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Learning strategies and academic performance in nursing students

Estrategias de aprendizaje y rendimiento académico en los estudiantes de enfermería

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ABSTRACT

Introduction: The relationship between learning strategies and academic performance in nursing students underscores the importance of developing motivational and cognitive skills to complete the educational process. **Objective**: To analyze how learning strategies influence the academic performance of nursing students. The research focuses on identifying the motivational, cognitive, and contextual skills that impact the learning process. **Methods**: A quantitative approach was employed, with a non-experimental, cross-sectional design using surveys as the main technique. The University Students' Learning Strategies Assessment Questionnaire (CEVEAPEU), consisting of 49 dichotomic type questions, was administered to a sample of 110 students. The reliability of the instrument was high, with a Cronbach's alpha of 0.91. **Results**: It was revealed that 89% of students feel capable of selecting relevant information for their studies, although 22% face challenges in using bibliographic resources. However, only 11% are able to recognize essential documents in online searches, indicating a problem in managing digital information overload. **Conclusion**: Although most students exhibit confidence in their learning ability, there is an urgent need to improve their skills in identifying reliable online sources. This suggests that training programs should be implemented to strengthen these competencies, fostering more autonomous and well-founded learning in an increasingly digital academic environment.

Keywords: Learning strategies, academic performance, nursing students, motivation.

RESUMEN

Introducción: La relación entre las estrategias de aprendizaje y el rendimiento académico en estudiantes de enfermería deriva en la importancia de generar habilidades motivacionales y cognitivas para completar el proceso educativo. **Objetivo:** analizar cómo las estrategias de aprendizaje influyen en el rendimiento académico de los estudiantes de la carrera de enfermería. La investigación se centra en identificar las habilidades motivacionales, cognitivas y contextuales que afectan el proceso de aprendizaje. **Métodos:** Se empleó un enfoque cuantitativo con un diseño no experimental y corte transversal, utilizando encuestas como técnica principal. Se aplicó el Cuestionario de Evaluación de Estrategias de Aprendizaje de los Estudiantes Universitarios (CEVEAPEU), que consta de 49 preguntas tipo dicotómicas, a una muestra de 110 estudiantes. La confiabilidad del instrumento fue alta, con un alfa de Cronbach de 0.91. **Resultados:** Se revelaron que un 89% de los estudiantes se siente capaz de seleccionar información relevante para su estudio, aunque un 22% enfrenta dificultades en el uso de recursos bibliográficos. Sin embargo, solo el 11% puede reconocer documentos fundamentales en búsquedas en línea, lo que indica una problemática en la gestión de la sobrecarga de información digital. **Conclusión:** Aunque la mayoría de los estudiantes muestra confianza en su capacidad para aprender, existe una necesidad urgente de mejorar las habilidades para identificar fuentes confiables en internet. Esto sugiere que se deben implementar programas de capacitación que fortalezcan estas competencias, promoviendo un aprendizaje más autónomo y fundamentado en un entorno académico cada vez más digitalizado.

Palabras clave: Estrategias de aprendizaje, rendimiento académico, estudiantes de enfermería, motivación.

INTRODUCTION

Learning strategies have been implemented worldwide in various aspects of research, which refer to different learning styles, which are developed at the time they learn and therefore acquire new knowledge, when they think and act in a different way from one activity to another that they develop or implement day by day (Campos, 2021). As the Europe 2020 Strategy was delimited in EEES (European Higher Education Area), it has been determined that all member nations should promote more interactive learning environments in higher education, focused on the student, with an effective use of Information and Communication Technologies (ICT) and where innovation is encouraged, as a component of the modernization of higher education (Cortes,2022). In this context, the progress of the combined methodology, blended learning, which has produced positive results by merging pedagogy with technology, evidencing the presence and virtuality as a learning unit, the structure of work in the classroom, teaching methods, teacher behavior and the type of interactions established between teacher and student, therefore the self-efficacy beliefs are oriented to achieve goals and expectations of success or failure (Fernandez, 2021). Aspects such as emotional intelligence and habits may also play a role in undermining academic success (Mora et al., 2024; Azevedo Hungria & Victor, 2024).

The learning tactics used in the students of the Pontificia Universidad Católica del Ecuador, Esmeraldas Campus (PUCESE) and promoting their implementation are essential processes for their professional and personal growth, since learning to learn has become an essential skill in the knowledge society (Bernabe, 2022). Lifestyle is an important factor to consider in the performance of nursing students (Jimenez et al. 2024).

The purpose of this research was to identify and establish the learning strategies and academic performance of eighth semester students of the University of the Ecuadorian Republic at the Technical University of Ambato, in the Ambato canton; same that will be of great relevance for future studies. This research study had theoretical bases proposed by various authors of scientific publications, in the use of instruments that facilitate the understanding of the existing relationship between the variables in the study (Alarcon,2019).

Learning styles refer to the different strategies, as it is a more specific way of collecting, interpreting, organizing and thinking about the reception of new information (Leon,2019). Giving to know; which is the impediment in the application of learning strategies that establish the first semester students of the Technical University of Ambato and affect different important aspects for the progress of academic performance, thus providing essential tools for professional growth.

In general terms, the relevance of learning strategies is highlighted, due to the fact that they encompass those cognitive resources that the student uses to learn, when faced with learning (Hendrie,2020); however, also when we allude to this. We are not only considering the cognitive aspect of learning, but we are also considering the cognitive dimension of learning, which goes beyond the strictly cognitive aspects to include elements directly related to the disposition and motivation of the individual, student through the tasks of planning, direction and control that the individual performs when facing the learning process (Cassola,2020).

METHODOLOGY

Place and period of investigation

The present study will take place in the Province of Tungurahua, Canton Ambato, Ecuador considering students of the nursing career at the Technical University of Ambato in the academic period of May 2024 - April 2025.

Research approach, design and scope of research

The present work has a quantitative approach, non-experimental design, cross-sectional and descriptive scope. The quantitative approach is based on numerical measurement, control and the use of statistics to establish with accuracy (Piña-Ferrer,2023), which are based on evidence oriented more to the deep description of the phenomenon in order to understand and explain them through the application of methods and techniques.

Technique and Instruments

The technique used in this research is the survey through the questionnaire for the evaluation of learning strategies of university students (CEVEAPEU), which has a Cronbach's alpha reliability of 0.91. This instrument is made up of 49 dichotomous questions, divided into three dimensions of learning: Motivational, factors or learning strategies that appear fused, are the value of the task and intrinsic motivation. Cognitive, metacognition is strongly linked to the activation of prior knowledge, regulation and control. Having the ability to identify and correct failures fosters self-effort and self-knowledge. They are directly linked to the learner's willingness to learn, goals and self-perceptions, as well as enduring motivation (Aldana, 2021). The response options are 2, where it is yes or no you attribute these actions in daily practice.

Espinoza and Novoa-Muñoz (2018), clarify "that the ordinal alpha is based on the polychoric correlation matrix, instead of Pearson's covariance (correlation) matrix, which allows a more accurate estimation of alpha through measurements with ordinal data" (Aldana,2021).

According to De la Cruz, strategic learning implies the search for meaningful learning, considering the student as a self-regulating organism of his own learning process, creator of his own knowledge. The approach oriented to strategic learning focuses its attention on the analysis of the learning strategies of university students, which is why this study is of great relevance (Aldana,2021).

Ethical aspects

The present research will be carried out in the margin of respect and confidentiality, where there will be no discrimination of any kind, whether by ethnicity, social status or color, the data obtained will be of a private nature where the opinion of the pregnant women who participate will be taken into account, all of them have the autonomy and the right to take part or withdraw from the research.

Processing and analysis

Data processing and analysis is a crucial stage in any quantitative research, as it allows the raw information obtained from surveys to be converted into meaningful and useful results for decision making. In this study, the data collected through the surveys were tabulated using Microsoft Excel, a widely used tool for data organization and analysis.

First, the data were tabulated, which consisted of entering the responses obtained from each respondent in a spreadsheet. This process made it possible to organize the responses in columns corresponding to each question of the questionnaire, which facilitated the counting of the responses and the obtaining of absolute and relative frequencies (percentages). Once the data had been tabulated, we proceeded to the descriptive analysis. This analysis focused on calculating the frequencies and percentages for each of the variables evaluated, which made it possible to identify trends and patterns in the participants' responses. Excel was used to generate these calculations automatically, ensuring accuracy and speed in processing the information.

It also involved the interpretation of these frequencies and percentages to better understand the characteristics of the sample and the perceptions of the respondents regarding the topics evaluated. It focused on identifying the areas of greatest consensus or disagreement among participants, as well as highlighting variables that could have a significant impact on the study's objectives.

RESULTS AND DISCUSSION

Table 1 presents a description of the sociodemographic characteristics of a sample of 110 individuals. This is followed by an analysis of the variables sex, marital status, year of study, employment status and educational level, which provides a better understanding of the profile of the respondents. Regarding the distribution by sex, it is observed that the majority of the participants are female, representing 82% (n=90) of the sample, while the remaining 18% (n=20) correspond to males. This indicates a greater participation of women in the study, which could influence the interpretations of the results if it is considered that perceptions or experiences could vary according to gender.

Regarding marital status, 95% (n=105) of the respondents were single, reflecting a group that was mostly young or without formal marital ties. This data is consistent with the stage of life they are in, given that 100% (n=110) of the participants are in the first year of their academic training, which suggests that they are students at university level or similar, just beginning their higher education.

In terms of employment status, it is evident that 31% (n=34) of the respondents work while studying, in contrast to 69% (n=76) who do not. This finding is relevant, as it may be related to the availability of time and resources to devote to study, which in turn could influence academic performance. Finally, the educational level of all respondents is high school (100%), which confirms that all participants have completed secondary education, which is the minimum requirement to enter higher education.

Table 2 shows an analysis of the motivational strategies of 110 participants in terms of their attitude towards learning, the perceived usefulness of the content and other factors influencing their academic performance. The results reflect a clear orientation towards understanding and usefulness of the content. In this sense, learning strategies and academic performance suggest that students who perceive content as relevant tend to have higher academic performance (Amadi,2023). In this case, 88% of the participants value the contents as useful, aligning with the theory that emphasizes professional purpose-oriented motivation (Amadi,2023; Mohammadi,2019).

The perceived applicability of the contents in the future professional was positive for 55% of the students, while the remaining 45% did not consider the knowledge acquired to be useful. This phenomenon can be interpreted in light of the theory of non-cognitive determinants, such as resilience and motivation, which promote the integration of theoretical knowledge into clinical practice. According to the literature, by fostering factors such as emotional intelligence and resilience, students can develop a better connection with the academic material, thus improving their performance (Amadi,2023). This is particularly important in healthcare careers, where practical applicability is central to professional training (Amadi,2023).

In terms of interest in learning, only 3% of the students expressed studying out of interest, while the remaining 97% did not. This low level of motivation could indicate a disconnection with learning, negatively affecting performance. It is indicated that non-cognitive factors, such as intrinsic motivation and the development of self-regulation skills, play a fundamental role in the academic performance of nursing students (Amadi,2023). Self-efficacy and personal effort showed high percentages of acceptance, with 89% and 85% respectively, which is consistent with studies stating that a positive perception of self-regulation skills and effort are directly associated with better academic performance (Amadi,2023; Mohammadi,2019).

Finally, only 23% of the students considered organization as relevant to performance, while the remaining 77% did not. This finding could suggest a lack of awareness of the importance of self-regulation and organization, essential aspects that have been shown to be effective in improving performance, especially in areas such as time management and self-assessment, which are necessary in the health care setting (Amadi,2023; Mohammadi,2019).

Table 1. *Sociodemographic data*

Alternatives	f	%
Female	90	82%
Male	20	18%
Single	105	95%
First year	110	100%
Laboran	34	31%
Do not work	76	69%
Baccalaureate	110	100%
TOTAL	110	

Note: Results obtained from the surveys applied

Table 2. *Motivational strategies*

Questions	YES	%	NO	%	TOTAL
1.Do you think it is important to understand the contents of the subject.	86	78%	24	22%	**110**
2. It is important for me to learn the contents or the value they have for my training.	60	55%	50	45%	**110**
3. I think it is useful for me to learn for me to learn the contents of this year.	97	88%	13	12%	**110**
4. What I learn in some didactic units I will be able to use in others and also in my professional future.	61	55%	49	45%	**110**
Real learning is the most important thing for me in college.	59	54%	51	46%	**110**
6. When I study I do it with interest in learning.	3	3%	107	97%	**110**
7. What is most satisfying is to understand the contents thoroughly.	75	68%	35	32%	**110**
8. My academic performance depends on luck.	69	63%	41	37%	**110**
9. My academic performance depends on the teachers.	54	49%	56	51%	**110**
10. I need other people to encourage me to study.	16	15%	94	85%	**110**
11. I can learn the basic concepts that are pointed out in the different didactic units.	23	21%	87	79%	**110**
12. I am confident that I can understand even the most difficult content of the didactic units that I can.	32	29%	78	71%	**110**
13.I am capable of achieving whatever I set my mind to in my professional career.	94	85%	16	15%	**110**
14. Intelligence is a set of skills that can be modified and increased through effort and learning.	51	46%	59	54%	**110**
15. My academic performance depends on my effort.	98	89%	12	11%	**110**
16. My academic performance depends on my ability.	65	59%	45	41%	**110**
17. My academic performance depends on my ability to organize myself.	25	23%	85	77%	**110**

Note: Results obtained from the surveys applied.

Analysis of the first question (Table 3) suggests that only 19% of students maintain a positive mood, while 81% report emotional distress. This figure may reflect a significant prevalence of negative affective factors, which is associated with lower academic motivation and reduced performance in the nursing context (Saeedi,2019). Theory underscores that fostering a positive attitude and providing faculty support are key strategies for improving student performance and motivation,

especially in areas that require high emotional engagement such as nursing (Saeedi,2019). This reinforces the need to intervene in emotional aspects to improve the academic experience and performance.

Regarding emotional regulation in the professional setting, only 42% manage to maintain an adequate emotional state for their work environment, while 58% fail to do so. In this regard, the literature highlights that academic motivation can benefit from strategies that include preparation and interaction with clinical educators, promoting an environment that decreases stress and facilitates learning (Saeedi,2019).

Adequate rest, reported by 59% of respondents, is another positive factor that can improve both physical well-being and academic performance, since sleep and physical well-being contribute to better stress management and information retention, critical aspects in nursing education (Miller,2010). In contrast, test anxiety affects 44% of students, while 89% worry about the consequences of possible failure. According to theory, external locus of control and test anxiety are linked to lower academic performance (Granados,2019). Students who rely on external factors tend to experience more anxiety, which limits their ability to cope effectively with academic challenges (Granados,2019).

In terms of public exposure, 59% of students report nervousness. Managing anxiety in evaluative and social situations is a key skill that can be fostered through emotional support and time organization strategies, which improve students' self-regulation and self-efficacy (Miller,2010). Focusing on motivation and organization allows students to improve their communication skills and reduce anxiety, which is essential for a patient care oriented career (Granados,2019).

Table 3. *Affective components*

Questions	YES	%	NO	%	TOTAL
18. My mood is usually positive and I feel good.	21	19%	89	81%	110
19. I maintain an appropriate state of mind for work.	46	42%	64	58%	110
20. I sleep and rest as much as necessary	65	59%	45	41%	110
21. I usually feel well physically	96	87%	14	13%	110
22. When I take an exam, I get very nervous.	48	44%	62	56%	110
23. While taking a test, I think about the consequences of failing the test.	98	89%	12	11%	110
24. When I have to speak in public I get very nervous. I am able to relax and be calm in stressful situations such as exams, exhibitions or public speaking.	45	41%	65	59%	110

Note: Results obtained from the surveys applied.

Table 4 shows the low flexibility of students to adapt their study method (68%) and could be directly linked to an external locus of control, which in turn could hinder an intrinsic motivation towards learning, reflected in the fact that a limited percentage adjusts their way of studying according to the expectations of each teacher. This indicates a reliance on rigid structures and could affect adaptation to dynamic nursing education environments, where interaction and preparation become critical for effective learning (Saeedi,2019).

59% of students show a self-critical attitude when modifying their study plans after obtaining unexpected results, which is favorable in the framework of strategies that emphasize self-management. This disposition towards improvement, together with the 89% who try to learn from their mistakes in exams, denotes a degree of commitment that, however, is not enough if it is not combined with specific study planning and organization skills throughout the year, which only 43% manifest to perform (Saeedi,2019; Miller,2010).

The lack of self-awareness in 67% of students, who are unclear about their strengths and weaknesses, reflects shortcomings in self-assessment and self-regulated learning, key components in clinical and professional education (Granados,2019). Although 83% are confident in recognizing their good performances without relying on feedback, the low percentage (14%) who adequately predict their test scores suggests that many do not have an objective assessment of their skills and performance, an aspect that may also be affected by anxiety and pressure in evaluative contexts (Ernst,2022).

Although most respondents are aware of the assessment criteria (87%), 78% do not follow an independent study schedule, limiting the development of an organized structure for sustained learning (Mamami,2021). This finding is important in the context of the theory on the need for organizational and motivational strategies as a means to improve academic performance in nursing (Condri,2020).

Finally, only 37% seek new study techniques, revealing a lack of proactivity to improve their long-term performance, which could benefit from interventions aimed at time management and the development of adaptive skills, thus promoting self-efficacy in line with the competencies expected in a clinical setting (Salazar,2019).

Table 4. Cognitive strategies

	YES	%	NO	%	TOTAL
25. If necessary, I adapt my way of working to the requirements of different teachers and didactic units.	35	32%	75	68%	110
26. When I see my initial plans do not achieve the expected success in my studies, I change them for other more adequate ones.	65	59%	45	41%	110
27.I know what my strengths and weaknesses are, when facing the learning of the didactic units.	36	33%	74	67%	110
28.I notice when I do well on academic assignments without waiting for the teacher's grade.	91	83%	19	17%	110
29. If I have done badly on an exam because I have not studied well, I try to learn from my mistakes and study well and study better the next time.	98	89%	12	11%	110
30. When I have taken a test, I know if it is wrong or if it is right.	15	14%	95	86%	110
31. When I have been given a bad grade on a paper, I do my best to find out what was wrong and do better next time.	46	42%	64	58%	110
32. I know the evaluation criteria with which the teachers will evaluate me in the different didactic units.	96	87%	14	13%	110
33. I plan my time to work on the didactic units throughout the year.	47	43%	63	57%	110
34. I have a personal study schedule, apart from the classes.	24	22%	86	78%	110
35. I keep up to date with the study topics of the different didactic units.	85	77%	25	23%	110
36. I only study before exams	65	59%	45	41%	110
37. I devote more time and effort to difficult teaching units.	103	94%	7	6%	110
38. I try to learn new techniques, skills, and procedures to study and perform better.	41	37%	69	63%	110

Note: Results obtained from the surveys applied.

Half of the students avoid asking their peers for help when they do not understand certain content (Table 5), which could be explained by a lack of academic and social support, factors identified as crucial for academic performance in nursing students (Ernst,2022). Creating a culture of academic cooperation would be beneficial, as this is one of the effective interventions that can reduce stress and improve performance by improving social interactions and resource management (Mamami,2021).

Furthermore, the fact that only 28% of students perceive teamwork as a stimulus to advance and that only 32% select suitable teammates to form teams, indicates that there is a negative perception of collaborative work. This situation could be mitigated by a course design oriented to strengthen collaboration and clinical orientation, both of which are considered fundamental to optimize the control of the academic context and foster quality interactions (Condri,2020). The literature suggests that by improving time management skills and reducing the external locus of control, students could cope more effectively with the demands of their training (Mamami,2021).

The low percentage of students who feel they make good use of their time (22%) and those who fail to optimize their study space (34%) reflect a lack of self-management. These findings reinforce the need for interventions focused on organization and time management, aspects that have been shown to be effective in reducing stress and improving academic performance (Ernst,2022). A time management program has been shown in previous studies to not only decrease stress levels, but also to increase performance, suggesting that a structured approach to time management could be key to improving student efficiency (Mamami,2021).

Finally, the tendency to avoid teamwork and not selecting suitable partners for collaborative activities could be linked to previous negative experiences, which impacts students' ability to generate synergies and affects their academic performance. This aspect could be improved with interventions that develop coping skills and improve confidence in teamwork, creating a learning environment where students feel motivated to collaborate (Condri,2020).

On the other hand, Table 6 shows that 78% of students consider that they use library resources effectively is a strength that coincides with previous studies, which point out that access to and adequate management of academic resources are important factors for autonomous learning and academic success (Mamami,2021). However, the lack of mastery in the selection of online resources, where 89% of students report having difficulties in recognizing fundamental documents, highlights a critical area for improvement in terms of digital competencies. This is consistent with research highlighting the need to strengthen locus of control and organization in students to optimize academic performance (Condri,2020).

In addition, students' positive perception of their ability to select relevant information (89%) is encouraging and could be linked to an adequate knowledge base in the management of bibliographic resources. However, the limited criteria for filtering information on the Internet reflects an overload of digital resources, a problem that has also been associated with stress and low performance in students in areas such as nursing, where the lack of skills in the selection of reliable sources negatively impacts learning and increases cognitive load (Ernst,2022,18). These data suggest that it would be beneficial to implement information literacy programs and specific training in the use of digital tools and academic databases, as recommended in the literature on effective intervention strategies for academic development (Mamami,2021).

The recommendation to strengthen students' digital competencies and offer more guidance in the selection of reliable sources is in line with interventions that promote efficient resource management and decrease academic stress (Ernst,2022). Specific training and guidance programs can improve organization and time management, elements that,

together with access to filtered and reliable information, could contribute to a more efficient learning process and optimized academic performance (Mamami,2021; Condri,2020).

Table 5. *Strategies for context control, social interaction and resource management*

	YES	%	NO	%	TOTAL
40. When I do not understand some content of a didactic unit, I ask another classmate for help.	54	49%	56	51%	110
41. Teamwork stimulates me to move forward.	31	28%	79	72%	110
42. I choose appropriate teammates for teamwork in the classroom.	35	32%	75	68%	110
43. Tends to discuss doubts related to class contents with classmates.	54	49%	56	51%	110
44. I try to study or do class work with other classmates.	100	91%	10	9%	110
45. I usually study in a place where I can concentrate on the tasks at hand.	73	66%	37	34%	110
46. I make good use of the time I spend studying.	24	22%	86	78%	110

Note. Results obtained from the surveys applied.

Table 6 *Exploratory Factorial*

	YES	%	NO	%	TOTAL
47. I am proficient in the library and know how to find the resources I need.	86	78%	24	22%	110
48. I am able to select the necessary information to study each of the didactic units as safely as possible.	98	89%	74	67%	110
49. When I search the Internet, where there are so many materials, I am able to recognize the documents that are fundamental to what I am working on or studying.	12	11%	98	89%	110

Note. Results obtained from the surveys applied

Discussion

Students' performance and perceptions regarding motivational strategies and the factors that influenced their academic performance were analyzed based on data obtained from the surveys. Key issues such as the importance attributed to content comprehension, intrinsic and extrinsic motivations, and the impact of effort and organization on academic success were addressed. Discussion focused on the correlation between these findings and contemporary educational theories, comparing the results with previous studies to corroborate or refute existing claims in the academic literature. This analysis allowed for a deeper understanding of how student strategies and perceptions influence learning and achievement, thus providing new insights into educational practices and learning management.

Motivational Strategies

The results in Table 2 indicate that a large majority of students value the understanding of subject content, with 78% considering it crucial to understand the topics addressed, and 88% believing that it is useful for their training. These findings are consistent with Khonji LM. (Salazar,2019), who state that intrinsic motivation and perceived usefulness of the content are key to promoting deep and meaningful learning in students.

However, the fact that 45% of the respondents do not perceive that the contents of the didactic units are useful for their professional future is worrying. According to Hassan (Felipe,2021), the disconnection between academic content and its application in professional life can generate low motivation and a passive attitude towards learning. This suggests the need to rethink pedagogical strategies to better connect academic contents with students' professional expectations.

Another noteworthy aspect is the low intrinsic motivation reflected in the response that only 3% study out of interest in learning, while the remaining 97% do not. This result contrasts sharply with previous studies, such as that of Benjamin and Mohammed (Mohammad,2023), who postulate that intrinsic motivation is a key factor in improving academic performance. The lack of intrinsic interest suggests a possible generalized demotivation in the study context, which could be related to the exam-centered approach or the lack of innovation in teaching.

On the other hand, 89% of respondents believe that their academic performance depends on their effort, which coincides with the internal locus of control theory proposed by Al-Osaimi and Fawaz (Hassan,2023). This focus on personal effort is positive, as it reinforces autonomy and control over academic success, a factor that is widely related to better educational outcomes Abdrbo, Miligi andTaha (Soto,2021).

Cognitive Strategies

Regarding cognitive strategies, Table 4 highlights that 83% of students are able to recognize when they perform academic tasks well without waiting for the teacher's grade. This level of metacognition is encouraging and is in line with the studies of Mercado-Elgueta, Illesca-Pretty and Hernández- Díaz (Al-Osaimi,2022), which highlight the importance of metacognition in the self-regulation of learning.

However, only 32% of students adapt their way of working to the demands of teachers and didactic units, suggesting a lack of cognitive flexibility. This ability is key to academic success, as previous studies have pointed out Luna et al. (Abdrbo,2024), as it allows students to adjust their learning strategies according to contextual demands. The fact that most students are not adopting this flexible approach could limit their ability to face new and complex situations in their academic trajectory.

A relevant finding is that 89% of respondents indicate that, if they fail an exam, they seek to learn from their mistakes and improve for the next occasion. This attitude reflects an orientation toward mastery learning, which has been shown to be critical for improving long-term performance Van Bewer and Sawchyn (Mercado,2019). The ability to learn from mistakes and apply new strategies is a positive indicator of resilience and self-regulation in learning.

On the other hand, 94% of respondents devote more time and effort to difficult didactic units, which reinforces their strategic approach to overcoming academic challenges. This ability to identify areas of greater difficulty and allocate more time to them is aligned with effective time management principles, as noted in research on study habits Thomas and Mahida (Caceres,2019).

Resource management and use of information

The results obtained in the study revealed that 78% of the students feel competent in managing the library and searching for resources, while a remarkable 89% stated that they are able to select the information needed to study with confidence. These data evidence solid skills in research and information management, essential aspects for autonomous and effective learning. The ability to adequately search for and select resources is crucial in the current educational context, where access to information is fundamental for academic success Granados-Zúñiga (Van,2024).

Despite these competencies, a significant discrepancy was identified: 89% of respondents reported difficulties in recognizing key documents during Internet searches. This finding suggests a deficiency in the skills to effectively navigate digital environments and filter relevant information. Difficulty in discerning between useful and non-useful information on the web reflects a lack of competence in critically evaluating online resources, a problem that has become a common challenge in the digital age.

This finding aligns with studies by Ernst Jourdan and Arán Filippetti and Lemos (Thomas,2022), who argue that, although many students are considered digital natives, they often lack critical skills needed to evaluate and filter information on the Internet. The abundance of data available on the web can be overwhelming and, without a robust set of skills to distinguish between reliable and unreliable sources, students may face difficulties in using information effectively and accurately. The inability to critically evaluate digital resources can negatively affect the quality of learning and academic decision making.

Consequently, these findings underscore the urgent need to integrate information literacy programs into academic curricula (Morales,2022) suggest that adequate training in information search and evaluation skills is essential to prepare students for the contemporary information environment. The inclusion of these programs would not only equip students with the necessary tools to face the challenges of the digital age, but would also improve their ability to manage information and resources effectively, thus promoting more autonomous and informed learning.

This approach could help bridge the gap between traditional resource management skills and the competencies needed for modern digital navigation. Information literacy training should focus on developing critical skills to assess the validity and relevance of online sources, providing students with practical strategies to improve their ability to discern and use information effectively.

Teamwork and social support

The Table addresses strategies related to teamwork and social support. Ninety-one percent of the students indicate that they prefer to do class work with other classmates, which reflects a tendency towards collaborative learning. This finding is consistent with what is stated by Trujillo (Trujillo,2015), who affirm that collaborative learning fosters motivation, commitment and academic performance.

However, 51% of respondents indicate that they do not usually discuss doubts with peers, suggesting a lack of interaction in the group problem-solving process. This may limit cooperative learning opportunities, which have been shown to be beneficial for the development of cognitive and social skills Morales et al (Villegas,2020). Fostering an environment in which students feel comfortable sharing their doubts and working together could improve not only their academic performance, but also their ability to solve problems collaboratively (Escobar Pérez & Quenorán Almeida, 2022).

CONCLUSIONS

To identify influential aspects in the academic performance of university students

The results of this study allow us to identify several factors that significantly influence the academic performance of university students. One of the main aspects is the students' self-perception of their own effort and ability. According to the data obtained, it was considered that their academic performance depends on their personal effort, indicating high self-efficacy. This finding is consistent with the literature, which suggests that students who believe in their ability to control their performance tend to achieve better academic results. However, their performance was attributed to external factors, such as luck, reflecting a possible dependence on variables outside their control, which may limit their autonomy in learning. In addition, the organization of study time turned out to be an underestimated factor, as few students' performance depended on their ability to organize themselves, suggesting a lack of awareness of the importance of time management strategies.

To determine which cognitive strategies students use in their learning

In terms of the cognitive strategies employed by the students, the data reflect a combination of strong skills in some aspects and deficiencies in others. Students felt skilled in managing the library and searching for resources, but were able to select the information needed to study with confidence. These skills are critical in the context of autonomous learning, as they facilitate access to and selection of appropriate academic materials. However, one of the most concerning areas was the students' ability to conduct effective internet searches: 89% reported difficulties in identifying relevant documents in digital environments. This finding underscores the need to improve information literacy skills, especially in terms of navigating and critically evaluating online sources. Students' low ability to filter information effectively could compromise the quality of their learning and their ability to use resources appropriately.

Relate the information acquired in order to demonstrate an adequate academic performance

The relationship between the cognitive strategies employed and students' perceived academic performance shows that those who employ information selection and resource search strategies tend to have a more positive perception of their academic performance. However, the lack of critical skills in digital environments could represent an obstacle for students to take full advantage of the knowledge acquired in their studies. This reinforces the importance of implementing digital literacy programs, since effective and meaningful learning depends on students' ability to adequately relate acquired information to the academic and professional context. Therefore, it is recommended that educational institutions consider incorporating specific training in these skills to improve both the academic performance and professional preparation of students.

Theoretical and methodological limitations

This study has theoretical and methodological limitations that should be considered when interpreting its findings. Theoretically, the research is based on models of self-efficacy and autonomous learning strategies that, although widely applicable in university contexts, may not capture all external variables that influence academic performance, such as socioeconomic or family factors. Methodologically, the study was conducted at a single institution, which may limit the generalizability of the results to other universities with different academic and cultural characteristics. In addition, the use of self-reporting as a method of data collection could have introduced biases in students' self-perception of their abilities.

Agenda for future studies

Based on the results obtained, several lines for future studies are proposed. First, it is recommended to extend the research to other universities and educational contexts to examine whether the observed findings are consistent in different environments. In addition, it would be valuable to conduct longitudinal studies that analyze the evolution of self-management and digital literacy skills over time in university students. Finally, research could deepen the development of specific interventions that foster digital and time management skills, assessing their impact on students' academic performance and autonomy in learning.

REFERENCES

Abdrbo, A. A., Miligi, E., & Taha, N. (2024). The Effects of Nursing Students' Locus of Control, Motivation, and Learning Strategies on Their Academic Performance. Nursing education perspectives, 45(6), E54–E56. https://doi.org/10.1097/01.NEP.0000000000001286

Alarcón Díaz, Mitchell Alberto, Alcas Zapata, Noel, Alarcón Díaz, Henry Hugo, Natividad Arroyo, José Arnin, & Rodríguez Fuentes, Antonio. (2019). Uso de estrategias de aprendizaje en la universidad: un estudio de caso. Propósitos y Representaciones , 7 (1), 10-32. https://dx.doi.org/10.20511/pyr2019.v7n1.265

Aldana-Rabanales, K. I. (2021). Cuestionario de evaluación de estrategias de aprendizaje para estudiantes universitarios (CEVEAPEU) validación con estudiantes guatemaltecos. Revista Electrónica En Educación Y Pedagogía, 5(9), 15–27. https://www.redalyc.org/journal/5739/573970382001/html/

Al-Osaimi, D. N., & Fawaz, M. (2022). Nursing students' perceptions on motivation strategies to enhance academic achievement through blended learning: A qualitative study. Heliyon, 8(7), e09818. https://doi.org/10.1016/j.heliyon.2022.e09818

Amadi, J. N., Poblete, R., Obong, G. B., Chijike Canis Irodi, & Nonye Celestina Irodi. (2023). Cognitive and Non-Cognitive Determinants of Academic Performance in Nursing. International Journal of Public Health, Pharmacy and Pharmacology, 8(4). https://eajournals.org/ijphpp/vol-8-issue-4-2023/cognitive-and-non-cognitive-determinants-of-academic-performance-in-nursing/

Andrés, C., Soto, D., Daniela, I., Medina, A., Suárez Villamizar, J., Madriz Rodríguez, D., Nieto Sánchez, Z., Moreno Sánchez, Y., Graciela, M., Maldonado, U., & Bravo Valero, A. (n.d.). Resumen Factores asociados al rendimiento 927 AVFT Archivos Venezolanos de Farmacología y Terapéutica. https://doi.org/10.5281/zenodo.5834908

de Azevedo Hungria, F. J., & Victor, R. (2024). Conectando soft skills ao processo pedagógico: desafios e tendências na educação do século XXI. *Vox Humana: Journal of Social Affairs*, *3*(1), 1-7. https://doi.org/10.56183/vox.v3i1.638

Bernabé Lillo, María de los Lirios, Suárez Suri, Pedro Roberto, Espinoza Ávila, Manuel Eduardo, Armijos Porozo, Irlanda Magaly, & Medina Godoy, Alba Annabelle. (2022). Estrategias de aprendizaje en estudiantes universitarios ecuatorianos: Un estudio de caso en la provincia de Esmeraldas. Revista Andina de Educación , 5 (2), e207. https://doi.org/10.32719/26312816.2022.5.2.9

Cáceres Luna, G., Quintanilla Calvi, J. P., González Polar, J., González Polar, J. P., & Soto Añari, M. (2016). FLEXIBILIDAD COGNITIVA Y MARCADOR SOMÁTICO EN BOMBEROS VOLUNTARIOS DE AREQUIPA. Revista de Psicología (Trujillo), 18(1), 60–71. https://doi.org/10.18050/revpsi.v18n1a5.2016

Campos-Gómez, Aline Aleida del Carmen, Hernández-Hernández, María Antonia, & Aniceto-Vargas, Paula Flora. (2021). Análisis documental del concepto de estrategias de aprendizaje aplicadas en el contexto universitario. Psicumex , 11 , e395. Publicación electrónica del 28 de febrero de 2022. https://doi.org/10.36793/psicumex.v11i1.395

Casasola Rivera, Wilmer. (2020). El papel de la didáctica en los procesos de enseñanza y aprendizaje universitarios. Comunicación, 29(1), 38-51. https://dx.doi.org/10.18845/rc.v29i1-2020.5258

Condori, E. M. N., Reyna, Q. T., & Flores, F. D. (2020). Estrategias de aprendizaje para el estudio y actitud emprendedora en estudiantes universitarios. PsiqueMag, 9(1), 38–47. https://doi.org/10.18050/psiquemag.v9i1.2493

Ernst Jourdan, C., Arán Filippetti, V., & Lemos, V. (2022). Estrategias de aprendizaje y rendimiento académico: revisión sistemática en estudiantes del nivel secundario y universitario. Revista UNIANDES Episteme, 9(4), 534–562. https://dialnet.unirioja.es/servlet/articulo?codigo=8630180

Felipe-Afonso, M. I., García García, L. A., & Castro Sánchez, J. J. (2021). Estructura factorial y fiabilidad de una batería de cuestionarios de estrategias de aprendizaje y motivacionales en universitarios. Bordón. Revista de Pedagogía, 73(3), 45–61. https://doi.org/10.13042/bordon.2021.89983

Fernández–García, C.-M., Rodríguez-Álvarez, M., & Viñuela-Hernández, M.-P. (2021). La percepción de los estudiantes universitarios acerca de la eficacia docente. Efectos sobre el compromiso de los estudiantes. Revista de Psicodidáctica, 26(1), 62–69. https://doi.org/10.1016/j.psicod.2020.11.005

Granados-Zúñiga, Jorge. (2019). Relación entre el uso del aula virtual y el rendimiento académico en estudiantes del curso de Bioquímica para Enfermería de la Universidad de Costa Rica. Revista Educación, 43(2), 327-343. https://dx.doi.org/10.15517/revedu.v43i2.32723

Hassan E. M. G. (2023). Addressing academic challenges: A quasi-experimental study on the effect of remedial exam strategy for nursing students with low academic performance. Belitung nursing journal, 9(4), 369–376. https://doi.org/10.33546/bnj.2699

Hendrie Kupczyszyn, Karina Noelia, & Bastacini, María del Carmen. (2020). Autorregulación en estudiantes universitarios: Estrategias de aprendizaje, motivación y emociones. Revista Educación, 44(1), 327-344. https://dx.doi.org/10.15517/revedu.v44i1.37713

Cortes Nuñez J, M. (2022). Estrategia Europea para las Universidades. Educación Médica, 23(6), 100779–100779. https://doi.org/10.1016/j.edumed.2022.100779

Jimenez, D. A., Medina, M. E., Ortigoza, A., & Canova Barrios, C. J. (2024). Estilos de vida de los estudiantes de Enfermería de una institución pública de Tucumán, Argentina. *Ibero-American Journal of Health Science Research*, *4*(1), 52–58. https://doi.org/10.56183/iberojhr.v4i1.606

León Urquijo, Ana Patricia, Risco del Valle, Eduardo y Alarcón Salvo, Cristina. (2019). Estrategias de aprendizaje en la educación superior en un modelo curricular por competencias. Revista de educación superior , 43 (172), 123-144. Recuperado el 29 de octubre de 2024, de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-27602014000400007&lng=es&tlng=es.

Lugo Villegas, I., Rodríguez Arteaga, M. A., Sotil Cortavarría, W. A., Pérez Naupay, A., Lugo Villegas, I., Rodríguez Arteaga, M. A., Sotil Cortavarría, W. A., & Pérez Naupay, A. (2020). Estrategias de aprendizaje para la comprensión científica de ciencias sociales en estudiantes de educación superior. Revista San Gregorio, 38, 65–77. https://doi.org/10.36097/rsan.v1i38.1237

Mamani-Apaza, W., Mamani-Guevara, H., Vilca, F., Vilca-Apaza, H.-M., Carpio, D., & Layme-Huamaní, J. (2021). Estrategias cognitivas y nivel de comprensión de textos académicos en estudiantes ingresantes en la universidad – Perú. Revista Innova Educación, 3(4), 40–57. https://doi.org/10.35622/j.rie.2021.04.003

Maryam, Saeedi., Soroor, Parvizy. 1. Strategies to promote academic motivation in nursing students: A qualitative study.. Journal of education and health promotion, (2018). doi: 10.4103/JEHP.JEHP_436_18

Mercado-Elgueta, C., Illesca-Pretty, M., & Hernández-Díaz, A.. (2019). Relación entre estrategias de aprendizaje y rendimiento académico: estudiantes de enfermería, Universidad Santo Tomás. Enfermería Universitaria , 16 (1), 15-30. https://doi.org/10.22201/eneo.23958421e.2019.1.580

Miller C. (2010). Improving and enhancing performance in the affective domain of nursing students: insights from the literature for clinical educators. Contemporary nurse, 35(1), 2–17. https://doi.org/10.5172/conu.2010.35.1.002 Carol, A., Berube., Jean, Marie, Gouveia. 3. An Academic Support Strategy: The "Magic Pencil".. Nurse Educator, (2015). doi: 10.1097/NNE.0000000000000197

Mohammad, L. (2023). Motivation as a Key Determinant of Academic Achievement of Nursing Students. Tuijin Jishu/Journal of Propulsion Technology, 44(5), 2257–2265. https://doi.org/10.52783/tjjpt.v44.i5.2937

Mohammadi, I., Thaghinejad, H., Suhrabi, Z., & Tavan, H. (2019). The correlation of learning and study strategies with academic achievement of nursing students. Journal of Basic Research in Medical Sciences, 4(3), 8–13. https://doi.org/10.29252/jbrms.4.3.8

Mora, Y., Oquendo, E., León, O., Arteaga, J., & Lozada, E. O. (2024). Explorando la influencia de la inteligencia emocional en la educación: perspectivas y desafíos. *Plural Episteme: Interdisciplinary Open Access Journal*, *2*(1), 36-42. https://doi.org/10.56183/plepist.v2i1.648

Morales Rodríguez, Marisol, Benítez Hernández, Marisol, & Agustín Santos, Diana. (2013). Habilidades para la vida (cognitivas y sociales) en adolescentes de zonas rurales. Revista electrónica de investigaciones educativas , 15 (3), 98-113. Recuperado el 29 de octubre de 2024, de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S1607-40412013000300007&lng=es&tlng=es.

Pérez, A. E. E., & Almeida, V. S. Q. (2022). Evaluación de los graduados de enfermería sobre los contenidos curriculares y su aplicación en la práctica. *Sapienza: International Journal of Interdisciplinary Studies*, *3*(5), 112-125. https://doi.org/10.51798/sijis.v3i5.449

Piña-Ferrer Lenys Senovia. El enfoque cualitativo: Una alternativa compleja dentro del mundo de la investigación. Koinonía . junio de 2023; 8(15): 1-3. Disponible en: http://ve.scielo.org/scielo.php?script=sci_arttext&pid=S2542- 30882023000100001&lng=es. Publicación electrónica del 11 de julio de 2023. https://doi.org/10.35381/rkv8i15.2440.

Saeedi, M., & Parvizy, S. (2019). Strategies to promote academic motivation in nursing students: A qualitative study. Journal of education and health promotion, 8, 86. https://doi.org/10.4103/jehp.jehp_436_18

Salazar Malerva, I., & Heredia Escorza, Y. (2019). Estrategias de aprendizaje y desempeño académico en estudiantes de Medicina. Educación Médica, 20(4), 256–262. https://doi.org/10.1016/j.edumed.2018.12.005

Thomas, S., & Mahida, A. (2022). Analysis of academic performance, study behaviour and factors influencing study behaviour among nursing students. Indian Journal of Continuing Nursing Education, 0(0), 0. https://doi.org/10.4103/ijcn.ijcn_24_21

Trujillo, C. (2015, June 19). Aprendizaje cooperativo e individual en el rendimiento académico en estudiantes universitarios: un meta-análisis. Docta.ucm.es; Universidad Complutense de Madrid. https://docta.ucm.es/entities/publication/24c866da-efe5-4150-bb14-d74cff9a7a29

Van Bewer, V., & Sawchyn, M. (2024). Enhancing nursing education for Indigenous students: Indigenous nursing students' insights and strategies. Nurse education today, 137, 106157. https://doi.org/10.1016/j.nedt.2024.106157

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