MANAGEMENT AND LEADERSHIP PRACTICES AND SCHOOL RESULTS IN HIGH SCHOOL: AN EXPLORATORY STUDY IN TWO BRAZILIAN STATES

PRÁTICAS DE GESTÃO E LIDERANÇA E RESULTADOS ESCOLARES NO ENSINO MÉDIO: UM ESTUDO EXPLORATÓRIO EM DOIS ESTADOS BRASILEIROS

PRÁCTICAS DE GESTIÓN Y LIDERAZGO Y RESULTADOS ESCOLARES EN LA ESCUELA SECUNDARIA: UN ESTUDIO EXPLORATORIO EN DOS ESTADOS BRASILEÑOS

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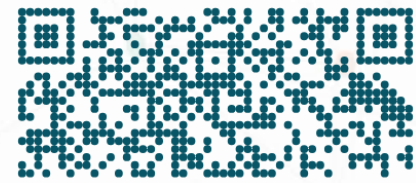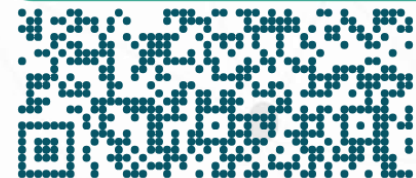e-mail: christypato@id.uff.br
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ABSTRACT: Considering the relevance of the school management work (Leithwood; Sun, 2012; Brooke; Rezende, 2021; Oliveira; Paes de Carvalho, 2018), the study aimed to identify school leadership practices and their associations with variation in proficiency in large-scale tests in high schools - EM. This quantitative study was prepared based on data collected by the Management Practices, Educational Leadership and Education Quality - PGLEQE survey, in a sample of 139 schools that serve EM in two Brazilian states. Teachers, Pedagogical Coordinators, and Principals responded to questionnaires designed for each group of respondents. Based on Day and colleagues (2007), data analysis involved the creation of indices and inferential studies with the development of hierarchical regression models. The results point to important findings for the educational policy agenda regarding the performance of school management teams.

KEYWORDS: School leadership. School management. School principalship. High school.

RESUMO: Considerando a relevância do trabalho da direção escolar (Leithwood; Sun, 2012; Brooke; Rezende, 2021; Oliveira; Paes de Carvalho, 2018), o estudo teve como objetivo identificar práticas de liderança escolar e suas associações com a variação da proficiência em testes de larga escala em escolas de Ensino Médio (EM). Este estudo quantitativo foi elaborado a partir de dados coletados pela pesquisa Práticas de Gestão, Liderança Educativa e Qualidade da Educação (PGLEQE), em uma amostra de 139 escolas que atendem ao EM em dois estados brasileiros. Professores, Coordenadores Pedagógicos e Diretores responderam a questionários desenhados para cada grupo de respondentes. Com base em Day e colegas (2007), a análise dos dados envolveu a criação de índices e estudo inferencial com a elaboração de modelos de regressão hierárquica. Os resultados apontam importantes achados para a agenda política educacional no que se refere à atuação das equipes de gestão escolar.

PALAVRAS-CHAVE: Liderança escolar. Gestão escolar. Direção Escolar. Ensino Médio.

RESUMEN: Considerando la relevancia del trabajo de gestión escolar (Leithwood; Sun, 2012; Brooke; Rezende, 2021; Oliveira; Paes de Carvalho, 2018), el estudio tuvo como objetivo identificar las prácticas de liderazgo escolar y sus asociaciones con la variación en el dominio en pruebas a gran escala en las escuelas secundarias - EM. Este estudio cuantitativo fue elaborado a partir de datos recopilados por la encuesta Prácticas de Gestión, Liderazgo Educativo y Calidad de la Educación - PGLEQE, en una muestra de 139 escuelas que atienden EM en dos estados brasileños. Docentes, Coordinadores Pedagógicos y Directivos respondieron a cuestionarios diseñados para cada grupo de encuestados. Según Day y colegas (2007), el análisis de datos implicó la creación de índices y estudios inferenciales con el desarrollo de modelos de regresión jerárquica. Los resultados apuntan a hallazgos importantes para la agenda de política educativa en relación con el desempeño de los equipos de gestión escolar.

PALABRAS CLAVE: Liderazgo escolar. Gestión escolar. Gestión Escolar. Escuela secundaria.
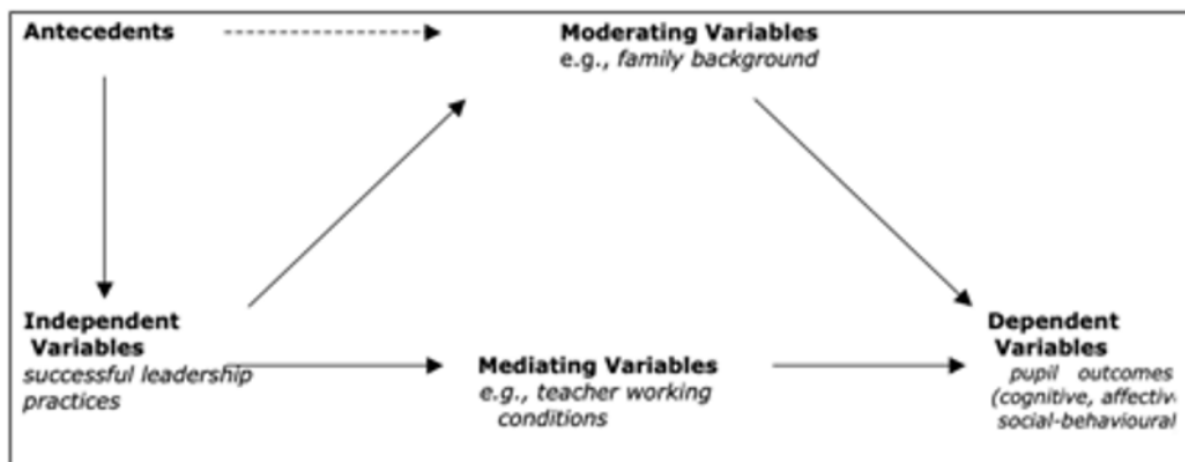
Introduction

A significant number of academic research studies, especially in the field of sociology of education, have been dedicated to seeking answers to questions regarding educational inequalities. Considering that extra-school factors (socioeconomic conditions, parental education, among others), although relevant, do not solely account for the success or failure of students in their educational trajectory, studies on school effectiveness have prioritized the investigation of intra-school factors that could also influence the variation in the outcomes found.

From this perspective, both international studies (Creemers; Reezgit, 1996; Sammons, 2008, among others) and national ones (Alves; Franco, 2008; Soares, 2007; among others), based on the synthesis of research on the subject, highlight the work of school management/leadership as one of the intra-school factors significantly associated with variation in school outcomes. Thus, several studies (Leithwood; Patten; Jantzi, 2010; Leithwood; Sun, 2012; May; Supovitz, 2011; Price, 2012; Scanlan, 2013; Shen *et al*., 2012; Somech, 2010; Supovitz; Sirinides; May, 2010; Thoonen *et al*., 2011; among many others) sought to answer the question: **How can school leadership (through the work of the principal and the school management team) positively impact school outcomes?**

It was in this direction that the "Management Practices, Educational Leadership, and Education Quality in Brazilian High Schools" Research was designed, from which this article originated. The main objective of the research was to identify school leadership practices and their possible associations with the variation in proficiency in large-scale tests in high schools. It is a quantitative study based on data collected by the PGLEQE survey, applied to a sample of 139 high schools located in two Brazilian states (ES and PI)[5]. The theoretical-methodological design proposed by Day and colleagues (2007) was taken as a reference to guide research that intends to investigate the possible associations between school leadership and other variables, including school outcomes:

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[5] For more detailed information about the Research, see Oliveira *et al.* (2024) in the opening article of this dossier "*Dossiê: Práticas de Gestão, Liderança Educativa e Qualidade da Educação em Escolas de Ensino Médio no Brasil*" published in this issue.

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Figure 1 – Theoretical-methodological model

Source: Day *et al*., (2007. p. 10).

According to the authors, the model used in the presented[6], research was adapted from a previous study by Leithwood and Levin (2005 apud Day *et al*., 2007, our translation) and

> The structure provided a starting tool for thinking about the different variables or influences on and by principals. It suggests that successful leadership practices, the independent variables in the framework, develop and emerge through the influence of antecedent variables. These leadership behaviors or practices, in turn, potentially have direct effects on a wide range of other variables. Some of these variables moderate (enhance or change) the effects of leadership, while others' link' or mediate leadership practices to students and their learning, the study's dependent variables (Day *et al*., 2007, p. 10).

In this article, we present one of the studies conducted based on the data collected by PGLEQE in a sample of high schools in the states of Espírito Santo and Piauí[7]. The text is organized as follows after this introduction: the first section provides a synthesis of the theoretical-conceptual discussion on School Management and Leadership, the central themes of this study. In the second section, we present the validation of the questionnaires to measure the intended constructs, through the synthesis of items into indices envisaged by the research. In the third section, we record our exploratory inferential exercises, through exploratory models for each of the samples, which sought to meet our research objective, discussing the findings, their limitations, and possibilities. Finally, in the last section, we present some contributions

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[6] This is the research report entitled "The Impact of School Leadership on Pupil Outcomes", which reported the study carried out over three years by a group of researchers from different universities. The mixed methodology research was commissioned by the Department for Education and Skills (DfES) and developed in partnership with the National College of School Leadership (NCSL).

[7] Details about the methodology for preparing and applying the questionnaires are presented in the opening text of the Dossier.

and recommendations for future educational policies for School Management and Leadership, based on the findings.

School Management and Leadership

The national academic production in the field of school management has been gaining more and more space in educational journals in recent years, as shown by a recent bibliographic survey conducted at the beginning of the research that originated this article, recently published (Oliveira *et al.*, 2023). Although works using and exploring the concept of School Leadership are scarce, as Oliveira (2015) and Brooke and Rezende (2020) already pointed out, studies involving inferential analyses on the relationship between the work carried out by school management and student outcomes have been more present in recent years. Most of these studies follow a framework that considers school management or leadership as one of the relevant characteristics for the quality of the work developed in the school (Alves; Franco, 2008; Bonamino *et al.*, 2012; Soares, 2007; Soares; Teixeira, 2006).

These works have been dedicated to seeking an association between characteristics/profile/strategies of school management and school outcomes such as improvements in teaching work (Grigoli *et al.*, 2010); teacher stress (Junior; Lipp, 2011); use of educational indicators (Werle; Audino, 2015); student performance (Gobbi *et al.*, 2020; Oliveira; Waldhelm, 2016; Oliveira; Paes de Carvalho, 2018; Bernado, 2010, 2013; Esquisani; Silveira, 2015; Fonseca; Nunes, 2020; Medeiros *et al.*, 2014).

Oliveira and Waldhelm (2016) used *Prova Brasil* data to estimate the relationship between teachers' perception of school management, teacher collaboration, and average proficiency of 5th-grade students in the mathematics test. They identified a significantly positive relationship between the principal's leadership, the school climate perceived by teachers, and student's performance in the 5th-grade Mathematics tests: "The result allows us to infer that, in the sample studied, the better teachers perceive their principal's work and the work climate in their school, the higher their students' results" (Oliveira; Waldhelm, 2016, p. 838, our translation).

Bernado (2010), on the other hand, analyzed the relationship between class organization strategies (a task often assigned to school management) and differences in results among classes in the same school over academic years in a longitudinal study involving different researchers in some Brazilian cities. Using analysis of variance (ANOVA), the study pointed out that

educational inequalities are accentuated in relation to cognitive variables in classes where the organization criteria were based on differences in students' Reading abilities. Bernado (2010) emphasizes the need for the school management team to adopt class composition strategies that promote equity.

In a mixed-methods study, Werle and Audino (2015) analyzed the use of educational indicators by school managers, with members of the school management team as subjects. The authors outline different dimensions of managers' actions in the use of educational data from external assessments and emphasize the importance of participation and collective work necessary for the interpretation and use of educational indicators.

> In the administrative dimension, it is observed that a large part of the efforts are directed towards results-oriented management, based on the collective work of professionals. Regarding the participative dimension, it is possible to identify management that is attentive to students' behaviors and needs and to teachers' requests. Management is dynamic, seeking differentiated forms of communication and expediting proposed actions. Also highlighted are movements to socialize IDEB results with all segments, opening spaces for joint planning, dialogue, and questioning (Werle; Audino, 2015, p. 138, our translation).

The results pointed out by the authors lead us to broaden the discussion on the use of data and academic evidence by school management in collective and participatory work as one of the paths through which school management can make a difference.

In the international context, research on effective school management and leadership practices is more abundant. An extensive research survey conducted by Leithwood and colleagues (Leithwood *et al*., 2006; Leithwood; Harris; Hopkins, 2019) led to a synthesis produced and updated by the authors regarding the leadership practices most frequently and significantly associated with improvement in school outcomes. In the research that originated this article, we considered the dimensions of leadership practices proposed by Leithwood Leithwood *et al*. (2006) and Leithwood, Harris, and Hopkins (2019): Establishing direction, developing people; Redesigning the organization/school; Managing the pedagogy of the school). These dimensions of leadership practices inspired us in the elaboration of the items that originated the indicators, as will be described in the following section.

Leadership Practices Indicators and Mediating School Variables

Following the theoretical-methodological model that inspired this research, we initiated our inferential analysis by operationalizing the items into latent variables[8] (when applicable) through a confirmatory factor analysis procedure for index creation. Confirmatory factor analysis is a statistical technique that allows testing the validity of a prior theoretical structure of a set of observed variables. That is, a block of items developed to measure a particular construct (for example, "Pedagogical Management: Learning Monitoring") was synthesized into a single measure per school, based on questionnaire responses (in the case of teachers, aggregated by mean). From this operationalization, the following indices were created for this research:

Figure 2 - List of indices created by the research, following the adopted theoretical-methodological model
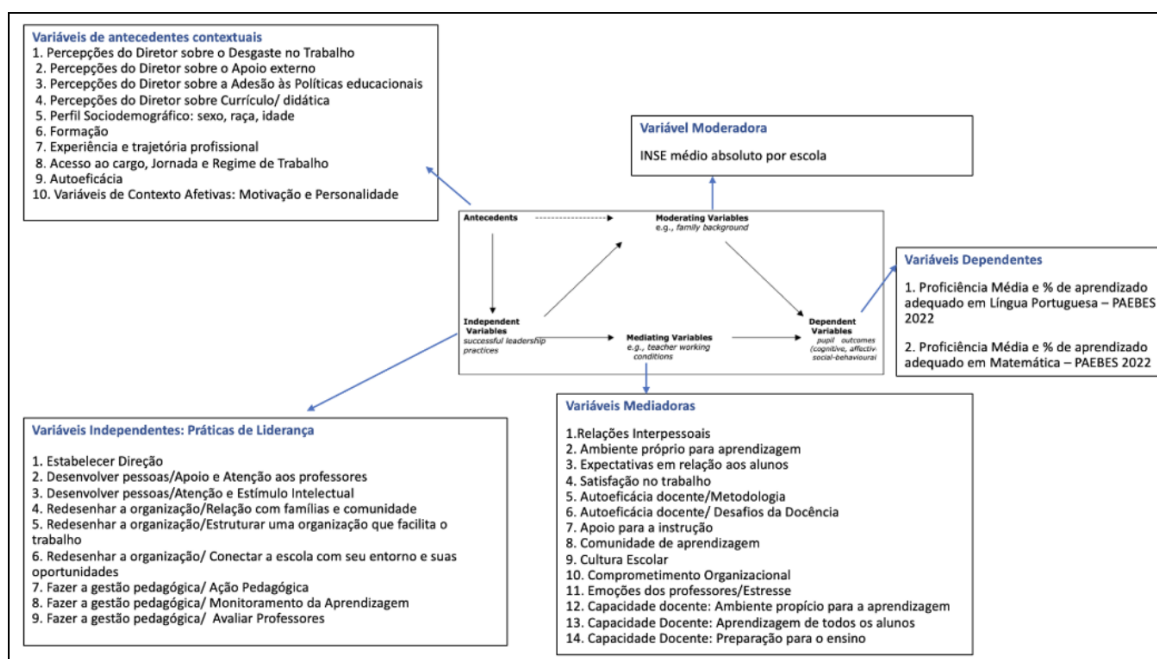
Source: Developed by the authors (2024).

The items that comprised each of these indices and their factor loadings, as well as the validity and reliability parameters of the synthesized information, are presented in the appendices of this article. The construction of these indices from the data collected in this sample operationally validated the ability of the questionnaires developed to measure and

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[8] Latent variables are variables that are not directly observed and go through a construction process by the researcher, who agrees on which specifications will make up their latent concept.

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synthesize the studied dimensions. It is worth noting that, for this study, we included in the analysis the independent variables (Leadership Practices), the mediating variables, and the moderating variable (INSE), in relation to the dependent variables, as will be presented next.

Leadership Practices and Their Relations (Mediated or Not) with Student Performance

For an exploratory study, we sought to initially estimate the direct association between our independent variables and the dependent ones, with the moderating variable (school's average INSE) as a control. That is, we sought to estimate how much some leadership practices help explain the variation in student outcomes among the schools in the samples. For this exploratory analysis, we used as the dependent variable, in the case of ES, the "percentage of students with adequate learning in Portuguese Language," and in the case of PI, the "Average Proficiency in Mathematics" since these were, in each case, the variable with the highest and most significant association with the moderating variable in the initial tests [9]. Thus, using the Enter[10] method in the SPSS software for multiple linear regression, we estimated hierarchical models whose results are summarized in the diagrams below.

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[9] Following the literature in the field of sociology of education, which highlights the association between the socioeconomic origin of students and their school results and trajectories (Hasembalg, Silva, 2010; Brooke, Soares,2008) we tested what the association would be between our moderating variable (INSE school average, created by INEP) and four possible dependent variables: Average Proficiency in Mathematics and Portuguese Language and Percentage of students with Adequate Performance in Mathematics and Portuguese Language.

[10] In this method, all variables are entered in a single block, at once, and then evaluating which predictors are most significant. As there is more risk of multicollinearity in this method, we filtered by excluding variables whose F probability was at least 0.10.

Figure 3 - Leadership Practices X School Results: Direct Associations/ES
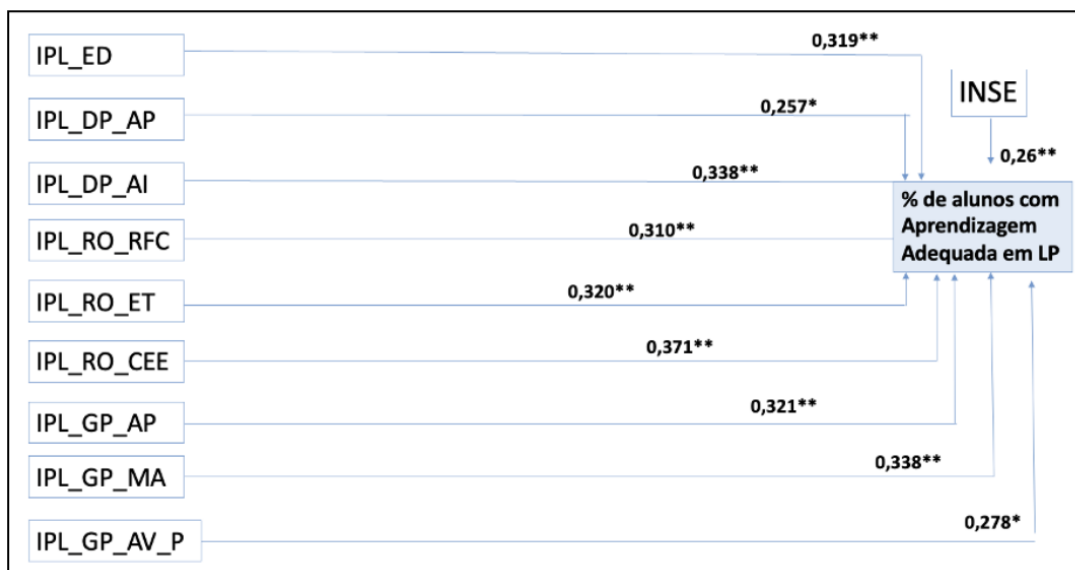
Source: Developed by the authors (2024).

Figure 4 - Leadership Practices X School Results: Direct Associations/PI
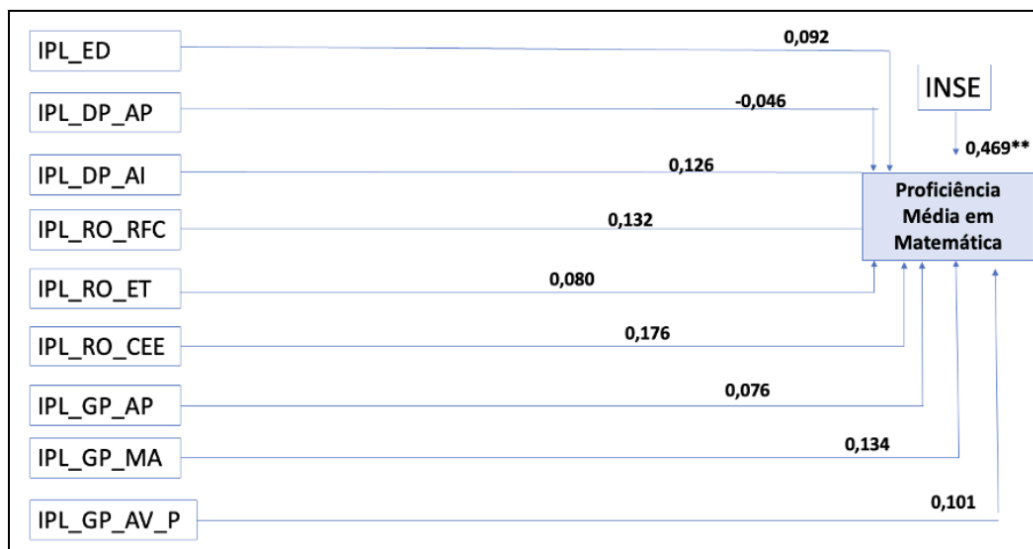
** indicates that the association is statistically significant (coefficients with positive value and significance less than 0.001).

* indicates that the association is statistically significant (coefficients with positive value and significance less than 0.005).

Source: Developed by the authors (2024)[11].

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[11] Legend: IPL_ED = Leadership Practice Index: Establishing Direction / IDP_DP_AP = Leadership Practice Index: Developing people/Support and Attention to teachers / IDP_DP_AI = Leadership Practice Index: Developing people/Attention and Intellectual Stimulation / IDP_RO_RFC = Index of Leadership Practice: Redesign the organization/Relationship with families and community / IDP_RO_ET = Leadership Practice Index: Redesign the organization/Structuring an organization that facilitates work / IDP_RO_CEE = Leadership Practice Index: Redesign the organization/Connect the school with its surroundings and opportunities / IDP_GP_AP = Leadership Practice Index: Managing pedagogically / Pedagogical Action / IDP_GP_MA = Leadership Practice Index: Managing pedagogy / Monitoring Learning / IDP_GP_AV_P = Leadership Practice Index: Managing pedagogical /Evaluate Teachers.

It is observed that, in all models estimated with the ES sample, the independent variables (Leadership Practices) showed positive and significant associations with the dependent variable (Percentage of Students with Adequate Performance in Portuguese Language). In other words, the Leadership Practices evaluated in this study enhance the explanatory power of the estimated model on the variance of school performance. It is noteworthy that the model with the Leadership Practice Index "Redesigning the Organization/Connecting the School with its Environment" (LPI_RO_CCE) presented the highest coefficient of association between the variables of interest and still managed to reduce the coefficient of the moderating variable, INSE (b = 0.23), compared to the simple linear model tested earlier (b = 0.26).

This suggests that in schools where teachers perceive this leadership practice more positively than their principals, there is a positive variation in the percentage of students with better academic performance, reducing the impact of social backgrounds on these youth. Additionally, the high coefficients of association of the Leadership Practice Indices "Developing People/Attention and Intellectual Stimulation" and "Managing Pedagogy/Monitoring Learning" in the analyzed models are emphasized.

The results of the exploratory exercise with the ES data, presented in Figure 3, allow us to infer that the variation in the percentage of students with adequate performance in the 3rd year of EM in the schools of the sample is better explained by models that consider the measured Leadership Practices (school variables) than when only the moderating variable (INSE) is considered.

Furthermore, these results tend to be better in schools where teachers perceive their principals' actions in establishing connections with the school's surroundings more positively. The items that composed this index are related to strategies of seeking external help to improve learning, disseminating school results, and encouraging teachers to create networks for enhancing teaching. Since this is the final stage of Basic Education, it seems reasonable that this management and leadership practice has relevant explanatory power for the variation in results among students.

In the case of the PI sample, it is observed that, in all estimated models, the independent variables (Leadership Practices) showed non-significant associations with the dependent variable (Average Proficiency in Mathematics), as illustrated in Figure 4. This suggests that the Leadership Practices measured in this study have some relationship with the dependent variable; however, the lack of significance of the coefficient suggests that the explanation for

the variation in results among schools in the sample may be random and not necessarily dependent on the predictor variables.

It is important to note that, in 6 out of 9 estimated models, the inclusion of the independent variable (Leadership Practice) reduced the coefficient of association of the INSE (socioeconomic indicator) with the dependent variable (Average Proficiency in Mathematics). Additionally, similar to the study with the ES sample, in the PI sample, the model with the Leadership Practice Index "Redesigning the Organization/Connecting the school with its Environment" (LPI_RO_CCE) presented the highest coefficient of association between the variables of interest and still managed to decrease the coefficient of the moderating variable, INSE (b = 0.455), compared to the simple linear model tested earlier (b = 0.469).

Therefore, it can be interpreted that in schools where teachers recognize these leadership practices more positively than their principals, there is a positive variation in the percentage of students with better academic performance, reducing the effect of social backgrounds on these youth. However, this result should be interpreted with caution, considering the lack of statistical significance of the association, as explained.

The study conducted with the PI sample indicates that the variation in Average Proficiency in Mathematics in the 3rd year of High School in the schools of the sample is largely explained by the moderating variable (INSE), while the models considering Leadership Practices alone do not demonstrate a statistically significant association with the dependent variable. However, considering the increase in the coefficient of determination of $R2^{12}$ in the model that tested the Leadership Practice Index "Redesigning the Organization/Connecting the School with its Environment" (LPI_RO_CCE), it is suggested that the results tend to be better in schools where teachers perceive their principals' actions in establishing connections with the school's surroundings more positively.

Subsequently, multiple linear regressions were estimated aiming to insert the mediator variables into the models. Following the theoretical-methodological model presented, associations between each Leadership Practice and the dependent variables (Percentage of Students with Adequate Performance in Portuguese, in ES, and Average Proficiency in Mathematics, in PI), mediated by the mediator variables and controlled by the school's average INSE, were tested. Given the limitation of the sample size, only three variables per model were

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[12] R2 indicates how much (in percentage) the variables used in the estimated models were responsible for explaining the variation in the results of the dependent variable (in this case, the performance results of students from schools in the research sample).

kept: the moderator (INSE), one independent (each Leadership Practice), and one mediator (each mediator variable).

The tests conducted revealed that the inclusion of mediator variables provided some significant improvements in the explanatory power of the models on the variation of student outcomes. Remarkably, the mediator variable that most effectively enhanced the models estimated in this study was the Index of Expectations Regarding Students (IERA).

In the case of the PI sample, the association coefficients between the mediator variable and the dependent variable were consistently high, positive, and significant, indicating the relevance of teacher expectations for school outcomes. It is important to note that the inclusion of this mediator variable in all cases increased the explanatory power of the models (adjusted R^2) and significantly reduced the coefficient of the moderator variable, INSE, compared to the initial model. Below is highlighted the model that performed best (highest R^2 and greatest reduction of the INSE association coefficient).

Figure 5 – INSE, Leadership Practice Index: Developing People/Support and Attention to Teachers; Index of Expectations Regarding Students X Average Proficiency in Mathematics/PI
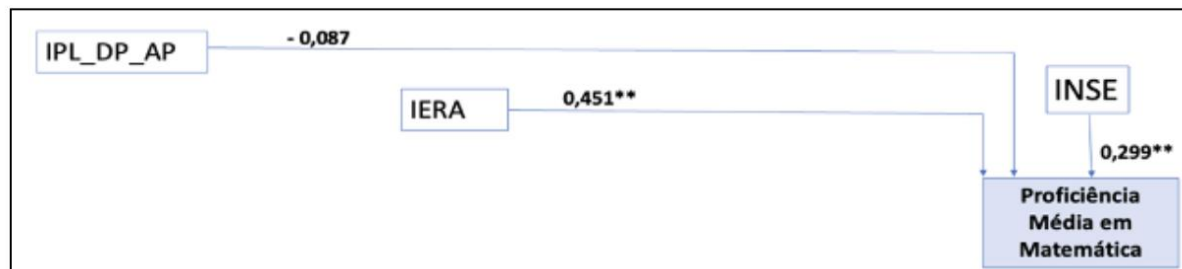
Source: Developed by the authors (2024).

From the results presented, we can infer that in schools where teachers' expectations regarding students are higher, the impact of the school's socioeconomic level on students' learning outcomes is less significant. Furthermore, in the study with the PI sample, the mediator variable increased the explanatory power (adjusted R^2) of all models compared to those estimating the association of Leadership Practices without mediation. This suggests that good leadership practices, especially those that support and pay attention to teachers, are associated with a more positive teacher expectation regarding students, contributing to improving school outcomes.

In the tests conducted with the ES sample, we observed that the inclusion of mediator variables generally did not result in an improvement in explanatory power regarding the

variation in students' proficiency results. In other words, the leadership practice variables, by themselves, showed a stronger and more significant relationship with the tested dependent variables. The mediator variable that contributed the most to improving the models estimated in this study was also the Index of Expectations Regarding Students (IERA). The model that showed the most significant results is presented in the following diagram:

Figure 6 – INSE, Leadership Practice Index: Pedagogical Management/Monitoring learning; Index of Expectations Regarding Students X Percentage of students with adequate performance in Portuguese/ES
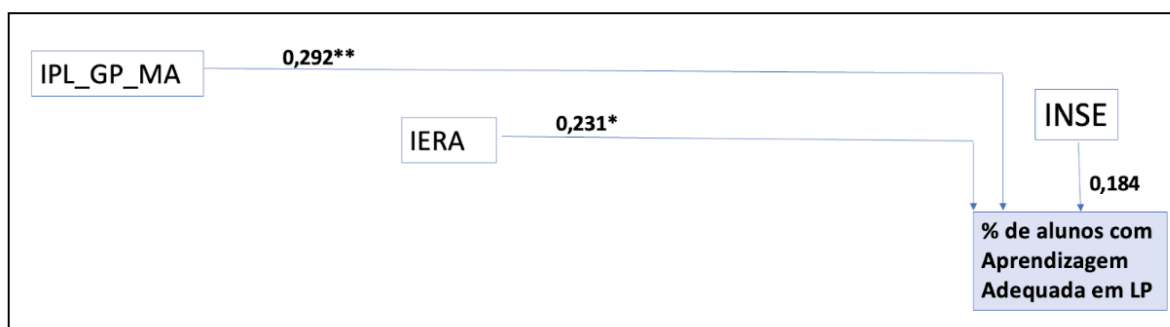
Source: Developed by the authors (2024).

The mediator variable Index of Expectations Regarding Students (IERA_PROF) demonstrated a positive and significant association with the dependent variable in some of the models estimated in our tests with the ES sample. The inclusion of this mediator variable in the tested models reduced and diminished the significance of the association coefficient of INSE. In other words, in schools from the sample where teachers' expectations regarding students are higher, the effect of the school's socioeconomic level on students' learning outcomes is less pronounced.

Furthermore, the mediator variable increased the explanatory power (adjusted R^2) of all models compared to those estimating the association of Leadership Practices without mediation. This suggests that good leadership practices, especially those related to monitoring student learning, are associated with a more positive teacher expectation regarding students, contributing to improving school outcomes.

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Final Thoughts: Implications of the Results for Educational Policies on School Management and Leadership

The exploratory analysis conducted and presented on the preceding pages highlights the breadth and thematic scope of the collected data and its various analytical possibilities. The exploratory inferential analysis, through multiple linear regression models, revealed a positive and significant association (in the case of ES) and a non-significant association (in the case of PI) between all tested leadership practices and the variation in results among the school samples. Although it was not the objective of this article to compare the results found in the two states, it is worth noting the importance of future investigations examining whether mediator and/or contextual variables influence the differences between the observed associations.

By estimating the explanatory power of models that included mediator variables, we found some interesting results, as discussed above, improving the explanatory power of the models and highlighting the indirect relationship of some leadership practices with school outcomes, in line with the research objective presented in the introduction. In this analysis, the relevance of teacher expectations regarding students as an important school factor is emphasized.

Although the results regarding the association of leadership practices and the tested dependent variables, as well as those found from the insertion of some moderator variables, may be encouraging, they should be read carefully, considering the limits of the sample size. However, we still believe that the presented results indicate essential clues about the relevance of management and leadership practices, also mediated by factors related to the school climate, for the quality of education in high school.

The work carried out here does not exhaust all analytical possibilities for the volume of gathered information. However, it allows for the development of some contributions and recommendations for future policies, as the relationships between the principal's influence on schoolwork and its multiple variables can have significant repercussions on learning outcomes. Such relationships need to include:

● Fostering an improvement in a culture of high expectations in the school: School managers need to intervene, moreover, when it comes to the beliefs and expectations that school teams have about students and themselves. Thus, principals and pedagogical coordinators must promote high expectations as a central strategic practice in exercising leadership. This aspect is

essential considering that in schools where teachers positively recognize the leadership of their principals, there may be a positive variation in the percentage of students with better academic performance, reducing the effect of students' social backgrounds, as discussed throughout the text[13];

● Caring for the school's institutional culture: The principal and their team play a fundamental role in reading and interpreting the school culture, in order to unveil its rites, myths, traditions, and behaviors, to intervene in them, and thus develop and implement actions specifically aimed at coexistence in its different dimensions: among school professionals, between them and the students, among the students themselves, between the school and the community, and with other schools in the same territory, fostering the construction of participatory behaviors and collaborative interactions. The influence of managers can affect the creation of safe and supportive environments and emotional support, as a way of addressing violence and harassment, racism, and LGBTQIAP+phobia, aspects that compose the mediator variables, in the perspective of Day *et al.* (2007), as they can have repercussions on the quality of interpersonal relationships, school organizational climate, the creation of environments conducive to learning, but which can also favor or hinder student learning (Santos; Pereira, 2022; INEP, 2009);

● Developing positive leadership practices: It is essential to highlight the importance that education networks have in planning specific actions aimed at the professional development of the principal, as well as the pedagogical coordinator, especially regarding the construction and improvement of professional knowledge specifically aimed at maintaining interpersonal relationships among school professionals, a fundamental path for the coexistence among students to also improve[14] (Almeida, 2022);

● Inducing the enhancement of pedagogical practices: School managers also have an important role in studying the daily educational practices carried out by educators, teachers, and non-teaching staff. Especially regarding teachers, it is essential to make use of diagnostics on coexistence and learning, define clear objectives and expectations for teachers, create, implement, monitor, and evaluate processes of ongoing training, ensuring that there are adequate resources and materials for educators. Associated with this, it is crucial that

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[13] To deepen this discussion, we recommend reading the article by Gimenes and Toledo (2024), which makes up this Dossier.

[14] In relation to the role of education departments in relation to the work of teachers, we reiterate the importance of reading the article by Oliveira and Alves (2024) and also that of Moro, Vivaldi, and Valle (2024) on organizational school climate, which also makes up this Dossier.

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management actions are also aimed at better utilization of time in school and in classes, aspects that, when intentionally mobilized in a coordinated manner, can have a positive impact on school work (Pereira, 2023);

● Managing the curriculum and the effective use of assessments: As pointed out by the works of Esquinsani (2010) and Bauer, Alavarse, and Oliveira (2015), it is also the responsibility of the management team to develop strategies that allow the identification, analysis, and cross-referencing of student information to understand their performance and trajectory, based on different types of external and internal assessments, while paying attention to social markers that may impact the unequal distribution of knowledge and rights, such as gender, race/ethnicity, and functional capacities;

● Developing management oriented towards change and sustaining change: Principals and pedagogical coordinators need constant support to stimulate and maintain short, medium, and long-term changes, which requires diverse support and training methods and follow-up from the education authorities.

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CRediT Author Statement

Processing and editing: Editora Ibero-Americana de Educação.
Proofreading, formatting, normalization and translation.

APPENDICES

Table 1 – ES sample indices

EXTERNAL CONTEXT VARIABLES		
Index	**Items and their loadings**	**Validity and Reliability Parameters**
External Support Perception Index - Principal	<u>Your Regional Education Directorate:</u> Has encouraged you to innovate, and try new ways to improve the school (0.818) Provided professional development opportunities for teachers at this school (0.737) Cared for your professional development (as principal) (0.749) Involved you in decisions regarding this school (0.746) Is available when you need assistance. (0.709) Is aware of what is happening in this school. (0.792) Sets clear educational objectives for this school. (0.837) Systematically monitors the achievement of set goals for this school. (0.701) Evaluate the performance of school principals under its responsibility. (0.815) Has provided you with opportunities for collaborative work with other principals. (0.792) This school has ensured that it has the technical support it needs to improve its teaching and learning. (0.798) Ensured that this school had the physical conditions and equipment to function properly. (0.632) Has taken care to select external support initiatives that are relevant to the priorities of this school. (0.691) Has taken care to provide technical and pedagogical support to analyze information about your school's results. (0.781)	**KMO = .87 Explained Variance = .48 Cronbach's Alpha = .92**
Principal's Self-Efficacy Index	<u>How capable do you feel of:</u> Motivating teachers (0.762) Promoting alignment of all teachers around a shared vision of the school (0.815) Promoting changes in how interactions are conducted among teachers and between teachers and students (0.744) Promoting changes in the organization of school times and spaces (0.770) Promoting changes in how each teacher carries out their activity within the classroom (teaching methods and practices) (0.766) Creating an environment of appreciation or motivation for learning in your school (0.720) Leading initiatives to improve the performance of the school's students in external assessments and other exams (ENEM, college entrance exams) (0.755)	**KMO = .83 Explained Variance = .58 Cronbach's Alpha = .88**
Pedagogical Coordinator's Self-Efficacy Index	<u>How capable do you feel of:</u> Conducting training for teachers in different areas of knowledge (0.023) Promoting changes in how interactions are conducted among teachers and between teachers and students (0.403) Promoting changes in how each teacher carries out their activity within the classroom (teaching methods and practices) (0.566) Creating an environment of appreciation or motivation for learning in your school (0.530) Leading initiatives to improve the performance of the school's students in external assessments and other exams (ENEM, college entrance exams) (0.7530) Conducting training for teachers in different areas of knowledge (0.802) Promoting changes in how interactions are conducted among teachers and between teachers and students (0.815)	**KMO = .84 Explained Variance = .51 Cronbach's Alpha = .84**

INDEPENDENT VARIABLES: LEADERSHIP PRACTICES INDEX		
Index	**Items and their loadings**	**Validity and Reliability Parameters**
IPL: Establishing Direction	<u>Your principal:</u> Communicates the purpose and objective of the institution to the school community (0,855) Explains the reasons for introducing changes in the school's operation (0,878)	**KMO = .89**

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	Works with teachers to define concrete goals to achieve the educational project (0.911) Proposes strategies for all teachers to have common hours to meet, study, and plan (0.724) Incorporates teachers' interests and ideas into the school's pedagogical project (0.868) Proposes goals and priorities consistent with educational policies (0.874)	**Explained Variance = .73 Cronbach's Alpha = .93**
IPL: Developing People/Support and Attention to Teachers	Your principal: Fosters an environment of mutual trust among members of the school community (0.932) Promotes a caring environment among members of the school community (0.932) Supports all teachers, especially those facing challenges in teaching their discipline (0.924) Promotes participative management through representative teacher involvement when necessary (0.926) Listens to and supports you when needed (0.886) Acknowledged your work when you showed improvements (0.894)	**KMO = .89 Explained Variance = .84 Cronbach's Alpha = .96**
IPL: Developing People/Attention and Intellectual Stimulation	Your principal: Proposes strategies for teachers in this school to work considering the specific characteristics and needs of students at each stage of education (0.892) Assists teachers in learning from their mistakes (0.935) Encourages teachers to do their best (0.876) Engages in orienting new teachers to the institution (0.873) Indicates to teachers, in meetings and individual guidance, the importance of studying and adhering to the curriculum of the education network (0.860)	**KMO = .89 Explained Variance = .79 Cronbach's Alpha = .93**
IPL: Redesigning the Organization/Relationship with Families and Community	Your principal: Ensures the participation of families in decisions affecting the quality of education (0.943) Ensures the participation of students in decisions affecting the quality of education (0.898) Takes concrete actions to involve parents in student learning (0.918) Seeks to inform parents about the unit's results at least once a year (0.834)	**KMO = .80 Explained Variance = .81 Cronbach's Alpha = .92**
IPL: Redesigning the Organization/Structuring an Organization that Facilitates Work	Your principal: Uses strategies to keep the unit organized to facilitate teachers' work (0.907) Ensures teachers' participation in decisions affecting the quality of education (0.800) Clearly defines and reinforces the roles and responsibilities of all professionals in the unit (0.861) Organizes infrastructure actions to improve the conditions of the school building (0.877) Develops actions to acquire or organize complementary pedagogical materials necessary for teaching within the school's autonomy limits (0.911) Develops actions to acquire or organize equipment to improve the comfort and quality of spaces (0.905) Ensures that each teacher in this establishment works to achieve specific objectives regarding student learning (0.913) Coordinates work among teachers from different areas and/or levels of education (0.819)	**KMO = .91 Explained Variance = .77 Cronbach's Alpha = .96**

IPL: Redesigning the organization/Connecting the school with its surroundings	Your principal: Develops specific actions to remind and make visible the enrollment and re-enrollment procedures in the community (0.870) Presents the demands of the school to central bodies (Regional Directorate/Department of Education) (0.766) Diagnoses the need for external support required by this institution to improve teaching and learning (0.864) Diagnoses the need for external support required by this institution to improve teaching and learning (0.908) Encourages teachers to participate in exchange networks with other schools to enhance teaching and learning (0.686)	**KMO = .84 Explained Variance = .68 Cronbach's Alpha = .85**
IPL: Pedagogical Management/ Pedagogical Action	Your principal: Discusses educational topics with you (0.872) Uses data obtained from classroom observations to propose ongoing training (0.784) Promotes the use of Information and Communication Technologies (ICTs) to enhance learning (0.859) Raises the school team's awareness to reflect on the unique characteristics of youth and their integration into the school (0.847) Discusses with teachers strategies for classroom management (indiscipline, conflicts, pedagogical management) (0.906) Ensures that each teacher in this institution works towards specific learning objectives for students (0.881) Ensures coordination of work among teachers from different areas and/or levels of education (0.827) Prevents proposals and initiatives external to the school from disrupting the routine, diverting school work from its educational priorities (0.620)	**KMO = .91 Explained Variance = .69 Cronbach's Alpha = .92**
IPL: Pedagogical Management/Monitoring learning	Your principal: Uses data obtained from classroom observations to conduct ongoing training actions personally (0.799) Uses data obtained from classroom observations to support you in your pedagogical practice (0.864) Uses the results of external assessments as input for discussion with the teaching staff about pedagogical work at the school (0.834) Carries out specific actions for the unit to improve its results in external assessments (0.850) Develops specific actions to disseminate the results of external assessments to the community and families (0.779) Monitors student results (Recod.) (0.740)	**KMO = .80 Explained Variance = .66 Cronbach's Alpha = .86**

MEDIATING VARIABLES		
Index	**Item and its loadings**	**Validity and Reliability Parameters**
Perception Index on Interpersonal Relationships: Teachers	How do you evaluate the relationship with: Other teachers (0.718) The principal (0.666) The pedagogical coordinator (0.818) Your students (0.779) The parents of your students (0.722)	**KMO = .78 Explained Variance = .55 Cronbach's Alpha = .80**

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Perception Index on Interpersonal Relationships: Principals	How do you evaluate the relationship with: Teachers (0.515) Colleagues from the management team (0.816) The pedagogical coordinator (0.912) School staff (0.623) Students (0.151) Families or guardians of students (0.178) The school council (0.675) Professionals from neighboring schools (0.331) Professionals from higher-level organizations (Regional, Department of Education) (0.632)	**KMO = .85 Explained Variance = .56 Cronbach's Alpha = .90**
Perception Index on Interpersonal Relationships: Pedagogical Coordinators	How do you evaluate the relationship with: Teachers (0.740) Management team colleagues (0.482) School staff (0.840) Students (0.798) Families or guardians of students (0.488) The school council (0.323) Professionals from neighboring schools (0.077) Professionals from higher-level organizations (Regional, Department of Education) (0.101)	**KMO = .74 Explained Variance = .44 Cronbach's Alpha = .81**
Expectation Index Regarding Students: Principals	How many students from this school do you believe will: Enter Public Higher Education (0.791) Enter Private Higher Education (0.763) Enroll in technical courses before completing high school (0.762)	**KMO = .65 Explained Variance = .69 Cronbach's Alpha = .65**
Expectation Index Regarding Students: Teachers	How many students from this school do you believe will: Complete High School (0.672) Enter Public Higher Education (0.826) Enter Private Higher Education (0.871) Enroll in technical courses before completing high school (0.553)	**KMO = .66 Explained Variance = .55 Cronbach's Alpha = .69**
Job Satisfaction Index: Principals	I feel satisfied with the relationships established in my workplace (0.761) I do not have the same enthusiasm I had when I started working as a school principal. (recode) (0.630) I feel satisfied with the degree of autonomy I have over the projects forwarded to the school (0.619) I feel satisfied with the support I receive from the teachers at this school (0.747) I feel comfortable regarding the financial resources necessary to maintain the full operation of the school (0.637) I enjoy being a principal (0.786) I enjoy working at this school (0.740)	**KMO = .82 Explained Variance = .50 Cronbach's Alpha = .83**
Job Satisfaction Index: Pedagogical Coordinators	I feel satisfied with the relationships established in my workplace (-0.025) I do not have the same enthusiasm I had when I started working as a school principal (0.627) I feel satisfied with the degree of interference I have over the projects forwarded to the school (0.657) I feel satisfied with the support I receive from the teachers at this school (0.584) I feel supported regarding the human and material resources necessary to carry out my work (0.780) I enjoy being a Coordinator (-0.041) I enjoy working at this school (0.350)	**KMO = .64 Explained Variance = .34 Cronbach's Alpha = .67**
Job Satisfaction Index: Teachers	We work as a team to have the school's work recognized (0.584) I am satisfied with the size of the class(es) assigned to me (0.580) Sometimes, I consider it a waste of time to give my best in this school (0.611) I feel satisfied working at this school (0.753) I feel fulfilled with the work I do at this school (0.794) The organization of the school favors my work (0.816) There is a sense of collaboration among all who work at this school (0.752)	**KMO = .79 Explained Variance = .50 Cronbach's Alpha = .77**
Teacher Self-Efficacy Index: Methodology	Perform teaching activities with the skills you learned in your academic training (0.817) Perform teaching activities with the skills you have developed in your professional career (0.837) Make your students learn the content so they can achieve good results in assessments (0.824) Plan your classes creatively (0.824) Plan your classes effectively (0.823) Design and implement good student learning assessment procedures (0.794)	**KMO = .86 Explained Variance = .67 Cronbach's Alpha = .89**

Teacher Self-Efficacy Index: Challenges in Teaching	Deal with discipline problems in your classes (0.832) Deal with learning problems in your classes (0.885) Meet the needs of students with greater difficulty in learning the content of your discipline (0.903) Meet the needs of students with disabilities to learn the content of your discipline (0.749)	**KMO = .81 Explained Variance = .71 Cronbach's Alpha = .82**
Instructional Support Index	This school develops reinforcement and learning recovery activities (0.706) This school maintains minimum infrastructure and equipment conditions for teachers to do a good job (0.785) This school offers sufficient learning resources (e.g., books, stationery materials, copies, games) for students and teachers (0.886) This school provides sufficient support to teachers when their classes include students with disabilities, pervasive developmental disorders, high abilities/giftedness, or other specific educational needs (0.769)	**KMO = .71 Explained Variance = .62 Cronbach's Alpha = .78**
Learning Community Index	Teachers talk to each other about improving teaching (0.821) Teachers, as a whole, feel responsible for contributing to the improvement of this school (0.808) Teachers rely on pedagogical-technical support from their peers when needed (0.746) Teachers plan and evaluate their work collaboratively frequently (0.889)	**KMO = .78 Explained Variance = .67 Cronbach's Alpha = .83**
School Culture Index	The learning environment is organized and disciplined (0.691) Teaching and learning processes adopted by teachers originate from similar approaches (0.804) There is team spirit among teachers (0.783) Problems or conflicts are resolved quickly (0.743) Teachers plan and evaluate their work collaboratively frequently (0.800) Teachers working in classrooms at this school strive to involve parents in student learning processes (0.736) Teachers share the same values and goals as this school (0.818)	**KMO = .86 Explained Variance = .59 Cronbach's Alpha = .88**
Organizational Commitment Index	Teachers are committed and strive to give their best (0.843) Teachers have high expectations about the ability of all students to learn and advance their knowledge (0.869) Teachers, as a whole, feel responsible for contributing to the improvement of this school (0.859)	**KMO = .72 Explained Variance = .73 Cronbach's Alpha = .86**
Work Stress Index	Your level of stress regarding the social environment in which the school is located (0.792) Your level of stress regarding infrastructure and work materials (0.846) Your level of stress regarding the sufficiency of support staff (0.926)	**KMO = .62 Explained Variance = .73 Cronbach's Alpha = .81**
Teacher Capacity Index: Learning for All Students - Pedagogical Coordinators	Demonstrate conducting a careful and effective learning assessment process (0.827) Organize their classroom work to divide and adequately use the necessary time for teaching (0.841) Are capable of handling heterogeneous classes, ensuring the learning of all students regardless of their starting point (0.866) Feel comfortable and confident in promoting the learning of students with disabilities within regular classes (0.802) Are able to set aside time to support students who have difficulties learning the content of their subject (0.817)	**KMO = .86 Explained Variance = .69 Cronbach's Alpha = .87**
Teacher Capacity Index: Learning for All Students - Principals	Demonstrate conducting a careful and effective learning assessment process (0.873) Organize their classroom work to divide and adequately use the necessary time for teaching (0.872) Are capable of handling heterogeneous classes, ensuring the learning of all students regardless of their starting point (0.902) Feel comfortable and confident in promoting the learning of students with disabilities within regular classes (0.800) Are able to set aside time to support students who have difficulties learning the content of their subject (0.764)	**KMO = .84 Explained Variance = .71 Cronbach's Alpha = .89**
Teacher Capacity Index: Preparation for Teaching/Curriculum - Pedagogical Coordinators	They know enough about the new BNCC for high school (0.749) They know the new BNCC for high school regarding the subjects they teach (0.811) They consider the new BNCC to be an important advance in improving the high school curriculum design (0.706) They are sufficiently familiar with the state's new high school curriculum proposal, adjusted to the BNCC (0.893) They put the state's new curriculum proposal into practice (0.763)	**KMO = .78 Explained Variance = .61 Cronbach's Alpha = .83**

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| Teacher Capacity Index: Preparation for Teaching/Didactics - Pedagogical Coordinators | Demonstrate an adequate mastery of the didactics to teach the content of their area/subject (0.754)
Perform detailed and efficient planning of teaching and learning activities (0.913)
Prepare their teaching activities carefully, lesson by lesson (0.831)
Seek materials and resources to stay updated and improve their teaching (0.792) | KMO = .67
Explained Variance = .67
Cronbach's Alpha = .89 |

Table 2 – Indices of the PI Sample

CONTEXT VARIABLES		
Index	**Items and their Loadings**	**Validity and Reliability Parameters**
Perception of External Support Index - Principal	Your Regional Education Office: Has encouraged you to innovate, to try new ways to improve the school (0.809) Provided professional development opportunities for teachers at this school (0.771) Took care of your professional development (as a principal) (0.842) Involved you in decisions made regarding this school (0.674) Is available when you need them (0.688) Is aware of what is happening at this school (0.589) Sets clear educational goals for this school (0.884) Systematically monitors the achievement of the goals set for this school (0.766) Evaluates the performance of the principals of the schools under their responsibility (0.758) Provided opportunities for you to work together with other principals (0.863) Ensured that this school has the technical support needed to improve its teaching and learning (0.792) Ensured that this school has the physical conditions and equipment to function adequately (0.679) Carefully selected external support initiatives that are relevant to this school's priorities (0.826) Provided technical and pedagogical support to assist in analyzing the school's performance data (0.818)	**KMO = .90** **Explained Variance = .60** **Cronbach's Alpha = .94**
Principal's Self-Efficacy Index	How capable do you feel to: Motivate teachers (0.761) Promote the alignment of all teachers around a shared vision for the school (0.856) Promote changes in the interactions between teachers and between teachers and students (0.853) Promote changes in the organization of the school's time and space (0.758) Promote changes in how each teacher conducts their classroom activities (didactics and teaching practices) (0.750) Create an environment that values or motivates learning in your school (0.773) Lead initiatives that improve students' performance on external assessments and other exams (e.g., Enem, entrance exams) (0.809)	**KMO = .88** **Explained Variance = .63** **Cronbach's Alpha = .90**
Pedagogical Coordinator's Self-Efficacy Index	How capable do you feel to: Provide training for teachers in different areas of knowledge (0.758) Promote changes in the interactions between teachers and between teachers and students (0.799) Promote changes in how each teacher conducts their classroom activities (didactics and teaching practices) (0.824) Create an environment that values or motivates learning in your school (0.829) Lead initiatives that improve students' performance on external assessments and other exams (e.g., Enem, entrance exams) (0.817) Provide training for teachers in different areas of knowledge (0.845) Promote changes in the interactions between teachers and between teachers and students (0.749)	**KMO = .88** **Explained Variance = .66** **Cronbach's Alpha = .91**
INDEPENDENT VARIABLES: LEADERSHIP PRACTICE INDICES		
Index	**Items and their Loadings**	**Validity and Reliability Parameters**
	Your principal:	

LPI: Establishing Direction	Communicates the purpose and objectives of the institution to the school community (0.751) Explain the reasons for introducing changes in the school's functioning (0.763) Works with teachers to define concrete goals to implement the political-pedagogical project (0.912) Proposes strategies for all teachers to have common times to meet, study, and plan (0.661) Incorporates teachers' interests and ideas into the school's pedagogical project (0.790) Proposes goals and priorities that are consistent with educational policies (0.845)	**KMO = .81** **Explained Variance = .63** **Cronbach's Alpha = .88**
LPI: Developing People/Support and Attention to Teachers	Your principal: Promotes an environment of mutual trust among members of the school community (0.897) Promotes a caring environment among members of the school community (0.839) Supports all teachers, especially those facing more problems with teaching their subject (0.900) Promotes participative management through representative action of teachers when necessary (0.883) Listens to and cares for you when you need it (0.863) Recognizes your work when you show improvement (0.829)	**KMO = .89** **Explained Variance = .76** **Cronbach's Alpha = .96**
LPI: Developing People/Attention and Intellectual Stimulation	Your principal: Proposes strategies for teachers to work considering the specific characteristics and needs of students at each educational stage (0.841) Helps teachers learn from their mistakes (0.852) Encourages teachers to do their best (0.907) Involves in the adaptation of new teachers to the school (0.889) Emphasizes to teachers, in meetings and individual orientations, the importance of studying and adhering to the curriculum of the school network (0.865)	**KMO = .88** **Explained Variance = .76** **Cronbach's Alpha = .92**
LPI: Redesigning the Organization/Relationship with Families and Community	Your principal: Ensures family participation in decisions that affect the quality of education (0.893) Ensures student participation in decisions that affect the quality of education (0.800) Takes concrete actions to involve parents in student learning (0.878) Seeks to inform parents about the school's performance at least once a year (0.837)	**KMO = .77** **Explained Variance = .73** **Cronbach's Alpha = .88**
LPI: Redesigning the Organization/Structuring an Organization that Facilitates Work	Your principal: Uses strategies to keep the school organized to facilitate teachers' work (0.770) Proposes strategies for all teachers to organize their work collectively (0.852) Clearly defines and reinforces the roles and responsibilities of all school staff (0.879) Organizes infrastructure actions to improve the school building conditions (0.674) Develops actions to acquire or organize complementary pedagogical materials necessary for teaching within the limits of the school's autonomy (0.851) Develops actions to acquire or organize equipment to improve the comfort and quality of spaces (0.919) Ensures that each teacher at this school works to achieve specific goals regarding student learning (0.837) Coordinates work among teachers of different areas and/or educational levels (0.873)	**KMO = .89** **Explained Variance = .68** **Cronbach's Alpha = .91**
LPI: Redesigning the Organization/Connecting the School with its Surroundings	Your principal: Develops specific actions to remind and give visibility to enrollment and re-enrollment procedures in the community (0.766) Presents the school's needs to central bodies (Regional Board/Department of Education) (0.809) Develops specific actions to disseminate the results of external evaluations to the community and families (0.860) Diagnoses the need for external support that this school requires to improve teaching and learning (0.886) Encourages teachers to participate in exchange networks with other schools to improve teaching and learning (0.744)	**KMO = .78** **Explained Variance = .66** **Cronbach's Alpha = .85**
	Your principal: Discusses educational topics with you (0.829) Uses data obtained from classroom observations to propose continuous training (0.871)	

Index	Items and their Loadings	Validity and Reliability Parameters
LPI: Pedagogical Management/ Pedagogical Action	Promotes the use of Information and Communication Technologies (ICTs) to improve learning (0.790) Draws the school staff's attention to reflecting on the specific characteristics of youths and embracing these characteristics in the school (0.860) Discusses with teachers classroom management strategies (indiscipline, conflicts, pedagogical management) (0.856) Ensures that each teacher in this school works to achieve specific goals regarding student learning (0.824) Coordinates the work among teachers of different areas and/or educational levels (0.866) Prevents external proposals and initiatives from disrupting the routine and diverting the school's work from its educational priorities (0.626)	**KMO = .89** **Explained Variance = .67** **Cronbach's Alpha = .93**
LPI: Pedagogical Management/ Monitoring Learning	Your principal: Uses data obtained from classroom observations to personally conduct continuous training (0.837) Uses data obtained from classroom observations to support your pedagogical practice (0.876) Uses results from external evaluations as input for discussions with the teaching staff about the school's pedagogical work (0.849) Undertakes specific actions to improve the school's results in external evaluations (0.861) Develops specific actions to disseminate the results of external evaluations to the community and families (0.849)	**KMO = .81** **Explained Variance = .73** **Cronbach's Alpha = .90**
LPI: Pedagogical Management/ Evaluating Teachers	Your principal: Works with teachers to define concrete goals to implement the political-pedagogical project (0.834) Recognizes your work when you show improvement (0.891) Evaluates the teachers' work (Recoded) (0.812)	**KMO = .68** **Explained Variance = .72** **Cronbach's Alpha = .73**
MEDIATOR VARIABLES		
Index	**Items and their Loadings**	**Validity and Reliability Parameters**
Index of Perception of Interpersonal Relationships: Teachers	How do you evaluate the relationship with: Other teachers (0.591) The principal (0.805) The vice-principal (0.705) The pedagogical coordinator (0.768)	**KMO = .72** **Explained Variance = .52** **Cronbach's Alpha = .68**
Index of Perception of Interpersonal Relationships: Principals	How do you evaluate the relationship with: Teachers (0.500) Colleagues in the management team (0.251) The pedagogical coordinator (-0.006) School staff/employees (0.650) Students (0.801) Families or student guardians (0.750) The school board (0.539) Professionals from neighboring schools (0.697) Professionals from higher authorities (Regional Board, Department of Education) (0.749)	**KMO = .84** **Explained Variance = .50** **Cronbach's Alpha = .87**
Index of Perception of Interpersonal Relationships: Pedagogical Coordinators	How do you evaluate the relationship with: Teachers (0.737) Colleagues in the management team (0.733) School staff (0.832) Students (0.731) Families or student guardians (0.750) The school board (0.719) Professionals from neighboring schools (0.742) Professionals from higher authorities (Regional Board, Department of Education) (0.712)	**KMO = .80** **Explained Variance = .56** **Cronbach's Alpha = .89**
Student Expectations Index: Principals	How many students at this school do you believe will: Enroll in public higher education institutions (0.837) Enroll in private higher education institutions (0.764) Enroll in technical courses before completing high school (0.490)	**KMO = .53** **Explained Variance = .51**

		Crombach's Alpha = .48
Student Expectations Index: Pedagogical Coordinators	How many students at this school do you believe will: Enroll in public higher education institutions (0.783) Enroll in private higher education institutions (0.822) Enroll in technical courses before completing high school (0.654)	**KMO = .60** **Explained Variance = .57** **Crombach's Alpha = .59**
Student Expectations Index: Teachers	How many students at this school do you believe will: Complete high school (0.788) Enroll in public higher education institutions (0.783) Enroll in private higher education institutions (0.822)	**KMO = .65** **Explained Variance = .62** **Cronbach's Alpha = .62**
Job Satisfaction Index: Principals	I am satisfied with the relationships established at my workplace (0.493) I do not have the same enthusiasm I had when I started working as a school principal. (recode) (0.738) I am satisfied with the level of autonomy I have over the projects that are directed to the school (0.415) I am satisfied with the support I receive from the teachers at this school (0.137) I feel comfortable with the financial resources necessary to maintain the school's full operation (-0.340) I like being a principal (0.692) I like working at this school (0.457)	**KMO = .63** **Explained Variance = .29** **Crombach's Alpha = .57**
Job Satisfaction Index: Pedagogical Coordinators	I am satisfied with the relationships established at my workplace (0.742) I did not have the same enthusiasm I had when I started working in school administration (recode) (0.439) I am satisfied with the level of autonomy I have over the projects that are directed to the school (0.715) I am satisfied with the support I receive from the teachers at this school (0.692) I feel comfortable with the financial resources necessary to maintain the school's full operation (0.657) I like being a coordinator (0.651) I like working at this school (0.570)	**KMO = .79** **Explained Variance = .42** **Crombach's Alpha = .76**
Job Satisfaction Index: Teachers	I am satisfied with working at this school (0.861) I feel fulfilled with the work I do at this school (0.879) The school's organization favors my work (0.838) There is a sense of collaboration among everyone who works at this school (0.824)	**KMO = .80** **Explained Variance = .72** **Crombach's Alpha = .87**
Teacher Self-Efficacy Index: Methodology	Conduct teaching activities with the skills you learned in your academic training (0.751) Conduct teaching activities with the skills you developed in your professional career (0.736) Make your students learn the content so that they achieve good results in evaluations (0.800) Plan your lessons creatively (0.835) Plan your lessons effectively (0.883) Design and conduct good learning assessment procedures for your students (0.825)	**KMO = .65** **Explained Variance = .30** **Crombach's Alpha = .87**
Teacher Self-Efficacy Index: Teaching Challenges	Deal with discipline problems in your classes (0.866) Deal with learning problems in your classes (0.923) Address the needs of students with greater difficulty in learning the content of your subject (0.895) Support students with disabilities to learn the content of your subject (0.735)	**KMO = .77** **Explained Variance = .74** **Crombach's Alpha = .87**
Instructional Support Index	This school develops activities for learning reinforcement and remediation (0.773) This school maintains minimum infrastructure and equipment conditions so that teachers can do a good job (0.767) This school provides sufficient learning resources (e.g., books, stationery, copies, games) for students and teachers (0.743) This school offers sufficient support to teachers when there are students with disabilities, global developmental disorders, high abilities/giftedness, or other specific educational needs in their classes (0.775)	**KMO = .73** **Explained Variance = .58** **Crombach's Alpha = .76**
Learning Community Index	Teachers discuss among themselves how to improve teaching (0.896) Teachers, as a whole, feel responsible for contributing to the improvement of this school (0.773) Teachers receive technical-pedagogical support from their peers when needed (0.818)	**KMO = .81** **Explained Variance = .71** **Crombach's Alpha = .86**

e-ISSN: 1982-8632
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	Teachers frequently plan and evaluate their work collaboratively (0.872)	
School Culture Index	The learning environment is organized and disciplined (0.561) The teaching and learning processes adopted by teachers originate from similar approaches (0.794) There is a team spirit among teachers (0.798) Problems or conflicts are resolved quickly (0.788) Teachers frequently plan and evaluate their work collaboratively (0.826) Teachers in this school make efforts to involve parents in the students' learning processes (0.763) Teachers share the same values and objectives as this school (0.810)	**KMO = .86 Explained Variance = .59 Cronbach's Alpha = .76**
Organizational Commitment Index	Teachers are committed and strive to do their best (0.903) Teachers have high expectations about all students' ability to learn and advance in their knowledge (0.780) Teachers, as a whole, feel responsible for contributing to the improvement of this school (0.880)	**KMO = .67 Explained Variance = .73 Cronbach's Alpha = .82**
Work Stress Index	Your stress level regarding the social environment in which the school is located (0.837) Your stress level regarding the infrastructure and work materials (0.824) Your stress level regarding the sufficiency of the support staff (0.933)	**KMO = .63 Explained Variance = .75 Cronbach's Alpha = .82**
Teaching Capacity Index: Learning for All Students - Pedagogical Coordinators	They demonstrate conducting a careful and effective learning assessment process (0.871) They organize their classroom work to adequately divide and utilize the necessary time for teaching (0.825) They are capable of handling heterogeneous classes, ensuring the learning of all students regardless of their starting point (0.889) They feel comfortable and confident in promoting the learning of students with disabilities within regular classes (0.799) They can set aside moments to support students who have difficulties learning the content of their subject (0.672)	**KMO = .76 Explained Variance = .66 Cronbach's Alpha = .86**
Teaching Capacity Index: Learning for All Students - Principals	They demonstrate conducting a careful and effective learning assessment process? (0.863) Do they organize their classroom work adequately to divide and utilize the necessary time for teaching? (0.874) They are capable of handling heterogeneous classes, ensuring the learning of all students regardless of their starting point? (0.841) Do they feel comfortable and confident in promoting the learning of students with disabilities within regular classes? (0.017) They can set aside moments to support students who have difficulties learning the content of their subject? (-0.367)	**KMO = .70 Explained Variance = .49 Cronbach's Alpha = .67**
Teaching Capacity Index: Preparation for Teaching/Curriculum - Pedagogical Coordinators	They sufficiently know the new High School BNCC (0.839) They know the new High School BNCC related to the subjects they teach (0.870) They consider the new BNCC an important advancement in improving the high school curriculum design (0.727) They sufficiently know the new high school curriculum proposal of the state, adjusted to the BNCC (0.879) They implement the state's new curriculum proposal (0.771)	**KMO = .88 Explained Variance = .43 Cronbach's Alpha = .75**
Teaching Capacity Index: Preparation for Teaching/Didactics - Pedagogical Coordinators	They demonstrate an adequate mastery of the didactics to teach the content of their area/subject (0.787) They carry out detailed and efficient planning of teaching and learning activities (0.776) They prepare their teaching activities carefully, lesson by lesson (0.836) They seek materials and resources to stay updated and improve their teaching (0.851)	**KMO = .88 Explained Variance = .34 Cronbach's Alpha = .65**