities" is important because they facilitate the development of essential skills in the student's academic training. Regarding the dimension of virtual accompaniment of the student, research carried out at the University of Lima indicated that, in the process of academic satisfaction, the accompaniment by a counselor or tutor is essential to achieve the cognitive development of the student, allowing the development of skills such as planning and effective use of virtual tools, according to Alvares (2020).

Likewise, it can be pointed out that virtual accompaniment enables greater interaction between the tutor and the student; the role of the tutor, if he or she is competent in the use and teaching of virtual platforms, is to facilitate the acquisition of critical thinking, self-discipline, reflection, and metacognition skills, as stated by Santos and Arana (2020) and Gómez et al. (2019). On the other hand, research carried out at the Universidad Privada del Norte in the department of Lima by Pareja y Paz (2019), found that the degree of association between academic

satisfaction with respect to teaching accompaniment was moderate due to the teacher's lack of knowledge about technology and/or technological resources.

Table 3
Distribution of frequencies of the academic satisfaction variable by levels according to sex and age in sixth-cycle medical students in the year 2024

Academic satisfaction							
		Level of academic satisfaction					
Gender	Age	High		Middle		Low	
		n	FR	n	FR	n	FR
Male	Under 21	1	1.7%	3	5.2%	3	5.2%
	Between 21 and 23	0	0%	20	35%	6	10.5%
	Over 23	1	1.7%	1	1.7%	2	3.5%
	Subtotal	2	3.5%	24	**42.1%**	11	19.2%
Female	Under 21	0	0%	5	8.7%	2	3.5%
	Between 21 and 23	2	3.5%	6	10.5%	4	7%
	Over 23	0	0%	1	1.7%	0	0%
	Subtotal	2	3.5%	12	21%	6	10.5%
	Total N=57	4	7%	36	**63.2%**	17	29.8%

Table 3 shows that 63.2% of students manifest a medium level of academic satisfaction, with the highest frequency in the male population (42.1%); and within the male population, the age group with the highest frequency was between 21 and 23 years old (35%).

Of the students surveyed, it was found that most presented a medium level of academic satisfaction, results that agree with what was found in a study at the National University of San Agustín de Arequipa by Gonzales (2021) and in the research carried out at the Señor de Sipán University by Ramos (2021); on the other hand, research carried out at a private university in Piura shows that most of the students surveyed expressed high academic satisfaction according to Távara and Viera (2020).

These variations in the results can be attributed to different sample sizes and differences in the sociodemographic characteristics of the regions where the research was conducted. In addition, a higher prevalence of average academic satisfaction was described in the male population, especially among students between 21 and 23 years old, than in the female population. by contrast, in other studies such as that of Távara and Viera (2020), it was evident that sex did not influence the degree of academic satisfaction; This is probably due to the sample differences in the research.

Regarding the use of virtual platforms, in an analogous way with the results found on academic satisfaction, students, for the most part, presented a medium degree of use of virtual platforms, being more noticeable in the male population between 21 and 23 years of age. These findings coincide with those found in international research carried out in India by Kanagaraj et al (2022) and in Croatia by Puljak et al (2020), and with the results of a Peruvian study carried out at a university in Tarapoto by Rojas (2022).

Table 4
Dependency table between the variables use of virtual platforms and academic satisfaction (breakdown by age)

Academic satisfaction						
	Age		High	Middle	Low	Total	Statistical
Virtual platforms	Under 21	High	0	1	0	1	P=0.0183 Coef. Pearson's Contingency=0.60
		Middle	0	6	2	8	
		Low	0	0	5	5	

Bazualdo, E., Astonitas, C., Cerquin, E., & Campos, J. (2025). Virtual Platforms and Academic Satisfaction in Medical Students at a Peruvian University, *Human Network Journal, 1*, 1-8. https://doi.org/10.5281/zenodo.15133102

Between 21 and 23	High	1	1	0	2	p=0.001 Coef. Pearson's Contingency =0.62
	Middle	0	24	2	26	
	Low	1	3	6	10	
Over 23	High	1	0	0	1	p=0.154
	Middle	0	2	0	2	
	Low	0	1	1	1	

From Table 4, it can be concluded that there is a significant moderate-high positive correlation (p<0.05) between the variables use of virtual platforms and academic satisfaction in the groups of people under 21 years of age, and between 21 and 23 years of age. No significance was observed in the group over 23 years of age; and the greatest positive association (Pearson's coefficient = 0.62) was found in the group between 21 and 23 years of age.

Table 5

Frequency distribution of the dimensions of the variable use of virtual platforms in sixth-cycle medical students in the year 2024

Virtual platforms							
Dimensions	Rank						Total
	High		Middle		Low		
	n	FR	n	FR	n	FR	
Virtual teaching collaboration	9	16%	35	61%	13	23%	57
Virtual accompaniment to the student	4	7%	29	51%	24	42%	57
Competences	12	21%	35	61%	10	18%	57
Computer Learning Resources	5	9%	30	53%	22	39%	57

Table 5 shows that the highest percentage of students in all dimensions have a medium degree. The dimensions presented by the highest number of students with a high degree were virtual teaching collaboration (16%) and competencies (21%). On the other hand, the dimensions with the highest number of students with a low grade were virtual teacher accompaniment (42%) and computer learning resources (39%).

Conclusions

The results obtained and analyzed during the research allow us to affirm that the use of virtual platforms has a positive relationship with the satisfaction of medical students at a Peruvian university in 2024. These data indicate the importance of promoting the development and use of virtual platforms, emphasizing the training of personnel who can serve as guides for students and the creation of spaces that allow effective virtual collaboration.

In addition, in our population, most students have a medium degree of use of virtual platforms and average academic satisfaction, which is more prevalent in male students in the group between 21 and 23 years old. This leads us to suggest that it would be of great importance to promote the use of virtual platforms, especially in female populations.

Finally, it was found that the dimensions of virtual teaching collaboration and virtual student accompaniment are the ones that present the highest degree of association with academic satisfaction, which leads us to think that they should be prioritized in the processes of implementing the use of virtual platforms

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