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Academic Management And Student Promotion In Correlation With Academic Performance

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Abstract

Standardized tests are widely used to evaluate the quality of teaching and demonstrate student performance. However, there is a lack of theoretically and empirically grounded knowledge on how academic management and student promotion influence academic achievement. In order to contribute to scientific knowledge regarding this identified gap, a quantitative non-experimental, cross-sectional, and correlational study was conducted using stratified sampling. To gather the data, questionnaires were administered to 200 randomly selected teachers from 40 out of 61 public educational institutions in Montería. An instrument was designed and validated, encompassing the variables of academic management (GYP1. G34) and student promotion (GYP2.1290). The results obtained through confirmatory factor analysis demonstrated a significant and positive correlation between these variables (R^2=0.58; F (6,193) = 45.85; p<0.001). The model captures 58% of the variability in the scores obtained in the Saber 11° test of 2021. This finding provides a theoretical-practical reference for continuous institutional improvement and suggests possibilities for future research.

Keywords: *Quality of education; evaluation criteria; academic management; student promotion; academic performance.*

Introduction

This article addresses a theoretical-practical gap regarding the lack of studies that explore the correlation between the variables: academic management and student promotion with academic performance. Performance refers to learning achievements and the development of propositional, argumentative and interpretative competencies, which are expressed in the grades obtained by the student (Solano, 2015, p. 27), in this case, we focus on the scores obtained in the standardized test Saber 11º.

El artículo se deriva de la investigación "Gestión académica y promoción estudiantil: factores asociados al rendimiento académico de estudiantes de undécimo grado de instituciones públicas de Montería". Ejecutado en el marco del doctorado en Educación de la Universidad Católica Luis Amigó, con el apoyo del grupo de investigación "Educación, Infancia y Lenguas extranjeras".

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Therefore, and without ignoring that there are various personal, cultural, social, family, behavioral and institutional factors that influence academic success, the research focused on filling the gap found. Accordingly, three specific objectives were proposed:

1. Compare the data generated by the institutional self-assessment with the results of the Saber 11º test.
2. Relate the criteria for student promotion, from the teacher's point of view, with the academic performance of eleventh grade.
3. Determine the factors associated with academic performance from the academic management and student promotion criteria.

The purpose of these objectives is to optimize decision-making for the continuous improvement of educational institutions, especially those that obtain low scores on the standardized test. Likewise, school performance is analyzed based on the results of the Saber 11º test, which evaluates students with indicators focused on knowledge and competencies.

These tests are a valid tool to measure the quality of education and evidence the level of performance of students. Therefore, they constitute a relevant issue in the national and international context. Implicit in them is the co-responsibility of the teacher and the institution in the improvement of educational processes. However, since there is no standardized test that covers the multiple dimensions of learning, such as academic performance, creativity, and the development of social and emotional skills, there is still debate about the search for fair, equitable, and effective assessment in education.

It is important to highlight that the standardization of educational action plays a fundamental role in the establishment of pedagogical policies, procedures and standards. These mechanisms guide the operation and management of educational institutions, and include academic, managerial, administrative-financial processes and their projection to the community. In this regard, it is crucial to consider key concepts such as school quality, effectiveness and continuous improvement. At the same time, lines of research are studied that address academic performance, academic management and student promotion.

First, educational quality is a complex concept with no precise and universally accepted definition. According to Álvarez-López and Matarranz (2020), it is not exclusively synonymous with excellence. Therefore, education and the evaluation model implemented should not focus only on results. However, a commonly adopted perspective is the normative-functionalist approach, which focuses on students' intellectual achievement and competency development.

The concept of educational quality has evolved within the framework of educational policies, influenced by multilateral organizations. The 1980s were characterized by an emphasis on decentralization and coverage. In the 1990s, it was understood as greater participation and access (Pineda & Tenjo, 2017). There are also other visions that consider that it should be conducive to the formation of a critical, contextualized subject, with a focus on social and human development (Soto et al., 2020). However, as pointed out by Bellei (2013), in Latin America there is still a lag in the consideration of psychosocial and citizen aspects.

The Coleman Report (1966) highlighted the predominant influence of socioeconomic factors on other aspects of schooling that influence student performance. From this finding, the second concept, which places greater emphasis on the quality of teaching, was developed: school effectiveness, a movement composed of a wide variety of empirical and theoretical studies. Prominent authors, such as Edmonds and Frederiksen (1979), Murillo (2005b; 2007), Martínez-Garrido (2011) and Lizasoain et al. (2015), have contributed to this line of research.

However, it is necessary to consider Murillo's (2005) observation about the lack of understanding in the translation of "school effectiveness". Some authors confuse "effective schools" with "effective schools" rather than "effective schools". In addition, when translating "effective" as "efficient", economic connotations are attributed to it that are not typical of the movement.

According to Murillo et al. (2016), among the characteristics that define effective teaching are: teacher commitment, lesson preparation, time management, attention to diversity, expectations, didactic strategies and resources, evaluation and feedback of learning, as well as classroom climate; These aspects correspond to the dimensions of academic management. Therefore, in order to consider a quality educational institution, it is necessary that its processes are effective, in terms of performance and comprehensive student development (Delgado-Galindo et al., 2021). Therefore, to achieve this, education must be inclusive, equitable, and promote social justice.

A third fundamental conceptual element addressed in this study is the culture of continuous improvement, which allows educational institutions to optimize their processes. It includes the relationship between educational quality, school effectiveness and sectoral policy. It is a detailed systemic model of the educational establishment, as indicated by Pérez et al. (2020), it has been thought of in a differentiated and contextualized way. This is because it covers aspects such as institutional management, the level of schooling, the size of the school, the composition of the student body, the type of school and its location.

The logic of continuous improvement establishes contextual formulations to evaluate the processes and results of the educational establishment, the class and the students. According to Fiabane (2009), it implies a change in the culture of school organization, the product of both individual and collective transformation. It is reflected in the way the school unit thinks and acts. In this sense, it makes it possible to identify components of quality, time and opportunity in relation to institutional management, curriculum and educational, training and pedagogical methods. It must be developed in an articulated way that is known by the educational community.

In this line of discourse, academic management was examined in its four dimensions: curriculum design, pedagogical practices, classroom management, and academic follow-up. Student promotion was also explored in two processes: strategies to show results and evaluation and promotion committee. Underlying these variables is the teacher-institution co-responsibility in school performance, reflected in the score achieved in the Saber 11º test.

Academic management is understood as the main differentiating element of educational quality. It requires a thorough review, reinterpretation, and reconstruction of the pedagogical model based on school autonomy (Orozco-Gómez, 2021). For Sánchez and Español (2021), it involves the planning, execution and monitoring of the measures established by the Ministry of Education (MEN), while for Viveros and Sánchez (2018), it involves the principles of sectoral policy, curriculum proposals and the institutional educational project (PEI). Taken together, for the (MEN, 2008), are the actions taken to promote learning and the acquisition of relevant skills so that students can interact successfully in different areas, including their personal, social and professional lives.

Student promotion, on the other hand, refers to the criteria used to determine whether students can advance from one grade level to another. As a variable, its dimensions are related to the teaching function and the evaluation and promotion committee. In this scenario, Escribano (2018) considers that it is imperative to include ethics and the humanization of institutional processes, as well as preparation, motivation and awareness to identify a performance in accordance with the demands of society, which acts as a regulatory framework.

In sum, this research provides the academic community with a validated instrument to measure the correlation between academic management, student promotion and academic performance. The theoretical and statistical models used in the study offer a valuable contribution to future research by allowing their generalization to similar contexts. The findings reveal a statistically significant correlation between the aforementioned variables, given that the statistical model shows that 58% of the differences in the scores obtained in the Saber 11° 2021 test were associated with these variables and their dimensions. The results strengthen

pedagogical and institutional policies by providing a solid basis for decision-making aimed at improving test performance.

1 Methodology

In order to establish a correlation between academic management, student promotion criteria and the academic performance of high school seniors, a hypothetical-deductive study was carried out with a quantitative approach characterized by its correlational and cross-sectional design. To assess the relationship or degree of association between dimensions and variables in a particular context (Hernández-Sampieri & Mendoza, 2018, p. 109), various hypotheses were tested, which allowed precise results to be obtained.

The information needed for the study was collected in 40 of the 61 public educational institutions in Monteria. A survey was applied to 200 teachers, selected through a probabilistic sampling segmented into five strata determined by the areas evaluated: critical reading, mathematics, natural, social and citizen sciences and English. In addition, the data of the institutional self-assessment provided by the Municipal Education Secretariat (SEM), and the official results of the Saber 11° 2021 test, which were obtained from the ICFES website, were analyzed.

Regarding the study population, the following criteria were established for the selection of teachers: teach one of the five areas evaluated in grade 11, be 18 years old or older and be working during the year 2021; therefore, professors and institutions that did not meet these research parameters were excluded. It should be noted that data from those who voluntarily participated were considered as units of analysis.

It is appropriate to mention that, Monteria, as a macro scenario of the research carried out, it is The capital of the department of Córdoba and is located on the Colombian Caribbean Coast, has 61 public educational institutions to serve a diverse community, composed of students from the urban area, the rural area and the migrant population, who belong to three of the six socioeconomic strata defined in Colombia, 1: low-low, 2: low and 3: medium-low. In total, there are around 305 teachers who teach in the five areas assessed in the Saber 11º test. To determine the sample size, assumptions about the population and available data were considered, where:

N: Sample size

N: is the total population of teachers who teach in the five areas evaluated in the Saber 11º test in the 40 schools, that is, 305 teachers.

Z: This is the percentile of the standard normal distribution determined by the 95% confidence level, i.e., 1.96.

p: probability that the characteristic or event of interest will occur in the population studied. A heterogeneity of 50% is assumed.

Q: Probability that the characteristic or event of interest will not occur in the population studied. Equivalent to 1 – p

E: is the maximum allowable margin of error of 5%.

The calculation was made with the online statistical tool Netquest. For a population of 305 teachers, a sample size of 171 was obtained, considering a margin of error of 5% and a confidence level of 95%. However, 200 participants were surveyed. This oversampling allowed for a 98% confidence level and avoided bias in the survey results (Mercer, 2016).

The collection of information was carried out in three phases. In the first, the data generated by the self-evaluation of the 40 educational institutions were analyzed, using the secondary documentation provided by the Municipal Education Secretariat (SEM). This process makes it possible to implement an improvement plan in each of the four management areas, as established by the Ministry of National Education of Colombia (MEN, 2008).

The second phase began with obtaining the necessary permits from the educational institutions to carry out the inquiry into the field. Meetings were scheduled in order to obtain informed consent from teachers and to apply the written survey, which provided the primary information. An instrument with a Likert scale consisting of 34 items was designed and divided into six dimensions, four of which were related to the variable Academic Management and two with the Student Promotion.

With the data collected, the academic performance of eleventh-grade students in the Saber 11º test was analyzed, based on academic management and student promotion criteria, from the perspective of teachers. Surveys were tabulated, systematized, and analyzed using IBM SPSS Statistics 22.

In the third phase of the study, statistical techniques were used to determine factors associated with academic performance. Through the development of a linear regression model based on the data collected with the applied survey, it was possible to obtain a more complete understanding of how academic management and student promotion criteria have a statistically significant impact on the level of performance, as evidenced in the results of the Saber 11º test.

2 Results and discussion

A strong correlation was observed between academic management and student promotion with the level of performance, reflected in a model that explains 58% of the variability in the scores obtained in the Saber 11° 2021 test. These findings provide a solid foundation for continuous improvement of the educational institution. In addition, with the aim of carrying out a detailed exploration, the results are presented in seven sections, ranging from the descriptive analysis of the variables to the correlation of student promotion with academic performance and associated factors.

2.1 Descriptive analysis of the variables

For the descriptive analysis of the variables, two aspects were considered. First, the four dimensions of academic management were analyzed: pedagogical design, pedagogical practices, classroom management, and academic monitoring. Second, two processes related to the student promotion variable were evaluated: strategies to show results and evaluation and promotion committee.

Regarding the relationship between the variables, the covariance structure of the data was taken into account, with the evaluation of the Mahalanobis distance. According to Byrne (2016), no outliers or missing data were found that could bias the results of the study. Asymmetry and kurtosis are within the expected range according to the criteria of Finney and di Stefano (2006), whose maximum values are ±2 and ±7 respectively. Mardia's coefficient (1970) was 125.9, which indicates that the assumption of multivariate normality is met, since it is less than 224, as suggested by Bollen (1989) based on the equation p (p+2), where "p" is the number of variables observed. In addition, all correlations between dimensions were less than 0.9, assuming that there was no multicollinearity.

2.2 Evidence of validity for the internal structure of the instrument

To perform the validity tests, the recommendations of the American Educational Research Association et al. (2018) were followed. Measurement Models for Variables GYP1. G34 Academic Management and GYP2.1290 Student Promotion are presented in Figures 1 and 2 respectively. The results were analyzed using the Maximum Likelihood estimation method and the overall fit of the models was evaluated independently.

The statistical significance of the estimated parameters was calculated, observing standardized ($\lambda > 0.5$) and statistically significant ($p < 0.001$) factor loads in the majority. As established by Byrne (2016), these factor loads coincided with the expected direction and are considered acceptable values in a Confirmatory Factor Analysis (CFA). Statistically significant

correlations ($p < 0.001$) were also found between the dimensions of both measurement models, which were in the range of 0.2 to 0.7, indicating a moderate positive relationship.

Figure 1 Measurement models for GYP1. G34 Academic Management

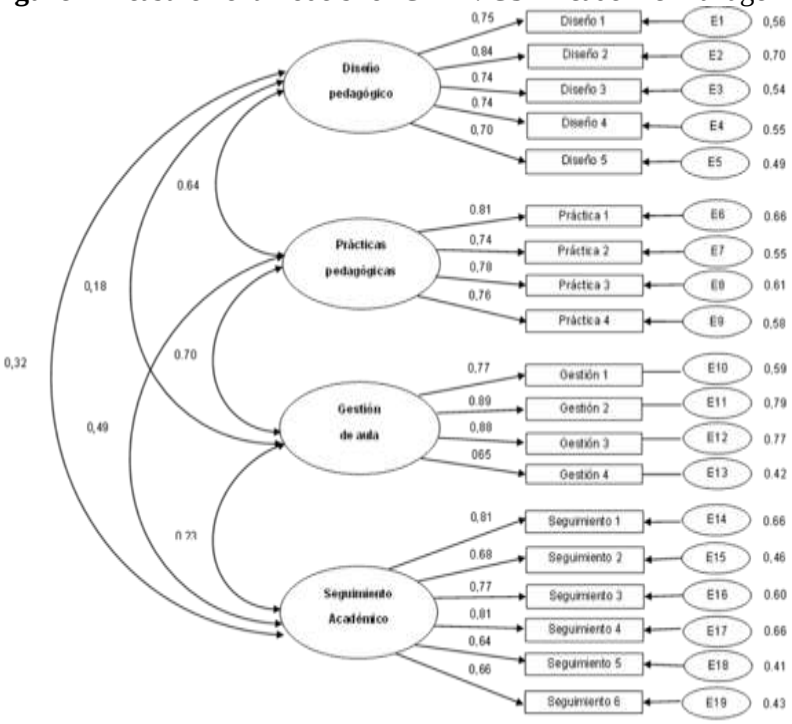
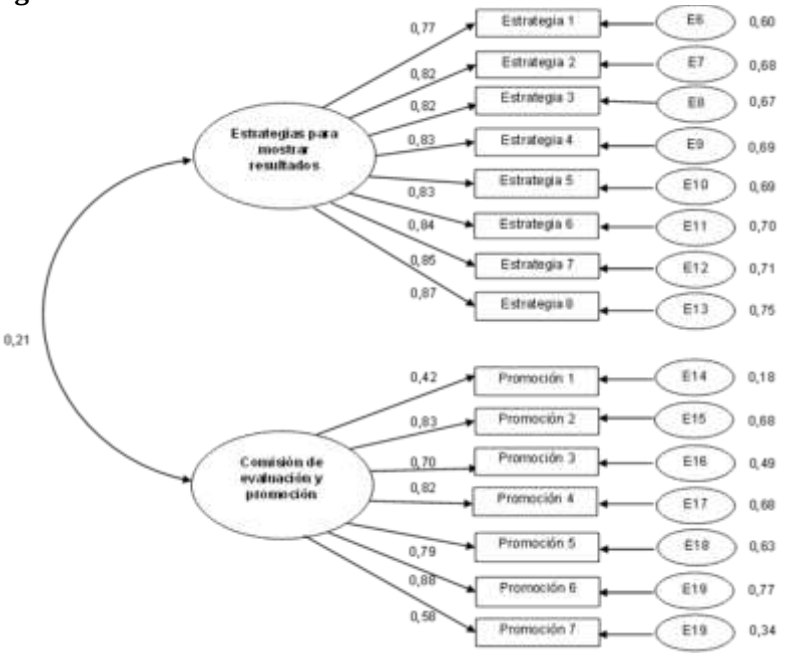


Figure 2 Measurement Models for GYP2.1290 Student Promotion



2.3 Evaluation of the models

The results of the evaluation of the models are shown in Table 1 and were performed using the most frequent adjustment indices (Hair et al., 2018). When examining the fit of the models for

the collected data, the following criteria were taken into consideration: the Chi-square value with its degrees of freedom (χ_((gl)) ^2), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI). To be considered a good fit, both the TLI and the CFI must have a value equal to or greater than 0.90 (Bentler, 1990; Hu & Bentler, 1999), a condition that is met in the two models evaluated.

Table 1 Results of the evaluation of measurement models

Measurement model	$\chi^2_{(gl)}$	**p**	**CFI**	**RMSEA**	**SRMR**
Academic Management	418,23(157)	p < 0.001	0,905	0,082	0,075
Student Promotion	149,75(89)	p < 0.001	0,901	0,091	0,082

Likewise, for the Root Approximate Mean Square Error (RMSEA) and the Root Mean Square Error (MRSR), the evidence is favorable when these values are ≤ 0.09 (MacCallum et al., 1996). Therefore, as both models are below this cut-off point, their fit is adequate according to the standards suggested by the literature.

2.4 Evidence of convergent, discriminant and reliability validity

The measurement models for academic management and student promotion were evaluated following the steps established by Henseler et al. (2015) and Hair et al. (2018). These steps include evaluating convergent, discriminant, and reliability validity through internal consistency. It was found that the standardized loads in most of the indicators were greater than 0.60 and the extracted mean variance (AVE), shown in Table 2, is greater than 0.50 in all dimensions. Therefore, convergent validity is guaranteed (Valentini & Figueiredo, 2016) for both academic management and student promotion.

To establish discriminant validity, the criterion of Fornell and Larcker (1981), who suggest that the square root of the AVE for each dimension should be greater than the correlation of that dimension with the other dimensions (Hair et al., 2018). Table 2 shows that the criterion of Fornell and Larcker (1981) is met and discriminant validity is established for the variables academic management and student promotion.

Table 2 Convergent, discriminant, and reliability validity results

Academic Management	**α**	**BIRD**	**1**	**2**	**3**	**4**
1. Pedagogical design	0,868	0,569	**0,754**			
2.Pedagogical practices	0,857	0,601	0,644**	**0,775**		
3. Classroom Management	0,877	0,644	0,180**	0,698**	**0,802**	
4. Academic follow-up	0,873	0,537	0,320**	0,487**	0,230**	**0,733**
Student Promotion						
1. Strategies to show results	0,946	0,686	**0,828**			
2. Evaluation and Promotion Committee	0,886	0,538	0,208**	**0,734**		

Note. ** p<0.01. The values on the diagonal represent the square root of the AVE for the dimensions.

It is observed that the values of Cronbach's alpha for each dimension are less than 0.95. According to Diamantopoulos et al. (2012), This indicates that consistency and reliability are achieved in every dimension. Taken together, these results reveal evidence of validity in favor of the instrument.

Composite variables were calculated for the dimensions of academic management and student promotion. In addition, the items of each dimension were averaged to obtain a representative variable in each of them, known as plots (Little et al., 2013). This procedure was

performed because the results showed an acceptable fit and the absence of correlated errors between the items.

In terms of reliability, it can be considered that there is high internal consistency. On the other hand, the Kolmogorov-Smirnov normality test indicates that the distribution of each dimension deviates from normal behavior. However, the average of the assessment conforms to a normal distribution.

2.5 Institutional self-assessment and Saber 11° tests

Correlations were made between the information provided by the Ministry of Education and the data obtained through the survey applied to teachers. Because the variables of the study did not meet the normality condition, we chose to use a non-parametric technique, in this case, Spearman's correlation.

In this sense, the data generated by the institutional self-evaluation of academic management were contrasted with the results of the Saber 11º tests of the public educational institutions of Montería in 2021. The responses to the self-assessment, provided by the Ministry of Education, and the results of the survey showed statistical differences. In addition, the dimensions did not follow a normal distribution, therefore, the non-parametric Mann-Whitney U test was applied. Non-statistically significant differences were found in the comparisons between pedagogical design and pedagogical practices. Also, as established by Cohen (1988), the effect size was small throughout the comparative analysis.

By examining the self-assessment data and survey data to determine if they were consistent with the scores of the 2021 Saber 11° tests, a Chi-square test (χ^2) was performed. A statistically significant association was found between both variables, with a value χ^2 (1, N=40) = 7.66; p=0.006 and a V coefficient of 0.275, indicating an association between the self-assessment, the survey and the results of the Saber 11° tests.

2.6 Student Promotion in Correlation with Academic Performance

It was found that the study variables did not meet the normality requirement, therefore, the non-parametric technique known as Spearman's correlation was used. Table 3 shows the correlations between the student promotion criteria and the results of the 2021 Saber 11° test, both in general and broken down by area. These data were obtained with the applied survey.

Table 3 Spearman's correlations according to survey results

Saber 11º 2021	**Student Promotion**	
	Strategies for Show results	Evaluation Committee & Promotion
All areas (n = 200)	0,275**	0,688**
Critical reading (n = 40)	0,312*	0,738**
Mathematics (n = 40)	0,207	0,680**
Social and civic (n = 40)	0,242	0,656**
Natural sciences (n = 40)	0,336*	0,764**
English (n = 40)	0,282	0,600**

Note. *p<0.05; ** P<0.01 both bilateral.

When exploring correlations by specific area, similar patterns are observed. In the areas of critical reading, mathematics, social and citizenship, natural sciences and English, all show significant positive correlations between student promotion and the results of the Saber 11º test. These findings suggest that student promotion actions have a positive impact on academic performance in multiple areas of knowledge. It should be noted that the correlations vary in magnitude. For example, in the area of natural sciences, a correlation of 0.336* is found, indicating a stronger association between student promotion and test results compared to other

areas such as English, which shows a correlation of 0.282. These differences may indicate that student advocacy has a particularly relevant impact in certain specific areas.

2.7 Factors Associated with Academic Performance

Table 4 presents the coefficients of the linear regression model used to analyze the factors associated with academic performance. Non-standardized coefficients show the magnitude of each variable's contribution to academic performance, while standardized coefficients indicate the relative importance of each variable. The constant in the model has a value of 173.993 and is statistically significant ($p < 0.001$); This means that there is a permanent effect that influences academic performance independently of the other variables considered.

Table 4 Linear Regression Model Coefficients

Model	**Coefficients non-standardized**	**Standardized coefficients**	**T**	**p**
Constant	173,993	-	31,714	< 0.001
Pedagogical design	2,601	0,132	2,031	< 0.001
Pedagogical Practices	3,318	0,182	2,584	< 0.001
Classroom Management	4,404	0,239	3,796	0,044
Academic follow-up	5,507	0,339	5,604	0,011
Strategies for Showing Results	4,345	0,261	5,055	< 0.001
Evaluation and Promotion Committee	8,421	0,296	5,734	< 0.001
Variable: academic performance / results of tests Saber 11° 2021				

Grade: R^2= 0.58; F (6, 193) = 45.85; P <0.001.

Each of the dimensions analysed shows positive standardised coefficients, with a positive influence on academic performance. The "t" and "p" values associated with each coefficient suggest that all dimensions are statistically significant in relation to academic performance. In particular, it is observed that academic monitoring, as a dimension of academic management, is the factor that contributes the most to explaining the results of the Saber 11° 2021 tests, with a standardized coefficient of 0.339. In addition, in terms of student promotion, both the evaluation and promotion committee (0.296) and the strategies to show results (0.261) also exert a significant influence.

The model, which includes all the dimensions considered, captures 58% of the variability of the results of the Saber 11° 2021 tests. This suggests that The dimensions of academic management and student promotion criteria have a statistically significant impact on academic performance, as evidenced by the results of the Saber 11º tests (see Table 5).

Table 5Average Overall Score of Public Educational Institutions in Montería

Aggregation level	**Average Overall Score**						
	2016	2017	2018	2019	2020	2021	2022
Colombia	264	262	258	253	252	250	254
Monteria	269	269	266	263	259	253	261
IE Urban Public	266	267	263	259	256	250	260
EI Rural Public	241	241	237	235	232	225	231
IE Private	299	300	295	295	290	282	287

Note. Prepared based on data from the Ministry of Education of Montería SEM (2022).

Since 2016, Montería has consistently exceeded the national average in the Saber 11º test and maintains the best averages on the Colombian Atlantic Coast. However, for the purposes of this research, the 40 participating educational institutions were classified into four groups, according to the overall score obtained in the 2021 test: A: superior, with a score of 250 to 290; B: high, from 236 to 249; C: basic, from 229 to 235; and D: low, from 197 to 228. Based on the findings, it is suggested to review and improve academic management, evaluation processes, and promotion criteria, particularly in educational institutions that obtained low or basic scores.

Conclusions

Previous research has examined school effectiveness, the quality of education, academic management, student assessment and promotion, and the different factors that influence academic success or failure. However, there is a lack of theoretical and empirical knowledge about the relationship between academic management, student promotion, and academic performance. In order to establish this relationship, a 34-item Likert scale instrument was developed and administered to a representative sample of 200 eleventh-grade teachers from the areas evaluated by ICFES. The scale was subjected to AFC testing, and the results revealed the validity and reliability of the instrument. This makes it a theoretical-practical benchmark for the continuous improvement of educational institutions focused on providing inclusive education with equity and social justice.

Through the development of this research, it was possible to verify that there is a statistically significant and positive relationship between academic management, student promotion criteria and the academic performance of eleventh grade students. Together, the dimensions of the two variables captured 58% of the variation in the Saber 11° 2021 results, which implies a shared responsibility between teachers and the institution in academic performance.

These findings are supported by Bush's (2019) approach, classroom teaching followed by institutional leadership, are the variables with the greatest potential to generate sustainable school improvement in the long term. This approach contrasts with studies that focus solely on demographic variables such as gender, race, age, family background, and student composition, which, in the long run, have a limited impact on equity of opportunity. However, the results align with the propositions of Tymms et al. (2018), who argue that an effective education from the first school year guarantees subsequent academic results in a positive way.

In summary, to analyze these relationships that prioritize the co-responsibility of teachers and institutions with students' academic performance, more research is required, including case studies, multiple case studies, longitudinal studies, explanatory studies, and predictive studies. In this way, it will contribute to the construction of models that allow predicting academic performance.

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