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Management indicators and decision-making in national educational units of Maracaibo, Venezuela

Indicadores de gestión y la toma de decisiones en unidades educativas nacionales de Maracaibo, Venezuela

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Abstract

This study analyzed the relationship between management indicators and decision-making in national educational units in Maracaibo, Venezuela. Using a quantitative approach and correlational scope, 48 managers and 72 teachers were surveyed using a valid and reliable questionnaire (0.98). The analysis revealed a significant positive correlation in both groups, but with differing intensity. For managers, the relationship is strong (coefficient of 0.888), indicating that improving management indicators significantly increases decision-making effectiveness. For teachers, the correlation is moderate (coefficient of 0.690), suggesting a less pronounced influence, possibly due to differences in their role and perception within the process. It is concluded that the relationship exists significantly, but its strength varies according to the group's perspective.

Keywords: Management indicators, management, Maracaibo, decision-making, Venezuela.

Resumen

Este estudio analizó la relación entre los indicadores de gestión y la toma de decisiones en unidades educativas nacionales de Maracaibo, Venezuela. Bajo un enfoque cuantitativo y alcance correlacional, se encuestó a 48 directivos y 72 docentes utilizando un cuestionario válido y confiable (0.98). El análisis reveló una correlación positiva significativa en ambos grupos, pero con intensidad distinta. Para los directivos, la relación es fuerte (coeficiente de 0.888), indicando que mejorar los indicadores de gestión aumenta notablemente la efectividad decisional. Para los docentes, la correlación es moderada (coeficiente de 0.690), lo que sugiere una influencia menos pronunciada, posiblemente por diferencias en su rol y percepción dentro del proceso. Se concluye que la relación existe significativamente, pero su fuerza varía según la perspectiva del grupo.

Palabras clave: Indicadores de gestión, gerencia, Maracaibo, toma de decisiones, Venezuela.

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Introduction

Being well-informed is essential for making sound decisions, especially in complex and changing environments like the educational one, as information enables decision-making, objective context analysis, problem and opportunity identification, and the evaluation of potential consequences of different actions. Likewise, it facilitates the adoption of solutions based on real data and evidence, which increases the likelihood of success and minimizes risks.

In this regard, Acosta and Barreto (2023) note that in an increasingly interconnected world, precise and updated information also allows for anticipating environmental changes and adjusting strategies in real-time to adapt to new trends. Informed decision-making ensures that resources are used efficiently, that adopted measures have a positive impact, that results are optimized, and that the solutions used are sustainable.

For their part, Pacheco et al. (2018) consider that information is the axis guiding decision-making, ensuring that decisions are coherent, well-founded, and aligned with long-term objectives, whether in education, business, or any other field. Hence, Alvares (2021) considers that knowing educational management indicators is important for decision-making, as they provide a clear and objective view of educational institutions' performance.

Indicators allow for measuring and evaluating important aspects such as teaching quality, student academic performance, efficiency in resource use, and educational community satisfaction. By having this data, administrators and those responsible can identify areas for improvement and strengths, which facilitates making informed decisions to optimize processes and results.

Within this framework, Camacho et al. (2021) highlight that educational management indicators provide a solid basis for planning strategies at different timeframes. This is because they facilitate the definition of achievable objectives, the adaptation of policies, and the targeting of actions that directly impact the improvement of educational quality. For Del Rocío et al. (2019), management indicators play a fundamental role in measuring the performance of institutions and academic programs, as well as in guiding decision-making towards continuous improvement. These indicators allow for the evaluation of important aspects such as teaching quality, the effectiveness of administrative processes, student well-being, and efficient resource use.

Fonseca et al. (2024) emphasize that, at a global level, the use and recognition of educational management indicators have strengthened transparency and accountability in school administration. Likewise, these indicators have allowed decisions to be grounded in objective information, enabling institutions to justify their actions before the educational community and regulatory bodies, demonstrating their commitment to continuous improvement and the comprehensive development of students.

In this sense, the United Nations Educational, Scientific and Cultural Organization (Unesco, 2022) notes that the presentation and use of educational management indicators globally is essential to ensure quality, inclusive, and equitable education in all contexts. Therefore, this organization promotes the collection and analysis of educational data through bodies like the Unesco Institute for Statistics (UIS), which generates global indicators to assess progress towards educational goals, such as those established in the Sustainable Development Goals (SDGs), especially SDG 4, which focuses on quality education.

Furthermore, Unesco (2019) highlights that the use of educational indicators allows countries to monitor aspects such as access to education, equity, the efficiency of educational systems, and learning outcomes. These indicators allow for comparisons of performance between different countries and regions, helping to identify gaps and priority areas for intervention. Through its reports, Unesco presents a global overview of the challenges and advances in the educational sector, based on these key indicators. It also underscores that access to accurate and reliable data is essential for informed decision-making at political and administrative levels.

Now, according to Unesco (2019), in Latin America, these indicators are presented in a structured manner, organized into categories such as access and coverage, educational quality, efficiency, equity, and learning outcomes. They include both quantitative indicators, such as enrollment rates and standardized test results, and qualitative ones, through surveys of student and teacher satisfaction. The use of data disaggregated by gender, geographical location, and socioeconomic context to identify gaps and inequalities is common.

Therefore, this organization considers that these indicators are usually published in annual reports prepared by ministries of education and international organizations, allowing for comparisons between countries and a focus on learning outcomes, especially through standardized assessments like the *Programme for International Student Assessment (PISA)*. Likewise, indicators of institutional management are included, such as teacher training and school infrastructure, which is fundamental for assessing the efficiency and effectiveness of the educational system.

In the Venezuelan context, the implementation of management indicators is of particular importance to foster national educational quality; however, the Venezuelan educational system faces challenges such as limited resources, high teacher turnover, and inequality of educational opportunities. In this sense, Acosta and Barrios (2023) argue that to counteract the above, effective management of educational institutions that allows for performance evaluation and strategic decision-making is necessary; hence, management indicators are an important tool for this purpose, as they provide a quantitative and qualitative view of the institution's status and allow for the identification of areas for improvement.

Furthermore, Prieto et al. (2022) point out the importance of ethics in management, as it is an essential tool for improving the quality of education in educational institutions. Likewise, Puche and Acosta (2024) note that it is necessary to overcome existing challenges and secure the commitment of all involved stakeholders to achieve sustainable results in Venezuelan institutions.

For their part, various weaknesses in school management have been observed in national educational units in the Maracaibo Municipality. One of the primary ones is the lack of clarity in institutional objectives, which leads to disorganized planning poorly aligned with the school's real needs. This can translate into impulsive or arbitrary decisions that do not respond to a thorough analysis of the situation. Additionally, inefficiency in the use of resources, both human and financial, is common. Without reference indicators, administrators assign personnel or budgets inadequately, resulting in resource waste or shortages in areas fundamental to the institution's operation and improvement.

Likewise, a low capacity to identify and correct structural problems within the organization is observed. The lack of indicator monitoring hinders the early detection of failures, leading to reactive rather than preventive management. This can result in a disorganized school environment, with recurring pro-

blems and low motivation among both teachers and students.

Communication problems within the institution are also present. The lack of indicators hampers effective communication between different management levels and among staff, affecting cohesion and collaboration in the workplace. This leads to difficulties in performance evaluation, as without metrics it is complicated to measure the performance of students and staff, preventing the identification of areas that require improvement.

Finally, resistance to change is observed, where institution members tend to be reluctant toward new initiatives or improvements. This resistance stems from the lack of concrete data justifying the need to implement changes, as the absence of management indicators in the national educational units of Maracaibo generates a series of situations that negatively impact their performance and effectiveness. Hence, the study focused on determining the relationship between management indicators and decision-making in national educational units in Maracaibo, Venezuela.

Theoretical foundation

Management indicators

They are fundamental tools that enable the measurement, evaluation, and monitoring of the performance, efficiency, and quality of educational processes within institutions. According to Ramírez and Quesada (2019), their main purpose is to provide precise and objective information about the current state of various aspects of education, in order to make informed decisions that drive continuous improvement. These indicators also facilitate the identification of strengths and weaknesses in management, allowing for a strategic focus on problem-solving and resource optimization.

As per Sánchez (2020), among the particular characteristics of educational management indicators is their capacity to be relevant and directly related to the institution's key objectives. Furthermore, they must be measurable in quantitative terms or with clear criteria for qualitative evaluation, which allows for consistent interpretation. Their comparability is another highlighted aspect, as it facilitates trend analysis over time or between different educational institutions. Likewise, their specificity ensures that they are focused on concrete and relevant aspects of management.

Common examples of these indicators include the student retention rate, which measures the proportion of students who continue their studies at the same institution, and the average enrollment, which assesses the number of enrolled students in relation to the institution's capacity. According to Ferreiro et al. (2020), certain key indicators are linked to academic performance, including results obtained in national or international assessments. Additionally, they highlight indicators related to infrastructure, such as the number of classrooms, laboratories, or technological resources available per student. The importance of teacher training is also emphasized, measured through the percentage of teachers involved in continuous professional development programs.

Decision-making

According to Mendoza and Technologys (2022), it is a dynamic and strategic process in which educational stakeholders—such as administrators, teachers, and school communities—examine key information and evaluate existing alternatives to choose the most appropriate actions that facilitate the achievement of established educational objectives. This approach seeks to address institutional demands, maximize the use of available resources, foster a favorable learning environment, and ensure

high standards of educational quality.

As per Barzaga et al. (2019), the decision-making process in educational institutions is distinguished by encompassing multiple dimensions, integrating administrative, pedagogical, and community aspects. This process includes everything from operational decisions, such as organizing schedules and allocating resources, to strategic decisions focused on implementing educational projects, renewing curricula, and promoting inclusion policies. Furthermore, they argue that this process is based on the use of data and evidence as support to minimize the margin of error and maximize benefits for the entire educational community. It includes the active participation of different school stakeholders to ensure that decisions are inclusive, legitimate, and reflect the needs and expectations of students, teachers, and families.

Methodology

The methodology of the present study was grounded in the procedures of the positivist paradigm, which, according to Hernández and Mendoza (2023), is characterized by its focus on objectivity, systematicity, and the empirical verification of proposed hypotheses. This paradigm prioritizes the quantification and rigorous analysis of causal and correlational relationships, making it pertinent for concretely examining how management indicators influence decision-making processes in national educational units in Maracaibo. Thus, the study was designed to address the need to understand these dynamics from a structured and reliable methodological perspective.

In accordance with this paradigm, a quantitative approach was adopted, which, as per Arias (2016), allows for a deep understanding of the studied phenomena from the perspective of the involved subjects. This approach proved ideal for exploring the perceptions and experiences of both teachers and administrators regarding management indicators and their connection to strategic decisions in their work contexts. Through this approach, the interpretative analysis of observed interactions and practices was prioritized, enabling the capture of the complexity of institutional dynamics.

The study was classified as basic research. This type of research is fundamental because it focuses on creating theoretical knowledge and a deeper understanding of a phenomenon, rather than on its direct practical application. In terms of level, it was descriptive, as its purpose, according to Arias (2016), is to detail the characteristics and manifestations of management indicators in the educational units. This research focused on identifying patterns and trends that would provide a clear picture of practices related to decision-making. Furthermore, it fell under a correlational scope, which, according to Hernández and Mendoza (2023), seeks to determine the degree of association between management indicators and decision-making processes, providing a robust analytical framework for understanding how these variables interact.

The sample was intentional (purposive) and consisted of 72 teachers and 48 administrators from National Educational Units affiliated with the Centers for Educational Quality Development (Centros de Desarrollo de la Calidad Educativa - CDCE) in Maracaibo. These bodies are decentralized regional structures whose objective is to guide regional educational policy to guarantee the right to education and educational quality.

For the selection of teachers, the inclusion criteria were: being in active service during the study period, having at least two years of experience in the national educational unit, and participating in processes related to school planning and management. Regarding administrators, it was considered essential to

hold administrative or leadership functions, have at least two years of experience in educational management, and be involved in strategic or pedagogical decision-making.

The study strictly adhered to the necessary ethical considerations to ensure the integrity and protection of the participants. Informed consent was obtained from each participant, ensuring their voluntary participation and clearly explaining the study's objectives, the exclusive use of data for academic purposes, and the absolute confidentiality of the collected information. Furthermore, the privacy of the participants was safeguarded by omitting any data that could allow for their identification.

For data collection, a survey was used, implementing a dichotomous (binary) instrument designed to capture affirmative or negative responses reflecting the participants' perceptions. This was sent to the subjects via WhatsApp and email. Data processing was conducted using the SPSS 27 statistical program and was carried out in two stages. Initially, descriptive statistical techniques were applied, which allowed for organizing the information into frequency tables, facilitating the visualization of response distribution and predominant trends.

Subsequently, inferential statistical techniques were employed to determine the level of correlation between management indicators and decision-making processes. This analysis enabled the identification of significant associations between the variables, providing a solid basis for interpreting the results and establishing well-founded conclusions.

Results

Table 1

Educational quality indicators

Indicators	Questions	Response options							
		Administrators				Teachers			
		Yes		No		Yes		No	
		Fr	F%	Fr	F%	Fr	F%	Fr	F%
Academic performance	Do you believe academic performance has improved in the last year?	16	33,3	32	66,7	23	31,9	49	68,1
	Do you think the implemented strategies contribute to academic performance?	15	31,2	33	68,8	30	41,7	42	58,3
Approval rate	Do you believe the student approval/pass rate increases over time?	32	66,7	16	33,3	52	72,2	20	27,8
	Do you believe support programs influence the improvement of the approval/pass rate?	38	79,2	10	20,8	50	69,4	22	30,6
School dropout rate	Do you consider that the school dropout rate decreases over time?	42	87,5	6	12,5	18	25,0	54	75,0
	Do you believe institutional strategies help prevent school dropout?	20	41,7	28	58,3	40	55,6	32	44,4

Note: Source the researchers.

Table 1 presents the results of the educational quality indicators dimension. It is observed that, regarding academic performance, both administrators and teachers show a predominantly negative perception. Only 33.3% of administrators and 31.9% of teachers believe academic performance has improved in the last year, while the majority perceive no significant progress. Furthermore, an even lower percentage —31.2% of administrators and 41.8% of teachers— believes the implemented stra-

tegies contribute to this performance. These results highlight the need to evaluate and strengthen pedagogical strategies to address the challenges in this area more effectively.

In relation to the approval rate, the results are more encouraging. 66.7% of administrators and 72.2% of teachers perceive that this rate has improved over time. Similarly, a significant majority (79.2% of administrators and 69.4% of teachers) acknowledges that school support programs have positively influenced this aspect. This reflects an optimistic perception of the implemented initiatives, underscoring the relevance of these programs as key drivers of academic success. However, it is important to ensure the sustainability and continuous improvement of these actions.

Regarding the school dropout rate, notable discrepancies are observed between the perceptions of administrators and teachers. While 87.5% of administrators report a decrease in the dropout rate, only 25% of teachers share this view. On the other hand, 41.7% of administrators and 55.6% of teachers believe the institutional strategies are effective in preventing this phenomenon. This suggests the need to strengthen communication and coordination between both groups to align their perceptions and work jointly on effective solutions.

Consequently, the results show a mixed perception of the analyzed indicators. Although progress in the approval rate is highlighted, significant challenges persist in academic performance and dropout prevention. It is essential to review current strategies, foster dialogue between administrators and teachers, and reinforce successful initiatives to achieve a positive and sustainable impact on students.

Table 2

Administrative efficiency indicators

Indicators	Questions	Response options							
		Administrators				Teachers			
		Yes		No		Yes		No	
		Fr	F%	Fr	F%	Fr	F%	Fr	F%
Student teacher relationship	Do you consider the relationship between students and teachers to be positive at your institution?	18	37,5	30	62,5	22	30,6	50	69,4
	Do you believe the support provided by teachers fosters a better bond with students?	48	100	0	0	62	86,1	10	13,9
Per-pupil expenditure	Do you think the cost per student is adequately distributed towards educational resources?	15	31,3	33	68,7	33	45,8	39	54,2
	Do you believe the cost per student efficiently reflects the quality of services offered?	10	20,8	38	79,2	12	16,7	60	83,3
Administrative processing time	Do you consider the time required to complete administrative procedures to be reasonable at your institution?	12	25,0	36	75,0	20	27,8	52	72,2
	Do you believe the current administrative processes expedite school management?	8	16,7	40	83,3	10	13,9	62	86,1

Note: Source the researchers.

Table 2 presents the results of the administrative efficiency indicators. Regarding the student-teacher ratio indicator, contrasting perceptions between administrators and teachers are shown. Only 37.5% of administrators consider the ratio to be positive, while 62.5% believe it is not. Among teachers, this

perception is even more negative, with 30.6% rating the ratio positively and 69.4% negatively. However, there is an encouraging consensus on the support provided by teachers, as 100% of administrators and 86.1% of teachers acknowledge that this factor contributes to strengthening bonds with students. These data reflect that, although overall relationships may be seen as deficient, the individual actions of teachers have a positive impact. This highlights the importance of strengthening these practices and promoting greater positive interaction within the institutional environment.

Regarding cost per student, the results indicate a predominantly negative perception. Only 31.3% of administrators and 45.8% of teachers consider this cost to be adequately distributed towards educational resources. Even more concerning is that only 20.8% of administrators and 16.7% of teachers believe the cost efficiently reflects the quality of services offered. These figures demonstrate the need to evaluate how financial resources are allocated and used within the institution to ensure they contribute to improving the educational quality perceived by the entire school community.

When analyzing administrative processing time, both administrators and teachers agree that the current processes are inadequate. Only 25% of administrators and 27.8% of teachers believe the time required for processing tasks is reasonable. Furthermore, an even lower percentage— 16.7% of administrators and 13.9% of teachers —considers that administrative processes expedite school management. This reflects a perception of inefficiency that may be negatively impacting institutional functioning, underscoring the need to simplify and modernize these procedures.

The results indicate that educational institutions face significant challenges in improving student-teacher relationships, the distribution and efficiency of the cost per student, and the optimization of administrative processes. These findings point to important areas for intervention, implementing strategies that promote a more positive school environment, more transparent and effective financial management, and more agile administration that enables better performance for the entire educational community.

Table 3

Educational innovation indicators

Indicators	Questions	Response options							
		Administrators				Teachers			
		Yes		No		Yes		No	
		Fr	F%	Fr	F%	Fr	F%	Fr	F%
Use of technology in the classroom	Do you consider that technology is used effectively in classroom activities?	18	37,5	30	62,5	22	30,6	50	69,4
	Do you believe that the use of technology in the classroom improves student learning?	48	100	0	0	72	100	0	0
Teacher training in innovation	Is training on innovative teaching strategies encouraged?	10	20,8	38	79,2	20	27,8	52	72,2
	Do you believe that innovation training has been useful for teaching practice?	48	100	0	0	72	100	0	0
Innovative projects implemented	Have innovative projects been implemented at your institution during the last year?	0	0	48	100	72	100	0	0
	Do you believe that innovative projects benefit students?	48	100	0	0	72	100	0	0

Note: Source the researchers.

Table 3 presents the results of the Educational Innovation Indicators. Regarding the use of technology in the classroom, it is observed that only 37.5% of administrators believe technology is used effectively in classroom activities, while 62.5% disagree. Meanwhile, 69.4% of administrators consider this to be the case and 30.6% believe it does occur. Among teachers, the perception is more optimistic, though still concerning, as only 50% believe technology is employed adequately. However, both administrators and teachers agree that the use of technology improves student learning, with 100% affirmative responses. This highlights a paradox: although implementation may not be optimal, there is a consensus on the positive potential of technology in the educational process.

Regarding teacher training in innovation, the data indicate that its promotion is limited. Only 20.8% of administrators and 27.8% of teachers believe this type of training is encouraged in their institutions, while the majority do not perceive it as such (79.2% of administrators and 72.2% of teachers). Nevertheless, 100% of both groups consider innovation training to be useful for teaching practice, underscoring the need to increase the availability of such training to enhance its positive impact in the educational field.

Concerning implemented innovative projects, clear contrasts are identified. While 100% of teachers indicate that innovative projects have been implemented in their institutions, 100% of administrators claim the opposite. This could suggest a disconnect between the perspectives of both groups regarding what constitutes an innovative project. However, both administrators and teachers are in complete agreement (100%) that innovative projects benefit students, highlighting their relevance in educational development.

The results reflect a significant opportunity to strengthen innovative and technological practices in the educational environment. It is necessary to improve the effectiveness of technology use in the classroom, promote more innovation training, and ensure that both administrators and teachers share a common vision of innovative projects and their implementation. These measures can contribute to a more modern, inclusive, and effective learning environment.

Table 4

Student participation indicators

Indicators	Questions	Response options							
		Administrators				Teachers			
		Yes		No		Yes		No	
		Fr	F%	Fr	F%	Fr	F%	Fr	F%
Extracurricular activity participation rate	Do you believe that the majority of students actively participate in extracurricular activities?	20	41,7	28	58,3	18	25	54	75
	Do you think the extracurricular activities offered are appealing/engaging to students?	20	41,7	28	58,3	16	22,2	56	77,8
School attendance rate	Do you consider that the attendance rate has improved over time?	0	0	48	100	0	0	72	100
	Do you believe that the institution helps to maintain a high school attendance rate?	10	20,8	38	79,2	20	27,8	52	72,2

Note: Source the researchers.

Table 4 presents the results of the student well-being indicators. Regarding the rate of participation in extracurricular activities, administrators have a divided perception: 41.7% believe that most students actively participate in these activities, while 58.3% do not. Among teachers, the perception is more negative, as only 25% consider that students participate actively, while 75% indicate the opposite. Furthermore, regarding whether the extracurricular activities offered are attractive to students, a similar percentage of administrators (41.7%) responds affirmatively, although no clear percentage is reported among teachers. These data suggest the need to evaluate and redesign extracurricular activities to make them more inclusive and motivating, so they can capture the interest of a larger number of students.

In terms of the school attendance rate, there is absolute consensus between administrators and teachers: 100% of both groups believe the attendance rate has not improved over time. However, when analyzing whether the institution contributes to maintaining a high attendance rate, opinions are mixed. Only 20.8% of administrators and 27.8% of teachers agree with this statement, while 79.2% of administrators and 72.2% of teachers believe insufficient effort is made in this aspect. These figures indicate a perception of ineffectiveness in the implemented strategies to promote school attendance, pointing to a priority area for institutional intervention.

In this sense, the data reflect that both participation in extracurricular activities and school attendance require urgent attention. The lack of interest in activities and the perception of stagnation in the attendance rate suggest the need to review current strategies and work on more inclusive, attractive, and effective initiatives. This could include creating extracurricular activities aligned with students' interests, as well as implementing specific programs to motivate regular class attendance, strengthening the connection between the institution and its educational community.

Table 5

Correlation coefficient between management indicators and decision-making according to administrators

Coefficients	Variables		Management indicators	Decision-Making
Rho de Spearman	Management indicators	Correlation coefficient	1	0,888**
		Sig. (2-tailed)	-	0,000
		N	48	48
	Decision-Making	Correlation coefficient	0,888**	1
		Sig. (2-tailed)	0,000	-
		N	48	48

Note: Source the researchers.

Table 5 presents the correlation analysis between management indicators and decision-making, using Spearman's Rho coefficient. It shows a strong and positive relationship between both variables. The correlation coefficient value is 0.888, indicating a high positive correlation; that is, as management indicators increase, so does decision-making. This relationship is statistically significant, as the sig. (2-tailed) value is 0.000, meaning the probability that this correlation is due to chance is extremely low. With an N = 48, i.e., 48 observations, it can be concluded that there is a very strong association bet-

ween these two factors. This suggests that improving management indicators could have a direct impact on the quality or effectiveness of decision-making in the evaluated institution or context.

In this sense, the analysis reveals that management indicators are closely linked to decision-making. This implies that efforts to improve management within the organization are likely to have a positive impact on decision-making processes. This finding underscores the importance of strengthening management indicators as part of a comprehensive approach to optimizing decision-making within the institution.

Table 6

Correlation coefficient between management indicators and decision-making according to teachers

Coefficients	Variables		IManagement indicators	Toma de decisiones
Rho de Spearman	Management indicators	Correlation coefficient	1	0,690**
		Sig. (2-tailed)	-	0,000
		N	72	72
	Toma de decisiones	Correlation coefficient	0,690**	1
		Sig. (2-tailed)	0,000	-
		N	72	72

Note: Source the researchers.

Table 6 presents the correlation analysis between management indicators and decision-making using Spearman's Rho coefficient, showing a moderate and positive correlation of 0.690. This value indicates a significant relationship between both variables, suggesting that as management indicators improve, so does decision-making. Statistical significance is confirmed with a Sig. (2-tailed) value = 0.000, meaning the probability that this correlation is a product of chance is extremely low.

With an N = 72, this correlation coefficient is moderately strong, implying that there is a tangible relationship between the quality of management indicators and the effectiveness of decision-making in the evaluated context. Although not a perfect relationship, it suggests that better performance in management indicators can positively influence decision-making.

The analysis demonstrates that there is a moderately strong relationship between management indicators and decision-making. The statistical significance and the relatively high value of the correlation coefficient (0.690) indicate that improving management indicators has the potential to positively impact decision-making processes. This highlights the importance of strengthening management indicators as part of a broader strategy to enhance organizational effectiveness and decision-making.

Discussion

Contrasting the results with the theoretical postulates, Ramírez and Quesada (2019) state that academic performance is a fundamental indicator for evaluating the effectiveness of the educational system. It reflects not only the knowledge acquired by students but also the quality of teaching, the commitment of educators, and the efficacy of implemented pedagogical strategies.

According to Mero and Sáenz (2016), high academic performance is crucial for the personal and professional development of students, as it opens doors to future opportunities in higher education and the labor market. Furthermore, academic performance directly impacts the reputation of educational institutions, being a decisive factor in the choice of schools and universities. Its measurement allows institutions to identify areas for improvement and strengthen their educational practices to provide a more comprehensive and quality education.

Within this context, Hernández and Fernández (2018) highlight the idea that the approval (or pass) rate is an indicator that measures the proportion of students who successfully complete courses or educational levels. This index is significant because it reflects the educational system's capacity to ensure that students achieve established learning objectives. According to Atencia (2024), a high approval rate indicates that students have successfully assimilated the content, reflecting appropriate teaching and a favorable learning environment. Conversely, a low approval rate could indicate problems with teaching methodology, available resources, or the support provided to students, which may necessitate implementing improvement strategies such as reinforcement programs or modifications to assessment methods.

From the perspective of Atencia (2023), the school dropout rate is a critical indicator that reflects the number of students who leave their studies before completing an educational cycle. Therefore, a high dropout rate is a cause for concern, as it implies that many students are unable to continue their education due to various factors, such as economic or family problems, or a lack of motivation. School dropout affects the social and economic development of a community, as those who leave school are less likely to access quality employment and contribute less to collective well-being. Combating school dropout requires interventions that improve accessibility, educational quality, and the emotional and academic support provided to students to ensure everyone has the opportunity to complete their education.

Likewise, García et al. (2018) indicate that the student-teacher relationship is an important component for educational success, as a positive bond between the two fosters learning, personal development, and student motivation, as students feel supported and understood by their educators. Effective interaction allows teachers to adapt their teaching methods to the individual needs of students, facilitating comprehension and the achievement of academic objectives. Furthermore, a good relationship strengthens the school climate and promotes the active participation of students in the educational process. Fostering these relationships is crucial for creating inclusive and collaborative learning environments that favor student academic success and comprehensive development.

For Atencia (2024), the cost per student is an economic indicator that measures the amount of financial resources invested for each student in an educational institution. This indicator is fundamental for assessing the efficiency of resource use and the financial sustainability of the educational system. According to Sánchez (2020), an adequate cost ensures that the necessary materials, services, and supports can be provided to guarantee quality education. However, it is important to balance cost with educational outcomes; a high cost does not always translate into better results, so institutions must seek an efficient allocation of resources that maximizes academic performance and student well-being.

Continuing this line of thought, Camacho et al. (2021) point out that administrative processing time is an indicator that measures the speed with which administrative processes are managed in an educational institution, such as enrollment, registrations, and the resolution of procedures related to student performance. According to Camacho et al. (2021), reduced processing time is key to ensuring process

efficiency and the satisfaction of students and their families. Fast administrative procedures facilitate access to education, reduce the administrative burden for teachers and administrators, and allow resources to be used more effectively to improve teaching and learning. Conversely, slow processes can cause frustration and demotivation, harming the perception of the institution's quality.

According to Santos (2024), the incorporation of technology in the classroom has revolutionized contemporary education, offering more dynamic and personalized access to knowledge. The use of digital tools facilitates interactive teaching methods, access to global educational resources, and collaboration between students and teachers, overcoming the limitations of traditional approaches. Furthermore, technology in the classroom promotes the development of digital competencies essential for students' professional futures. Its proper implementation can increase academic performance and motivation, but it is necessary to provide appropriate training for teachers and ensure equitable access to technological resources to avoid creating digital divides that affect certain student groups.

According to Atencia (2023), teacher training in innovation is decisive for educators to adapt to changes in teaching methods and the new demands of students. Continuous training in innovative strategies allows teachers to improve their pedagogical practices, implement new technologies and didactic approaches, and foster critical and creative thinking in their students. This type of training contributes to the professional development of teachers, increasing their confidence in their work and teaching efficacy. Furthermore, it favors the creation of a dynamic and stimulating learning environment, aligned with global educational trends.

According to Fonseca et al. (2024), innovative projects in the educational field are crucial for improving teaching and learning processes, providing creative and efficient solutions to the challenges of the educational system. Implementing innovative initiatives, such as the use of technology, project-based learning, or student-centered pedagogical approaches, can transform the classroom into a more interactive and engaging space. These projects not only benefit students by stimulating their creativity and motivation but also allow teachers to update their teaching methods, test new tools, and assess academic progress more effectively. The successful implementation of these initiatives promotes educational change, favoring a more flexible environment adapted to the needs of 21st-century students.

Likewise, Mendoza and Technologys (2022) affirm that academic performance is a key indicator of educational quality, as it reflects the level of success and learning that students achieve throughout their education. Good academic performance not only evidences the individual capabilities of students but also the effectiveness of teaching strategies, the school environment, and the resources available.

For their part, Donoso et al. (2018) point out that academic results are fundamental for decision-making in educational institutions, as they help identify areas for improvement in teaching, support the evaluation of pedagogical strategies, and allow for the design of interventions that favor the comprehensive development of students. Furthermore, outstanding academic performance increases students' opportunities in their future academic and professional lives, contributing to the social and economic development of the community.

According to Ferreiro et al. (2020), the approval (or pass) rate serves as a parameter to measure the effectiveness of the educational system and students' ability to face academic challenges. Therefore, a high approval rate indicates that students are achieving the required knowledge and skills, while a low rate could reflect failures in teaching, assessment methodologies, or even in the type of support provided to students.

According to Barzaga et al. (2019), this indicator is important for educational authorities, as it provides valuable information about the quality and equity of access to education. According to Atencia (2023), the school dropout rate is a critical indicator for understanding the challenges students face throughout their educational journey.

Conclusions

The correlation analysis between management indicators and decision-making, based on the administrators' results, reveals a strong and positive relationship between both variables. The correlation coefficient of 0.888 indicates a robust association, suggesting that as management indicators improve, so does the quality and effectiveness of decision-making. The statistical significance (p=0.000) confirms that this relationship is not a product of chance, reinforcing the idea that efforts to optimize management indicators can have a direct impact on decision-making processes within the institution.

On the other hand, the results obtained from teachers show a moderate correlation between the same indicators, with a correlation coefficient of 0.690. Although the relationship is positive and significant (p=0.000), the correlation is not as strong as in the case of administrators. This suggests that while improving management indicators also affects decision-making, the impact is not as pronounced. This could reflect differences in perceptions and the direct influence that teachers have on the decision-making process compared to administrators.

The results indicate that both administrators and teachers agree on the existence of a significant relationship between management indicators and decision-making, but the strength of this relationship varies by group. Administrators perceive a stronger correlation, which could indicate a greater direct influence of management indicators on their decision-making capacity. In contrast, teachers, while acknowledging the relationship, observe a less marked connection. These results suggest that continuous improvement in management indicators has the potential to positively influence decision-making, although the degree of impact may depend on the hierarchical position within the institution and the specific role each group plays.

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CRediT Authorship statement	
Author	Roles performed
DJPV	Preparation, creation, and/or presentation of the published work, specifically writing the original draft (including substantive translation).
SFAF	Preparation, creation, and/or presentation of the published work by members of the original research group, specifically critical review, commentary, or revision—including stages before or after publication.

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