

SCHOOL LEADERSHIP AND SCHOOL IMPROVEMENT: AN EMPIRICAL ANALYSIS IN ITALY

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Abstract

School principals are most important figure within the educational organizations to promote school improvement and effectiveness. The aim of this paper is not whether school leaders make "the difference", but to investigate how they help to build organizational environments and professional effective for teaching and learning.

In this study we analyze the accountability changes taking place in Italy and the implications for school leadership. We use data from a questionnaire send to over 10.147 teachers in 255 schools. The results confirm that leadership is indeed an important factor in improving professional practices and methods.

Keywords: leadership, school improvement, school effectiveness

1. INTRODUCTION

The aim of this paper is to investigate how principals help to build organizational environments to be professional and effective for teaching and learning (Mulford, Silin, 2003; Scheerens et al. 2007; 2012; Halligher & Heck, 1996; 2010; Robinson, Lloyd & Rowe 2008; Supovitz, 2008; Leithwood, Harris & Hopkins 2008; Day et al. 2009; Hendriks & Steen 2012).

The origin of quantitative research in the field of school leadership can be traced back to the research of school effectiveness (Edmonds, 1979; Bossert, et al., 1982; Rosenholtz, 1985). These scholars were interested in studying the effects of a number of variables at the school level – among which was the leadership of the school director – on the students' learning in comparison to the traditional factors of school as the socio-economic background of the students and the cultural context outside. The original interest was to understand the role of the school director as instructional leader who assumes direct responsibilities regarding the curriculum and the management of teaching, hence was conceptualized the term instructional leadership (Bridges, 1967). During the 80's different models of instructional leadership have been proposed (among others, Bossert et al., 1982; Rosenoltz, 1985), but the only one that has had a greater influence in literature and in practice is the model proposed by Hallinger and Murphy (1985), known by the acronym PIMRS (Principal Instructional Management Rating Scale).

Based on the PIMRS questionnaire, many extensive studies were conducted to analyze the quantitative effects of the leadership of the school director on the students' learning. Hallinger and Heck (1996; 1998; 2000) conducted a review of the literature in the period between 1980 and 1995, and concluded that the educational leadership of the school director produces a measurable effect, even though indirect, on school

effectiveness and study results of the students; the effect is small but statistically significant. By using a meta-analysis method, Scheerens et al. (2012) concluded that similar conclusions were reached in other studies.

Extant research has pointed out that indirect effects models recorded positive impact of leadership on student learning on a larger scale than the direct effects models. The mediating factors include a number of variables such as: the school climate, the school culture, the commitment of teachers compared to the mission, the teaching skills and experience of teachers, the structure of the curriculum, the teachers' sense of efficacy, the motivation, the professional development of the staff, the teachers' participation in decision-making, the sense of professional community, the time available for teaching, a disciplined and orderly environment (Hallinger and Heck, 1996; Heck and Moriyama, 2010; Leithwood et al., 2006; Ross, Gray, 2006; De Maeyer et al., 2007; Supovitz, 2008; Day et al., 2009; Leithwood, Patten, Jantzi, 2010; Bruggencate et al., 2010; Hendriks and Steen 2012).

Simultaneously with the spread of indirect effects models, the model of instructional leadership of the school director has been subjected to a growth of criticism on the theoretical level that led to the study of other forms of leadership that came from the most general of organizational theory and were related to the research on transformational leadership. Leithwood and colleagues (2003) have explained the differences between instructional and transformational leadership, distinguishing the different organizational arrangements through which the two approaches produce changes. The model of instructional leadership try to influence the learning of students by inducing changes in the "first order", by seeking to influence the conditions that directly affect the quality of the curriculum and teaching. By contrast, the transformational leadership seeks to generate changes of "second order", by having a step back, trying to increase the organizational capacities (capacity building) so that others could effect the change of *first order*. For example, the transformational leaders, rather than be directly involved in the development of new content and methodologies, create a productive climate and promote a culture of collaboration in order to drive teachers to engage in professional development with colleagues and to share professional knowledge useful to the improvement of learning of students.

2. METHODOLOGY

On the basis of the literature briefly recalled in the introductory section, we have designed the following model in which the leadership of the school principal interacts with the educational leadership of the teachers in order to build organizational capacities for improvement. These capacities provide the basis for change of teaching practices and methods according to the theoretical framework shown in Figure 1:

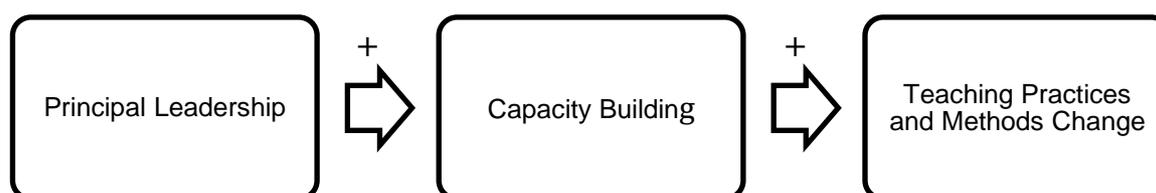


Figure 1: Impact of Principal leadership on the change of teaching practices and methods

In this paper we present the results of quantitative research based on data collected through the teachers' questionnaire distributed by INDIRE in collaboration with the Department of Business Science of the University of Bologna. The research questions that guide the study are summarized in the following points: what determines the personal commitment of teachers to improve teaching and learning? In particular, the perception of the factors of organizational context (culture, climate, organizational conditions) and the sense of self-efficacy and individual traits of teachers does affect their actual engagement in school improvement? The leadership of the DS has effects on the change of the practices of the teachers? Is there any mediating effect of leadership in the education of teachers?

The questionnaire was distributed in 285 schools that participated in the experiment VALES, 189 schools of which are located in the South of Italy (schools PON) and 96 schools are located in the central north. These schools comprised a total number of 23,856 are confirmed school teachers. 4 schools were involved in the pre-testing phase of the research instruments, while schools that were finally involved in the questionnaires were 255. 10,447 questionnaires were collected over the total number of 21,063 teachers (68.6%).

The questionnaire included three mains sections of questions, investigating the following areas:

a) Leadership of the school director

The leadership of the school director was measured through two dimensions that try to capture the practices of leadership for improvement: (i) *strategic alignment* and (ii) *guide of the process of self-evaluation and improvement*. The variable "*strategic alignment*" was measured through 11 questions about the definition of a shared vision of development, the statement of objectives of the school, and other practices of "*alignment*" of the structures and individual teachers to the objectives pursued. The variable "*Guide for self-evaluation and improvement processes*" refers to the direct involvement of the school director compared to the structures, the instruments, and the organizational mechanisms underlying the Italian legislation concerning the preparation of the Report of Self-assessment and planning of actions for improvement. The variable is composed of 9 questions.

b) *Building of organizational capacity for improvement (capacity building)*

According to the literature, the concept of capacity building comprises a number of variables of mediation of the effects of leadership of the school director. The concept encompasses the construction of organizational capabilities for improvement and in a broad sense, includes the following variables: (i) *didactic leadership of the teachers*; (ii) *collaborative culture*; (iii) *school climate oriented towards the improvement of learning*; and (iv) *self-efficacy of teachers*.

c) *Change of the practices of teacher*

If the concept of leadership assumes that of discontinuity and change, then we must expect that the school director, building organizational capacity for improvement, influences the behavior of teachers and determines, indirectly, the change in their practices.

3. METHODOLOGY AND RESULTS

Given the essentially indirect way by which the school director influences the learning, we should expect that the use of statistical methods that are able to study the indirect effects, such as using structural equation models, should improve our understanding on the effectiveness of leadership compared to teaching and learning (Scheerens et al., 2012).

Since the questionnaire was completed online, there were mandatory rules for each question, so as to avoid *missing data* (Table 2). Nevertheless, supervision was made for each application in order to check anomalous cases. The questions were first tested for consistency on a sample of three schools.

The observed variables were checked for their internal consistency with Cronbach's Alpha test (Cortina, 1993). The values in the range of 0.7-0.8, or highest, show a good internal consistency (Bland and Altman, 1997). The test results are shown in Table 3. The values show a good consistency for all indices.

The model used to test the relationship between the school leadership and the change of professional practices of teachers and teaching methods is described in Figure 2. The model was tested with Amos 22.0. There are various indices for testing the goodness of structural equation modeling (Bentler and Bonett, 1980). The values of the CFI; NFI; RMSEA and HOELTER are in the norm and confirm the robustness of the model. The chi-square has a degree of significance $p = 0.00$, but the index CMIN/DF (chi-square/degrees of freedom) is higher than the acceptable value. However, this index is known for its non-significance and gives not a good representation of the fit in the cases of many variables (Wheaton, 1987).

Table 1. SEM model goodness of fit

| | <i>CMIN/DF</i> | <i>CFI</i> | <i>NFI</i> | <i>RMSEA</i> | <i>HOELTER</i> |
|---------------------|----------------|------------|------------|--------------|----------------|
| Model Values | 31.72 | .934 | .939 | .054 | 343 |
| (Good fit) | <3 | >.90 | >.90 | <.08 | >200 |
| | NA | Acceptable | Acceptable | Acceptable | Acceptable |

The research results provide evidence of leadership for improvement, with particular regard to the quantitative effects of direct and indirect leadership of the school director and the didactic leadership of teachers. Actual research reveals the centrality of the school principal as a builder of organizational capacity for improvement. In addition, the shared leadership turns out to be a decisive factor in promoting the change of teaching and a genuine commitment to the improvement of professional practices by teachers.

The results of structural equation models are shown in Figure 2. The values of the relations between the latents are represented in Figure 2. The values are all significant, except for the control variables: *age*,

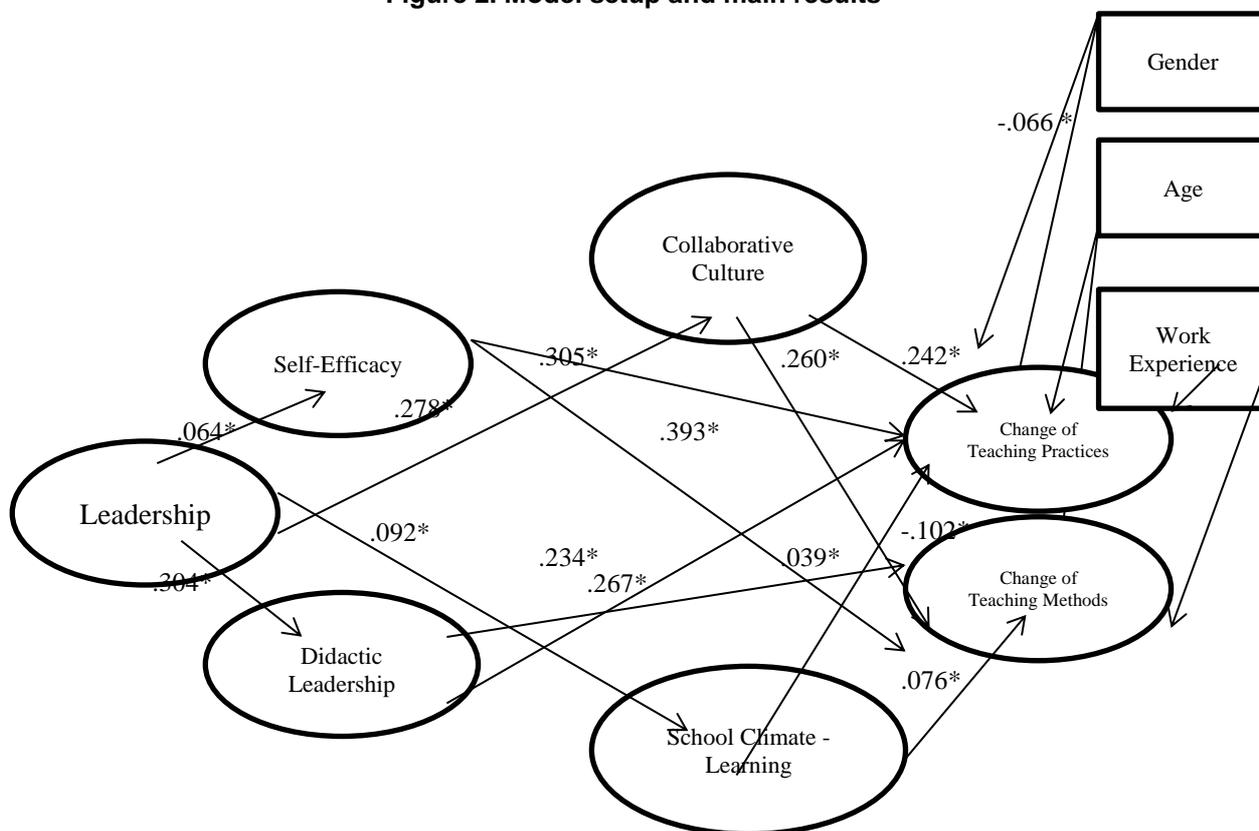
gender and years of work. The latent variable of *Leadership* is positively related with the *Self-efficacy* and *Didactic Leadership*. Practically, for every increase of *Leadership*, the *Self-efficacy* improves positively although not by much (+.064), while the effect is more sensitive in the case of *didactic leadership*, which improves of .304. Instead the effect on *collaborative culture* and *learning climate* are respectively of .278 and .092.

Self-efficacy has positive effects compared to *changes of practices* and *changes of methods*. The relationship is stronger in the *changes of methods* (.468) rather than in the case of *changes of practices* (.381). However, the relationships are both quite strong. The same can be said for the relationship between the *didactic leadership* and the *changes of practices* and *methods*, although with less strength, respectively of .300 and .338.

The same can be deduced for the *collaborative culture*, which has a positive effect stronger enough to *change the practices and methods* (.242 and .260). Instead, the *learning climate* (6.2) even though it shows a positive correlation with the *change of practices and methods*, the effects are almost zero, respectively of .039 and .076.

The model was tested for the mediating variables such as *gender, age and years of work*. The negative relationship of -.066 of gender (GQ0001) with the change of practices and of -.102 with the *change of methods*, means that men report less change in practices and methods rather than females. The *age*, although it has a statistically significant relationship, shows a report zero, whereas the *years of work* are not significant.

Figure 2. Model setup and main results



4. CONCLUSIONS

This research has focused on the role of the school leadership in building organizational environments to be professional and effective for teaching and learning. This leads to a better self-efficacy for the teachers and a more distributed leadership among them. Another finding of this paper suggests that principal leadership positively influences a more collaborative culture of the school and a better climate for learning. As a result, the principal transformational leadership affects the way teachers operate, by helping them improve and change their teaching practices and methods. The indirect effects of leadership through the organizational climate, support teachers in improving their teaching quality and therefore, it is expected, students learning.

This research supports school improvement and school effectiveness studies, highlighting the indirect role of the school leadership in setting the basis for a general improvement of the school results.

Table 2- Descriptive statistics

| Variables | Question Code | N | | Mean | Median | Mode | Variance |
|---|---------------|-------|---------|-------|--------|------|----------|
| | | Valid | Missing | | | | |
| Gender Age Work experience Self-Efficacy | G1Q0001 | 10417 | 0 | 1.17 | 1 | 1 | .139 |
| | G1Q0002 | 10406 | 11 | 51.38 | 52.00 | 57 | 57 |
| | G1Q0004 | 10408 | 9 | 11.56 | 10.00 | 1 | 73.28 |
| | G2Q00002_1 | 10417 | 0 | 3.47 | 3.00 | 3 | .273 |
| | G2Q00002_2 | 10417 | 0 | 3.46 | 3.00 | 3 | .297 |
| | G2Q00002_3 | 10417 | 0 | 3.34 | 3.00 | 3 | .300 |
| | G2Q00002_4 | 10417 | 0 | 3.41 | 3.00 | 3 | .333 |
| | G2Q00002_5 | 10417 | 0 | 3.34 | 3.00 | 3 | .361 |
| | G2Q00002_6 | 10417 | 0 | 3.32 | 3.00 | 3 | .382 |
| | G2Q00002_7 | 10417 | 0 | 3.45 | 3.00 | 4 | .321 |
| | G2Q00002_8 | 10417 | 0 | 3.52 | 4.00 | 4 | .306 |
| | G2Q00002_9 | 10417 | 0 | 3.28 | 3.00 | 3 | .350 |
| | G2Q00002_10 | 10417 | 0 | 3.30 | 3.00 | 3 | .357 |
| | G2Q00002_11 | 10417 | 0 | 3.59 | 4.00 | 4 | .262 |
| G2Q00002_12 | 10417 | 0 | 3.35 | 3.00 | 3 | .359 | |
| Didactic Leadership | G3Q00006_1 | 10417 | 0 | 3.29 | 3.00 | 5 | 1.856 |
| | G3Q00006_2 | 10417 | 0 | 3.16 | 3.00 | 4 | 1.588 |
| | G3Q00006_3 | 10417 | 0 | 3.08 | 3.00 | 2 | 1.675 |
| | G3Q00006_4 | 10417 | 0 | 2.32 | 2.00 | 1 | 1.751 |
| | G3Q00006_5 | 10417 | 0 | 1.97 | 2.00 | 1 | 1.396 |
| | G3Q00006_6 | 10417 | 0 | 1.75 | 1.00 | 1 | 1.345 |
| | G3Q00006_7 | 10417 | 0 | 3.69 | 4.00 | 4 | 1.154 |
| | G3Q00006_8 | 10417 | 0 | 3.05 | 3.00 | 3 | .803 |
| | G3Q00006_9 | 10417 | 0 | 3.19 | 3.00 | 3 | .800 |
| | G3Q00006_10 | 10417 | 0 | 3.01 | 3.00 | 3 | .833 |
| Change of Teaching Practices | G3Q00007_1 | 10417 | 0 | 3.05 | 3.00 | 3 | .460 |
| | G3Q00007_2 | 10417 | 0 | 3.02 | 3.00 | 3 | .496 |
| | G3Q00007_3 | 10417 | 0 | 2.87 | 3.00 | 3 | .534 |
| | G3Q00007_4 | 10417 | 0 | 2.69 | 3.00 | 3 | .655 |
| | G3Q00007_5 | 10417 | 0 | 3.18 | 3.00 | 3 | .559 |
| | G3Q00007_6 | 10417 | 0 | 3.28 | 3.00 | 3 | .461 |
| | G3Q00007_7 | 10417 | 0 | 3.00 | 3.00 | 3 | .655 |
| | G3Q00007_8 | 10417 | 0 | 2.83 | 3.00 | 3 | .648 |
| | G3Q00007_9 | 10417 | 0 | 3.12 | 3.00 | 3 | .526 |
| | G3Q00007_10 | 10417 | 0 | 3.13 | 3.00 | 3 | .600 |
| | G3Q00007_11 | 10417 | 0 | 3.20 | 3.00 | 3 | .480 |
| | G3Q00007_12 | 10417 | 0 | 2.99 | 3.00 | 3 | .641 |
| | G3Q00007_13 | 10417 | 0 | 3.22 | 3.00 | 3 | .575 |
| | G3Q00007_14 | 10417 | 0 | 3.30 | 3.00 | 3 | .479 |
| | G3Q00007_15 | 10417 | 0 | 2.65 | 3.00 | 3 | .847 |
| | G3Q00007_16 | 10417 | 0 | 2.15 | 2.00 | 1 | .963 |
| | G3Q00007_17 | 10417 | 0 | 2.35 | 2.00 | 3 | .828 |
| | G3Q00007_18 | 10417 | 0 | 2.21 | 2.00 | 2 | .902 |
| | G3Q00007_19 | 10417 | 0 | 2.27 | 2.00 | 3 | .861 |
| Change of Teaching Methods | G3Q00008_1 | 10417 | 0 | 3.07 | 3.00 | 3 | .576 |
| | G3Q00008_2 | 10417 | 0 | 2.72 | 3.00 | 3 | .744 |
| | G3Q00008_3 | 10417 | 0 | 2.92 | 3.00 | 3 | .717 |
| | G3Q00008_4 | 10417 | 0 | 3.08 | 3.00 | 3 | .635 |
| | G3Q00008_5 | 10417 | 0 | 3.00 | 3.00 | 3 | .808 |
| | G3Q00008_6 | 10417 | 0 | 2.85 | 3.00 | 3 | .716 |

| | | | | | | | |
|--|-------------|-------|---|------|------|---|-------|
| Strategic alignment | G5Q00001_1 | 10417 | 0 | 4.65 | 5.00 | 6 | 1.989 |
| | G5Q00001_2 | 10417 | 0 | 4.85 | 5.00 | 6 | 1.822 |
| | G5Q00001_3 | 10417 | 0 | 4.69 | 5.00 | 6 | 1.944 |
| | G5Q00001_4 | 10417 | 0 | 4.54 | 5.00 | 6 | 2.110 |
| | G5Q00001_5 | 10417 | 0 | 4.68 | 5.00 | 6 | 2.056 |
| | G5Q00001_6 | 10417 | 0 | 4.60 | 5.00 | 6 | 2.080 |
| | G5Q00001_7 | 10417 | 0 | 4.54 | 5.00 | 6 | 2.223 |
| | G5Q00001_8 | 10417 | 0 | 4.55 | 5.00 | 6 | 1.987 |
| | G5Q00001_9 | 10417 | 0 | 4.67 | 5.00 | 6 | 2.031 |
| | G5Q00001_10 | 10417 | 0 | 4.72 | 5.00 | 6 | 1.882 |
| | G5Q00001_11 | 10417 | 0 | 4.72 | 5.00 | 6 | 1.945 |
| Guide of the process of self-evaluation and improvement | G5Q00002_1 | 10417 | 0 | 4.53 | 5.00 | 6 | 1.983 |
| | G5Q00002_2 | 10417 | 0 | 4.67 | 5.00 | 6 | 1.951 |
| | G5Q00002_3 | 10417 | 0 | 4.70 | 5.00 | 6 | 1.893 |
| | G5Q00002_4 | 10417 | 0 | 4.63 | 5.00 | 6 | 1.962 |
| | G5Q00002_5 | 10417 | 0 | 4.62 | 5.00 | 6 | 2.048 |
| | G5Q00002_6 | 10417 | 0 | 4.58 | 5.00 | 6 | 2.198 |
| | G5Q00002_7 | 10417 | 0 | 4.44 | 5.00 | 6 | 2.111 |
| | G5Q00002_8 | 10417 | 0 | 4.80 | 5.00 | 6 | 1.737 |
| | G5Q00002_9 | 10417 | 0 | 4.59 | 5.00 | 6 | 2.084 |
| Collaborative culture | G6Q0000101 | 10417 | 0 | 3.45 | 4.00 | 4 | .473 |
| | G6Q0000102 | 10417 | 0 | 1.70 | 2.00 | 2 | .441 |
| | G6Q0000103 | 10417 | 0 | 3.30 | 3.00 | 4 | .575 |
| | G6Q0000104 | 10417 | 0 | 1.82 | 2.00 | 2 | .474 |
| | G6Q0000105 | 10417 | 0 | 3.04 | 3.00 | 3 | .715 |
| School climate oriented towards the improvement of learning | G6Q0000201 | 10417 | 0 | 1.75 | 2.00 | 2 | .327 |
| | G6Q0000202 | 10417 | 0 | 1.68 | 2.00 | 2 | .335 |
| | G6Q0000203 | 10417 | 0 | 5.84 | 6.00 | 7 | 1.531 |
| | G6Q0000204 | 10417 | 0 | 5.13 | 5.00 | 4 | 1.492 |

Table 3- Internal Consistency- Cronbach's Alpha

| | Nr. Domande | Cronbach's Alpha |
|--|--------------------|-------------------------|
| <i>Strategic alignment</i> | 11 | .98 |
| <i>Guide of the process of self-evaluation and improvement</i> | 9 | .97 |
| <i>Leadership</i> | 20 | .99 |
| <i>Didactic leadership of the teachers</i> | 10 | .83 |
| <i>Collaborative culture</i> | 5 | .88 |
| <i>School climate oriented towards the improvement of learning</i> | 4 | .84 |
| <i>Self-efficacy of teachers</i> | 12 | .87 |
| <i>Change of teaching practices of teachers</i> | 19 | .93 |
| <i>Change of teaching methods of teachers</i> | 6 | .85 |