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School improvement trajectories: an empirical typology

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ABSTRACT

This paper is based on a multiple case study of schools which have been identified as improving their performance for about a decade. We proposed different criteria by which to characterize and study these improvement processes and, by applying them to our sample, we elaborated a typology of school improvement trajectories: we identified 4 different trajectories of school improvement. We called the first type *restricted improvement* because at its center is the management of processes that mainly target academic achievement tests; the second is *incipient improvement*, which is based on changes that restructure the school processes; the third identified trajectory are cases where school improvement is *moving toward institutionalization*, while the last are those cases where improvement has been already *institutionalized* and the schools have achieved high levels of educational effectiveness. We identified challenges that schools face at different stages of school improvement and discussed some related policy issues.

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Introduction

A central objective of educational policy is to build effective schools; the key to this challenge is that increasingly more schools begin and sustain school improvement processes over time. Although this basic distinction is difficult for policy makers to accept, impatient to find a quick route to quality education, the academic field has analyzed the difference and complement between school effectiveness and school improvement. Since the second half of the 1990s, researchers have explored the factors that explain how schools become effective and how they maintain this condition over time (Gray et al., 1999; Hallinger & Heck, 2011; Harris & Chapman, 2004; Hopkins, 2001; Hopkins, Harris, & Jackson, 1997; Maden, 2001; Matthews, 2009; Mitchell, Cameron, & Wylie, 2002). This paper contributes to this line of research with new evidence from Chile.

Although there have been some studies about school improvement in Chile, they have been mainly linked to either compensatory programs (Asesorías para el Desarrollo & Santiago Consultores, 2000; Bellei, 2013), or how effective schools work with low-income populations (Bellei, Muñoz, Pérez, & Raczynski, 2004; Eyzaguirre & Fontaine, 2008), and more recently the characteristics of the leaders of effective schools (Weinstein & Muñoz, 2012); thus, the research has not systematically analyzed how the schools improve their effectiveness. The study partially reported here seeks to cover this gap.

The Chilean educational system is organized in three levels: pre-primary education (children up to 5 years old), primary education (8 grades), and secondary education (4 grades). There are three types of schools: (a) public schools, which are managed by the municipalities; (b) private subsidized

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schools; and (c) fee payment private schools. The educational system is characterized by a broad concept of school choice; a generalized voucher like funding mechanism, multiple for-profit and not-for-profit private providers (both with and without public subsidies), and an extended system of family co-payment across private-subsidized schools.

For more than two decades, Chile has a national assessment system of learning outcomes (SIMCE)[1] that applies tests in reading and mathematics. SIMCE carries out census-based assessments in 4th, 8th, and 10th grades and publishes the results at the school level. Increasingly, both positive and negative consequences to the schools have been linked to SIMCE results, and there is currently a test-based accountability system in Chile (Bellei & Vanni, 2015). Student learning outcomes in Chile are considerably below the Organisation for Economic Co-operation and Development (OECD) average, but there has been important progress in the last decade. Chile performed above any other Latin American country which took part in the Programme for International Student Assessment (PISA), but there are strong social inequities in the learning results.

The purpose of our study was to understand how some Chilean schools improved their educational effectiveness over relatively long periods of time. We based our work on a multiple case study of schools with sustained trajectories of school improvement between 2002 and 2010. We investigated the factors and processes that explain this improvement. The objective of this paper is to elaborate on these findings and propose an empirical typology to better understand the school improvement trajectories followed by the schools.[2] We first explain the criteria we used to define different school improvement trajectories and link them to the previous literature; second, we explain the methodology of our study; then, we present our main findings, describing four different school improvement trajectories identified in our sample; and finally, we conclude relating our study to some key educational policy issues.

Understanding sustained school improvement trajectories

An early attempt to identify different approaches to school improvement was proposed by House and McQuillan (1998), who distinguished between technological, political, and cultural perspectives on school reform, and proposed that complex changes involve tackling all three paths; the authors also identified the central role of leadership to successfully implement educational reforms combining those perspectives. Later, Corbett and Rossman (1989) applied this model to analyze multiple cases of successful implementation of school innovation, and reinforced the idea of complex interactions among the three paths, which established the relevance of including the micropolitic and the school culture as key components to study school improvement processes.

More recent studies about school effectiveness improvement show that few schools improve their processes or results in a gradual and sustained manner over time (Creemers & Kyriakides, 2010; Doolaard, 2002; Gray, Goldstein, & Thomas, 2003; Gray et al., 1999; Hopkins, 2001; Mangan, Pugh, & Gray, 2005; Thomas, Peng, & Gray, 2007). The findings suggest that the nature of the improvement is mainly unpredictable, not necessarily lineal, and is the product of the adaption of certain basic key procedures to the particular characteristics of each school (Gray, 2001; Gray et al., 1999). Once begun, improvement might be continuous but rarely advances as a stable process: Identifiable periods of significant improvements are followed by relative stability or even decline, and then renewed improvement (Elmore & City, 2007). According to Hopkins (2001, 2007), there exist distinct levels of development in school improvement, and effective strategies differ significantly between stages. In particular, it would be a certain sequence in the school improvement process once certain basic conditions have been achieved, towards more complex and multidimensional levels, some elements of which have been identified in the literature (Hopkins, 2001; Hopkins, Stringfield, Harris, Stoll, & Mackay, 2014).

In this line, a study characterized three different "routes toward school improvement": tactics, strategies, and the development of capacities (Gray et al., 1999). Tactics are short-term initiatives including specific actions such as focus on standardized testing, monitoring student results, supervision of teacher performance, or the introduction of remedial courses to support low-performance students. These changes are regarded as partial and limited to a small number of basic processes at the organizational or pedagogic level. Some authors have linked them to the idea of "normalization" in the sense of guaranteeing basic functioning and minimum conditions within the schools (Raczynski & Munoz, 2007). Other schools, which achieve better results, follow a strategic approach: Their priorities have a greater focus on the classroom, student learning, and a concern about the consistency of teaching between different levels and subsectors. Lastly, there are schools with a relatively high level of effectiveness, characterized by the development of capacities for improvement: They have a shared understanding about school change and of institutional weaknesses; and they show an intense process of collective reflection. Other authors have called them "learning organizations" (Senge et al., 2000), referring to schools that have created an internal capacity to sustain medium- and long-term changes.

Harris and Chapman (2004) propose two dimensions to characterize the internal capacity of school improvement. The first is the presence of a collaborative school culture in contrast to an individualistic culture (Hargreaves, 1994). The second is a continuum between internal and external accountability, being the first more conductive to school improvement (Elmore, 2003). Internal accountability is a reciprocal sense of professional responsibility that teachers experience as a peer commitment, while external accountability assumes that external or hierarchical pressures and incentives act uniformly as the motivator of improvement.

In institutional terms, according to Elmore and City (2007), a school improves when teachers' and principal's pedagogic competencies increase, teaching changes from being an individual to a collective activity, and the school aligns its organizational resources to support the improvement of classroom practices. For this to happen, there would be a certain repertory of practices undertaken by most successful school leaders (Leithwood & Riehl, 2005; Robinson, Hohepa, & Lloyd, 2009), which themselves would have different patterns according to the stage of school improvement (Day et al., 2009; Leithwood, Patten, & Jantzi, 2010; Marfan, Muñoz, & Weinstein, 2012); moreover, Leithwood et al. (2010) have pointed out that school leadership influences student learning through four different paths: rational, emotions, organizational, and family. A key implication of this evidence is that successful school leaders improve student achievement not only by their instructional leadership but also by alternative and more indirect channels.

More recent research on school improvement trajectories has been developed by Hallinger and Heck (2011), who identified different stages in the journey of improvement, and determined a reciprocal relationship between leadership and academic capacity at the school level to explain these improvement trajectories. Specifically, the authors assert that improvement trajectories are supported by different factors, the relative significance of which differs depending on the particular school's stage of improvement.

From our literature review and preliminary cross-case analysis, we elaborated an analytical framework composed by eight key dimensions that characterize school improvement processes.

Paths for improvement: where the emphasis is placed

This refers to the types of improvement strategies explicitly used by the school, which following Gray et al.'s (1999) scheme can be defined as: (a) short-term tactics: specific actions intended to resolve partial issues of school work with restricted goals, such as test preparation practices; (b) strategic approach: articulated changes that address different aspects of school work, with a focus on student learning and teachers' classroom work from a more comprehensive and medium-term perspective; (c) capacity building: schools where teachers

work collaboratively, with a focus on improving teaching; distributed leadership and the ability to adapt to contextual changes as well as intense peer learning among teachers; these schools define institutional objectives and create the conditions for continuous improvement.

Focus on learning and learning priorities

This criterion refers to two complementary aspects of what teachers try to provide as learning opportunities to their students. An underperforming school may begin its improvement process by placing "a focus" on basic academic learning; above this, schools differ according to whether their improvement processes prioritize a restricted focus on reading and math results, or also include other disciplines, if they add other cognitive and non-cognitive learning (not measured by standardized tests), and if they are oriented to develop higher order and social skills. On the other hand, this dimension is associated with an expansion of what is considered relevant as an educational experience for students, ranging from the establishment of basic routines to providing a comprehensive and multidimensional learning experience for each student (Bellei et al., 2004; Reynolds & Teddlie, 2000).

Institutional culture: the school's identity and symbolic capital

This dimension considers the level of a shared identity among the members of the school, a unifying story about the institutional mission, as well as a sense of community and belonging among its members. When the actors connect this collective identity with their own actions, they are able to give them meaning and at the same time find the motivation within the institutional mission (Corbett & Rossman, 1989; Deal & Peterson, 1999; House & McQuillan, 1998; Reynolds & Teddlie, 2000; Stoll & Fink, 1996).

Teachers' professional culture: internal accountability

This refers to the degree to which the teachers have a sense of collective responsibility for the education of students, the level of agreement about their expectations for both students' learning and teachers' performance, and shared beliefs about teaching and learning. It also refers to the level of trust between teachers and with the school leaders. Finally, it refers to the extent that "doing things well" has become an institutional commitment and a pressure from school colleagues and not just a personal trait that some teachers may possess (Bryk & Schneider, 2002; Elmore, 2003; Hargreaves, 1994; Harris & Chapman, 2004; Leithwood et al., 2010; Stoll & Seashore Louis, 2007).

Level of school performance

This refers to the students' performance, based on the attainment of the national curriculum goals. Schematically, schools might move from low to medium levels, from medium to high, and from high to outstanding on an educational performance scale. It is important to note that this characterization is based on "absolute" performance which is not adjusted for particular conditions of either the school or students, recognizing that high academic achievement is a common objective for all of them. Thus, although two schools may have increased their net effectiveness in similar ways, if both are located in very different levels of absolute performance, the challenges they face to improve are likely to differ.

The accumulated time of the improvement process

School improvement is a process, and so it is important to consider its temporal dimension. From the specialized literature, it is not clear how to operationalize this criterion, but *grosso modo* it might be considered that – when referring to the improvement process of a given school – short term is between 1 and 2 years, medium term between 3 and 4 years, and that 5 years or more is long term. When describing an improvement program, the phases can be classified in terms of initiation-implementation-institutionalization (Fullan, 2001; Miles, 1993).

Context: support or difficulty for school improvement

This criterion takes into account that social, institutional, and policy factors can stimulate or hinder school improvement; further, schools interpret these contextual influences in very different ways. Complementarily, the intensity of these external influences exercised upon schools – whether negative or positive – vary considerably, determining very different levels of relative effort (Harris, 2006, 2009; Lupton, 2004; Reezigt & Creemers, 2005; Teddlie, Stringfield, & Reynolds, 2000; Thrupp, Lupton, & Brown, 2007).

The level of institutionalization of school improvement

This aspect refers to the level by which both the "improved processes" and the processes of improvement have been incorporated into regular working practices in the school, have a support in the routines and institutional procedures of pedagogic and organizational management, and are then transmitted to the new community members. This produces a relative independence from the persons who are contingently present. Certainly, the degree of institutionalization of some practices can vary among different dimensions pertinent for improvement. This is also linked with the level in which the changes have spread to other areas-levels-actors in the school; that is, beyond those who were initially involved or most directly affected, and so developing an improvement process that is more comprehensive (Fullan, 2001; Hargreaves & Goodson, 2006; Hopkins, 2001; Miles, 1993).

Thus, we applied to our sample of case studies the defined eight criteria, in order to characterize different school improvement trajectories.

Method

The research that provides the empirical data for this paper was a multiple case study based on instrumental cases (Stake, 2003), undertaken with the purpose of constructing empirically based hypotheses about school improvement in Chile (Eisenhardt, 1989). Specifically, we conducted a qualitative study of 12 schools, with very different initial performance levels but that had improved their effectiveness significantly during the past decade. To select the sample, we created an educational performance index with which we estimated the trajectory of effectiveness followed by Chilean schools between 2002 and 2010.[3] The index was composed by a set of variables at the school and student levels: (a) the average score for reading and mathematics for fourth-grade students in the national academic achievement test, SIMCE; (b) estimated effectiveness for schools in terms of reading and mathematics achievement, obtained from multilevel regression analyses controlling for students' (family income and cultural capital) and schools' characteristics; (c) dropout and grade retention rates; (d) within-school inequity of students' academic achievement; and (e) proportion of students performing below proficiency level in reading and mathematics (Appendix 1 lists the variables included in the index).

Our estimates showed that around 9% of Chilean schools improved their performance significantly and with relative consistency during this period (332 schools in our sample); from this group, we applied additional theoretical criteria to select cases of genuine and comprehensive school improvement: comparatively non-selective schools in their admissions processes; schools achieving a basic level of fourth-grade performance in 2010 and that were consistent in terms of their eighth-grade SIMCE results. From this, the potential sample was reduced to 57 schools, of which we selected 12 by applying additional criteria of interest: free or low-fee schools, situated in different cities across the country; public and subsidized private schools, with some stability of the student population; consistent performance in Natural and Social Sciences (as measured by SIMCE); and with different initial performance. Definitively, the 12 studied schools included seven public and five private subsidized schools, located in the Capital of Santiago and another eight cities in Chile, and serving low- and middle-low-income populations (Appendix 1 contains a table with basic school characteristics for the 12 schools studied).

Each case study included interviews in the field with members of the school community about the recent history and different dimensions of the school, direct observations, informal conversations, and the analysis of documents. The interviews and observations were conducted by two researchers who remained a week in the school, during the second semester of 2012, and included at least 12 semi-structured interviews to the school principal, school academic coordinator, the general inspector[4], the school owner, the external supervisor (from the Ministry of Education), teachers (three group interviews), students (two group interviews), and parents or guardians (one group interview); semi-structured observations of school daily activities and two classroom observations (including complementary interviews to observed students and teachers). Researchers also collected school official documents, records, and statistics. The empirical material was axial coding by the researchers, who then produced 12 case study reports. This paper presents the results of a cross-case analysis conducted by the authors.

Findings: four types of school improvement trajectories

The observed processes of school improvement involved many aspects of school work, which are intricately related, often producing "unbalanced" progresses between dimensions. In practice, school improvement has been full of tensions and contradictions, and has not followed a single "plan". However, the cross-case analysis has allowed us to identify what we believe are certain patterns or stages; these are basic configurations which characterize the trajectories followed by the schools.

We identified four different trajectories of school improvement. We called the first type *restricted improvement* because at its center is the management of processes that mainly target academic achievement tests; the second is *incipient improvement*, which is based on changes that restructure the school processes; the third identified trajectory are cases where school improvement is *moving toward institutionalization*, while the last are those cases where improvement has been already *institutionalized* and the schools have achieved high levels of educational effectiveness. Although some of the components specify conditions that the schools ought to meet to increase their effectiveness, we do not conceive these trajectories as necessarily sequential stages; we return to this issue in the final section. Based on our case studies, we describe these trajectories in the following sections.

1. Restricted improvements: school regularizing (normalization focused on academic achievement tests)

The two schools that make up this group vary in many substantial aspects, including the reasons that motivated the improvement process and the actions taken to achieve it. However, they share a strong focus on the SIMCE results, the overarching dimension that dominates the

management of the schools and their improvement processes. When the study was carried out, this process had been in place for between 5 to 8 years. In both cases, the push for change originated in the principal's or owner's concern to improve (both are subsidized private schools) because of low SIMCE scores, which triggered the attempt to "normalize" the internal school process. Both schools improved their academic results significantly over the past decade, although with distinct performances; while one moved from a very low level to around the national average, the other increased from the national average level to a high level of student academic achievement.

Both schools are located in very disadvantaged environments and serve a school population with low economic and cultural capital. However, the level of their challenges differs; one has a high demand and has grown constantly in size because it is perceived to be successful in its area, which makes it more selective; the other school does not select students, many of whom have been rejected or expelled from other schools, either because of their very low socio-economic status or because of their unsatisfactory schooling experience including school failures.

As noted, the schools in this group targeted their improvement processes to transmit knowledge required by the SIMCE tests; this focused teaching to prioritize certain grades, tasks, content, and skills. Other educational challenges such as building a healthy school climate or helping students with learning difficulties did not appear to be central, or were understood pragmatically for SIMCE preparation. This focus has been in response to what they interpret as the priority for education policies: higher standardized test scores would become more than an indicator of quality, but the objective itself. As a result, these schools made intensive use of short-term tactics, and while implementing incipient strategies, they were always strongly targeted toward SIMCE. Led by the principals, this approach prioritizes the results of official academic achievement tests as the definition of improvement. This criterion aligns both school management and teaching practices.

These schools provide extra teaching time to students showing small progress in SIMCE preparation, mainly by working in groups organized by performance level. Nevertheless, they differ in the complexity of their approaches. One school can be described as using reactive and restricted tactics which are strictly limited to test preparation. The other school consistently applies a set of SIMCE-linked tactics and strategies to organize those tactics, including behavioral protocols in administrative and pedagogical areas, monitoring the implementation of SIMCE training, monitoring teachers, reporting the results to department heads, and applying administrative sanctions to teachers who do not plan their classes. Certainly, in both schools these tools are applied hierarchically, top down.

Schools in this group use lesson plans detailed class by class, which have to be approved in advance by the academic coordinator (or the principal), who then provides feedback to the teachers and requests corrections of detected errors; there are also classroom observations in both schools. Although the planning and monitoring are undertaken with imprecise instruments and little feedback to teachers in one case, and with formal and well-known instruments in the other, in both schools teachers interpret these practices as strategies of management control, not as a support for their pedagogic work.

These schools are characterized by a low level of teachers' horizontal accountability: they do not demonstrate a professional shared culture, and the activities of collective work are always organized and led by the school principals. Moreover, the observed mechanisms of supervision and accountability were clearly hierarchical, whether to ensure the elementary functioning of the school or to control pedagogical activities.

The schools with restricted improvement do not have an identifiable shared culture. Although it was possible to recognize some discursive common elements – such as a feeling of pride for working in socially adverse conditions – these were fuzzy and did not constitute a narrative of collective identity. Only the principals and some older teachers share a common story that is

limited to reinforcing the value of attaining gains in the SIMCE tests in spite of adversity. Thus, these schools lack symbolic capital to provide a definite collective identity widely shared by the school community.

Finally, in these schools the tools for school improvement are formalized and known to all. However, in both schools the procedures are very rigid, and they are exclusively the domain of the principal, the academic coordinator, and the school owner, but not the teaching staff. In both schools, those procedures operate as instruments for normalizing pedagogic management and classroom activities, reinforcing SIMCE preparation. Additionally, the concentrated focus on the external academic achievement tests only involves some teachers. Thus, "school improvement" as experienced in these schools has been a restricted process with a narrow institutional base.

2. Incipient improvement: restructuring school processes

Two schools of this group are public, and have increased their proportion of disadvantaged students. The third is a subsidized private school located in an area with a growing population and so has had no problems in terms of demand. According to SIMCE results, all of them improved their academic performance in reading and mathematics at the fourth grade: At the beginning of the 2000s, they scored below the national average, and by the end of the decade their scores were similar to the national average in reading and slightly higher in mathematics. For the three schools, this increase was concentrated in the second half of the decade. However, increases in the eighth-grade SIMCE test scores were far less pronounced or nonexistent.

The improvement processes at these schools are relatively recent, even though the institutional changes had been accumulated over 4 or 5 years prior to the study. This happened because all the schools changed their principals during this time, which involved a significant institutional restructuring or reorientation. So, we can affirm that this phase of institutional restructuring or reorientation triggered those school improvement processes.

In these schools, change was initiated "from above" as a reaction to institutional crises linked – in one case – to a sudden fall in the SIMCE results and – in the other two cases – to a general deterioration that not only involved low levels of students' performance but also the loss of students and prestige, within a climate of poor teaching and student motivation. The naming of a new principal or the intervention of higher authorities became the catalyst for the restructuring of the schools.

All reforms implied a change to the structures and processes of pedagogical management, although in two of the cases they also included the reestablishment of basic routines and processes of institutional management, teaching activities, and school daily life. These two schools redefined the roles and responsibilities of the principal and teachers, together with the introduction of a more systematic planning process. This clarified the school mission and its priorities, ordered the school organization, and improved the use of resources. The schools in this group installed instruments and strategies to support and monitor teaching; for example, lesson planning methods, classroom observations and feedback, monitoring curriculum coverage, and maximizing class time. Also, all introduced targeted strategies to support children with learning difficulties. Finally, they also established clear and stricter rules regarding student discipline, attendance, and punctuality and the systematic monitoring of their compliance.

Once over the initial reorganization, these schools were very active in implementing specific short-term changes, and only towards the end of the period did they begin to implement more comprehensive strategies of school improvement. While teachers generally value these changes, it is evident that they are in an early phase of development and adjustment, and have only involved those teaching at the first four grades.

There is a clear focus, in the schools of this group, on student's basic academic learning, especially reading and mathematics. Thus, SIMCE scores are a relevant indicator for these schools, and all of them undertake specific test preparation activities, although intensive training (i.e., systematic test practices or incentives linked to their results) was less regular than in the previous group. The priority given to basic academic learning in these schools clashes with their declared interest in developing various values, attitudes, and social norms (e.g., respect for others, self-esteem, self-regulation of behavior) that are considered as key for academic success and the social integration of students, particularly as they come from very disadvantaged socioeconomic populations.

These schools began their change from a traditional teaching culture characterized by isolated work to a greater institutional structure for the work of the teaching staff, with an emphasis on collective activities. The new leaders of the institutions created support strategies for teachers, with opportunities and time to share their classroom practices, materials, and problems; together with instruments for pressure and control, such as lesson plans and class observations. In two schools, these changes were facilitated by the renewal of a significant group of teachers; in those cases, principals had some autonomy to select new teachers, having as criteria the new school's challenges and guidelines. All this produced a greater coherence among teachers with their teaching strategies, appreciation of teamwork, and a sense of shared responsibility to increase students' learning outcomes.

Given the different institutional developments of each school, the promoted changes were also dissimilar. In the public schools, one focus was the elaboration of a new "narrative" that created a shared project and renewed their identity. One of them sought to re-valuate its mission as the oldest public school in the city and recover pride in its history, by promoting a sense of privilege and responsibility in belonging to it, which were key elements to strengthen the motivations of the school community. In contrast, the focus of the other school was to define itself as a "public school with a private identity", characterized by strict approach, order, and discipline to differentiate it from the stereotype of public schools. Both public schools introduced new symbols (e.g., uniforms, badges, and school hymn), rites (such as parades), and open days to show their achievements to the community. The subsidized private school (a religious school) could count on a strong identity and a mission at the beginning of the decade, which the authorities used to reinforce the changes that they wished to promote.

Additionally, these three schools sought to produce a positive climate with greater trust among the actors, in which all feel cared for and involved in the school improvement project. To this end, the initial focus of the improvement process was to develop positive relations of respect and a personal concern among different actors, and to expand the spaces for teachers' and parents' participation. In other words, to re-establish a sense of community.

Profound transformations and general strategies implemented in these schools are quite recent, and so their level of institutionalization is still incipient. Many of the changes introduced are to be found in a first adjustment, and are as yet highly targeted. In addition, the changes are markedly based on the strong school leadership (public schools) or the institutional rules of the school's owner (private), and the hierarchical mechanisms of pressure/control used, with very little from the teachers themselves; thus, their sustainability and autonomy remain fragile. Finally, teachers have not become "a community of professional learning", and the level of commitment and self-motivation of the school's internal actors is uncertain.

3. School improvement on the path to institutionalization

In general, schools in this group showed gradual and long-term school improvement processes (between 8 to 10 years). All of them began above a given basic working level in terms of their internal processes and during this period did not experience significant institutional crises. Further, their improvement processes have been cumulative, either because it has been led by the same

principals with a strong ability to lead their communities or because successive leaders have known how to maintain continuity, by building on the advances of predecessors, introducing changes only where they appear necessary.

Two of the schools may have benefited from the self-selection of families and students academically oriented; none of them serve a socially marginal school population, even though one school teaches students in a small semi-rural community and another has to face competition and "creaming" from new private subsidized schools. In contrast, in the other two cases, in addition to the low socioeconomic status of their students, the schools are located in socially marginalized areas so that they face highly challenging context.

These schools view their work as essentially oriented toward increasing knowledge acquisition and the development of cognitive skills. This is expressed by the relative priority given in time, effort, and resources to subjects and areas assessed by SIMCE. In fact, the schools began the decade scoring slightly below SIMCE national average and increased to a level above the average, but without attaining exceptional academic results. Thus, pedagogy and teaching materials, classroom and external assessment, control and monitoring of student's progress, and even the identification of students with learning difficulties who need reinforcement, tend to be considered (although not exclusively) according to the criteria evaluated by the standardized tests.

Nevertheless, these schools explicitly recognize the limitations of this perspective and emphasize (with varying levels of empirical support) the need for "comprehensive" education that goes beyond SIMCE. In consequence, all promote complementary sports and cultural activities, and that students should acquire the values, dispositions, and sociability, together with disciplined and normative conduct. However, schools of this group tend to give less priority to competencies not evaluated by tests (such as writing or higher cognitive skills) and to other domains of knowledge (such as science and the humanities). In short, these schools experience a tension which has not been successfully balanced between their claims to provide a comprehensive education and their focus on academic achievement assessed by official tests.

The processes followed by the schools from this group are well described as "strategic responses" for school improvement. All make use of specific tactics – mainly different forms of SIMCE preparation, the application of tests to guide teaching and remedial education, and targeted and intense support for students facing the greatest difficulties. Also, they apply different ways of alignment and monitoring teaching, through the use of common methods of lesson planning, assessment, classroom observation, and monitoring curriculum implementation, together with the successful management of discipline and the intense use of school time, among others.

Nevertheless, these tactics are not enough to explain improvements in these schools. In addition, they applied broader improvement strategies that deal with different aspects of teaching: planning, evaluation, developing materials. Also, they implemented sophisticated models which align pedagogy with the curriculum: revision of lesson plans, class observation, reviewing students' exercise notebooks together with methods of monitoring student progress, all of which is fed back into practice and teaching priorities. They also began to develop horizontal learning strategies among teachers such as peer observation, sharing teaching materials, and different types of collective activities. Thus, for these schools increasing student learning is the objective and improving teaching is the key strategy.

In these schools, the teachers share a professional culture with a sense of collective responsibility for their students' learning and for the high teaching standards. The teachers do not see themselves as isolated in their professional work but as part of a team, which exchanges ideas, materials, knowledge, pedagogic experience, and challenges. This horizontal collaboration is frequent and intense, although not always with enough time and adequate organization.

Teachers in these schools highly value their collaboration with peers as a means of professional development. Nevertheless, schools vary by the degree to which the collective activities of teachers have become professionalized and institutionalized as autonomous strategy for school improvement. In some schools, teacher peer collaboration has autonomy and clearly focuses on the development and exchange of substantive pedagogical knowledge. In others, the collective work of teachers mainly tackles the implementation of specific interventions, is more directly managed from outside (academic coordinator, external consultants), and therefore has low autonomy.

The schools in this group have a solid institutional culture, shared by the members of their communities, which feed a sense of belonging and collective identity. The communities have elaborated a story about their schools, and have connected these stories to their current missions and functions in their localities. They are schools with epic and narrative. The raw materials from which these communities have built their identities are very different. For one, it is that of a public school with a long tradition of excellence; for another, the novelty and difference of being a private school; and for the others, their social function of creating opportunities for socially disadvantaged populations. Over time, they incorporated two common elements into their identity narratives: satisfaction and pride associated with their achievements recognized from outside, and a salient competitive attitude (the wish to be best). For this group, these symbolic elements have become not only an institutional goal but also an internal motivator.

The activities of school improvement for this group are neither individual initiatives nor isolated actions; nor are they specific tactics to increase test scores. They are genuine institutional processes for school improvement. They involve management, planning, design, and monitoring all as part of collective work and a complex division of roles of institutional leadership, instructional leadership, and pedagogic implementation. However, these processes are only partially institutionalized and in some aspects are just incipient.

Consequently, these schools still have some way to go with their school improvement trajectories. While they have organized pedagogic management procedures that promote improvements and have sustained them over a number of years, the organizational dimension is not yet solid. This is because they lack well-established management structures, depend too much on individual leadership, or have not been able to arrange a satisfactory method of collective teachers' work. These schools remain in a "trial-and-error" phase, with organizational dynamics too fluid to become institutional practices.

In that sense, the schools' engines of improvement and control are based more on school leaders than on teachers' autonomous professionalism. Also, collective teachers´ work and teacher professional development activities are relatively weak, and they are strongly focused on the tasks at hand but less on how to learn collectively about solving teaching issues. Indeed, in these schools there is great concern about how to guarantee the sustainability of the improvements and changes when the experienced leaders – principal or teachers – are replaced, so recognizing their institutional fragility.

Further, in these schools improvement processes are still biased towards reading and mathematics, rather than other subjects, and are concentrated on the first grades. Therefore, there is a marked imbalance in teachers' level of involvement: school improvement processes have had some teachers as protagonists but others as spectators.

4. Institutionalized school improvement: reaching educational effectiveness

During the past decade, none of the schools with institutionalized school improvement (two public and one private school) suffered institutional crises, and in all there was stability in the school management team, which allowed them to sustain a process of pedagogic change and to consolidate effective innovations introduced over several years. However, the pace of the

improvement processes varied among schools. Two schools are more than 30 years old and were, at the beginning of the decade, more effective than their peers and had already a high level of "normalization" in their basic regulations and process; in both cases, their improvement trajectory accelerated in the last half decade. The institutional history of the third school is more recent and its improvement process even more accelerated. Established in 1998, it experienced two distinct periods: a focus on institutional organization until 2005, and then a sustained and systematic process of improvement. Thus, the time needed for those schools to become an "effective school" depended on the initial conditions facing each school.

The teachers and principals of these schools have an ethical conviction about their role on equalizing educational opportunity, with indicators such as access of their graduates to academically demanding secondary schools and then on to higher education. Thus, monitoring students' learning is their main criterion to determine the effectiveness of the changes introduced, as well as the support required for students and teachers. At the institutional level, the learning focus places great importance on SIMCE results, which is an external and symbolic indicator, recognized as such by the Ministry of Education and local actors. These schools increased their fourth-grade students' academic achievement from around the national average to very high or outstanding levels.

The relevance of SIMCE is present throughout the school community. Students recognize the importance for the school of maintaining and increasing SIMCE scores; so they participate in frequent SIMCE practices and after-school reinforcing classes. Also, teachers and students with the best SIMCE results are recognized. The growing public relevance of SIMCE has been a mobilizing agent for obtaining high results and has generated a virtuous motivational circle in these schools.

However, this strong emphasis on academic success, measured by SIMCE, has also brought tensions. One key challenge has been to sustain the goal of educational equity, without increasing school failure (actually, in two schools grade retention rates increased during the period). Thus, recent changes in these schools are focus on providing teachers with professional support to guarantee high-quality opportunity to learn to all students – including children with special educational needs – by incorporating professional specialists such as psychologists, psycho-pedagogues, and special educators; introducing teaching assistants into the first-grade classrooms; and organizing after-school remedial classes.

Another challenge has been to genuinely provide comprehensive education, developing different kinds of students' talents. These schools emphasize the effort and achievements of students in all disciplines (not just reading and mathematics), so highlighting science teaching, writing and oral expression skills, and other transversal competencies. Finally, they share a priority on developing students' motivation, confidence and self-esteem; as well as discipline and a healthy school environment. These are considered relevant skills for life as well as the conditions for academic quality learning.

These schools made their institutional priority to focus on the improvement of learning for all students, through better teaching practices. Thus, the institutionalized school improvement processes have been sustained by the creation and development of schools' internal capacities. The schools in this group created a professional learning community, where teachers and principals systematically analyze the learning progress of each student, the choice of new strategies and programs, and the evaluation of their effectiveness in order to introduce adjustments. Collaboration among teachers is part of the school culture, and it is maintained by permanent, formal and informal, activities. While teachers are responsible for their students' results, they receive varied technical support from the leadership team and their peers. The professional legitimacy and the relevance of the leadership teams are very present in these schools.

The process of improvement of these schools has been increasingly based on the development of professional teaching skills: they created true professional learning communities,

generating a culture of collaboration among teachers, and assigning teachers an active role in the schools' curricular-pedagogical decisions. Teachers are recognized as specialists in teaching and learning.

The central role of the teacher's work explains this culture of commitment for students' opportunity to learn. The teachers are reflective practitioners, have a proactive attitude, perform multiple responsibilities, and have a high commitment to teaching and obtain recognition for that. At the same time, teachers see themselves as protagonists of the school's results, which make them feel proud; they consider themselves to be professionally and personally satisfied with their work. Moreover, schools' leaders have undertaken an effort to improve teachers' working conditions, reducing teacher rotation – which is very low in these schools.

In this group of schools, over the last 4 to 7 years, several pedagogical and curricular support instruments have been gradually installed, such as lesson planning; support for teachers, including classroom observation and feedback; monitoring curriculum coverage; systematic evaluation of student learning; and an early concern for the students facing difficulties and with special needs. All these innovations have passed the periods of testing and adjustment, gaining legitimacy among teachers. These strategies have been recognized by teachers as a tool for professional development and not simply for the hierarchical control of their work. Finally, these schools continue to change, selectively introducing innovations in whose definition the teachers themselves participate.

Schools with institutionalized school improvement are also training centers for teachers. Teachers and principals recognize that the school itself (rather than university) has been the most relevant place to develop competencies and acquire professional knowledge. In those schools, teachers learned to work with socially or educationally disadvantaged students, and were introduced into the collaborative professional culture, peer learning, and teacher professional development through classroom practice and pedagogical reflection.

There are two common elements that define their strong collective identity. On the one hand, a high sense of mission and moral purpose to educate people with values and competencies, including the tools needed to promote social mobility. This commitment forms part of the ethos of principals and teachers, and is recognized by parents and students. On the other hand, there is a highly developed culture of improvement, which is sustained by the endogenous capabilities of the school community. So, while they might value education policies and take their guidance and pressures into account, the engine of improvement is internal. However, national policies that establish school performance rankings have served to reinforce the identity as "the best schools" among schools' community members.

Strategies for academic and administrative management of these schools have a high degree of institutionalization, which is complemented by a culture of school improvement where countless pedagogical, curricular, disciplinary, or professional development innovations become consolidated through time. This has been possible thanks to the stability in the school leadership and the incremental sense of the change process, which has accumulated at least seven years in these schools.

This high level of institutionalization is expressed both in the agreement of principals and teachers with regard to pedagogic and curricula management, as with the full legitimacy that these processes have within these communities. This is recognized by new teachers, who perceive a wide consensus about "how things are done in this school" and the coherence of the messages they receive from their colleagues and the school leaders.

Finally, institutionalization does not mean rigidity in those schools. For they are continuously introducing innovations in specific areas, which when successful are adopted quickly as regular practices; while, on the other hand, if established practices cease to be effective for student learning, they are modified or abandoned equally quickly. In other words, these schools have institutionalized not only the "improved processes" but also the "processes of improvement".

Final discussion

This paper is based on a multiple case study research of schools which have been identified as improving their performance for about a decade. We proposed different criteria by which to characterize and study these improvement processes and, by applying them to our sample, we elaborated a typology of school improvement trajectories. The analytic criteria we used point to key dimensions for school improvement, which can be conceived as a gradient; however, the combination of factors to sketch the typology is not mechanical. Rather, they are complex combinations which in practice exhibit unbalanced progress among dimensions. The proposed typology of school improvement trajectories covers a wide range of improvement processes while at the same time showing the limits and varying challenges that the schools face at different stages of school improvement.

According to our findings, we can say that "restricted improvement" processes are based on the regularizing of schools, highly focused on increasing test scores of external assessment, to show academic gains. This can be considered a somewhat spurious form of school improvement, strongly associated with the increasing pressures coming from high-stakes test-based accountability policies. Certainly, this is not a necessary first step toward school improvement, although for many schools it could be so. In fact, a school can continue refining and intensifying the implementation of several technological changes, without involving the cultural and professional dimension of school improvement. Thus, the ultimate logic of this approach is to drastically simplify educational goals and pedagogy as an instrumental response to an external requirement and higher control.

The other three identified trajectories could be considered a developmental perspective of school improvement: incipient improvement marked by the restructuring of school processes, school improvement on the path to institutionalization, and finally, institutionalized improvement reaching educational effectiveness. In substantive terms, the key dimensions to define the evolution of improving schools are, first, the degree of complexity of improvement strategies and the breadth of learning to which these strategies are addressed; and second, the level of institutionalization achieved by the improvement strategies and the centrality that teacher professionalism have acquired within them. Multidimensional strategies to produce comprehensive educational experiences driven by professional teaching teams constitute the highest stage of the observed school improvement. Certainly in the cases studied, the development of these conditions was linked to, among others, time of the improvement processes. However, it is important to note that several schools required an additional early stage of improvement, which encompassed institutional restructuring to regularize school processes, as a necessary condition for better teaching and learning. Hence, although we defined these three trajectories as a continuum, this does not imply that every school needs to start improving by restructuring its basic processes.

Certainly, our study does have important limitations that future research should attempt to resolve. First, our educational performance index only includes fourth-grade reading and mathematics academic achievement; to have expanded the assessed subjects and grades would have drastically reduced the longitudinal feature of our study, a key issue for identifying sustained school improvement. Second, the case studies do not cover the full spectrum of relevant prototypical situations, such as those schools that educate students from high socioeconomic status or in rural communities. Third, although we observed classroom teaching activities, it is necessary to examine more deeply the relationship between school improvement and teaching consistency among classrooms. Finally, we elaborated a typology of school improvement trajectories that entails a developmental perspective for the most part; nevertheless, this does not imply a normative view of school improvement, since this is a conceptual construct based on empirical data coming from a limited number of qualitative case studies.

We believe our research findings are relevant for the design of school improvement policies and programs. As Hopkins (2001, 2007) has proposed, it is necessary to recognize the different levels of improvement in which the schools are in order to provide them with support that should be highly differentiated and contextualized. Our study is an advance, for it suggests key dimensions (beyond the performance level) to identify different trajectories and to strengthen their progress. The same applies to school leadership, as our findings suggest that effective leadership practices and styles have a somewhat distinct focus at each stage of school improvement. For example, at the early stages of the school improvement trajectory, school leaders placed higher emphasis on institutional reorganization and determining the direction of the school, but then, in the higher stages, school leaders emphasized the pedagogical management strategies and the creation of a professional learning community among teachers.

Consequently, our findings suggest effective improvement strategies have somewhat different characteristics and priorities than those for the accountability policies linked to standard-based reforms currently promoted in several countries, including Chile. For example, the time required to trigger and sustain significant improvement processes are long, at least five years in our cases; for in the initial phases, the priorities should not be to increase academic achievement test scores but to create the conditions for teaching and learning; and to sustain complex school improvement processes requires internal professional capacities, institutionalized curricular-pedagogical practices, and a collaborative culture among teachers, all of which is unlikely to respond mechanically to hierarchic pressures and external incentives.

Finally, this study also shows the ambivalence of accountability policies based on standardized tests. By objectifying student performance and orienting school work, these policies might motivate school actors and trigger improvement processes, but they can also distort them quite severely (Koretz, 2008). If school improvement is not multidimensional, is not based on the professionalism of teachers, and is not oriented to produce a comprehensive educational student's experience, these high-stakes test-based accountability policies might not only produce an illusion of improvement but compromise their future.

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No potential conflict of interest was reported by the author(s).

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Notes

1. System for the measurement of educational quality (for its Spanish acronym).
2. Additional details about the study can be found in Bellei, Valenzuela, Vanni, & Contreras (2014).
3. We included the 3,669 schools with 15 or more students in the fourth primary level to increase the validity of the measurement of academic achievement.
4. The typical structure of school leadership in Chile is based on a team composed by the principal (who is in charge of the functioning, organization, and management of the school), the pedagogical coordinator (who focuses on instructional leadership responsibilities), and the general inspector (who oversees school discipline).

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Appendix 1. Sample descriptive characteristics and variables included in the school performance index

Table 1. Basic data on the 12 studied schools.

Group of school improvement trajectory	City	School Type	Socieconomic level (official categories)	Enrollment 2010	School Performance* **Index* 2002/05	2009/10
Restricted improvement	Temuco	Subsidized private	Low	282	−1.71	−0.05
Restricted improvement	El Bosque, Santiago	Subsidized private	Middle Low	960	−0.21	1.39
Incipient improvement	Alto Hospicio	Subsidized private	Middle Low	974	−0.75	0.68
Incipient improvement	Los Angeles	Public	Middle	323	−0.20	0.98
Incipient improvement	San Joaquín, Santiago	Public	Middle Low	201	−1.07	1.03
On the path to institutionalization	Chimbarongo	Subsidized private	Middle	538	0.52	1.34
On the path to institutionalization	Talcahuano	Public	Middle	610	0.40	1.24
On the path to institutionalization	Antofagasta	Public	Middle	1313	−0.06	0.90
On the path to institutionalization	Osorno	Public	Medium Low	528	−0..39	1..13
Institutionalized improvement	Cerro Navia, Santiago	Subsidized private	Middle Low	668	0.33	1.29
Institutionalized improvement	Calama	Public	Middle	690	0.18	1.38
Institutionalized improvement	Osorno	Public	Middle	887	0.74	2.45

*Standard deviation units; national average = 0 at the base year 2002.

Table 2. Variables included in the school performance index.

Variables
Average scores of the school in the SIMCE reading test
Average scores of the school in the SIMCE mathematics tests
Proportion of students performing below proficiency level in reading
Proportion of students performing below proficiency level in mathematics
Approval Rate
Retention Rate
Mean/*SD* reading
Mean/*SD* mathematics
Pseudo-Added Value in reading
Pseudo-Added Value in mathematics