



What Works in Education?

Using Evidence to Improve Education

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Does school leadership affect student academic achievement?

Álvaro Choi and María Gil

Leadership may play a key role in improving educational processes and, potentially, in enhancing student academic achievement. However, this apparently simple claim conceals a complex reality, as there are many leadership models and a wide range of school leader characteristics that may bear an impact on their effectiveness. In fact, even the very definition of school leader is contentious. Therefore, determining the impact of the role played by school leaders on student academic achievement poses a challenge. In this review, we present the state of play as regards the literature that forges a link between leadership, types of leadership and leader characteristics with academic achievement.

“For too long, education has been based on inertia and tradition, and changes in educational intuitions or beliefs were unfounded. The ‘what works’ movement enters into the world of education with a clear objective: to promote evidence-based educational policies and practices. Ivàlua and the Jaume Bofill Foundation have joined forces to promote the movement in Catalonia.”



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Using Evidence to Improve Education

Does school leadership affect student academic achievement?



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Motivation

Enhancing the efficiency of resource allocation to the education system and improving student achievement constitute two overriding goals for the education authorities. Recent evidence seems to suggest that school leaders may play a vital role in accomplishing both objectives [1], [2]. Equipping schools with effective management teams and leadership models, understood as those conducive to improvements in academic performance and other areas, is even more important in a growing framework of autonomy, as in the case of Catalonia.

The link between leadership and academic achievement is nevertheless difficult to determine for at least three reasons. Firstly, due to the difficulty in establishing a single definition of school leadership [3]. Secondly, on account of the existence of different forms of leadership and the many characteristics that an effective leader may possess. Finally, because it is difficult to isolate both the direct and indirect effects – through other agents, such as teachers – that the school leader or leaders

can have on students. This has led to a dispersal in the literature on the subject and, until very recently, to the dearth of studies that evaluate the impact of various dimensions of leadership (types, leader characteristics and changes in management teams) on student achievement. Therefore, in the review undertaken in this study, we adopt a perspective that is broad as regards the definition and types of leadership, but that is strict as regards the type of evaluations included, which are limited to impact assessments on student achievement.

There is a shortage of experimental or quasi-experimental evidence in this field, and the bulk of the studies are concentrated in English-speaking countries. Nonetheless, as a preview of the main findings, it can be held that: a) school leadership affects academic achievement; b) the effect size is indeterminate and seems to vary according to the context; c) there is still controversy over which types of leadership prove more effective in improving academic achievement; and d) the stability of management teams and the inspection of their work exert a positive effect on academic achievement.

Equipping schools with effective management teams and leadership models is even more important in a growing framework of autonomy, as in the case of Catalonia.



Object of the study

In this review, the significance of different types of leadership and leader characteristics for academic achievement in primary and secondary education is analyzed. Consideration is therefore only given to studies that incorporate some form of outcome measure of academic achievement, for instance, reading or mathematical competencies, exam results, or permanence in the education system. Excluded therefore are studies limited to analyzing the effect of leadership on teachers, without appraising the effect in terms of student academic achievement.

We start out from a broad definition of leadership, at the core of which are two functions: providing direction and exercising influence [3]. Leaders mobilize and work with their colleagues, making them achieve specific goals. Leaders can therefore contribute both directly and indirectly to accomplishing said objectives, and they do not necessarily have to be part of the management team. Thus, leaders are those who occupy different roles in the school that provide direction and exert influence to achieve the pursued goals. Consequently, excluded from the review are studies not directly related to leadership in itself, such as analyses of the effects of school autonomy or the quality of the teaching staff.

On the other hand, this review compiles studies that evaluate different types of leadership, without adhering to any of the many established classifications [4], [5]. Nonetheless, it is worth keeping some of these forms in mind, since they are used more frequently in the studies consulted. Noteworthy among the different types of leadership are those models that centralize the task of leadership in the school management team:

- **Managerial leadership**, whereby the school principal must perform roles and responsibilities that facilitate the work of other staff in the school.
- **Instructional leadership**, whereby the management team must seek to change, introduce or align teachers' pedagogical practices.
- **Transformational leadership** entails management teams' contribution to introducing changes in the school culture and organizational restructuring.

As opposed to centralized models, **democratic or distributed leadership** considers that the role of leadership must be performed in a collegiate manner by the management team and those that are not part of it, mainly, teachers.

A last model that is worth mentioning, although no analysis has been found that evaluates its impact on academic achievement, is **system leadership**, in which educational leaders act as such not only in their school but also in other schools and in networks it is part of.

As regards the pertinent characteristics of effective leaders, they vary according to the model of leadership in question. Hence, for instance, whereas in a managerial leadership model, elements such as the leader's planning capacity prevail, in a democratic leadership model, matters such as the capacity for dialogue or empathy take on particular significance. The previous characteristics are difficult to assess quantitatively, given the complex nature of their measurement.

The potential existence of direct and indirect effects of leadership on academic achievement, coupled with the heterogeneity of different leadership models and dimensions that may characterize an effective leader, justifies the broad perspective adopted in this study, both as regards the definition of school leadership – which is essentially but not exclusively based on the management team – and the leadership models evaluated.

Noteworthy among the different types of leadership are those models that centralize the task of leadership in the school management team.



Questions influencing the review

This study presents the state of play as regards the literature that analyzes the relationship between school leadership, types of leadership and leader characteristics on student academic achievement in primary and secondary education. This review therefore seeks to answer two fundamental questions: 1) Do different leader characteristics affect academic performance? and 2) what elements linked to different leadership styles have an impact on academic performance? More specifically: what types of leadership exert a greater impact on school performance and what attributes characterize the most effective leaders? Is this effect homogeneous across all schools? The answer to these questions must facilitate the design of education policies applicable to the Catalan education system.

Reviewing the evidence

The review of the evidence presented below has adhered to the following sequence. Firstly, the availability of previous meta-analyses in the repositories of institutions of recognized standing in the execution of reviews of reviews was investigated (see Alegre, 2015:7 [6]) to ensure they fulfill the goals of this study. The absence of this type of document in the case concerned brought us, secondly, to identify meta-analyses of the association between various dimensions of school leadership and academic achievement through online search engines, with the goal of conducting a review of reviews. As outlined below, the papers consulted are based on quantitative studies that are descriptive in nature. As a result, they do not suffice to establish causal relationships. Hence, thirdly, we proceeded to conduct online research into specific empirical works that had applied experimental or quasi-experimental methodology to appraise the effects of leadership on academic achievement.

What follows is a brief description of the main findings of the review of the meta-analyses. Subsequently, the conclusions that can be drawn based on the study of specific impact assessments are presented. In both cases – reviews and impact assessments –, the temporal scope was limited to the period 2000-2017.

a) Review of existing meta-analyses

The ten studies compiled are presented in [Table 1](#). These works are characterized by diversity in number – from a minimum of 15 to a maximum of 110 – and type of studies reviewed, their respective geographical scope – though the majority tend to focus on studies undertaken in the United States and the United Kingdom – and the consideration of different effects of leadership on academic achievement: those that endeavor to establish a connection between leadership or specific leadership styles and academic achievement (direct effect) and those that delve into understanding the mechanisms whereby leadership ultimately exerts an impact on academic achievement (indirect effect).

Table 1.
Meta-analysis of the effect of leadership on school performance (N=10)

Author/s	Number Studied	Location/ Period	Direct / Indirect Effect	Effect Size
Chin (2007) [7]	28 (11 on the effect on academic achievement)	Taiwan and USA / 1990-2006	Direct and indirect	Moderate effect of transformational leadership: $r = 0.49$. Larger transformational effects in schools with a high socioeconomic status and positive community attitude.
Hendriks and Scheerens (2013) [8]	15	International / 2005-2010	Indirect	Positive but very limited correlation (r between 0.05 and 0.06).
Karadağ <i>et al.</i> (2015) [9]	57	International / 2008-2013	Direct	Positive correlation with performance ($r = 0.34$). Leadership styles: democratic ($r = 0.42$); transformational ($r = 0.40$); instructional ($r = 0.24$).
Leithwood and Sun (2012) [10]	24	International / 1996-2012	Direct	Positive but limited correlation between transformational leadership and performance ($r = 0.09$).
Robinson (2007) [4]	24	International / 1978-2006	Direct	Establishing goals and expectations: $SD = 0.35$. Strategic resourcing: $SD = 0.34$. Planning, coordinating and evaluating teaching and the curriculum: $SD = 0.42$. Promoting and participating in teacher learning and development: $SD = 0.84$. Ensuring an orderly and supportive environment: $SD = 0.27$.
Robinson <i>et al.</i> (2008) [11]	27	International / 1978-2006	Direct and indirect	Styles: Transformational: $SD = 0.11$; instructional: $SD = 0.42$; other: $SD = 0.30$. Dimensions: Establishing goals and expectations: $SD = 0.42$. Strategic resourcing: $SD = 0.31$. Planning, coordinating and evaluating teaching and the curriculum: $SD = 0.42$. Promoting and participating in teacher learning and development: $SD = 0.84$. Ensuring an orderly and supportive environment: $SD = 0.27$.
Sun and Leithwood (2015) [12]	110	International / 1996-2008	Direct	Direction-setting leadership practices: $r = 0.05$, not significant. Probable indirect effects.
Waters and Marzano (2006) [13]	14	USA / 1970-2005	Direct (at district level)	Moderate effect of district-level leadership ($r = 0.24$). The agreement with principals to set objectives, the acceptance thereof by school boards, and the monitoring and evaluation of pedagogical goals and achievement also exert positive effects.
Waters <i>et al.</i> (2003) [14]	70	International / 1970-2003	Direct	Positive moderate effect ($r = 0.25$). It identifies 21 leadership dimensions (which range between $r = 0.15$ and $r = 0.33$). If the SD is increased by 1 for the 21 dimensions, the average score increases by 10%.
Witziers <i>et al.</i> (2003) [15]	37	International / 1986-1996	Direct	Direct effect: $ZR = 0.02$. 4 to 9 statistically significant leader activities: Improvement of communication ($Zr = 0.19$); supervision and evaluation ($Zr = 0.02$); monitoring ($Zr = 0.07$); and visibility ($Zr = 0.07$).

Note. The column "number of studies" refers to the number of studies of a qualitative nature used by each review to gauge the magnitude of the effect of leadership on student academic achievement.

R: Correlation coefficient. Cohen [16] suggests that correlations with values close to 0.1 should be considered small effects; those close to 0.3, moderate; and those equal to or higher than 0.5, large effects.

Zr: Fisher transformation of the correlation coefficient.

SD: Standard deviation.

A characteristic shared by the studies analyzed is the fact that they draw findings and conclusions based on works that do not control the endogeneity of the appointment of the management teams, their characteristics and the type of leadership they practice. In other words, they do not consider the fact that the distribution and type of school leader are not random.

As can be seen in [Table 1](#), there is no consensus on the effect size, which largely depends on the studies selected to execute meta-analyses. In any event, the abundant literature compiled for these studies allows at least the following fundamental lessons to be learned:

The literature compiled in the meta-analyses points to the existence of a positive association between school leadership and academic achievement. The forms of pedagogical or instructional leadership and transformational leadership seem to be particularly effective.



- The existence of a positive association, of an uncertain magnitude, between school leadership and academic achievement.
- The importance of instructional and pedagogical leadership (role of leaders aimed at modifying, introducing or aligning teachers' pedagogical practices) and transformational leadership (role of leaders in introducing organizational changes and in the school culture) for academic achievement.
- The difficulty of modeling various dimensions of school leadership on academic achievement, as it operates through different channels.
- The need to complement these types of studies with analysis that employs more robust methodologies that allow causal links to be established between leadership and academic achievement.
- The appropriateness of establishing clearer differentiation between studies that analyze leadership in primary education and those that do so in secondary education.
- Finally, some studies, such as that of Chin [7], seem to suggest that the effect of leadership on student academic achievement may be larger in favorable educational contexts, with a high socioeconomic status and a committed school community.

b) Specific evaluations of particular interest

In-depth research into studies regarding the impact of leadership on student achievement reveals that studies of this kind are in short supply. The difficulty in obtaining sufficiently detailed data in order to contrast the findings constitutes the obvious limitation that translates into the significant dearth of empirical studies. The impact of a school principal on student achievement customarily takes place in the long term. Therefore, the measures, leadership styles and policies implemented by principals have an effect on more than one academic year, as shown by the studies consulted.

The studies examined that have been able to establish a causal relationship between the school principal's attributes and role and student achievement have generally been based on data capable of tracking the same students and principals over various periods of time. Furthermore, different types of data are generally combined: administrative data taken from surveys and student scores on standardized

tests. The information needs are therefore vast, as indicated by most studies. The bulk of the studies are undertaken in English-speaking countries and, strictly speaking, in small areas within these countries (counties, districts or cities). However, once these types of data sets are attained, the resulting information allows the findings obtained to be highly versatile: they can measure very different aspects of the principal's impact in a highly specific and accurate manner. In addition, this wealth of data allows rigorous analysis techniques to be applied, but without the need for cumbersome or sophisticated econometric methodologies.

These studies mainly focus on the primary level (only the studies by Coelliy Green [17] and Allen and Burgess [18] center exclusively on secondary education), although not all the studies specify the level of education, since data panels are involved, in which the students may proceed to the next level over the course of the years analyzed.

In this regard, the studies consulted examine very different aspects of leadership or programs that endeavor to enhance school principal training, summarizing a large volume of available data (for instance, based on very specific surveys with school principals), while exercising rigorous control of the detailed information provided by principals. Among the drawbacks is the limited external validity of the findings, that is, the difficulty in extrapolating them to other contexts.

Another feature common to these studies refers to the outcome variable, namely, they all incorporate variables related to academic performance, which are standardized in virtually all cases, and, generally speaking, for mathematical and/or reading literacy tests.

Finally, and before commenting on the detailed findings, it is worth noting that the analysis of the impact of leadership shows no clear homogeneity in the evidence consulted as regards the research question. In contrast, very different aspects are examined that can be grouped under the umbrella of leadership (for example, school inspections and the effect on leadership, principal rotation, school principal characteristics or quality, etc.), which are also put together in very different ways (as indices, rates, with an analysis of career paths, etc.).

Table 2 outlines the findings of the twelve studies consulted, which were capable of assessing the impact of principals (characteristics, measures adopted in the position, leadership, rotation in the position) on their students' academic achievement.

The studies consulted examine very different aspects of leadership or programs that endeavor to improve training for school principals, summarizing a large volume of available data.



Table 2.
Findings of studies measuring the impact of school principals

Author/s	Database	Location	Technique	Analysis Variable	Result Variable	Result	Effect Size
Allen and Burgess (2012) [18]	Panel of secondary schools (National Pupil Database) 2002-2011.	England	Regression discontinuity.	School inspection and effect on leadership.	Standardized student achievement.	Evident improvements as of two/three years.	10% SD the year prior to inspection, higher as of 2nd year.
Béteille, Kalgrides and Loeb (2012) [19]	Longitudinal data (Large Urban School District) 2003/04-2008/09.	Miami (USA)	Regressions with school and student fixed effects.	Principal rotation.	Student academic achievement.	Frequent rotation bears a negative impact on poorer academic achievement.	From 0.005 to 0.016 SD.
Coelli and Green (2012) [17]	Panel of administrative data for secondary and post-compulsory secondary schools 1995-2004.	Canada	Regressions with (time invariant) semi-parametric techniques; dynamic and static models.	Index of principal characteristics (quality) and principal rotation.	Standardized student academic achievement.	Limited impact over one period, positive and significant impact when principal remains in position for a sufficiently long period of time.	Increase of 2.6 points in English exam scores for principals 1 SD better than the mean effectiveness.
Clark, Martorell and Rockoff (2009) [20]	Panel of Department or NYC schools 1998/99-2006/07.	New York City (USA)	Regressions with school fixed effects.	Principal rotation and characteristics.	Standardized student academic achievement.	Limited impact of experience previous to principal appointment or level of education, positive in terms of principal experience.	0.039-0.061 SD.
Branch, Hanushek and Rivkin (2012) [21]	Panel of administrative data 1995-2001.	Texas (USA)	Regressions with principal fixed effects.	Principal rotation.	Student academic achievement.	Positive effect of no principal rotation.	0.05 SD if the principal is in the top 16 percent of the quality distribution.
Dhuey and Smith (2014) [22]	Administrative data of three Ministry of Education data sources 1999-2010.	British Columbia (USA)	Regressions with principal fixed effects and improvements in time-invariant academic achievement.	Quality of principal, experience and tenure.	Student academic achievement.	Positive impact on academic achievement, when quality is improved.	0.289-0.408 SD.

Table 2 (Continued).

Findings of studies measuring the impact of school principals

Author/s	Database	Location	Technique	Analysis Variable	Result Variable	Result	Effect Size
Fryer (2014) [23]	Primary schools classified as higher or lower performing schools 2010/11.	Houston, Texas, with extensions to Chicago and Denver (USA)	Natural experiment with random selection of control and treatment groups.	Principals selected for good performance in previous positions.	Student academic achievement.	Improvements in math scores, not language.	0.15-0.18 SD, per year.
Fryer (2017) [24]	58 schools selected over two periods.	Houston, Texas, (USA)	Natural experiment with random selection of control and treatment groups (29 schools).	Intensive training course for principals and principal rotation.	Standardized student academic achievement (in different competencies) and effects on teachers.	Improved scores across all competencies, especially mathematics and language.	0.17 SD the first year; 0.18 SD the second year; 0.08 SD and 0.03 SD in the case of rotation.
Grissom, Kalogrides and Loeb (2015) [25]	Panel of administrative data from public schools 2003/04-2010/11.	Miami Dade County (USA)	Regressions with student, school and principal fixed effects, per year.	Added value of principals and principal classification.	Standardized student academic achievement.	Positive impact, but with different values according to the model.	0.02-0.18 SD, depending on the model and test (mathematics/language).
Heck and Hallinger (2014) [26]	Survey data over three years.	Western State (USA)	Multi-level relationships of teachers, classes and schools.	Index of principal characteristics.	Standardized student academic achievement.	Positive impact of the role of principals, in different channels (schools, teachers, classes, students).	0.15 SD.
Jacob <i>et al.</i> (2015) [27]	126 rural schools (119 with student results) over three years.	Michigan (USA)	Natural experiment, evaluation of impact of the Balanced Leadership Professional Development program (41 treatment and 20 control groups).	BLPD program.	Academic results on standardized mathematics and language tests.	No significant impact on student academic achievement Positive impact on variables related to principal leadership.	0.04 SD, no significant impact.
Miller (2009) [28]	Administrative data from public schools (panel of 12 years).	North Carolina (USA)	Regressions with school and year fixed effects	Principal rotation.	Student academic performance on standardized tests (language and mathematics).	Poorer results the four years prior to the principal's departure, which improve after six years in the position.	0.006 SD increase in results for the principal's every additional year.

Note: SD stands for Standard Deviation.

Grouping the findings according to the leadership aspect analyzed, six papers ([17], [19], [20], [21], [24] and [28]) focus on principal rotation. The impact of rotation is negative, although not very large (-0.005 to -0.016 SD). Read positively, other studies analyze what happens when there is no rotation: academic results improve (from 0.04 to 0.05 SD; 0.006 SD for each additional year the principal remains in her or his position). This impact, moreover, is more marked (both positively when there is no rotation, and negatively when there is) in schools with low SES, although it may be mitigated in the event of rotation, or increased in the absence of rotation, when principals are more experienced.

The impact of rotation is negative, especially in schools with a low socioeconomic status.



Another three papers, [22], [23] and [25] provide different measurements of principal quality: their findings show that the best principals – superior in quality, assessed on the basis of an annual appraisal or as an indicator summary of characteristics, or selected for previous good performance – have a positive impact on their students' performance (more than 0.5 SD), although the findings provide different effect sizes according to the models assessed and the definitions of quality. Similarly, although from a different perspective, positive effects on academic achievement are obtained when principals are selected on the basis of good performance in previous positions.

The best principals (with better performance in annual appraisals or better previous performance) have a positive impact on their students' performance.



There are also works [20] that analyze principals' objective characteristics (previous experience and level of education), found to exert a non-significant impact *per se*. Another type of characteristic relates to the quality of practices implemented by principals [22], as well as their decisions when hiring and retaining the best teaching staff [21] and [27]. Studies show that the measures taken by principals in this regard may exert significant positive impacts on student academic achievement.

The objective characteristics of principals (previous experience and level of education) do not seem to have a significant impact *per se*.



Three papers, [21], [25] and [28], draw conclusions regarding different training programs aimed at principals. The impact of these programs is not conclusive: the effects are mixed or non-significant.

The impact of training programs for principals is not conclusive, possibly as they do not impart the skills a good principal must have.



The training programs may not suffice or fail to improve the skills the principals already possess, or simply, they do not impart the skills that a good principal must have. However, should a good program be designed [25], the positive impact is not only reflected in student academic achievement, but also in the training of teachers.

Finally, Allen and Burgess [18] demonstrate the positive impact borne by an OFSTED (Office for Standards in Education) inspection of poorly performing English schools deemed “unsatisfactory” in terms of leadership and school performance (see Box 1).

Box 1.

Three studies on leadership and academic performance

The study undertaken by Heck and Hallinger (2014) [26] is of major significance on account of the novel nature of their method. The authors use the multilevel, cross-classified model that seeks to establish the dynamic nature of relationships between leadership, teaching quality, student learning and school improvement. The methodology focuses on shedding light on paths through which school leadership affects student performance, and applies to a set of 60 primary schools in one state in the USA. The study thereby concludes that instructional leadership may moderate the effect of individual teachers on student performance. Moreover, it can really influence student achievement by creating conditions in the school that allow for greater consistency and collaboration among teachers.

In England, Allen and Burgess (2012) [18] analyze the impact borne by an OFSTED (Office for Standards in Education) inspection of poorly performing schools judged “unsatisfactory” in terms of leadership and results. Based on this judgment, a series of actions are implemented whose impact, together with a new inspection notice, is what is analyzed. To this end, the opportunity to identify schools designated just “failing” and those designated just “passing” is availed of. This allows the Regression Discontinuity (RD) technique to be applied, because schools with just-fails and just-passes are very similar in terms of characteristics. The previous identification of this type of school and the certainty that another inspection will be conducted may act as a catalyst for principals to adopt a series of measures that make their schools improve, or that may have the opposite effect, due to demotivation. The findings show that the year subsequent to the identification of poor-performing schools – specific measures are consequently applied by said schools that are aware they will be inspected –, the academic results of such schools reveal a 0.10 SD increase, even more in the second year and remain constant at this level for the two subsequent years.

Another particularly interesting study is that of Fryer (2017) [24], which analyzes the impact of a management training program for principals on student achievement in Houston, Texas. To this end, an experiment was carried out in which 58 public schools were selected, 27 of which constituted the experimental group. In this group of schools, their principals received a specific 300-hour training course split over two academic years. Findings of two types were obtained: on the one hand, principals of the participating schools increased the number of times they provided feedback to their teachers; on the other hand, the academic results of their students improved across all competencies during the first year and were upheld the second year, especially in those schools in which the principal remained in their post over the entire period.

For further information:

Heck, R.H. and Hallinger, P. (2014). “Modeling the longitudinal effects of school leadership on teaching and learning”. *Journal of Educational Administration*, 52(5), 653-681 [26].

Allen, R. and Burgess, S. (2012). *How should we treat under-performing schools? A regression discontinuity analysis of school inspections in England*. Bristol, UK: Centre for Market and Public Organisation [18].

Fryer, R. G. (2017). “Management and Student Achievement: Evidence from a Randomized Field Experiment”. Harvard University, Working Paper no. 23, p. 437 [24].

To conclude this section, it is interesting to summarize some of the limitations of the literature reviewed:

- If the focus is placed on impact and academic achievement, empirical evidence continues to be in short supply. The studies mainly concentrate on primary education, thus the existing evidence for other levels of education is even more limited. The studies are very location-specific and, therefore, their conclusions cannot be extrapolated to other contexts.
- The studies focus on the analysis of the effect on two very specific competencies: mathematics and language.
- The leadership aspects analyzed are very different and are measured in different ways, failing to address important aspects such as different leadership styles or different principal characteristics.
- The above issues, coupled with the fact that they operate with heterogeneous data sets, limit the comparability of the findings.

Summary

Determining the association between school leadership, types of leadership, principal characteristics and academic achievement is key to enhancing the efficiency of educational processes. The review of the studies carried out to date seem to reveal that various school leadership models may improve student academic achievement, though the magnitude of said effect is undetermined. Moreover, these studies synthesize the findings of studies that remain descriptive in nature and are therefore not capable of establishing causal relations. The execution of an ad-hoc review of the additional literature is therefore required in order to identify studies that provide more robust evidence.

Studies capable of establishing causal relationships between leadership and academic achievement are both recent and in short supply. In most cases, the evidence obtained by these studies is difficult to extrapolate (limited external validity), since they are location-specific, they consider the effects on two very specific competencies (mathematics and language) and they mainly apply to just one level of education (primary education). However, taking into account the previous limitations, the findings seem to support the following conclusions, which are also summarized in [Table 3](#).

Firstly, **leadership counts**. In other words: whether through direct or indirect channels, there is a relationship between leadership and academic achievement. Impact assessments, in any event, encounter greater difficulties in determining the channel whereby leadership exerts a potential positive effect on academic achievement.

Secondly, the **quality of practices** implemented by principals proves significant. Certain actions, concerning the hiring or retention of the best teachers or specific policies, can have a potentially positive effect on student performance. In contrast, principal tenure, capacity building and participation in training courses do not seem to bear a significant impact on student academic achievement. At any rate, it is not clear whether this result is due to the lack of a potential effect or to the poor design of training offered to principals.

Certain actions executed by principals, regarding the hiring and retention of the best teachers or specific policies, may potentially exert a positive effect on student performance.



Thirdly, **rotation** of management teams bears an adverse impact on student performance in schools. The fact that this effect seems more pronounced in schools in areas with a disadvantaged socioeconomic background is significant.

Finally, **inspection** of the work of management teams may enhance principal effectiveness, which is measured as their effect on academic achievement. In any event, we must ultimately emphasize the need to interpret the previous conclusions cautiously, given the dearth and limitations of the literature upon which the conclusions are based.

Table 3.
Relationship between leadership and academic achievement: Main conclusions

In a positive sense	In a negative sense
<ul style="list-style-type: none"> • School leadership affects academic achievement both directly and indirectly. • Some principal practices, regarding the hiring and retention of the best teachers, have a positive effect on student performance. • The inspection of leadership activity may enhance the effectiveness of school leaders 	<ul style="list-style-type: none"> • The rotation of management teams bears an adverse effect on school performance, especially in areas with a disadvantaged socioeconomic background.

Practical implications

Empirical evidence points to the existence of a causal relationship between leadership and academic achievement. Effecting improvements in principal quality therefore seems to be a major objective of educational policy. The initial selection of principals – as occurs with more effective teachers – can therefore constitute the first step, especially with a long-term perspective. In any case, the evidence reveals that improving selection processes is not the only means by which to enhance the effectiveness of school leaders. To begin with, it seems to indicate that the most effective leaders transcend a purely managerial role. The instructional and transformational roles of principals can play a positive part in improving school academic performance. Moreover, carrying out inspections and appraisals of the work of leaders may prove useful in order to steer them towards the type of activities that may enhance their effectiveness. Finally, the findings of the studies reviewed assert that the rotation of management teams should be minimized, especially in schools in areas with a disadvantaged socioeconomic background.

The previous findings have potential implications for the design of education policies in the Catalan education system. Firstly, given the importance of principal quality, the establishment of stricter criteria to perform the role might be an initial filter. This reasoning seems to be in line with literature that analyzes the quality of teaching staff, and that underlines the importance of initial teacher selection.

Given the importance of the quality of leaders, the establishment of stricter criteria to perform the role might be an initial filter.



Another alternative could entail creating a specialism, within the teaching degree, i.e. a school management specialism with more demanding pre-requisites, given the *primus inter pares* nature of the members of the management team.

It is appropriate to raise a point here as regards the existing debate over the appropriateness of professionalizing the management role of schools, through the setting up of an independent body. The empirical evidence does not allow us to form an opinion in this regard, or regarding the superiority of democratic leadership models over hierarchical models. Consequently, nor does it allow us to form an opinion over the potential effect borne by the teaching team choosing the management team members.

The findings of the studies reviewed do seem to suggest that, in any event, effective principals transcend their work as administrative managers. This reveals the need to provide training to leaders in aspects other than management. School inspections can play an important role in this regard, guiding management teams and, in a sense, training another member of said team.

Providing training to leaders in aspects other than management would prove useful. School inspections may play a significant role in this respect.



Finally, the review presented herein allows us to recommend the introduction of measures that mitigate the rotation of management teams, given their adverse effect on school performance. The fact that this effect is more pronounced in schools with a lower socioeconomic status calls for the need to establish incentive schemes in schools of this nature, with a view to attracting and retaining quality management teams.

The introduction of measures that mitigate the rotation of management teams is recommended, given its adverse effect on school performance.



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