

**DIGITAL SKILLS TO IMPROVE AUTONOMOUS LEARNING IN STUDENTS OF
A PRIVATE UNIVERSITY IN TRUJILLO 2023**

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Summary

One of the main objectives of university education is to strengthen students' research skills, which requires them to acquire autonomous learning skills to assimilate knowledge. In this context, the objective was to analyze the influence of digital competencies through the "Digicom" program in the development of autonomous learning in anatomy students of the nursing program at a private university in Trujillo, Peru. For this, a quasi-experimental design with pre and post-test was used. The sample consisted of 34 students, distributed in a control group of 16 students and an experimental group of 18. A Likert-type questionnaire was used with three dimensions: planning, execution and self-reflection. The results obtained reveal that, after the implementation of the program, significant improvements were observed in learning

autonomy and its components. Thus, the Mann-Whitney U of 72.352 was obtained in the pre-test and .000 in the post-test; On the other hand, the Z test returned -1,107 in pre-test and -4.453 in the post-test. In conclusion, digital competencies have a significant impact on the development of autonomous learning of anatomy students in the nursing program of a private university in Trujillo, Peru; By developing greater mastery of digital skills, these showed higher levels of autonomy in their learning process, which supports the importance of integrating technology effectively in educational environments to promote student autonomy. **Keywords:** digital skills, Autonomous learning, information and communication technologies (ICT), digital skills, education.

1. Introduction

Within the global competitive environment, an uninterrupted educational process throughout existence is essential. Individuals are expected to be in a constant learning dynamic, continually incorporating new knowledge, honing additional skills and adapting to changing circumstances. Currently, the teaching-learning process is immersed in a context that demands an education with more autonomous characteristics. This transition towards autonomous learning requires specific skills to function effectively in a digital environment and has acquired particular relevance in the post-pandemic educational field (Mañas-Viniegra et al., 2023). Transitioning towards an autonomous learning model poses additional challenges for many university students who are not familiar with self-regulation and self-management learning strategies, which hinders their ability to set learning goals, organize their study time efficiently, and evaluate their own progress in a reflective manner (Buzo-Sánchez et al., 2023). The rapid technological evolution has generated a gap between the required digital skills and the skills that university students possess; Many of them face difficulties in adapting to this new learning modality, lacking the digital skills necessary to effectively navigate online platforms, use digital tools effectively and discern between reliable and unreliable information on the web (Nombela et al., 2023).

In this context, digital competencies emerge as valuable attributes to support this demand for constant education; de Oliveira Ribeiro and Oliveira Groenwald (2023) define them as a person's ability to effectively and critically use information and communication technologies (ICT) in various contexts. This implies not only the technical mastery of digital tools, but also the conceptual understanding of the underlying principles of computing and the ability to apply this knowledge in a reflective and ethical manner in problem solving, decision making and communication in environments. digital (Martínez-Domínguez and Fierros-Gonzales, 2022). In a world where technology plays a central role in daily and work life, the development of digital skills in university students becomes crucial for personal and professional success.

However, the current results are not a reason for optimism, since according to Burgos Videla et al. (2022), Peru ranks 53rd in terms of technological skills, with mastery levels of 22% in human-computer interaction. This reality directly impacts university students, who, according to Huerta Soto et al. (2022), perceive that their teachers have adequate digital skills, but their application is limited in both virtual and face-to-face programs due to the lack of a stable internet connection and modern computer equipment. Mancha Pineda (2022) delves into this problem by concluding that the digital competencies of the teaching staff are closely linked to the learning achievements of the students. Therefore, it is imperative to reduce digital divides

to ensure equitable access to technological resources and promote more equitable and effective development in the educational field.

The research becomes relevant due to the advantages that digital competencies present for autonomous learning in university education, such as integration, collaboration and communication tools, access to educational resources, flexibility and personalization in learning (Llanes Velasco, 2023). Its significance is based on the identification of existing needs and gaps in the domain of technology, as well as developing effective strategies to promote its acquisition and application in the educational process (García et al., 2022); Furthermore, investigating how to encourage and improve autonomous learning contributes not only to academic success, but also to the development of autonomous and competent individuals in a world in constant technological evolution (Chocarro et al.;2023). Consequently, the findings obtained in this area are available to the research community, which allows their consideration in new research and, at the same time, encourages the generation of new lines of research related to digital skills and autonomous learning.

Burris-Melville and Burris (2023) highlighted that the ability to make decisions about one's own learning process is essential to cultivating the ability to learn to learn. Putra et al. (2023) pointed out that advances in the global economy and society are intrinsically linked to autonomous learning based on the use of ICT. Govindan et al. (2023) indicated that the challenge for teachers is to promote autonomous learning to enable students to develop professional reconversion skills. According to Ganotice et al. (2023), planned and conscious self-learning is a practice that benefits the learning of university students, since it facilitates the consolidation of the knowledge necessary for their professional performance. Yusuf et al. (2023) highlighted that the uses of digital technologies are closely linked to autonomy and proactivity, contributing to the improvement of learning and the development of effective strategies in different contexts of knowledge acquisition.

Lopez et al. (2023) tell us that university students exhibit basic-level digital skills in areas such as online storage and participation, but they mostly lack more advanced skills, such as the ability to manage information effectively for educational purposes. Cabero Almenara et al. (2023) inform us that the correct application of technologies such as virtual classrooms or learning management systems (LMS) is highly effective, as long as users have digital skills. Rovira-Collado et al. (2023) highlight the significant relevance of digital tools in the students' learning process, suggesting that their impact is even greater when these tools are integrated and optimally combined with the specific teaching and learning strategies of each subject. For Rodríguez-Pasquín et al. (2023) the implementation of technological and digital tools in the educational environment creates a new atmosphere and experience, thus overcoming the traditional limitations present in the classroom.

The acquisition of skills involves the construction of a belief system that will serve as a basis for its development and reaching its maximum potential (Arancibia-Muñoz et al., 2023; Lacey et al., 2023). Digital competence is defined as a set of skills that enable and simplify team collaboration, directed instruction, critical analysis, originality and communicative interaction (Marín et al., 2023), previous training received and practical experience play a fundamental role in its achievement (Micaletto -Belda and Martín-Herrera, 2023). These are considered extremely useful instruments that enable the mobilization of attitudes, knowledge and

processes, which in turn allows students to acquire skills that facilitate the transfer of knowledge and promote innovation. (Marimón-Martí et al., 2022).

The theory of digital competencies is based on connectivism, which postulates that knowledge is generated through connections in external networks within the digital context, thus emerging a diversity of learning (Siemens, 2010). In this sense, learning in the digital age demands the search for information on the Internet, the exchange of knowledge between users and participation in forums, promoting the development of technological skills, the promotion of autonomous learning and the identification of useful connections for the learning process (Reyna Ledesma et al., 2022). Digital competencies are grouped into five dimensions: Information and digital literacy, Communication and digital collaboration, Digital content creation, Digital security, and Digital problem solving. (European Commission, 2022; Cabero-Almenara and Palacios-Rodríguez, 2020). Developing them involves strengthening our dispositions, knowledge and skills in order to optimize our performance and that of others in specific digital environments.

When we refer to learning, we are talking about the strategies and methods that individuals use to assimilate knowledge (Pisani and Haw, 2023). Autonomous learning involves a series of activities and actions that one carries out independently, where the student is aware of what you want to learn. According to Yuniana et al. (2023), autonomous learning is considered a crucial skill that we must all develop and requires skills such as the ability to search for valid information from reliable sources, as well as the development of habits of evaluation and use of digital resources. Furthermore, autonomy and proactivity are presented as common linked factors, contributing to the improvement of learning and the development of effective strategies in different contexts of knowledge acquisition (Kang, 2023).

The theory of autonomous or self-regulated learning maintains that students are capable of actively controlling and regulating their own learning process (Zimmerman, 2008). It highlights the importance of students setting clear goals, monitoring their progress, using effective learning strategies, and managing their emotions and motivations to achieve these goals (Zimmerman, 2013). Self-regulated learning involves three main processes: planning learning, controlling execution and evaluating results (Song and Shen, 2023). Students who are able to self-regulate their learning tend to be more efficient and effective in their process. acquisition of knowledge and skills.

This study seeks to measure the impact of digital skills on autonomous learning in nursing students at a Private University of Trujillo 2023 and answers the question. What is the impact of digital competencies on autonomous learning in nursing students at a Private University of Trujillo, 2023?

2. Methodological process

Based on the perspective of Hernández and Mendoza (2021), this research will adopt an applied quantitative approach to explore reality in a specific context and propose practical solutions. It will focus on the collection and analysis of measurable numerical data in order to understand and explain relevant phenomena. This approach will allow the research question to be addressed in a rigorous and systematic manner, thus offering a significant contribution to knowledge in the area of study.

The research design adopted in this study shows a clear affinity with the quasi-experimental design. The participants were divided into two different groups: the Control Group (CG) and the Experimental Group (EG), to whom tests were administered both before and after the intervention. While both groups underwent initial and final evaluations, the academic intervention was implemented exclusively in the Experimental Group, thus allowing us to analyze the differences in the effectiveness of the intervention before and after its application. This design provides a solid framework to evaluate the impact of the intervention and understand its effectiveness in the specific context of the study (Hernández and Mendoza, 2021)

A total of 40 students from the nursing program at a private university located in Trujillo participated in this study, selected from those enrolled for the 2023-2 semester. Exclusion criteria included those students who chose not to participate in the research, as well as those who were not enrolled at the beginning of the school term and those with a non-attendance rate greater than 30%. The sample was divided into two groups: experimental, made up of 18 students, and control, made up of 16 students. Non-probabilistic convenience sampling was used, following the guidelines of Hernández and Carpio (2019), which emphasize the intentional selection of respondents with the characteristics of interest, who are easily accessible to the researcher. This approach provides a solid foundation for the study, allowing the identification and analysis of relevant particularities within the nursing student population. Regarding the instrument used in the study, a questionnaire was used that was administered to both groups. The questionnaire design followed a traditional approach, consisting of 30 items arranged in an ordered and numbered table. This questionnaire was specifically designed to evaluate the level of autonomous learning of the participants both before and after the intervention carried out. To ensure the reliability of the quantitative data obtained, an analysis was carried out that yielded a McDonald's Omega coefficient of 0.921, indicating high internal consistency in the answers provided by the respondents. This instrument provided a reliable and valid measure to evaluate the impact of the intervention on students' autonomous learning.

3. Results

The results of the intervention with the "Digicom" program are presented below, after the application of 12 learning sessions. The initial data collected in the pretest and posttest were processed to determine if any improvement was evident. This analysis will allow us to evaluate the impact of the learning sessions on the participants and determine the effectiveness of the program in achieving its objectives.

Table 1 provides a detailed descriptive analysis of the levels of autonomous learning observed in both groups. The contrast between the low level of autonomous learning of the control group in the pretest (75%) and the notable 83% achieved by the experimental group stands out. After the intervention, the experimental group exhibited a significant increase in the percentage of scores at the high level, reaching 89% in the posttest, compared to 0% in the control group. This change shows a substantial improvement in the experimental group with respect to the control group in the post-test, confirming the effectiveness of the intervention. The increase in favor of the experimental group at the high level is notable, underlining the positive impact of the "Digicom" program on the development of autonomous learning.

Table 1 *Pre Test and Post Test according to levels of Autonomous Learning*

Study group	Levels	Pretest	Percentage	Post test	Percentage
Control	Low	12	75%	12	75%
	Half	4	25%	4	25%
	High	0	0	0	0%
Experimental	Low	fifteen	83%	0	0
	Half	3	17%	2	eleven%
	High	0	0	16	89%
	Total	18	100.0	18	100.0

Table 2 presents the results of the inferential test, revealing a significant improvement in autonomous learning as a result of the "Digicom" program, with a margin of error of 0.00 (0%). These results indicate a notable difference between the pretest and the posttest in terms of the autonomous learning observed. The effectiveness of the program is evident by demonstrating a positive impact on the development of self-learning skills in the participants, which highlights the relevance and effectiveness of the intervention provided by "Digicom".

Table 2 *General hypothesis result*

	Pretest	Post test
Mann-Whitney U	72,352	,000
Z	-1,107	-4,453
asymptotic sig. (bilateral)	.242	,000
Exact meaning [2*(unilateral sig.)]	.254b	,000b

4. Discussion

According to Zimmerman (2013), students have the inherent ability to act, analyze and evaluate the results of their own learning process through self-assessment, which allows them to make informed decisions. However, it is evident that many do not take full advantage of this process to adjust their actions according to the achievements obtained and make correct decisions in their educational process. This study highlights the importance of students being aware of the different phases of information processing when faced with a task, as this significantly increases their chances of developing solid and effective autonomous learning. The descriptive results reveal a notable increase in the level of autonomy for learning among the students in the experimental group, who went from the low level to the high level, in contrast to the control group, which remained at the same level. This underlines the importance of educational programs in strengthening the capabilities for the academic success of students, as pointed out by López et al. (2023). The development of autonomous learning plays a fundamental role in promoting motivation both inside and outside the classroom, allowing students to develop personalized work plans and use appropriate strategies for their learning, which leads to a more solid understanding, as Cabero Almenara suggests. et al. (2023). In this sense, students manage their own learning process more responsibly, as highlighted by Rovira-Collado et al. (2023), which contributes to their academic and personal growth significantly.

The "Digicom" program has proven to be effective in increasing the level of autonomous learning among anatomy students in the nursing program. This result is similar to the findings of Govindan et al. (2023), who evidenced an increase in learning autonomy in engineering students after an academic intervention. Similarly, Ganotice et al. (2023) also obtained significant results in learning autonomy after implementing their academic program. These findings support the effectiveness of educational programs in strengthening learning autonomy and their positive impact on students' academic development.

The increase observed in the experimental group with respect to the planning phase is closely related to self-motivation that drives students to approach their tasks or activities with confidence in their ability, as suggested by Zimmerman (2008). The successful execution of a plan requires both motivation and a positive attitude on the part of the student when facing each task in order to achieve the established objectives, as Burris-Melville and Burris (2023) point out. These findings are echoed in the research of Rodríguez-Pasquín et al. (2023), who demonstrated that students increased their ability to self-regulate learning by setting personal planning goals. Therefore, to effectively regulate an activity or task, the student must engage in a process of metacognition, as indicated by Zimmerman (1998), being aware of the resources and strategies necessary to achieve these goals. This comprehensive approach to planning and self-regulation of learning reinforces the importance of intrinsic motivation and metacognitive awareness in student academic success.

5. Conclusions

Digital competencies have a significant impact on the development of autonomous learning: The results of the research suggest that anatomy students from the nursing program at a private university in Trujillo Peru, by developing greater mastery of digital skills, showed higher levels of autonomy in their learning process, which supports the importance of effectively integrating technology into educational environments to foster student autonomy.

Training in digital skills improves autonomous learning: The intervention designed with the "Digicom" program to improve the digital skills of the participants led to a significant increase in their level of autonomous learning, raising their academic performance. This suggests that digital skills training is not only beneficial for the effective use of technology, but may also promote students' ability to manage their own learning process more independently.

There is a bidirectional relationship between digital competencies and autonomous learning: The findings indicate that the development of digital competencies can be both a cause and an effect of autonomous learning. That is, while greater mastery of digital skills may facilitate learning autonomy by providing access to educational resources and tools, it is also possible that autonomous learning practice leads to an improvement in digital competencies as students explore and they use various technologies to support their learning process.

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