Time allocation of principals and its relationship to school performance

Distribución del tiempo de los directores y su relación con el rendimiento y clima escolar

校长的时间分配及其与学生表现和学校环境的关系

Распределение времени директоров и его связь с успеваемостью и климатом в школе

Vladimir Figueroa-Gutiérrez
Instituto Superior de Formación Docente Salomé Ureña (República Dominicana)
vladimir.figueroa@isfodosu.edu.do
https://orcid.org/0000-0003-0944-3572

Emmanuel Silvestre
Instituto Superior de Formación Docente Salomé Ureña (República Dominicana)
esilvestre@esilvestre.com
https://orcid.org/0000-0002-9958-4848

Jeanette Chaljub-Hasbun
Universidad del Caribe (República Dominicana)
jchaljub@unicaribe.edu.do
https://orcid.org/0000-0002-3778-9039

Abstract

The role of school principal involves the execution of multiple activities that, many times, go in parallel with the teaching activity which could be related as performance and school climate. For this reason, the research has three objectives: i) to describe the activities carried out by school principals; ii) to identify who accompanies the principals in the different activities; iii) to analyze the relationship between the management activities and the school's performance. We have opted for a quantitative study in which the daily practices of 42 principals of schools with good school performance and 42 principals of schools with low school performance are analyzed, according to the results of the National Tests. A Daily Record was used to identify the frequency of execution of activities. On the other hand, a scale was used to measure the school climate. The results indicate that the principals of the different groups formed, distributed the management time in the 10 directive activities identified, giving as a result that the activities to which the principals invested more time were: 1) Non-schools; 2) Relations with students; 3) Instructional Leadership and Goal Planning. The activities that received the least amount of time were: 1) Professional growth; 2) Finance; 3) Infrastructure. In relation to the types of accompaniment that the school principals had, in the group of schools classified by their performance and by the school climate, no differences were obtained. The principals carried out this activity with the following types of accompaniment First, alone (without accompaniment); second, accompanied by lead teachers, facilitators, and teachers. Thirdly, with vendors and contractors. Finally, there was no strong correlation between the activities carried out by the director and school performance.

Key words: Secondary education; School leadership; School management; School organization; Principal's time allocation.

Resumen

El rol de director escolar conlleva la ejecución de múltiples actividades que, muchas veces, van en paralelo con la actividad didáctica lo que podría estar relacionado con rendimiento y clima escolar. Por esta razón, la investigación persigue tres objetivos: i) describir las actividades llevadas a cabo por los directores escolares; ii) identificar quiénes acompañan a los directores en las distintas actividades; iii) analizar la relación entre las actividades directivas con el rendimiento de la escuela. Hemos optado por un estudio cuantitativo en el que se analizan las prácticas diarias de 42 directores de escuelas con buen rendimiento escolar y 42 directores de escuelas con bajo rendimiento escolar, según los resultados de las Pruebas Nacionales. Para identificar la frecuencia de ejecución de actividades se utilizó un Registro Diario. Por otro lado, se utilizó una escala para medir el clima escolar. Los resultados indican que los directores de los distintos grupos conformados, distribuían el tiempo de gestión en las 10 actividades directivas identificadas, arrojando como resultado que las actividades a las que los directores invertían más tiempo fueron: 1) No escolares; 2) Relaciones con los estudiantes; 3) Liderazgo Instructivo y Planear metas. Las actividades que menos tiempo recibían fueron: 1) Crecimiento profesional; 2) Finanzas; 3) Infraestructura. Con relación a los tipos de acompañamientos que tuvieron los directores escolares, en el grupo de las escuelas clasificadas por su rendimiento y por el clima escolar, no se obtuvieron diferencias. Los directores realizaron esta actividad con los siguientes tipos de acompañamientos: En primer lugar, Solo (sin acompañantes); en segundo lugar, acompañados de Profesores líderes, facilitadores y maestros. En tercer lugar, con vendedores y contratistas. Por último, no se evidenció una fuerte correlación entre las actividades que realiza el director y el rendimiento escolar.

Palabras clave: Educación secundaria; Dirección escolar; Distribución del tiempo; Liderazgo escolar; Organización escolar.

摘要

校长的角色涉及对学校不同活动的执行, 这些活动很多时候与教学活动同时进行, 因此我们认为其会影响学生表现和学校的氛围。本研究的目的有三个: i) 描述校长开展的活动; ii) 确定陪同校长参加不同活动的人员; iii) 分析管理活动与学生表现之间的关系。我们进行了定量研究, 根据国家测试的结果, 对42名学业成绩好的学校校长和42名学业成绩差的学校校长的日常工作进行了分析。为了确定工作的执行频率, 研究对其进行了每日记录。另一方面, 研究使用了一个量表来测量学校的氛围。结果表明, 在被确认的10项管理活动中, 不同组校长对其时间分配最多的为: 1) 非学校活动, 2) 与学生有关, 3) 教学领导和目标计划。时间分配较少的活动为: 1) 教师成长, 2) 财务, 3) 基础设施。在陪同校长人员类型方面, 我们没有观察到其与学生成绩和学校环境的联系。陪同校长参加不同活动的人员类型为: 首先, 无人员陪伴; 其次, 由教师代表或其他老师陪同; 第三, 由销售者和合伙人陪同。最后, 研究未发现在校长开展的活动与学生表现之间存在强烈的相关性。

关键词: 中学教育; 学校校长; 时间分配; 学校领导; 学校组织。

Аннотация

Роль директора школы предполагает выполнение множества мероприятий, которые во многих случаях идут параллельно с дидактической деятельностью, что может быть связано с успеваемостью в школе и школьным климатом. По этой причине исследование преследует три цели: i) описать деятельность, осуществляемую директорами школ; ii) определить, кто сопровождает директоров в различных видах деятельности; iii) проанализировать связь между управленческой деятельностью и результатами работы школы. Мы выбрали количественное исследование, в котором мы анализируем повседневную практику 42 директоров школ с хорошей успеваемостью и 42 директоров школ с низкой успеваемостью, согласно результатам Национальных тестов. Для определения частоты выполнения действий использовалась ежедневная запись. С другой стороны, для измерения климата в школе использовалась шкала. Результаты показывают, что директора различных сформированных групп распределяли свое время на управление среди 10 выявленных управленческих мероприятий, показывая, что мероприятия, в которые директора вкладывали наибольшее количество времени, были: 1) внешкольные мероприятия, 2) взаимоотношения с учащимися, 3) учебное руководство и цели планирования. Наименьшее количество времени получили следующие виды деятельности: 1) Профессиональный рост, 2) Финансы, 3) Инфраструктура. Что касается видов аккомпанемента, которые имели директора, то в группе школ, классифицированных по успеваемости и школьному климату, различий не было. Принципалы осуществляли эту деятельность со следующими видами сопровождения: Во-первых, один (без сопровождающих); во-вторых, в сопровождении ведущих преподавателей, наставников и учителей. В-третьих, с поставщиками и подрядчиками. Наконец, не было тесной взаимосвязи между деятельностью, осуществляемой директором, и успеваемостью школы.

Ключевые слова: Среднее образование; Распределение времени; Руководство школами; Организация школ; Управление школами.

Introduction

On countless occasions school principals have been held accountable for school performance. Indeed, empirical evidence exists regarding the positive or negative effect that principals have on school performance (Murillo & Roman, 2013; Robinson, Lloyd, & Rowe, 2008, 2008). However, the complex reality of schools, which involve multiple variables, cannot be ignored (Marfan & Pascual, 2018).

Despite the growing global interest in the use of empirical evidence for educational policymaking, there is not enough research on management practices and their relationship to school performance, and most of the literature is based on the theoretical component (Claessens, Van Eerde, Rutte, & Roe, 2007). Applying educational policies without evidence about what happens inside the school would imply a high economic and social cost, especially for the school.

In order not to make the mistake of going blind or of extrapolating results from untimely research or from other contexts, research is needed to characterize school management practices; above all, those in which there is evidence of outstanding school results. For this reason, this study constitutes a starting point for future research.

With this research we intend to provide information that can contribute to the understanding of the factors that influence school performance from the role of the school principal. It is hoped that, based on the results, spaces of reflection can be generated that will allow the design of interventions for the improvement of the school. To this end, we have considered, in the first place, the main methodologies addressed by the studies on time distribution of principals. Secondly, we have carried out a quantitative research of parametric character with a sufficiently exhaustive approach through daily time registries and questionnaires adapted and piloted for the fulfillment of the objectives of our research.

Literature review

The principal's primary function is to contribute to the establishment and achievement of educational quality and organizational learning. Indeed, there are experiences of good educational results thanks to the activities carried out by successful leadership (Day & Sammons, 2013). Similarly, it has been empirically demonstrated that the role of the school principal is one of the key factors determining the quality of an educational center, through his or her direct or indirect influence (Cravens, Goldring, & Peñaloza, 2011; Darling-Hammond, LaPointe, Meyerson, & Orr, 2007; Dutta & Sahney, 2016; Horng, Klasik, & Loeb, 2010; Murillo & Roman, 2013; Robinson et al., 2008). However, the number of responsibilities school principals face daily tends to complicate the organization and distribution of their time (Grissom, Loeb, & Mitani, 2015; Kouali & Pashiardis, 2015). In addition, the selection of the activity and its outcome depends largely on the principal's skills or competence (Sebastian, Camburn, & Spillane, 2018)

Research such as that of Van Vooren (2018) and Huang, Hochbein, and Simons (2020) reveal that principals perceive that the day is not enough for them to fulfill administrative and academic tasks - especially in the most urban and impoverished areas. In addition, in public schools, as is the case in the Dominican Republic, educational districts, the immediate superior of the principal, overload them with tasks and, on many occasions, the latter must constantly leave the center to fulfill their duties. School principals must be willing to invest time, energy and resources to lead change

in their schools from various angles in which they define their management approach and determine the prioritization of the multiple activities in which they are immersed. Therefore, "these are actions implicit in the position, which do not appear in the formal description of it, but which research has revealed do exist" (Campos, Valdés, & Ascorra, 2019, p. 61).

Most of the studies on the practice of principals and how they distribute their time during the school day come usually from Anglo-Saxon and European countries. As far as Latin America is concerned, almost no research of this type is available (Claessens et al., 2007; Cravens et al., 2011; Murillo & Roman, 2013). The scarcity of scientific information on educational issues uniquely affects the implementation of policies towards the education sector. In this sense, Vaillant and Zidán (2016) state that the current trends towards school leadership in Latin America lack an approach that encourages the specialization of school leadership. Therefore, by taking this background as a reference in our research we intend to determine how principals distribute their time and, in the same way, identify the most effective leadership practices. In this way, it not only seeks to clarify gaps in educational research, but may also guide policymakers in developing policies and programs to support school leadership on a large scale (Leithwood & Jantzi, 2006; Vaillant & Zidán, 2016).

In the literature review, school leadership has been grouped into three types: transformational leadership, distributed leadership, and instructional leadership. The influence of each of these styles on academic performance varies according to research. Among the school leadership styles mentioned, pedagogical leadership appears to have the greatest influence on academic performance (Hallinger & Lu, 2014; Murillo & Roman, 2013; Robinson et al., 2008; Shatzer, Caldarella, Hallam, & Brown, 2013; Vaillant & Zidán, 2016). However, Grissom, Loeb, and Master (2013) argue that few studies have been able to empirically link this leadership to academic performance. Continuing with the idea, regardless of leadership style, there is consensus among researchers that school change lies in school communities themselves with leadership focused on learning (Timperley, 2011).

Research seems to indicate that pedagogical leadership has a much greater influence on learning than other types of leadership (Day, Hopkins, & Ahtaridou, 2009; Grissom et al., 2013; Horng et al., 2010; Leithwood, 2009; Murillo & Roman, 2013; Robinson et al., 2008). Among the multiple activities that leaders usually carry out with a pedagogical or learning-centered approach are: teacher accompaniment/counseling, teacher evaluation, development of a professional development plan, classroom visits, among others (Daniëls, Hondeghem, & Dochy, 2019). In this sense, Adams, Olsen, and Ware (2017) report that school principals who interacted with teachers on students' psychological needs and instructional practices, contributed to create a learning environment.

In spite of efforts to increase the time of school management on instructional issues, through policies and programs, Goldring et al. (2019) warns of important challenges, since this increase time necessarily means higher quality of the action taken, and this is the main Achilles' heel of the process.

Type of effect of school management on learning

In the meta-analysis published by Panayiotis (2013) two types of studies were identified on the effect of leadership on academic achievement. The more dated studies

are based on identifying the "direct effect" of leadership and the more recent studies focus on the "indirect effects". Indeed, the most recent studies indicate that the effect on student outcomes, in addition to being indirect, is also small (Claessens et al., 2007; Hallinger & Lu, 2014; Leithwood & Jantzi, 2006; Sebastian, Allensworth, & Stevens 2014). Indirect effects occur through intermediary factors that do have much greater influence on academic performance. For example, the level of beliefs about teachers' collective effectiveness (Dumay, Boonen, & Van Damme, 2013; Dumay & Galand, 2012), job satisfaction (Berkovich & Eyal, 2015; Grissom et al., 2013; Peeters & Rutte, 2005), the quality of teachers' professional development through school climate (Alig-Mielcarek, 2003; Daniëls et al., 2019; Protheroe, 2009; Sebastian & Allensworth, 2012; Sebastian et al., 2014), staff motivation, coaching, commitment and teamwork (Heck & Hallinger, 2009; Sammons, 2006), as well as collaboration and communication around instruction (Supovitz, Sirinides, & May, 2009).

Although research indicates the existence of a small effect of leadership on academic performance, Panayiotis (2013) makes it clear that these results should not come as a surprise, due to limitations in the study designs used. In fact, several authors argue that the operationalization of variables for the study of time management is complex (Claessens et al., 2007; Murillo & Roman, 2013). In this sense, the researchers suggest that it is necessary to continue improving and incorporating new techniques and combining various methodological approaches to consider all the variables involved in the process. For example, Hendriks and Steen (2012) analyzed 25 studies of the effects of leadership published between 2005 and 2010. The results show that 74% of these studies indicate that school leadership and student performance have no significant relationship. However, in research prior to 2005, the effect of school leadership on student performance had a significant relationship of 8%. Therefore, according to these authors, it can be affirmed that there was an increase in evidence of the effect of leadership on academic achievement.

Research on the distribution of school principals' time, regardless of the method used and/or the type of school, seems to have similar results. On average, principals spend more time on administrative and management activities of the institution (e.g., signing documents, attending district meetings, visiting supervisors, managing the budget, hiring staff) than on improving instruction (Cravens et al., 2011; Grissom et al., 2013; Horng et al., 2010; Kouali & Pashiardis, 2015; OCDE, 2009).

Techniques for studying school principals' use of time

In a review of research methods examining school leaders' time allocation (Camburn, Spillane, & Sebastian, 2010), reference is made to four types of data collection techniques: observations, surveys, diaries, and experience-based sampling.

First, open-ended and structured observations are generally found to be the most reliable and ecologically valid, since observers are able to record the most information and detail (Grissom, Loeb, & Master, 2012; Grissom et al., 2013; Gronn, 2003; Murillo & Roman, 2013). However, the main disadvantages of observations are related to their high cost and high time demand.

Second, there are survey tools. These are characterized by their affordability, low cost, and ease of implementation, even on a large scale. Their main disadvantages, however, are associated with errors caused by lack of memory about aspects of the

principal's practice and possible biases that tend to favor a socially and academically desirable image (Cravens et al., 2011; Hallinger & Heck, 1996; Murillo & Roman, 2013; Pashiardis, 2014; Vaillant & Zidán, 2016).

Thirdly, diaries are used in the research of Camburn et al. (2010) and Horng et al. These are like surveys in that school leaders themselves use them to describe their practice. In contrast, this method outperforms surveys because the questions are asked of participants at the end of the day while their memory of the day is still fresh. In addition, more information is collected about episodes of behavior and practice variation over time ((Goldring, Huff, May, & Camburn, 2008; Spillane, Camburn, & Stitziel-Pareja, 2007). The level of reliability of daily records has been recognized as high compared to other time-use registration methods (Camburn et al., 2010).

The Experience-Sampling Methods (ESMs) is a fourth and final research tool. This method is considered one of the most powerful because it captures activities, places, and thoughts in real time, thus avoiding errors for recall purposes and increasing its ecological validity. The information is requested repeatedly throughout the day, at random, through questions that are usually answered with a handheld device (Camburn et al., 2010; Horng et al., 2010; Spillane et al., 2007; Zirkel, Garcia, & Murphy, 2015). Among the main disadvantages of this method, however, are its high cost and the disruption of the school leader's activities.

Methodology

After having considered the main methodologies used to research school leaders' time-use and the scarce information that exists on studies of this type, we have focused on characterizing management practice and analyzing its relationship with school performance, understanding school performance as the results of the Dominican National Tests (*Pruebas Nacionales*) and the School Climate tool. Therefore, this study has three objectives: i) to describe the activities carried out by school principals; ii) to identify who accompanies the principals during the different activities; iii) to analyze the relationship between management activities and school performance, based on the average scores of National Tests and School Climate tool.

Type of Study

In order to reach the objectives of this research, a quantitative, parametric study was carried out with a high level of exhaustiveness, descriptive-correlational cut through the application of daily records directed to the school leaders and questionnaires applied to all teachers of each school.

Design

The independent variables were School Performance (High - Low) and School Climate (Positive - Negative). As dependent variables, the times dedicated by the princial to the different activities was also recorded.

Sample

The sample for time-use data included 84 school principals distributed across 18 educational regions of the Dominican Republic and, the sample used to measure school climate were the 907 teachers from those schools. The sample of principals was made up of two groups: 42 principals with good performance schools and 42 principals with low performance schools.

For the classification of the sample in these two performance groups, schools were identified from the 18 educational regions whose average results on the National Tests in Spanish Language and Mathematics were above the average during the last five years. All the selected schools had similar characteristics of social stratum and number of students. Subsequently, the school list was refined by Ministry of Education technicians involved in the continuous training of school leaderin the Dominican Republic. The latter selection considered both the school climate and school effectiveness as perceived by the educational community. Finally, 42 schools with good school performance were selected. For the selection of the comparison schools, those schools with lower average performance in Spanish language and mathematics during the last five years, and with similar student population and social stratum, were identified for each educational region.

The average of the 84 schools in these National Tests was 16.85 (SD = 2.118). To verify if the classification of schools in High Achievement and Low Achievement was valid, we carried out a t test for independent samples between the average scores of both groups, and we were able to verify that, according to what was expected, the Average in the National Tests of the schools classified as High Achievement was higher (18.49) than the average of the schools classified as Low Achievement (15.20). This difference obtained a high significance, $t(82) = 11.408$, $p = .000$, with a huge effect size ($d = 2.489$) and an ideal test power ($1 - \beta = 1$).

To classify the sample in the two groups of Positive and Negative Climate we used the revised version of the School Level Environment Questionnaire (SLEQ) by Johnson et al (2017). The average climate index for all schools was 3.99, with a standard error of .019. By ranking the schools based on their score on the Climate Index, the 42 schools with the highest scores were classified as Climate-Positive schools, while the remaining 42 schools were classified as Climate-Negative schools.

To validate this classification we carried out a t test for independent samples finding that, indeed, the mean in the climate index was significantly higher in the Positive Climate schools (4.39) than in the Negative Climate schools (3.73), $t(82) = 12.699$, $p = .000$, with a significant effect size ($d = 2.77$) and an ideal test power ($1 - \beta = 1$).

Data collection techniques

To analyze management practice, we used a daily log developed by Camburn et al. (2010), which measures the time spent by school leaders on different routine activities and identifies the subjects who accompanied the school leaders in each activity. This instrument was translated into Spanish and adapted to the Dominican Republic context by experts in school management. For the pilot test, the daily record was applied to 11 school principals to ensure the accuracy and clarity of its translation and adaptation to our context.

Due to the large number of tasks performed by school leader, we adapted to the reality and language of the Dominican educational system the classification of management activities proposed by Camburn et al. (2010) which groups them into nine basic activities.

The following is an adapted list of principal's activities:

1. Infrastructure operations (schedules, space allocation, maintenance, facilities, vendors)

2. Support in school finances (preparing budgets, contract management)

3. Community or parent relations (formal meetings or informal interactions)

4. Activities with the Educational District

5. Student relations (attendance, civic engagement, discipline, and counseling)

6. Cases with staff (recruitment, hiring, supervision, evaluation, conflict resolution)

7. Planning and setting goals (improvement of school plans, development of goals)

8. Instructional leadership (monitoring or observing classes, supporting teacher professional development, teaching a class, etc.).

9. Professional Growth (formal professional development, attending college classes, reading articles or a book).

To the above list we add a tenth activity, which refers to activities not related to the tasks of the management activity.

10. Non-academic activities: absences without explanation, absences for lunches, medical visits, etc.

The SLEQ for measuring school climate (Johnson et al., 2007) was translated into Spanish and its 21 items were subjected to expert validation and pilot testing with 72 teachers. The questionnaire has 21 Likert-type items ranging from Total Disagreement, with score 1; to Total Agreement, with score 5. However, 7 items were formulated in a negative sense with respect to the others, so it was necessary to transform them. The reliability of the total scale of 21 items was calculated by obtaining a Cronbach's Alpha = .84, which was very acceptable.

We found inconsistencies between our validation of the construction through a factor analysis and that carried out by Johnson et al. (2007). These inconsistencies were related to the number of factors composing the scale and the factor weights of the items; but this did not prevent us from using the total average of the items as a climate index, since the high reliability of the total scale tells us that all the items are measuring the same thing.

Analysis

The fundamental comparison of this study was obtained with an analysis of variance 2 x 2 (Type of School x Type of Climate). In order to use the analysis of variance (ANOVA) in this comparison we had to transform the scores collected in the Daily Record, since these were of the ordinal type (1 = 1-15 min, 2 = 16-30 min, 3 = 31-45 min, and 4 = 46

min.-1 hour). This transformation consisted of standardizing the sums of the scores by converting them into Z scores.

To determine the types of companions for the activities (Financial Support, Student Relations, and Goal Planning) that showed significant differences, we included all mentions of companions for each school in a set of multiple responses for each activity. Analyses were conducted among the partners for each activity and the level of effectiveness, as well as between those chaperones and the type of climate.

Field work

The Daily Record was designed to be applied via email. However, in our research we chose to to combine the traditional and the modern. Due to the known low use of e-mails by school principals, instant messaging through smart phones was chosen as the best alternative for capturing and sending information.

A Call Center was set up to contact school principals to make a schedule of visits and to fill out the Daily Record.

On the day of the visit, each principal was given a folder with printed registration sheets which he or she had to fill out for five consecutive days (one sheet per day). In this way, principals could keep their daily record and note the time spent on each activity without having to resort to memory. On the same day that the principals received training in filling out the form, another team applied the School Climate questionnaire to the teachers in the school.

Each day when the Daily Record was filled out, the principal received a reminder both by phone call and by instant messenger prior to the start of the work day. At the end of each day, the principal took a picture of the day's record and sent it via instant messenger to the Call Center number. The images were reviewed and archived. If any correction or clarification of doubts was required, the principals were contacted from the Call Center.

Results

To have an idea of the relative importance of the time dedicated to each activity, we calculated the medians of scores for each one of them, which are found in Figure 1, ordered from highest to lowest. These medians represent the sum of the time dedicated to each activity during the 5 days that the principals recorded their activities. To have an idea of the time dedicated to each one of them in one day, we would have to divide the medians by 5. As we can see in this figure, the activities to which principals dedicated the most time were Non-School activities, Student Relationships, Planning and Goal Setting, and Instructional Leadership, with a daily time of between 46 minutes and one hour per day. Community Relations and Case Studies with Staff activities had 31-45 minutes per day. Activities with the Education District and Infrastructure were between 16 and 30 minutes a day. The activities to which they dedicated the least time were Professional Growth and Finance, with only 1 to 15 minutes per day.
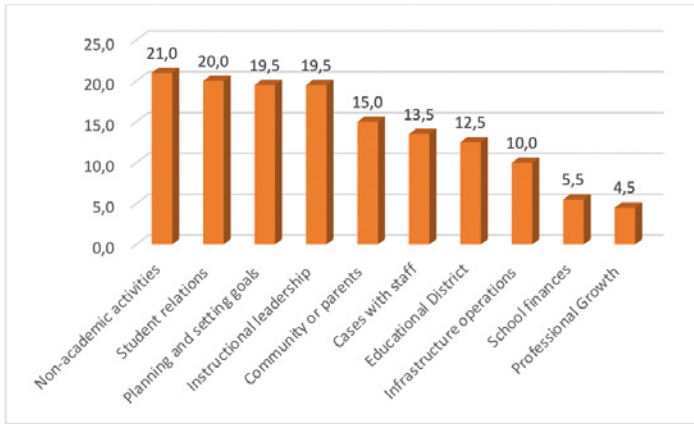
Figure 1. Average time dedicated by the school leader to the different activities

School financial support

In schools with higher academic performance, principals spent less time on the Financial Support activity, while in schools with a better school climate they spent much more time on it (see Figure 2). In this activity, a significant difference was found between schools grouped by climate type, $F_{(1, 76)} = 4.59$, $p = .035$, with a moderate effect size ($f = .25$) and a moderate power ($1 - \beta = .58$). However, the analysis model could only explain 5% of the variance of Financial Support ($R^2 = .050$).

In relation to the types of companions that school principals had, in the group of schools classified by their performance and by school climate, no differences were obtained. In every case, the principals carried out this activity with the following types of accompaniment: First, alone (without accompaniment); second, accompanied by lead teachers, facilitators, and teachers. Thirdly, with vendors and contractors.
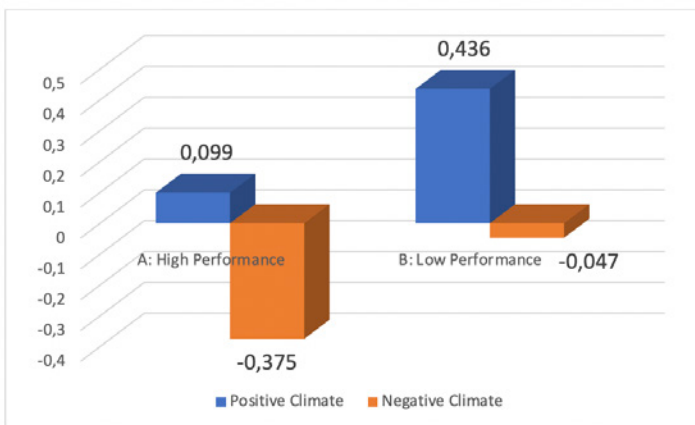

Figure 2. Average z-scores of times spent by principals on "School Financial Support" activity by type of organizational climate and academic performance

Relationships with students

The time that principals dedicated to fostering Relationships with students was always greater in schools with a positive climate, especially in high-performing schools (see Figure 3). In this activity we found one significant difference between schools grouped by climate type $F(1, 76) = 5,803$, $p = .018$, with a median effect size ($f = .25$) and a moderate power ($1 - \beta = .68$). Here, the analytical model was able to explain only 4% of the variance of Relations with students ($R^2 = .040$).

There were no differences between school groups based on Academic Performance or School Climate in the types of accompaniments the school principals had with the activities in the Relationships with Students' category. The accompaniments were: first, with Students; second, with Lead Teachers; and third, with Teachers, especially among the principals from schools with the lowest performance.
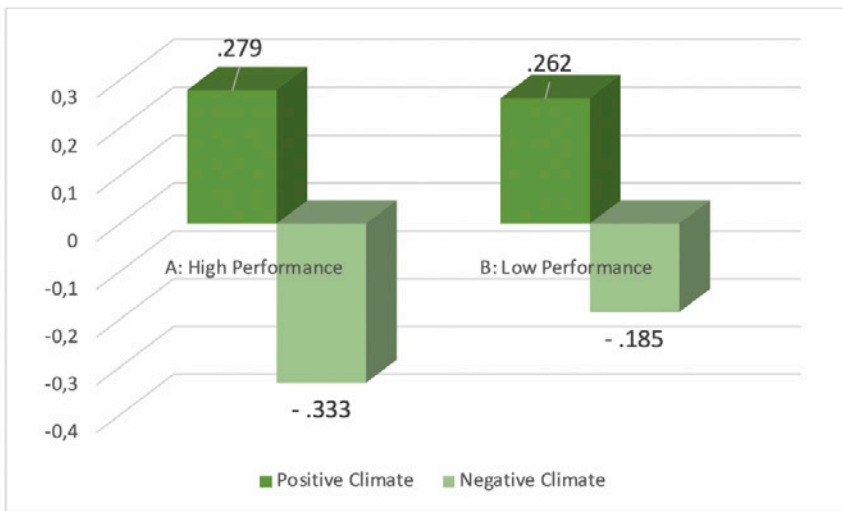

Figure 3. Average z-scores of times spent by principals on "Relationships with students" activities by type of organizational climate and academic performance

Goal planning

The time spent on Goal Planning was much less in the higher performing schools. In schools with low academic achievement but a positive climate, the time spent is much greater (see Figure 4). In this activity we found a significant interaction between climate types and performance levels, $F(1, 76) = 6.38$, $p = .014$, with a high mean effect size ($f = .29$) and high test strength ($1 - \beta = .72$). Again, the analytical model only explained 5% of the variance of Goal Planning ($R^2 = .051$).

The most frequently cited companions for the Goal Planning activities were found in both types of performance and climate groups: first, Lead Teachers; second, Alone (no chaperones); third, regular classroom teachers.
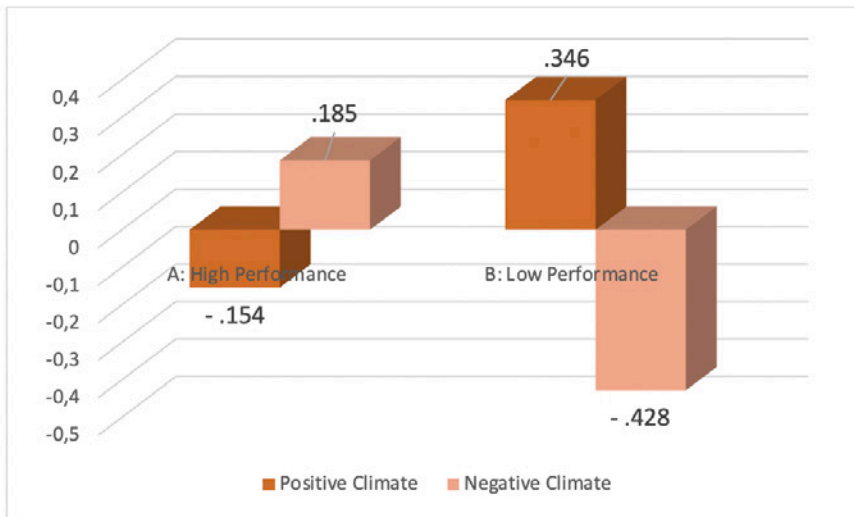
Figure 4. Average z-scores of times spent by principals on "Goal planning" activities by type of organizational climate and academic performance

Discussion

This study provides a descriptive overview of the main activities carried out by principals in 84 schools in the Dominican Republic and the relationship of those activities with academic performance and school climate.

As a starting point, the data indicates that the same types of activities were carried out by the principals of both high and low academic performance schools. In both cases, there is an equal proportion of time dedicated to each of the 10 activities selected for this study, so there is no correlation between school climate, time management, and type of leadership. This finding is similar to those found by previous studies. For example, research by Kouali and Pashiardis (2015) and Grissom et al. (2015) conclude that the large number of responsibilities faced by principals tends to complicate the organization and distribution of their time.

Participating principals spent a significant amount of time on administrative and managerial activities at their institutions. However, they spent les time attending district meetings, supervisor visits, managing budgets or staffing. These results differ with various research (Cravens et al., 2011; Grissom et al., 2013; Horng et al., 2010; Kouali & Pashiardis, 2015; OCDE, 2009).

A relevant finding of this research is the high frequency of personal (non-school related) activities carried out by principals, as it was found by Camburn et al. (2010).

No significant relationship was found between activities and academic performance, which is consistent with the study by Hendriks and Steen (2012) who found that 74% of studies on the effect of leadership on student performance have no significant relationship. It should be noted that the variance explained by the ANOVA did not exceed

5%, which indicates that school performance may be due to other factors that are not causally related to the performance of the school principal.

On the other hand, the influence that principals have on school climate has been reported by a significant number of researchers (Alig-Mielcarek, 2003; Protheroe, 2009; Sebastian & Allensworth, 2012; Sebastian et al., 2014). This study identifies three activities carried out by school principals that do relate to positive school climate in schools: (i) financial support; (ii) relationships with students; and (iii) goal planning.

Although a significant amount of research reveals that positive school climate increases the likelihood of better academic outcomes (Blanco, 2009; Haynes, Emmons, & Ben-Avie, 1997; Ning, Damme, Noortgate, Yang, & Gielen, 2015), in contrast, this study found that climate is unrelated to average performance on the National Tests. We consider this finding of particular interest, since traditionally positive school climate has been considered a factor associated with school effectiveness by different models (Scheerens, 1990; Creemers, 1994; Murillo, 2007).

The findings regarding school climate are congruent with those found in the study by Horng et al. (2010), in which school organization management activities are associated with positive teacher evaluations of school climate.

Although principals spent a good deal of time on instructional leadership, with this activity in fourth place, no significant differences in school performance were observed. This result differs from a significant amount of research (Day et al., 2009; Grissom et al., 2013; Horng et al., 2010; Leithwood, 2009; Murillo & Roman, 2013; Robinson et al., 2008).

Although authors such as Grissom et al. (2015) report that principals who are better at managing their time spend more time on instruction and less time on internal relations in their schools, in this study principals were found to be involved in other internal relations activities with greater or similar frequency than instructional leadership.

The results of our study consolidate popular conceptions about the role of principals and the activities they perform, but also challenge other common conceptions.

It is necessary to investigate the possible causes of time management by principals and their level of competence with respect to school management. This leads us to ask: How do school principals prioritize activities? What is the relationship between the amount of time and the quality of the activity carried out?

One recommendation to quantify the indirect effect of the school principal could be to replicate the methodological design used in this study by including mediating variables between the principal's activities and school performance such as: teacher self-efficacy, job satisfaction, teacher professional development, personal motivation, coaching, work commitment, teamwork, and communication.

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References

Adams, C. M., Olsen, J. J., & Ware, J. K. (2017). The School Principal and Student Learning Capacity. *Educational Administration Quarterly, 53*(4), 556-584. doi: 10.1177/0013161X17696556

Alig-Mielcarek, J. M. (2003*). A model of school success: Instructional leadership, academic press, and student achievement*. The Ohio State University. Retrieved from http://rave.ohiolink.edu/etdc/view?acc_num=osu1054144000

Berkovich, I., & Eyal, O. (2015). Educational Leaders and Emotions: An International Review of Empirical Evidence 1992–2012. *Review of Educational Research, 85*(1), 129–167. doi: 10.3102/0034654314550046

Blanco, E. (2009). Eficacia escolar y clima organizacional: Apuntes para una investigación de procesos escolares. *Estudios sociológicos, 27*(80), 671-694.

Camburn, E. M., Spillane, J. P., & Sebastian, J. (2010). Assessing the utility of a daily log for measuring principal leadership practice. *Educational Administration Quarterly, 46*(5), 707-37. doi: 10.1177/0013161x10377345

Campos, F., Valdés, R., & Ascorra, P. (2019) ¿Líder pedagógico o gerente de escuela? Evolución del rol del director de escuela en Chile. *Calidad en la Educación, 51*, 53 – 84. doi: 10.31619/caledu.n51.685

Claessens, B. J., Van Eerde, W., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel review, 36*(2), 255–276.

Cravens, X., Goldring, E., & Peñaloza, R. V. (2011). Leadership Practices and School Choice. Research Brief. In *National Center on School Choice*, Vanderbilt University (NJ1). Retrieved from http://eric.ed.gov/?id=ED543584

Creemers, B. P. M. (1994). *The effective classroom*. Cassell.

Daniëls, E., Hondeghem, A., & Dochy, F. (2019). A review on leadership and leadership development in educational settings. *Educational Research Review, 27,* 110-125. doi: 10.1016/j.edurev.2019.02.003

Darling-Hammond, L., LaPointe, M., Meyerson, D., & Orr, M. T. (2007). *Preparing School Leaders for a Changing World: Lessons from Exemplary Leadership Development Programs. School Leadership Study*. Stanford Educational Leadership Institute. Retrieved from http://eric.ed.gov/?id=ED533700

Day, C., & Sammons, P. (2013). *Successful Leadership: A Review of the International Literature. CfBT Education Trust*. Retrieved from http://eric.ed.gov/?id=ED546806

Day, C., Hopkins, D., Harris, A., & Ahtaridou, E. (2009). *The impact of school leadership on pupil outcomes. Final Report.* University of Nottingham & The National College for School Leadership. Retrieved from http://dera.ioe.ac.uk/11329/1/DCSF-RR108.pdf

Dumay, X., & Galand, B. (2012). The multilevel impact of transformational leadership on teacher commitment: cognitive and motivational pathways. *British Educational Research Journal, 38*(5), 703–729. doi: 10.1080/01411926.2011.577889

Dumay, X., Boonen, T., & Van Damme, J. (2013). Principal leadership long-term indirect effects on learning growth in mathematics. *The Elementary School Journal, 114*(2), 225–251. doi: 10.1086/673198

Dutta, V., & Sahney, S. (2016). School leadership and its impact on student achievement: The mediating role of school climate and teacher job satisfaction. Inter-

national *Journal of Educational Management, 30*(6), 941-958. doi: 10.1108/IJEM-12-2014-0170

Goldring, E., Grissom, J., Neumerski, C. M., Blissett, R., Murphy, J., & Porter, A. (2019). Increasing principals' time on instructional leadership: Exploring the SAM® process. *Journal of Educational Administration, 58*(1), 19-37. doi: 10.1108/JEA-07-2018-0131

Goldring, E., Huff, J., May, H., & Camburn, E. (2008). School context and individual characteristics: what influences principal practice? *Journal of Educational Administration, 46*(3), 332–352. doi: 10.1108/09578230810869275

Grissom, J. A., Loeb, S., & Master, B. (2012). What is effective instructional leadership? Longitudinal evidence from observations of principals. Paper presented at the *Annual meeting of the Association for Public Policy Analysis and Management annual meeting*, Baltimore, MD.

Grissom, J. A., Loeb, S., & Master, B. (2013). Effective instructional time use for school leaders longitudinal evidence from observations of principals. *Educational Researcher, 42*, 433–444. doi: 10.3102/0013189x13510020

Grissom, J. A., Loeb, S., & Mitani, H. (2015). Principal time management skills: Explaining patterns in principals' time use, job stress, and perceived effectiveness*. Journal of Educational Administration, 53*(6), 773–793. doi: 10.1108/jea-09-2014-0117

Gronn, P. (2003). *The New Work of Educational Leaders*. Paul Chapman Press.

Hallinger, P., & Heck, R. H. (1996). The principal's role in school effectiveness: An assessment of methodological progress, 1980–1995. En *International Handbook of Educational Leadership and Administration* (pp. 723–783). Springer.

Hallinger, P., & Lu, J. (2014). Modelling the effects of principal leadership and school capacity on teacher professional learning in Hong Kong primary schools. *School Leadership & Management, 34*(5), 481–501. doi: 10.1080/13632434.2014.938039

Haynes, N. M., Emmons, C., & Ben-Avie, M. (1997). School climate as a factor in student adjustment and achievement. *Journal of educational and psychological consultation, 8*(3), 321-329. doi: 10.1207/s1532768xjepc0803_4

Heck, R. H., & Hallinger, P. (2009). Assessing the contribution of distributed leadership to school improvement and growth in math achievement. *American Educational Research Journal, 46*(3), 659–689. doi: 10.3102/0002831209340042

Hendriks, M., & Steen, R. (2012). Results from school leadership effectiveness studies (2005–2010). In J. Scheerens (Ed.), *School leadership effects revisited: Review and meta-analysis of empirical studies* (pp. 65-129). New York: Springer.

Horng, E. L., Klasik, D., & Loeb, S. (2010). Principal's time use and school effectiveness. *American Journal of Education, 116*(4), 491–523. doi: https://doi.org/10.1086/653625

Huang, T., Hochbein, C., & Simons, J. (2020). The relationship among school contexts, principal time use, school climate, and student achievement. *Educational Management Administration & Leadership, 48*(2), 305-323. doi: 10.1177/1741143218802595

Johnson, B., Stevens, J. J., & Zvoch, K. (2007). Teachers Perceptions of School Climate: A Validity Study of Scores From the Revised School Level Environment Questionnaire. *Educational and Psychological Measurement, 67,* 833–844. doi: 10.1177/0013164406299102

Kouali, G., & Pashiardis, P. (2015). Time management profiles of Cypriot school principals: a mixed-methods approach. *International Journal of Educational Management, 29*(4), 492–518. doi: 10.1108/ijem-02-2014-0019

Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: Effects on students, teachers, and their classroom practices. *School effectiveness and school improvement, 17*(2), 201–227. doi: 10.1080/09243450600565829

Leithwood, K., (2009). *Cómo liderar nuestras escuelas: aportes desde la investigación.* Santiago de Chile: Fundación Chile.

Marfan, J., & Pascual, J. (2018). Comparative study of school principals' leadership practices: Lessons for Chile from a cross-country analysis. *Educational Management Administration & Leadership*, *46*(2), 279-300. doi:10.1177/1741143217732792

Murillo, F. J. (coord) (2007*). Investigación Iberoamericana sobre Eficacia Escolar.* Convenio Andrés Bello.

Murillo, F. J., & Roman, M. (2013). La distribución del tiempo de los directores de escuelas de Educación Primaria en América Latina y su incidencia en el desempeño de los estudiantes. *Revista de Educación, 361*, 141-170.

Ning, B., Damme, J. V., Noortgate, W. V. D., Yang, X., & Gielen, S. (2015). The influence of classroom disciplinary climate of schools on reading achievement: A cross-country comparative study. *School Effectiveness and School Improvement, 26*(4), 586-611. doi: 10.1080/09243453.2015.1025796

OCDE. (2009). *Creating effective teaching and learning environments: First results from TALIS*. Organisation for Economic Cooperation and Development.

Panayiotis, A. (2013). School Leadership Effects Revisited: Review and Meta-Analysis of Empirical Studies. *School Effectiveness and School Improvement, 24(*1), 1–7. doi: 10.1080/13803611.2012.718485

Pashiardis, P. (2014). The Leadership Styles of the Pashiardis-Brauckmann Holistic Leadership Framework Across Europe. In P. Pashiardis (Ed.), *Modeling School Leadership Across Europe* (pp. 65–87). Springer.

Peeters, M. A., & Rutte, C. G. (2005). Time management behavior as a moderator for the job demand-control interaction. *Journal of Occupational Health Psychology, 10*(1), 64-75. doi: 10.1037/1076-8998.10.1.64

Protheroe, N. (2009). Using Classroom Walkthroughs to Improve Instruction. *Principal, 88*(4), 30–34.

Robinson, V. M., Lloyd, C. A., & Rowe, K. J. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly, 44*(5), 635-674. doi: 10.1177/0013161X08321509

Sammons, P. (2006). Embracing Diversity: New challenges for School Improvement in a Global Learning Society International. En *Congress for School Effectiveness and Improvement*, Fort Lauderdale.

Scheerens, J. (1990). School effectiveness research and the development of process indicators of school functioning. *School Effectiveness and School Improvement, 1*(1), 61-80. doi: 10.1080/0924345900010106

Sebastian, J., & Allensworth, E. (2012). The influence of principal leadership on classroom instruction and student learning a study of mediated pathways to learning. *Educational Administration Quarterly, 48*(4), 626–663. doi: 10.1177/0013161x11436273

Sebastian, J., Allensworth, E., & Stevens, D. (2014). The influence of school leadership on classroom participation: examining configurations of organizational supports. *Teachers College Record, 116*(8), 1–36.

Sebastian, J., Camburn, E. M., & Spillane, J. P. (2018). Portraits of Principal Practice: Time Allocation and School Principal Work. *Educational Administration Quarterly*, *54*(1), 47-84. doi: 10.1177/0013161X17720978

Shatzer, R. H., Caldarella, P., Hallam, P. R., & Brown, B. L. (2013). Comparing the effects of instructional and transformational leadership on student achievement Implications for practice. *Educational Management Administration & Leadership, 42*(4), 445–459. doi: 10.1177/1741143213502192

Spillane, J. P., Camburn, E. M., & Stitziel Pareja, A. (2007). Taking a distributed perspective to the school principal's workday. *Leadership and policy in schools, 6*(1), 103–125. doi: 10.1080/15700760601091200

Supovitz, J., Sirinides, P., & May, H. (2009). How principals and peers influence teaching and learning. *Educational Administration Quarterly, 46*(1) 31–56. doi: 10.1177/1094670509353043

Timperley, H. (2011). *A background paper to inform the development of a national professional development framework for teachers and school leaders.* AITSL.

Vaillant, D., & Zidán, E. R. (2016). Prácticas de liderazgo para el aprendizaje en América Latina: un análisis a partir de PISA 2012. *Ensaio: Avaliação e Políticas Públicas em Educação*, *24*(91), 253–274. doi:10.1590/s0104-40362016000200001

Van Vooren, C. (2018). An Examination of K-5 Principal Time and Tasks to Improve Leadership Practice. *Educational Leadership and Administration: Teaching and Program Development, 29*(1), 45–63.

Zirkel, S., García, J. A., & Murphy, M. C. (2015). Experience-sampling research methods and their potential for education research. *Educational Researcher, 44*(1), 7–16. doi: 10.3102/0013189x14566879