

# IJELM

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## **Editorial: Managing Leadership and Learning at the School Level**

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# **Editorial: Managing Leadership and Learning at the School Level**

Mireia Tintoré

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**E**ducational Leadership in the XXI Century implies leading and managing teaching, “the core technology of schooling”(OECD, 2013: 60). This new issue of IJELM develops a magnificent model of how to lead teachers and schools taking primarily into account all tasks related to teaching and learning.

In this issue, IJELM brings together articles with very different subjects and perspectives but almost all centered in school learning, leading and teaching. However, the articles share some common ideas about the main topics of our Journal, those of leadership and management:

All the authors recognize that educational leadership must be at the same time “instructional” and oriented to student outcomes, “transformational” and oriented to transform and develop students, teachers and educational organizations, and “distributed” and oriented to create new structures for interaction and to develop learning communities. These three features are in some way present in each one of the papers.

Another common-core concept is that of “accountability” and the need to measure leadership taking into account student outcomes. The authors also relate leadership with the improvement of organizations that evolve, as we



have just said, until becoming professional learning communities where knowledge is shared.

Vision, mission and values are other core concepts in this second issue of IJELM. The articles and the book review offer examples of compromise with improvement, and any change or improvement implies a vision and an aim. Trust seems to be the central value related to leadership and to the possibility of changing things, and this word and concept is repeated along the whole issue. There is a clear recognition that trust is something needed to improve organizations and something always linked to all successful leadership practices.

As usual, this second number of IJELM counts on four articles and a book review.

The first article, by Beatriz Pont, draws on an international OECD study on school leadership and proposes policies that can ensure that schools leaders contribute to school improvement. This can be done by developing those leadership practices that have the greatest impact in improving student outcomes, specially working with teachers and managing the curriculum and assessment at high levels. The purpose of her article is to show evidences of what works at international level in order to improve the professionalization of school leaders.

The next article, by Liou, Grigg and Halverson, is a splendid example of leaders working with teachers and trying to increase school capacity for using data to improve student learning. The authors conducted a multi-method comparative case study of two schools in the United States, and they examine the relations which are created in each school and the kind of leadership that characterize each one of them. Following the networks created in the schools, the authors analyze the distribution of leadership and the development of different learning communities based on trust and oriented to accountability and improvement of learning.

Enomoto and Conley, in the third article, explore how to transform a demoralized school working with teachers and exposing students to high level learning experiences. Using the theoretical lens of routinized action theory, and based on interview data from school leaders and teachers, the authors explore how the routines in school accreditation can be used to renew a school.

The last article, by Mas, brings a more entrepreneurial perspective: the author explores and explains the links between knowledge management and

leadership, in organizations that are specialized in the transmission of knowledge. A good leadership in Knowledge Intensive Organizations, as universities, implies taking care of people and learning, and creating cultures that stimulate collaboration and the share of information.

In line with the rest of articles, the book review by Malbašić on Cardona and Rey's Book (*Management by Missions*), returns to the main topics of vision, values, mission, autonomy, compromise and trust that are so crucial in the practice of leadership. The authors propose a model of management by missions strongly linked with a kind of leadership that is at the same time transformative and pro-social. They call this kind of leadership transcendental leadership due to its orientation beyond the leader and towards the real needs of all the community.

In this issue, we count on authors working in very different western countries, from Hawaii in the USA to Serbia or Spain in Southern Europe. In spite of the geographical differences, we found a very similar background and it seems that the problems and challenges of educational establishments are very similar in all the countries represented here. Nevertheless, we will be very pleased to receive further submissions from other areas, such as the Nordic and Eastern countries in Europe, and also from Latin-America, Asia, Australia and Asia. The aim of IJELM is to increase the number of countries and cultures represented in its pages, to know what is working in terms of educational leadership all over the world so that we can improve education for all.

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## **School Leadership: From Practice to Policy**

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# School Leadership: From Practice to Policy

Beatriz Pont

OECD

## Abstract

School leaders' tasks have become increasingly complex, as a result of globalization, a shift towards knowledge based economies, greater student diversity and an increased government focus on education policy reforms targeting and affecting schools. The role of school principals has moved from administrative leadership towards focusing on student outcomes, with more autonomy and accountability, and increased responsibilities for implementing policy reforms in schools and classrooms. This article focuses on how policies can ensure that school leaders contribute to school improvement. It builds on an international OECD study on school leadership which analyzed practices across 22 education systems in 2008 and explores developments since to propose policy options that can contribute to support the professionalization of school leadership. Among the key strategies suggested that many countries have been taken up are: clarifying the role of school leaders based on the tasks that make most difference on school outcomes; ensuring there is specialized training and development: that working conditions are attractive to ensure that there are quality professionals in exercise and that it is a sustainable profession that is well supported.

**Keywords:** school leadership, principals, education policies, school improvement, teachers



# Liderazgo Escolar: de la Práctica a las Políticas

Beatriz Pont  
OECD

## Resumen

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Las tareas de los líderes escolares se han vuelto cada vez más complejas fruto de la globalización, del giro hacia economías basadas en el conocimiento, de una mayor diversidad entre los estudiantes y de un mayor interés de los gobiernos en las reformas educativas dirigidas a las escuelas. La función de los directores escolares ha evolucionado desde un liderazgo administrativo a uno centrado en los resultados de los alumnos, con mayor autonomía y transparencia, y con mayores responsabilidades en la implementación de reformas en las escuelas y aulas. Este artículo se centra en ver cómo las políticas pueden asegurar que los líderes escolares contribuyen a la mejora escolar. Se basa en un estudio internacional de la OECD sobre liderazgo escolar que analiza prácticas en 22 sistemas educativos en 2008 y explora su evolución para proponer opciones de políticas que puedan contribuir a apoyar la profesionalización del liderazgo escolar. Entre las principales estrategias que muchos países han implementado se propone: clarificar las funciones de los líderes escolares en base a las tareas que tienen más influencia sobre los resultados, asegurar que haya una formación y desarrollo específicos, que las condiciones de trabajo sean atractivas para asegurar la existencia de profesionales de calidad y para lograr una profesión sostenible y bien respaldada.

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**Palabras clave:** liderazgo escolar, directores, políticas educativas, mejora escolar, profesorado



**S**chool leadership has not been an education policy priority across many countries. It has only been rather recently when school management and leadership has started to be perceived as a different profession than teaching: in many countries one of the few requirements for becoming a school leader was to be a teacher for a minimum amount of years, without any specific kind of training or support beyond that required for teaching.

Yet, school leaders' tasks have become increasingly complex: our societies and economies are asking much more from schools; there is greater student diversity in schools and classrooms; the pervasiveness of ICTs in daily lives is challenging schools operations and learning; there is an increase of research and evidence of what works and; there is more government focus on education policy reforms targeting and affecting schools. These different forces have led to a change in the role of school principals from administrative leadership towards a focus on student outcomes, to having more autonomy teamed up with greater accountability, and to increased responsibilities for implementing policy reforms in schools and classrooms.

Policy makers have been slow to respond to the school leadership challenge: across selected OECD countries, school principals may not have appropriate training, development or support to ensure their capacity to exercise their role and often their working conditions do not seem to be aligned to the magnitude of the post.

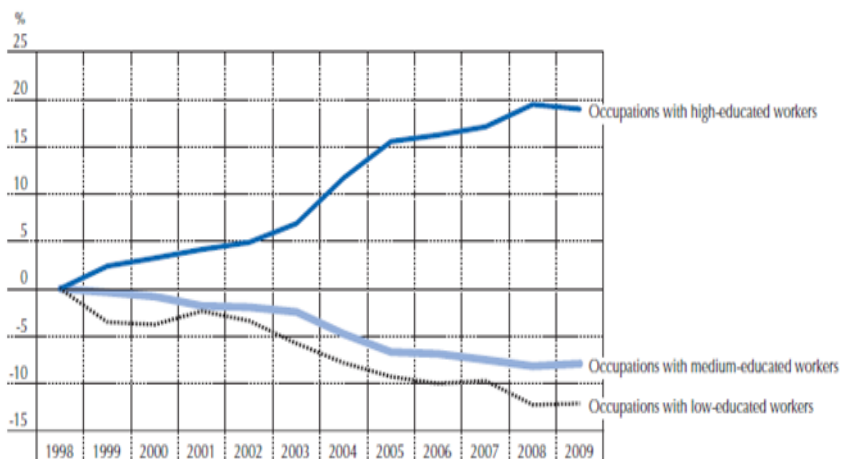
This article focuses on the need to bridge the gap between actual practice and policies to ensure that school leaders can contribute to school improvement. It builds on an international OECD study on school leadership which analysed practices across 22 education systems in 2008 and explores developments since to propose policy options that can contribute to support the professionalization of school leadership.

### **Trends influencing schools and the role of school leaders**

As we progress in the 21<sup>st</sup> century, the change in skills required to contribute to our societies and economies is evident. Globalisation, economic and labour shifts towards higher and different type of skills, the consolidation of the use of computers and ICTs for personal and professional purposes are

among other factors driving our knowledge based societies. At the same time, important socio demographic changes are taking place. Governments and their constituents are calling for more efficient and effective public services, with greater engagement, and schooling is at the heart of this public provision across OECD countries. These factors together are affecting schools and their school leaders, who have to be able to respond while also be part of these changes.

Most economic and labour indicators show that in the past 20 to 30 years, jobs have changed, employment in services and high skilled jobs have increased and the use of IT has modified not only the types of skills required for many jobs, but also the way we work across the board (OECD, 2013a). In most OECD countries, high skilled jobs have increased, while middle to low skilled jobs have remained stable or decreased (Figure 1, shows evolution in 24 OECD countries). Figure 2 shows the change in the demand for skills in the US, which has increased for non-routine interpersonal or analytical skills and decreased for manual or more routine skills. Skills or knowledge initially developed in schools lay the foundations for adulthood, for further learning and for better integration into societies and economies.



*Figure 1:* Evolution of employment by occupations defined by education levels (% change in share of employment since 1998, by occupation groups according to workers level of education). Source: OECD (2013a) (PIAAC).

At the same time, societies are evolving to become more diverse: migration has become a larger reality across the world, accounting more than 10% of populations across the OECD average in 2010 (figure 2) and the structures of homes and families are changing: more monoparental families, more women in the workforce and more elderly in our populations (OECD, 2013b). This diversity is more evident in schools and classrooms across OECD countries, and school leaders and teachers have to respond with effective teaching and learning strategies for all students.

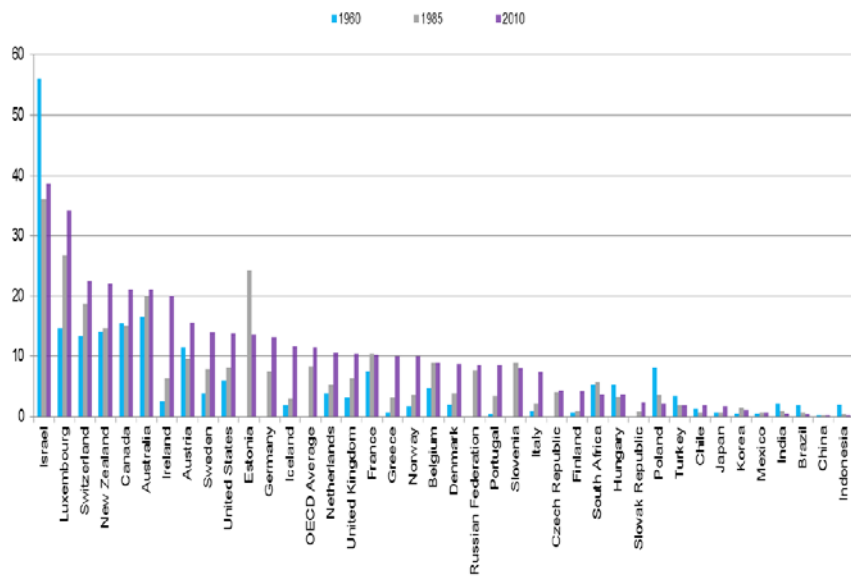


Figure 2: International migrants as a percentage of the total population 1960, 2000 and 2010. Source: OECD (2013b).

ICTs have also become more pervasive, with at least 60% of households across OECD countries having access to computers or internet at home in 2010, with widespread use across families (OECD, 2013b). At the same time, ICTs are slowly being integrated into schools to different degrees in teaching and learning, for management use, for tracking progress and in almost 40% of schools across OECD for publication of student achievement data (Figure 3).

This greater use of data is also part of a wider trend towards more accountability of school resources and outcomes. Schools have national or regional results of students, have teacher evaluations and assessments, school evaluations, and publication of test results, and a greater overall following of school progress with the use of data (OECD, 2013e).

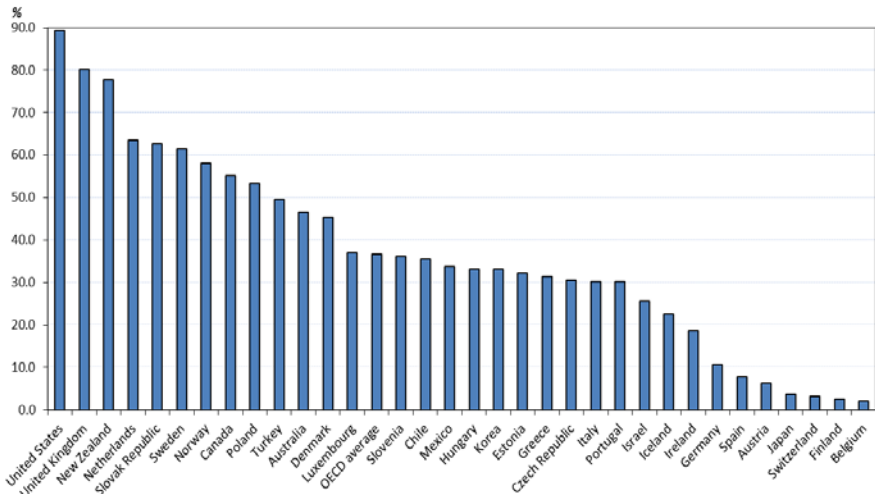


Figure 3: Student achievement data posted publicly, PISA 2012. Source: OECD (2013c), PISA database.

And to add to the complexities, schools and education policy has been more decentralised, providing schools with more autonomy. At least 40% of decisions are taken at school level, rather than regional or national government, although there is much variety across different school systems (Figure 4). According to an OECD project on Governing Complex Education Systems, it is more and more challenging to steer education systems given an increasingly complex environment with many different stakeholders engaged and with a tendency towards greater decentralisation and accountability. The responsibilities of institutions and different levels of government vary from country to country, as does the relative importance and independence of non-public providers (OECD, 2013d).

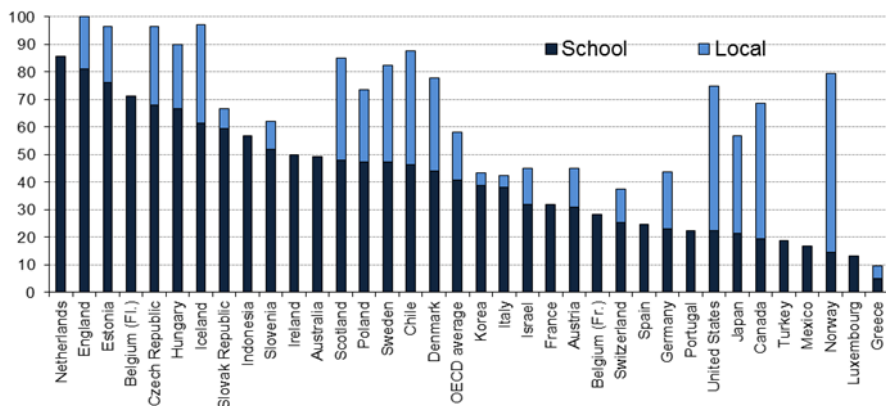


Figure 4. Decisions taken at each level of government in public lower secondary education, 2011. Source: OECD (2013e).

What does it all mean for schools and their school leaders? There has been a change in roles and expectations. From focusing on administration, on centralised or lack of clear prescriptions, on more homogeneous student bodies, schools and their leaders increasingly have to focus on preparing more diverse students for the 21<sup>st</sup> century, who can contribute to less routine and more creative and analytical tasks, and who can continue studying. They have to integrate ICTs in schools, respond to accountability, within different autonomy frameworks. This requires professionals who have the skills and dispositions to respond, and who can work with teachers and others to raise achievement of their students.

### **School leadership makes a difference: focus on teaching and learning**

There is increasing evidence pointing to the fact that from the different factors that are policy amenable to school improvement, after teaching, school leadership has been found to be the most important school level factor in improving learning outcomes. Most of this evidence points that school leaders have an indirect impact on results by influencing the school environments they lead to ensure effective teaching and learning (Robinson et al., 2009; Marzano et al., 2005; Pont et al., 2008; Louis et al., 2011;

Heargreaves and Shirley, 2011). At the same time, school leaders have the capacity to introduce and implement reforms to ensure they reach the classrooms.

Even further, research shows that there are specific practices where school leaders can make a difference in teaching and learning. Leithwood, Harris and Strauss (2010) show how leaders in turnaround and already high performing schools use a set of core practices that they align to the different growth stages or context of the school. The practices that the research literature has demonstrated to have most impact are those focused on working with, supporting and developing teacher quality (Louis et al., 2011; Pont et al., 2008; Marzano et al., 2005; Robinson et al., 2009).

An OECD study on School Leadership (Pont et al., 2008) summarised that school leaders can make a difference in school and student performance if they are granted autonomy to make important decisions while having support. In addition, it clarified that the core responsibilities of school leaders need to be clearly defined and delimited, based on an understanding of the practices most likely to improve teaching and learning. Major domains of responsibility key for school leadership to improve student outcomes (instructional leadership) were defined as follows:

- *Leadership focused on supporting, evaluating and developing teacher quality* is widely recognised as a core component of effective leadership. Teacher quality has been recognised as the most important school-level determinant of student performance. The leadership responsibilities associated with improved teacher quality include coordinating the curriculum and teaching programme, monitoring and evaluating teacher practice, promoting teacher professional development and supporting collaborative work cultures.
- School leadership that concentrates on *setting learning objectives and implementing intelligent assessment systems* has been found to help students develop their full potential. Aligning instruction with national standards, setting school goals for student performance, measuring progress against those goals and making adjustments in the school programme to improve individual and overall performance are the dynamic aspects of managing curriculum and instruction. School leaders' purposeful use of data is essential to ensure that attention is being paid to the progress of every student.

Different authors have defined effective school leadership practices with different terminology, but most come to share the concept of working

collaboratively with teachers as the key role of school principals that raise student outcomes. Spillane (2013) reviews how teaching is the core subject of leadership, as education leaders have to focus on the practice of leading teaching in the classrooms.

A recent survey with US teacher data demonstrated that shared leadership and instructional leadership, together with ensuring trust of teachers for their principals was at the heart of observed improvement (Louis et al., 2011). Also, recent work on teachers has proposed that ensuring that teachers work together to support school improvement, either by developing professional communities of practice, or led by school principals is also an effective approach. A study by Hargreaves and Fullan (2012) on how to improve the teaching profession suggests that quality teachers embody professional capital, which brings together individual human capital, collective social capital and decisional capital (which refers to making decisions in complex situations). The authors highlight the importance of social capital, which refers to the work undertaken collectively by teachers. And it is school leaders who can take on the key role of bringing teachers to work and develop together rather than as isolated teachers within the walls of their classrooms.

### **School leaders' practices across countries**

While there is evidence on how principals can have impact, it is also possible to explore the practice of school leadership across countries to see if it aligns with the evidence. Are school leaders effectively working with teachers? Are they defining objectives and establishing intelligent assessment systems? Practices can vary, and depend much on the context that surrounds schools and their leaders, on their specific preparation and also on the specific policies that may be implemented to develop school leadership.

### **Context matters**

The actual practices of school leaders can vary depending on the context of the education system: their historical development, whether schools have autonomy to take on different responsibilities and the degree of support they

receive, the types of schools available, whether comprehensive with large student diversity, or systems that practice tracking and student selection, or whether rural or urban schools, primary or secondary, or the quality of the teaching workforce overall. These factors have implications on the practices of school leaders.

It is important to note that these can be the result of historical or cultural developments. In some education systems, the concept of leadership in schools has not been fully developed as democratic models of managing schools with the teaching body have prevailed. This is the case of Nordic countries, or of Spain for example. In more anglo saxon education systems, the concept of leadership has had greater development historically.

Spillane (2013) explains how education systems may differ in ways that are consequential to teaching and learning and have implications for the work of leaders. He poses the example of the difference of school leaders work in education systems that select the "best and the brightest" into teaching or those in education systems that do not exercise much quality control. When designing school leadership policy, it is important to take these context factors into account to ensure the profiles and needs of principals and respond more effectively (Southworth, 2002).

One of the key contextual factors that impinge on leadership practice is the degree of responsibilities or autonomy that schools and their leaders have at the school level, whether for resources, including hiring teachers, or having responsibility for curriculum and assessment for example. According to PISA 2012, school systems that grant more autonomy for curriculum and assessment have better results, while those that have more autonomy for resources do not show strong associations with school performance. This particular indicator of school autonomy over curricula and assessments combines a set of questions on whose responsibility it is to establish student assessment policies, choose text books, determine course content or decide the courses to be on offer, referring to 15 year old students in schools as reported by the principal (OECD, 2013c). Autonomy has more positive results when this is compounded with accountability or quality work between the teachers and the school leaders.



## Leadership practices

From what the research says to actual practice across countries and schools there may be differences: as has been reviewed before, among the practices that can be more conducive to school improvement, are developing the curriculum and assessment and working with teachers.

Figure 5 shows that there are wide ranging practices in terms of responsibility for curriculum and assessment, as Japan, the Netherlands, the United Kingdom among others, have a high degree of responsibility, while there is a large group of countries where schools do not have this responsibility. This is a challenging task for school leaders who may not have been effectively trained to develop curriculum at the school level, or to instrument broad school level assessment practices (OECD, 2013e). Working effectively with teachers on curriculum development and implementation can be key for effective school leadership.

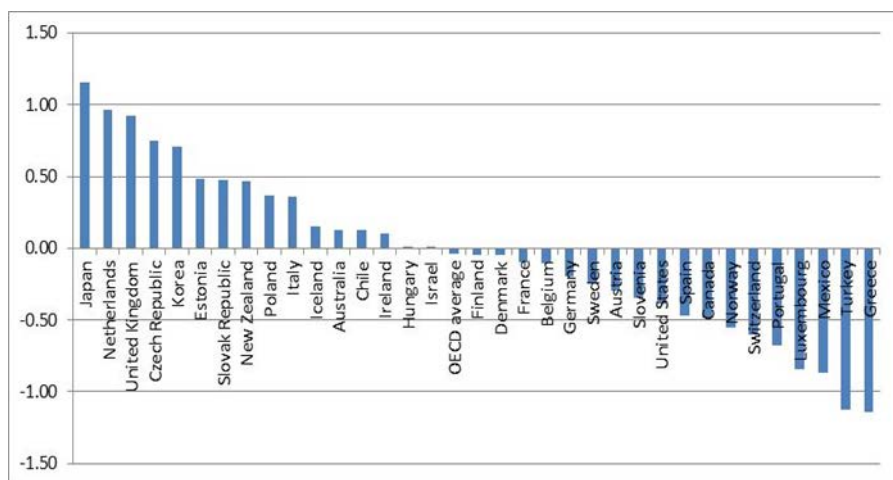


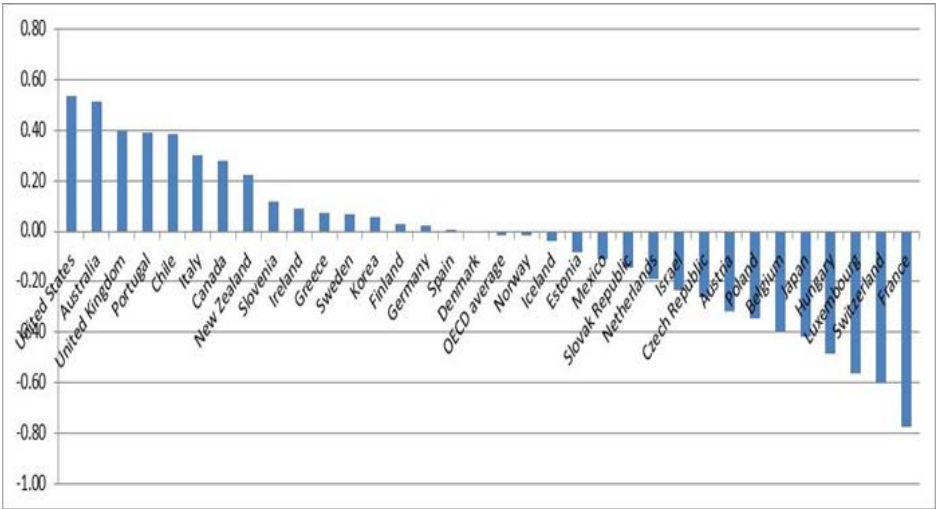
Figure 5: School responsibility for curriculum and assessment, PISA 2012. Source: OECD (2013e).

Much of the research on effective leadership has emphasised curricular decision making as a key dimension of leadership for improved student learning. “Effective leaders understand the importance of rigorous

curriculum offered by teachers and experienced by students and the effects of a rigorous curriculum on gains in student achievement” (Goldring *et al.*, 2007). According to their reviews of research, teaching focused on ambitious academic content leads to increases in student performance (Teddle and Springfield, 1993; Wong *et al.*, 1996) and the performance of low-achieving students can be improved by providing them with better content (Biancarosa and Snow, 2004).

In her meta-analysis of research, Robinson (2009) shows that “direct oversight of curriculum through school-wide coordination across classes and year levels and alignment to school goals” has a small-to-moderate positive impact on student achievement. She also shows that school-level professionals in higher performing schools spend more time on managing or coordinating the curriculum with their teaching staff than leaders in otherwise similar lower performing schools, a finding that is supported by research on instructional leadership (Heck, 1992; Marks and Printy, 2003; Marzano *et al.*, 2005) also list school leaders’ direct involvement in design and implementation of the curriculum as one of the leadership practices that had a statistically significant correlation with student achievement as measured by standardised assessments in the United States.

New data evidence from PISA 2012 asked school leaders about their practices in relation to teacher participation in management, framing and communicating school goals and on instructional leadership practices. Figure 6 shows how principals perceive that teacher participation in management is more developed in selected countries, including the United States, Australia, the United Kingdom, Portugal, Canada or Finland. In many of these countries, there have been policies targeted to this end. In fact, across the OECD, more than 70% of students were in schools whose principals reported that the schools gives staff the possibility to engage in school decision making or are involved in building a culture of self-improvement at least once a month (OECD, 2013c).

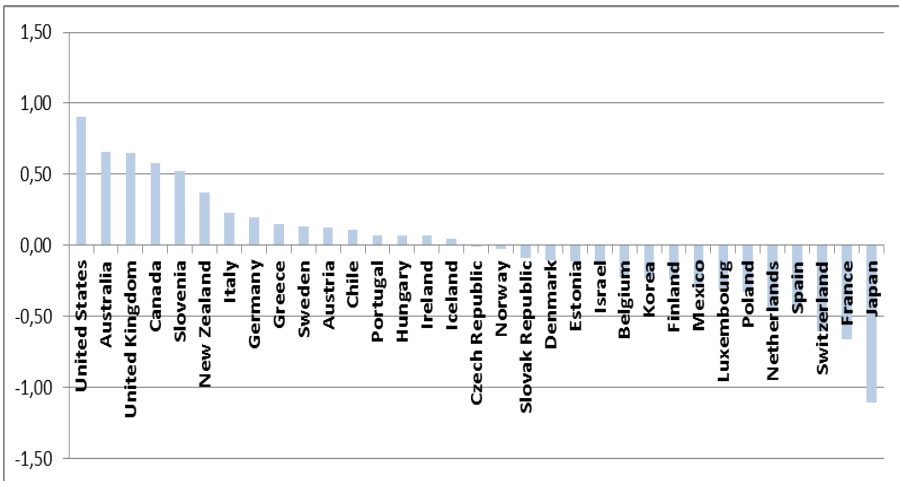


*Figure 6: Principals' leadership in teacher participation, PISA 2012.*

Note: This index of school management: teacher participation was derived from school principals' responses about the frequency with which they were involved in the following school affairs in the previous school year: 1) provide staff with opportunities to participate in school decision-making; 2) engage teachers to help build a school culture of continuous improvement; and 3) ask teachers to participate in reviewing management practices. Higher values on these indices indicate greater involvement of school principals in school affairs.

Source: PISA (2013c) PISA database.

In addition, from principal responses on their instructional leadership practices, it seems that there is not a majority of countries using them. It is in a specific subset of countries, including more anglo saxon ones and others such as Slovenia, where instructional leadership has been more developed formally. Nordic countries school leaders stand around the OECD average. On the other side of the spectrum, in France, Japan, Switzerland or Spain these types of practices are not often promoted or used, following more administrative leadership.



*Figure 7: Instructional leadership, PISA (2012). Index based on % of students in schools whose principal reported that they were involved in instructional leadership practices.*

Note: This index of school management: instructional leadership was derived from school principals' responses about the frequency with which they were involved in the following school affairs in the previous school year: 1) promote teaching practices based on recent educational research, 2) praise teachers whose students are actively participating in learning, and 3) draw teachers' attention to the importance of pupils' development of critical and social capacities.

Source: PISA (2013c).

## Conducive policy environments

Other factors that are important to understand school leadership practice is whether there are specific policies targeting school leaders. Often, the definition of their roles may have not been made explicit, or may be too ambitious, with long lists of expected tasks they have to undertake that are difficult to accomplish, or focused on administrative tasks or overburdened by the need to respond to accountability mandates. But whether there exists the mandate for school leaders to have specific training, specific support, whether there are working conditions that are attractive to possible future

school leaders or those in service to make the best of their position is also key for leadership practices.

The analysis of policies implemented in selected OECD countries shows that few policies have been introduced in the areas of school leadership in comparison to other school improvement areas (OECD, 2013f). When they have been introduced, many of the policies have or are addressing school leadership as a profession, covering professional standards and career development (Australia, Chile or Mexico). Countries have also introduced more specific reforms on professional development, recruitment and working conditions. Australia's *Institute for Teaching and School Leadership (AITSL)* for example provides a school leadership framework, which includes leadership standards, a professional learning charter and incentives to promote quality school leadership. Australia, Chile, or Ontario's professional standards for school leaders can serve as a clear framework and reference of the skills and competencies needed of a school leader as well as serve as a reference for the professional development of school leaders.

Countries requiring a minimum period of compulsory training before or after appointment as school head, 2011/12																			
	BE fr	BE de	BE nl	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT	LU	HU	MT
Length	120 h	150 h	⊙	⊙	100 h	⊙	104 h	240 h	⊙	⊙	40h-14 months	1 year	3-4 months	⊙	⊙	⊙	⊙	⊙	60 ECTS
	●	●			○		●	●			●	○	●						●
	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK (1)	UK-SCT	HR	IS	TR	LI	NO			
Length	⊙	12 ECTS	210 h	250 h	1 week	144 h	160 h	15 ECTS	30 ECTS	6-18 months	⊙	⊙	15 ECTS	⊙	15 ECTS	⊙			
	○	●	●	●	●	●	○	●	○	●	●	●	●		●				
																	● Before appointment   ○ After appointment   ⊙ No headship training required		
Source: Eurvidice.																	UK (1) = UK-ENG/WLS/NIR		

Source: Eurydice.

UK (1) = UK-ENG/WLS/NIR

Figure 8: School leadership training in the European Union. Source: Eurydice (2013), Key Data on Teachers and School Leaders in Europe, 2013.

Initial training for school leaders is available in many countries although the extent of availability or type of training varies as well as the extent of public support. Initial or pre-service training is available in many OECD and European countries but maybe optional, or a short introduction rather than (Pont et al., 2008). In Austria, England, or Slovenia, school leadership programmes have been available for different stages of the leadership career.

Norway is one of the countries which has recently introduced a *leadership and development programme* (2009) to improve the effectiveness of school leaders. To try to attract more school leaders, Chile introduced a financial incentives-based policy, a *School leaders' training plan (Plan de Formacion de Directores de Excelencia, 2011-13)* and more than 1 500 school principals and teachers have participated in the programme.

The working conditions for principals are also important for their engagement in their practice. Whether they have long working hours, recognition of the value of the post, in terms of prestige, of salaries, or possible career paths to exercise after a leadership post can change the types of candidates applying for the posts and also the way they work. In school environments with greater diversity, with much higher levels of accountability, where school leaders are expected to provide clear leadership for improved school outcomes, the incentives and working conditions in relation to other professions are important. Policies need to ensure that there are attractive working conditions to have high quality professionals.

### **From practice to policy: school leadership for improvement**

The increasing evidence of the role of school leadership in setting the environment for successful teaching and learning, and more data available on the actual practices leaders exercise, provide opportunities for targeting leadership policies that can be effective. Building on current leadership practices, contextualised policies can weave together different components to professionalise school leadership. In recent years, education systems have been slowly moving towards building the profession focusing on improvement, but more progress needs to be made. Among the policies that can be reflected upon are (Pont et al., 2008):

### **Define school leadership responsibilities for improved student learning**

There is evidence from research and country practices to encourage country, regional and local policy to use evidence on core leadership dimensions to design and define job responsibilities for their leaders. Two interrelated leadership responsibilities have consistently been identified as associated with improved learning outcomes:

*1) Supporting, evaluating and developing teacher quality:* To develop the capacity of school leadership to support, evaluate and develop teacher quality as one of their core practices, policies can:

- *Encourage school leaders to promote teamwork among teachers* across the school by explicitly recognising the core role of school leaders in building collaborative cultures and sharing and disseminating best practice.
- *Provide training for school leaders in teacher monitoring and evaluation*, either as part of initial training for school leaders or through continuing training and that school leaders have the time necessary to fulfil this core task satisfactorily.
- *Specify the role of school leadership in teacher professional development:* School leaders can ensure that teacher professional development is relevant to the school context and aligned with overall school improvement goals and with teachers' needs. To enhance school leaders' capacities in developing their staff, policies should consider devolving discretion over teacher training and development budgets to the school level.

*2) Supporting curriculum development, goal-setting, assessment and accountability:* Goal-setting, assessment and school accountability are key responsibilities of school leaders in most countries, while responsibilities for curriculum vary across countries. To ensure school leaders' capacity for school improvement processes, policies can:

- *Strengthen school leaders' responsibility in curricular decision making* so that they can adapt the teaching programme to local needs and ensure coherence across courses and grade levels to achieve school goals and performance standards.
- *Provide school leaders with discretion and skills on strategic direction setting* and enhance their capacity to develop school plans and goals aligned with broader national curriculum standards and responsive to local needs. Support and training opportunities for school leaders can ensure that they have the knowledge and skills to use data and monitor effectively to improve practice.
- *Encourage school leaders to distribute tasks related to assessment and accountability within schools* by developing teams competent in analysing and using data to design appropriate improvement strategies.

Countries have developed school leadership frameworks or standards that can bring clarity and a metric for processes to strengthen the role, such as initial training, selection or continuous professional development.

Frameworks can also serve to signal the essential character of school leadership as the provision of leadership for learning. But it is important that leadership frameworks allow for local and school level criteria.

A recent comparative study of leadership standards (CEPPE, 2013) shows their use across education systems in OECD countries. They have been used for specifying the function of school principals, guiding professional development, defining criteria for assessment, guiding the selection of principals. There exist a range of examples of leadership standards from Australia, Chile, England, New Zealand, Ontario or Quebec (Canada). The Australian National Professional Standard for Principals (NPSP) provides a valuable example. It presents three leadership domains: vision and values, knowledge and comprehension and personal qualities and social and communicational skills. These requirements are displayed in five areas of professional practice: leading teaching-learning processes; developing self and others; leading improvement, innovation and changes; leading the management of the school; and engaging and working with the community (CEPPE, 2013).

### **Develop skills for effective school leadership**

To be able to respond to their widened roles and responsibilities, including the need for practicing pedagogical leadership, school leaders need specific training. Professionalising school leadership can be partly attained by developing and strengthening leadership skills related to improving school outcomes through initial and continuing training and mentoring. However, in some countries, the only requisite to exercise the profession is having a certain number of years of teaching. Figures 6 and 7 shows how different country school leaders use pedagogical leadership or teacher engagement in their daily practices.

To support the change required for professional school leadership, and for success in implementation of reforms, research shows that building their skills and competencies is necessary. Over the long-term, policies cannot do much with schools if they do not have the appropriate skills. Many of the required roles of working to develop and evaluate teachers, to define and put into action assessment systems and to respond to accountability, rely on



schools capacity to use these strategies and turn them into improvement of their classrooms and their students learning.

This is why it is important to offer strong professional training programmes focused on the leadership practices that have the highest impact on improvement, as reviewed above. Australia, Ontario or England have strong programmes and more recent efforts geared towards this approach include Norway or Chile.

Professionalising leadership is broader than specific training programmes or interventions. It requires a combination of formal and informal development processes throughout the different stages and contexts of leadership practice. This requires designing and offering programmes to support the school leadership career throughout:

- *Initial leadership training:* Initial school leadership training can be voluntary or mandatory, and this can depend on governance structures and funding strategies, as an important issue is who will pay for training. There are different approaches that may be implemented: either governments can define national programmes, or collaborate with local level governments who have responsibility for hiring principals and secure incentives for participation. Often, it may be local governments who include the pre-requisite of having specific leadership training when announcing vacancies, which is an incentive for principals to take this type of training. Efforts also need to be made to find the right candidates.

- *Induction programmes:* Induction programmes are valuable to prepare and shape initial school leadership practices and they provide vital networks for principals to share concerns and explore challenges (Pont et al., 2008). In Austria, Ireland or New Zealand this has been one of the main pathways for leadership training. England, Scotland and Northern Ireland use this as a complementary feature of initial training. These programmes are often optional and may include in-depth training on legislative, financial and other topics. They are particularly useful for new principals because they provide mentoring during the first years in exercise and help new principals develop support networks.

- *Continuing training for specific needs:* In-service programmes need to be seen in the context of prior learning opportunities for school leadership. Where there are no other initial requirements, basic in-service programmes should encourage development of leadership skills. In-service training should be also offered periodically to principals and leadership teams so they

can update their skills and keep up with new developments. Networks (virtual or real) also provide informal development for principals and leadership teams.

### **Make school leadership an attractive profession**

To improve the quality of leadership focused on improvement, it is important to provide appropriate conditions for suitable candidates to take on the post. Selected evidence shows that possible applicants may not be attracted into the position due to heavy and challenging workloads of principals, often low remuneration in relation to other positions, or low levels of support. In addition, recruitment procedures and lack of career development prospects for principals may also deter potential candidates. Strategies to attract, recruit and support high-performing school leaders have been defined as follows (Pont et al., 2008):

- *Professionalise recruitment.* Recruitment processes have an impact on school leadership quality, as it is an important decision in the selection of the best possible candidates. While school-level involvement is critical to contextualise recruitment, at the system level policies need to ensure that procedures and criteria are, transparent, consistent and effective. Often in selected countries there is considerable weight on seniority and processes may be undertaken by the school board, often composed of non-professionals who have not been prepared for this role. Recruitment procedures can go beyond traditional job interviews to include more tools and procedures to assess candidates. Succession planning – proactively identifying and developing potential leaders – can boost the quantity and quality of future school leaders.
- *Provide incentives to make school leadership attractive:* The relative attractiveness of salaries for school leaders can influence the supply of high quality candidates. Monitoring remuneration in relation to comparable grades in the public and private sectors and making school leadership salaries more competitive. Establishing separate salary scales for teachers and principals can attract more candidates from among the teaching staff. At the same time, salary scales should reflect leadership structures and school-level factors in order to attract high performing leaders to all schools.

• *Provide options and support for career development.* After years of practice, school leaders may want to shift careers or make lateral moves to avoid burnout. However, in some countries school leadership is not often perceived as a professional career with different steps, which may not be conducive to attract good candidates. Having further career development prospects can help avoid principal burnout and make school leadership a more attractive career option. Different education systems have made the profession more flexible, allowing school leaders to move between schools as well as between leadership and teaching and other professions. Current country practice provides some examples to draw from, including alternatives to lifetime contracts through renewable fixed-term contracts and options for principals to step up to new opportunities such as jobs in the educational administration, leadership of groups of schools or consultant leadership roles.

### **A word on policy implementation**

Finally, it is important to understand that going from practice to policy requires taking into consideration the context and challenges of implementation. Every policy reform can be different because of the system's political structure, social, cultural and economic context. Educational researchers show that the process of implementation is as important as the design of policies themselves (Skalde and Pont, 2013; Levin, 2012).

Many studies on education reform have concluded that often, reforms fail to take hold in schools and classrooms (Anderson and Stiegelbauer, 1994; Cuban 1992; Kirst and Meister 1985; Datnow 2005). Reforms may change institutional or organisational structures in schools, but often they do not reach into the classrooms and do not affect the core of what teachers do or how students learn (Tyack and Cuban, 1995; Elmore, 1996). In addition, as more reforms have been introduced across education systems, schools may have the tendency to stay away from yet one more reform and continue with their day to day operations.

In the analysis as to why many of these reforms fail to take ground, reform research in recent years has focused more on what are the conditions for implementation: when, why and for whom some policies will work and some will not (Honig, 2006). The recognition of the factors that are critical

for success in education policy reforms calls for policy makers to have better knowledge on how to respond.

In the implementation of school leadership policies, there needs to be a) alignment to governance structures and b) consideration of the capacity and respective responsibilities of different actors.

The degree of decentralisation and autonomy has an impact on the responsibilities that school leaders can actually take and exercise. When there is much national prescription, school leaders may play a more limited role than when they have more autonomy.

This also depends on the quality of the existing workforce, including teachers and school leaders. If the teaching workforce do not have incentives, have low levels of skills and have individualised approaches to teaching, the types of policy approaches and implementation can be different than if teachers are highly prepared professionals.

Education systems may also have additional institutions or structures supporting schools, such as local level governments, evaluation institutions or school improvement advisors.

Furthermore, implementation of education reform is influenced by different factors. There is a wide range of stakeholders (including students, parents, teachers, employers and trade unions) who are involved and have stakes in education outcomes. Their engagement in implementation of reforms is required, as many are those who are on the frontline of education delivery. Without their cooperation, reforms may not have their desired effects (Wurzburg, 2010).

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## **Leadership and the Design of Data-Driven Professional Networks in Schools**

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# Leadership and the Design of Data-Driven Professional Networks in Schools

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## Abstract

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Using data from a multi-method comparative case study of two matched schools, this paper adds to the growing body of applications of social network analysis to the study of distributed leadership and accountability. We contrast two approaches to instructional leadership, prescriptive and discretionary, to investigate how leaders design professional networks to increase the availability and access of individuals with the expertise needed to perform the analysis required to conduct data-driven instructional improvement. We found that the prescriptive approach to instructional leadership uses comprehensive school reform as a focal artifact to facilitate the widespread use of data for learning when compared to a leadership perspective that aimed at cultivating teacher discretion. We conclude with a discussion of how the concept of cognitive load helps illustrate the design principles leaders can use to create data-driven professional networks in schools.

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**Keywords:** school accountability, instructional leadership, school organization, social capital, social network analysis

# **El Liderazgo y el Diseño en las Escuelas, de Redes de Profesionales Basadas en Datos**

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## **Resumen**

Utilizando los datos de un estudio de caso multi-metódico y comparativo de dos escuelas similares, este trabajo se suma a la creciente cantidad de programas de análisis de redes sociales para el estudio del liderazgo distribuido y la responsabilidad hacia los resultados. Comparamos dos enfoques de liderazgo instructivo, prescriptivo y discrecional, para investigar cómo diseñan los líderes redes de profesionales capaces de aumentar la disponibilidad y el acceso de las personas con la experiencia necesaria para llevar a cabo la mejora de la instrucción a través de un buen análisis de los datos. Descubrimos que el enfoque prescriptivo utiliza la reforma escolar integral como mecanismo central que ayuda a usar los datos, a diferencia de una perspectiva de liderazgo centrada en estimular las decisiones del profesorado. Se concluye con una discusión de cómo el concepto de carga cognitiva ayuda a ilustrar los principios del plan que pueden utilizar los líderes para crear, basándose en datos, redes de profesionales en las escuelas.

**Palabras clave:** responsabilidad escolar hacia los resultados, liderazgo instructivo, organización escolar, capital social, análisis de redes sociales.



This paper presents a comparative case study about how leaders and teachers in two urban K-8 schools in the United States (U.S.) designed school capacity for using data to improve student learning. The schools were in the same district and alike in almost every external respect, with similar staff composition, student demographics, teacher and leadership experience. However, they differed in one crucial respect – one adopted a more prescriptive, school-wide direct instruction approach to teaching and learning, and the other cultivated the ability of teachers to use discretion to select appropriate instructional materials and classroom strategies.

Our paper examines how these instructional choices resulted in marked differences in how school leaders structured interactions around data use and staff confidence in using data. In the first section we explain how school accountability calls for a new form of data expertise in schools, and how leaders create professional networks to distribute and access that expertise. We present a comparative case study and the surprising finding which led to this investigation: the contrast between the two schools with respect to their confidence in using data. We describe the leadership priorities in the two schools, how the school principals deliberately shaped the work environments in two contrasting fashions which we refer to as *prescriptive* and *discretionary*, how the social network data conform to these different approaches, and how the prescriptive design offered teachers clear and regular access to the few individuals in their schools with the valued expertise. The paper concludes with a discussion of how the design of the prescriptive model resulted in several key design principles for creating a data-driven professional community.

### **Accountability, Distributed Leadership and Design**

School accountability movements across the world have placed a premium on the abilities of school leaders and teachers to engage in “data-driven decision making” as a tool for school improvement<sup>1</sup>. Data-driven accountability calls on schools to translate information on the results of student learning into actionable plans to improve the instructional process (Elmore, 2000, 2005; Goertz, Olah, & Riggan, 2009; Halverson, 2010a, 2010b). While successful teachers have long used formative feedback to

improve student learning (Black & Wiliam, 1998), school accountability policies press school leaders to design data-driven instructional systems that provide classroom-level feedback for teachers to customize teaching to meet the needs of students (Halverson, 2010a, 2010b; Halverson, Grigg, Prichett, & Thomas, 2007).

The growing prevalence of data-driven instruction requires teachers to teach in new and different ways, and—in particular—demands that teachers consider new forms of student achievement information as they make instructional decisions (Jennings, 2012; Little, 2012; Turner & Coburn, 2012). In the early stages of design and implementation of these systems, teachers struggled to integrate summative student achievement data into their daily practice. The struggle was, in part, due to the mismatch between the training provided to teachers on using data to improve instruction and perceived preparedness in effectively improving their instruction using the trained knowledge and skills (Stanulis, Burrill, & Ames, 2007; Supovitz & Klein, 2003; Young, 2006). However, many educators quickly realized that, aside from the training issue, the summative data provided to schools were delivered too late to make a difference or did not match the curricula that teachers taught in their classes (Hamilton, Halverson, Jackson, Mandinach, Supovitz, & Wayman, 2009). In response, many teachers and leaders responded to the press to integrate achievement data by designing socio-technical systems that created and circulated the kinds of information that could support improved instruction (Halverson et al., 2007). Leaders worked with teachers to collaboratively build and implement new instructional initiatives, to collect data on their efforts and to reflect on and integrate these data into refined practices of teaching and learning.

The framework of distributed leadership (Spillane, 2006) is well-suited to trace how leaders, teachers and staff create policies and routines that shape school-wide practices. Studies on distributed leadership provide a useful framework in understanding complex leadership practices in school systems (e.g., Spillane, Kim, & Frank, 2012; Sun, Frank, Penuel, & Kim, 2013). Distributed leadership describes how leaders create systems of practice (Halverson, 2003) that shape or reform instructional practices in schools. This work involves creating new structures for interaction, and also developing the professional community among educators that allow for ongoing learning and development (Halverson, 2005; Little, 2003; Wenger, 1998). One way to understand the response of schools to meet the needs of

accountability policies is to study how school leaders created professional networks among educators to engage in data-driven instructional design practices.

## **A Network Perspective of Social Capital**

Social network theory offers a model for analyzing professional interaction in schools. Researchers have used social network theory to investigate how the structure of a teacher's social network is shaped by the way in which school leaders distribute practices across network members, tools, and processes (Coburn & Russell, 2008; Gronn, 2002; Spillane, Halverson, & Diamond, 2004). Social network data—especially when used in concert with interview and observational data—are particularly well suited to address both the structure and embedded resources of the professional network (Daly, 2010; Penuel, Riel, Krause, & Frank, 2009; Penuel, Sun, Frank, & Gallagher, 2012). Bringing social network analysis tools together with distributed leadership allows us to explore the relations between leadership practices, professional community and teacher instructional practices.

Social network methods are grounded in social capital theory. The concept of social capital has been widely studied and defined in the social science literature (Coleman, 1988; Nahapiet & Ghoshal, 1998). The central insight of social capital theory is the process of building trust as a way of understanding the formation of quality of social ties as well as the interplay between trust and quantity of these social ties (Burt, 1992, 1997; Coleman, 1988; Granovetter, 1982; Lin, 2001; Marsden & Campbell, 1984; Putnam, 1993, 1995). Coleman's (1988) analysis begins with the simple interaction of asking for and receiving advice or help. Social capital develops from this basic transaction. When community members ask for help, the network becomes centralized around those who provide help; when community members begin to ask one another for advice, the network becomes more distributed. Network interactions can be one-way (help seeker → help giver), reciprocal (help giver/seeker ↔ help seeker/giver) or multidimensional, in which many actors are both advice givers and seekers. Trust between actors in social networks may or may not coincide with organizational structures as the strength of social ties between actors varies dependent upon the level of trust between and among network members

(Granovetter, 1982; Marsden & Campbell, 1984). For example, as we demonstrate below, the trust that accrues around the ability of an administrator to address student disciplinary issues does not necessarily transfer to trust about instructional or community relations. Social networks formed by different purposes of social ties (network intentionality) are distinguished based on the kinds of expertise sought by actors (Wasserman & Faust, 1994). Because trust among actors differentiates around kinds of social interactions, it is difficult to consider a broad measure of organizational trust without considering the specific nature of the advice networks.

We consider how social capital theory can be used to analyze the interactions between and among network members as a way in which social capital is accumulated as assets in a social network (Lin, 1999). The network perspective of social capital provides insight into the social processes that are stretched across individuals within levels of educational system (Daly, 2010, 2012). It is particularly concerned with the patterns of social ties in which relational resources, such as knowledge and skills that travel across networks are embedded ties of social interactions as well as network position of individuals (Lin, 2009; Scott, 2000). Social network studies inside and outside of education suggest that informal social positions of individuals in networks may support and constrain the flow of relational resources (e.g., reform advice, knowledge and information, etc.), and how individuals gain access to and are influenced by these resources (Degenne & Forsé, 1999).

Social network research considers how individuals interact in the structures of the network. The pattern of ties and social network position are two core components of the structural aspect of social capital (Daly, Liou, Tran, & Cornilissen, 2013; Lin, 2009; Liou & Daly, in press; Wasserman & Faust, 1994).

- The *pattern of ties* forms an overall structure in which individual members are positioned differently based on the pattern of incoming and outgoing ties to others across the network (Wasserman & Faust, 1994). A densely connected network structure may facilitate more effective access to resources, such as knowledge, skills and materials, and may enjoy better access to information (Burt, 1992). Actors in dense networks may have greater advantages to effectively distribute

knowledge and information through which assets of social capital may develop (Coleman, 1988; Inkpen & Tsang, 2005; Smylie & Hart, 1999).

- Individuals who occupy a more central and influential *network position* are considered “hubs” and/or “connectors” and may have greater advantages to both seek and receive resources that are useful to achieve purposive goals (Ibarra & Andrews, 1993; Lin, 2009; Penuel et al., 2009). Such individuals are described to have high-degree centralities when compared to peripheral actors with lower degree centralities who have limited access to these resources due to relatively sparse ties to and from others (Scott, 2000; Tsai, 2001; Tsai & Ghoshal, 1998).

Given that dense networks and central actors are influential in moving resources across a network, exploring network structure and informal social network positions provides more insight into the extent to which resources (e.g., advice) are distributed and shared in professional communities in facilitating improvement efforts among teachers and other key network members.

### **Multi-Method Comparative Case Study**

Our study investigates how leadership practices influence the degree to which the knowledge and practices of data-driven instruction are made available to educators. Our data is drawn from the Data-Driven Instructional System (DDIS) Project, a five-year National Science Foundation sponsored study of how school leaders create social and technical systems to help teachers use achievement data in their instruction. Using an explanatory case study design (Yin, 2009), the DDIS researchers used interview, observation, survey, and social network data as evidence to examine practices in nine schools in a Midwestern state. DDIS researchers purposively sampled elementary schools with documented improvement in student outcomes and that were led by principals with strong reputations for helping teachers understand and apply data to their teaching practices. In this study we report findings from two schools in a single urban school district, which we refer to here as Liberty School and Community School<sup>2</sup>.

The DDIS study involved multiple channels of data collection. All relevant professional development and faculty meetings and events were observed over the course of a year, and researchers interviewed leaders,



teachers, staff, and volunteers (22 interviews at Liberty; 17 at Community). Interviews were recorded and transcribed, and both transcriptions and field notes were compiled and analyzed using the qualitative data analysis software NVivo 8. At the completion of fieldwork, all educators in the school were invited to complete a survey on their teaching practices, attitudes about school climate and leadership, and social network engagement<sup>3</sup>. The DDIS survey response rate was 92% at Community and 62% at Liberty. The social network aspect of the survey invited staff to nominate individuals to whom they went to for advice and support along six different dimensions: teaching reading, writing, mathematics, and science; addressing the needs of students who struggle academically; and addressing student behavior issues. The survey provided a roster of school staff to prompt recall of salient individuals (Wasserman & Faust 1994)<sup>4</sup>. This bounded network approach provides a more complete picture of organizational interactions (Lin, 1999; Scott, 2000). The social network data were analyzed with UCINET 6 (Borgatti, Everett, & Freeman, 2002) and represented using NetDraw (Borgatti, 2002). The following discussion draws data from across these channels to develop contrasting profiles of data use in two schools with significantly different approaches to instruction and student learning.

### **Liberty School and Community School**

Liberty School and Community School share a long list of similarities (Table 1). Both schools are K-8 charter schools in the same urban school district, and consequently share similar external resources, including funding allocations, district staff support, and assessment and data collection protocols. Both schools are similar in size (between 600 and 650 students). Although the schools differ in their racial or ethnic profiles, both schools have considerable non-white populations and have nearly identical levels of poverty (approximately 70% eligible for free/reduced lunch) and academic proficiency (75-80% proficient in reading, 50-65% proficient in mathematics).

Table 1  
*Characteristics of Schools*

	Liberty School	Community School
Grades	K-8	K-8
Location	Urban	Urban
Number of students	650	600
Eligible staff members	52	49
Ethnicity (%)		
Asian	5	30
African American	70	10
Hispanic	5	20
White	20	40
Special education students (%)	10	10
Students eligible for free and reduced lunch (%)	70	70
Proficient and advanced in Reading (%)		
4th grade	75	80
8th grade	75	80
Proficient and advanced in Mathematics (%)		
4th grade	60	65
8th grade	50	50

Note.—Data are reported from the 2006-2007 year and are rounded to the nearest 5% to preserve anonymity (and therefore may not add up to 100%).

The schools also share similar histories as well as teacher and administrator profiles. Both schools had previously been identified as underperforming by the state and were designated as turnaround schools. As shown in Table 2, the majority of staff in both schools had been employed there for at least five years; and over half the members of each staff held advanced degrees. Both principals had been working at their schools for at least five years and enjoyed the respect of district leaders and their own faculties. Because the schools were in the same district, they also shared similar instructional remediation and special education systems. Both convened “problem-solving teams” (Thomas, 2008) to systematically assess and address the needs of students who struggled with the instructional program. Both schools provided instructional support to teachers with literacy coaches.

Table 2

*Demographics and Perceptions of Teachers and Administrators/Support*

	Liberty School		Community School	
	Teacher	Administra- tor and support	Teacher	Administra- tor and support
Demographics (%)				
Female	73	6	82	77
Non-White	32	20	15	0
Masters+	50	90	68	76
Years teaching (>5 years)	73	80	71	82
Years in the current school (>5 years)	37	80	50	65
School leadership <sup>a</sup> (%)				
Regular feedback	78	90	92	94
Test score priority	95	95	89	94
Shared commitment	86	95	96	98
Evaluating progress	95	98	96	88
Use of achievement data <sup>a</sup> (%)				
Reviews useful data	64	90	93	93
State assessments <sup>b</sup>	77*	90*	61*	82*
Use of own data from PD/colleagues	76	80	64	60

Note.— $N_{\text{Liberty}} = 32$  (62% response rate),  $N_{\text{Community}} = 45$  (92% response rate). The percentage represents those who reported ‘Agree’ and ‘Strongly Agree’ from both teachers and administrators and support staff in each school.

<sup>a</sup>1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree; See Appendix for complete questions and factor loadings.

<sup>b</sup>Significant differences are found between teachers and administrators/support staff at both schools. \*  $p < .05$ .

The DDIS survey revealed similar teacher and staff perceptions of school leadership and of the use of achievement data at the two schools<sup>5</sup>. Teachers from both schools reported similar levels of perceptions about leadership and the use of achievement data on the survey. Both Liberty and Community teachers reported similarly high focus on school leadership priorities. They

perceived an effective and ongoing evaluation system for teaching and learning, and they reported sharing a school-wide priority of improving test score results and student learning. The overall perceptions of school leadership from both teachers and administrators and support staff at both schools are similar across the DDIS survey. Educators at each school report similar data-use practices as well. More than 60% of the educators at both Liberty School and Community School reported using annual state assessment data to modify their instruction (77% and 61% respectively), approximately two thirds reported collecting their own data to modify their instruction (76% and 64%, respectively), and over 80% of teachers reported turning to colleagues for help using achievement data to improve their instruction (95% and 84%, respectively). Finally, approximately 90% of teachers in both schools reported that the school reviews the kind of data they need to improve their instruction (95% and 96%, respectively). From the descriptive and survey data, it was difficult to tell these urban schools apart.

### **Data-Driven Anxiety**

When we explored the interview data, however, we began to discern a difference in levels of anxiety and confidence among teachers at the two schools. Teachers at both schools reported they were using state assessments and their own data to improve instruction, but they felt differently about how comfortable they felt discussing data (Liberty:  $M = 3.97$ ,  $SD = 0.80$  and Community:  $M = 4.39$ ,  $SD = 0.57$ ,  $t = -2.22$ ,  $p < .05$ )<sup>6</sup>. We explored our qualitative data to investigate this difference in the extent to which teachers felt prepared to engage in data-driven instructional practices.

The teachers at Liberty School appeared anxious when discussing data-driven instruction. They were confident about how they were using data in their own classrooms, but uncertain about how their local practices related to the overall school goals and the standardized testing data. For example, one lower grade teacher at Liberty noted:

[I]ndividual teachers have their own data, but as far as analyzing the big pieces of data that's all [the principal] coming with the Terra Nova tests and being like, 'This is this percent, and this is

this percent.’ And [the principal] does a good job of breaking it down so that we can all understand it because I stare at those grids and I don’t get it, you know. To be honest it’s a little *overwhelming* [emphasis added]. So she breaks it down so that we can all understand it ... As far as like more informal assessments and things like that, it’s all based on the teacher. (Liberty lower grade teacher)

This teacher distinguished the periodic review of standardized tests such as the Terra Nova, or “big pieces of data,” and the formative data, referred to here as “informal assessments and things like that” which guide individual instructional choices. The principal took responsibility for guiding the staff through reflecting on standardized data, for which this teacher is grateful since she finds that these data to be “a little overwhelming.”

The word “overwhelming” reappeared in the discussions about data at Liberty school. An upper grade teacher, for example said, “It [using data to improve student learning] is overwhelming and I think it can be a hindrance when you try to make change as a whole school.” A different upper grade teacher followed suit:

I do want to mention that it’s [the support from lit coach, special education teachers, and counselor] somewhat effective because we feel included in understanding the data, but again sometimes we feel *overwhelmed* [emphasis added] because we have so much to do and data isn’t as important as what we’re doing in the classroom. (Liberty upper grade teacher)

Having the principal guide the annual data review is regarded as a valuable, but rare, instance of data-driven leadership at Liberty School. For the most part teachers are told to address their ongoing data needs (described by first teacher the “informal assessments and things like that”) on their own. A different lower grade teacher described how she felt the responsibilities of using data to support student learning:

Unfortunately ... that’s pretty much put on the teacher ... a lot of it is for teacher. So it’s our own time going and seeking people out ... The speech teacher comes and works really closely with us and she’ll come in and conduct a lesson within our regular setting just because having half special education, she services a lot of our kids ... but then as far as we’re going into teacher resources, things like that, you know, that’s all pretty much that way. (Liberty lower grade teacher)

Another teacher expressed the press of developing the capacity to use data on her own as a mandate from school leaders: “A lot of it’s like the teachers are saying this is too much work. How are we going to get this done and they are saying ‘but it needs to get done.’” Teachers at Liberty School regularly stated that they were expected to use data to guide their instruction, but with the exception of the annual review by the principal, they were felt they were left on their own to do it. The leadership team clearly expected teachers to use data for instructional improvement, but the means to achieve that expectation was less clear to teachers.

At Community School, on the other hand, teachers expressed more confidence dealing with data, and we heard less anxiety than from Liberty teachers. A lower grade teacher at Community talked about her practices of using data:

Certainly I use that data all the time. I know they have it ongoing because teachers are supposed to be using it as well. That's a piece I know we're working on ... some people just ... need additional training in how do you get things that way and how do you use that data and what does it show you ... And I think we're still sort of moving on that path-people are more than willing to collect the data typically, but they get that it's important so they'll collect it, but they'll sometimes graph it. (Community lower grade teacher)

This teacher admitted that the process of using data to inform instruction is emerging, but her disposition toward the challenge is quite different. Another teacher described her positive feeling about how the progress of using data has been improved with training they received:

I think, the goal was always to have some data but with the additional training and the additional people on the staff to do the training, there was more of an acceptance that you needed some data to evaluate. Not just getting back together after a month and saying 'How'd it go? Are we better or not?' We used to be a lot more informal about that but certainly we've become more efficient about using that sort of data with problem solving and the teams have gotten much better-the results have gotten much better since we started doing that. (Community lower grade teacher)

Community’s principal summed up her sense that they are addressing the challenge by saying, “We’ve been trained.”

What accounts for the feelings of being overwhelmed by data at Liberty School, and the shared sense of responsibility toward data use at

Community? How can we explain this difference in anxiety given the similarities between the schools? We believe this difference in sentiment is attributable to the divergent instructional philosophies and strategies adopted by the schools' leaders, which the social relations in the school reveal.

### **Discretionary and Prescriptive Leadership**

The leaders at Liberty and Community had quite different approaches to improving teaching and learning across their schools. The principal at Liberty School focused on cultivating collaborative teams and enhancing teacher autonomy. This approach, which we characterize as *discretionary*, empowered teachers by granting them the freedom to make curricular choices among grade-level teams and relied on teacher effort and professionalism. The leaders at Community school also focused on creating collaboration, but through the adoption and implementation of Direct Instruction (DI), a comprehensive school improvement model that specifies a paced teaching plan with clear assessment standards. Rather than rely on teacher discretion to develop the instructional program, the leaders at Community exercised a *prescriptive* approach to leadership that dictated how teachers were to interact with students at all times. The following sections of the paper detail how these approaches to leadership shaped the professional communities of their schools.

The leaders at Liberty school adopted policies designed to improve student learning through cultivating teacher professionalism. We call this approach to instructional leadership *discretionary* because of the focus on enhancing teacher discretion played in the school instructional program. The principal of Liberty expressed her beliefs in building teacher autonomy in the following fashion:

We are such a collaborative structure ... because I really do believe in my teachers as professionals. It's very messy trying to ... arrive at systems ... [it] can be a long process. The system we're arriving at right now [is] for monitoring individual skills. And yet, I really do believe that what I am trying to build is consensus and commitment and not compliance ... even though I stick some compliance mechanisms in there ... But it definitely is a process of convergent thinking and convergent commitment as

opposed to, you know, ‘Here is this great tool we have because it is built into our curriculum.’ (Liberty principal)

This quote is noteworthy because the principal is trying to build a consensus around a system guided by the teacher’s ability to monitor student learning. At Liberty, leaders seek to establish an ethic of professional respect through consensus approach, which the principal admits is “messy” and “long” process. She resisted prescribing a single curricular program for the school, instead guiding the teachers to build curriculum maps that would document the practices they felt best met the needs of their students. Out of the curriculum maps, Liberty leaders hoped, would emerge an instructional consensus around which a data-driven culture could be built.

The Liberty principal believed that this consensus could be structured through curriculum mapping, grade-level teams and teacher observation informed by the intended goals of the classroom teacher. The grade level teams, the principal describes, are “very, very important”:

I made a decision to spend ... more time with grade level teams. So, asking them ‘What are kids learning?, how do you know?, what is the evidence?’ and it can be student work projects, it can be results of tests, whatever, but just asking people about what evidence there is and then what are you doing for kids that need intervention because they are performing really high or really low ... I told them from the very beginning it really wasn’t about me there was just one low accountability; make sure you’re really having these conversations about student work. I’m focusing much more on those questions and the context of grade level meetings. (Liberty principal)

The principal seeks to develop teacher knowledge and skills by modeling the kinds of inquiry practices she sees as important for data-driven instructional improvement at grade-level team meetings. She expects teachers to use their judgment to develop the relevant information to guide day-to-day instructional improvement and believes that encouraging teachers to identify, collect, and design interventions as well as to reflect on classroom-level data will result in a new kind of data-driven professional. For the most part, Liberty teachers appreciated the respect and support they received and rose to the challenge. Because the leaders at Liberty encouraged teachers to develop the instructional program based on their judgment, the collaborative relationships between and among teachers,



including data-driven decision making, are largely opportunistic and a result of teacher initiative.

The leaders at Community School had no qualms about promoting a school-wide instructional model. Early in her tenure, the Community School principal identified the classroom-to-classroom variability in the curriculum as the critical cause of the school's poor test scores. According to the principal:

I had the reading resource teacher survey the staff, and they were basically all doing different things. There was no consistency within the building—we had wonderful staff, great teachers, hard working individuals, lovely school, great environment, caring community, but there wasn't any consistency with curriculum

She formed curriculum committee of teachers and staff to decide on an instructional program that would be implemented across the school. The Community School adopted the Direct Instruction (DI) curriculum and obtained a Comprehensive School Reform (CSR) grant to reorganize the school around DI.

... [W]e basically developed an investigative committee and we went out to various schools, and they came back with a great interest in the Direct Instruction curriculum because they saw it in another school. (Community principal)

The principal believed that DI was important not only to improve instruction but also to bring staff together and share a common language around this unifying program.

We call this approach to instructional leadership *prescriptive*. Instead of granting teachers the discretion to develop individualized learning classroom environments as a path instructional improvement, the leaders at Community school adopted a school-wide curricular program to direct instructional decisions in the classroom. This is not to say that the leaders ignored the will of teachers in the school. The Community principal organized a school-wide process to choose a program and relied on the judgment of teachers to select and implement a program that could guide their work. The selection and implementation process was consensual rather than autocratic.

The DI program focused on reading, mathematics, and academically struggling students (the core areas of accountability scrutiny at the time). It provided training opportunities and coaching for teachers and staff. According to one lower grade teacher:

There have been formal discussions taking place in terms of resources and certainly the DI curriculum and trainings. There's been lots and lots of trainings that has been available to take advantage of in terms of how to use DI. There's literacy coach coming in to do that. So there's been a lot of that kind of resource aimed at trying to improve the delivery [teaching] so that the kids will learn better and more at their speed. (Community lower grade teacher)

Adopting a common instructional program coordinated resources for improving teaching toward a shared goal of program implementation. Instead of posing the instructional challenge for each teacher to solve individually, Community established a collective approach that focused teacher efforts on implementing a known solution. Leaders at Community were involved in each step of the problem-solving process. The school psychologist explained how the administrators and support staff (who she refers to as “everyone”) share the responsibility with the teachers: “[We] make a plan for an intervention and decide who’s doing what pieces of the plan, and trying not to give the teacher the whole responsibility and really make sure that everyone shares in the responsibility.”

This collaboration between Community school leaders and classroom teachers is demonstrated by the information network of formative assessment worksheets transferred classrooms to the school’s literacy coach, who reviews the worksheets and synthesizes the information to provide feedback to the classroom teachers and the principal as necessary. As the principal explains:

We’ve learned how to look at that data and use it to help guide us. Having a literacy coach is really good too, and she’s really good at compiling that data, and she’s the one person, quite honestly, where all these worksheets go to. She takes it, she looks at it, if again there’s any red flags it’s brought to my attention and I’ll address it, or then on a monthly basis it’s put together as far as an overall, which each classroom, which each group, how they’re improving, where they’re going, are they making enough gains. I look at that and we move forward. What do we need to focus on this month? (Community principal)

By following the worksheet information trail, we found that the literacy coach assumed responsibility for making sense of formative student assessments. Rather than setting questions for the teachers and letting them

figure out an appropriate response, the coach physically takes the information and provides an interpretation of the results (to be sure, she also performs a monitoring function for the principal). No analogous function was performed by the leaders at Liberty School.

### **Advice and Support Social Networks in Prescriptive and Discretionary Settings**

Our analysis of the social network data corroborated the differences between the Liberty and Community school approach to instructional leadership found in the qualitative data. We focused on the density and centralization of the advice/support networks and the network position (degree centrality) of key actors in order to illustrate how the teachers in the two schools have different levels of access to people with data analysis expertise.

The density and centralization of the teacher advice/support networks in the two schools are reported in Table 3. Density represents the proportion of observed ties to the number of ties that could potentially be present (Wasserman & Faust, 1994) and offers insight into “such phenomenon as the speed at which information diffuses among the nodes, and the extent to which actors have high levels of social capital and/or social constraint” (Hanneman & Riddle, 2005). Network centralization ranges from 0 to 100%; the index will equal 0 when no individual is more central than any other, and it will equal 100% when a single actor “completely dominates the network with respect to centrality” (Freeman, 1979, p. 228). A low network centralization suggests a diffused network, whereas a high network centralization suggests the existence of one or more specialized roles—either formal or informal—in that domain within the school. The “All domains” row combines all of the questions into a single network, and the subsequent rows treat each question separately.

Table 3  
*Advice/Support Network Density and Centralization by Domain and School*

	Liberty School		Community School	
	Density	Centralization (%)	Density	Centralization (%)
All domains	.05	12	.08	23
Reading	.02	25	.04	46
Writing	.01	21	.03	35
Mathematics	.01	17	.02	35
Science	.01	23	.01	32
Struggling students	.02	12	.04	30
Student behavior	.02	24	.04	46

Note.—Network size at Liberty = 74 and Community = 71.

We expected that the discretionary approach adopted by the leaders at Liberty school would result in a decentralized network and that the prescriptive approach at Community would result in more centralized networks in which leaders would be regarded by educators as key actors in the instructional process. With the exception of the science domain, the Community School advice/support networks are somewhat denser (.08 vs. .05) than the Liberty School networks, and as we expected they are also much more centralized<sup>7</sup>. Liberty has a centralization value of 12% and Community has a centralization value of 23%, suggesting that the overall network at Community School is almost twice as centralized as the network in Liberty School. Moreover, centralization values for individual domains are consistently twice as high in Community School as in Liberty School.

We also investigated the centrality of individuals or groups of individuals in the schools (Table 4). Individual/ego degree centrality represents the number of other individuals to which a given person is directly connected (Freeman, 1979)<sup>8</sup>. In both schools, the literacy coaches had the highest normalized degree centrality of any individual in the network, but the Community School’s coach had a degree centrality of 26 compared to 13 for the Liberty School coach. The second most central figure at the Community School was the DI program implementer; there was no equivalent role at Liberty School. As one might expect from the discretionary leadership

approach, three of the next five most central staff members at Liberty School were teachers, whereas at the prescriptive Community School only one of the next five most central staff members was a teacher. Although neither school would be characterized as principal-centric (“literacy coach-centric” would be more accurate), the principal was the sixth-most central individual at Community School and the eleventh-most central individual at Liberty School.

Table 4  
*Centrality Comparison between Liberty and Community across Advice/Support Networks*

	Liberty School	Community School
Ranking and individual <i>degree</i> centrality of most central role <sup>a</sup>		
1	Literacy coach (13.0)	Literacy coach (26.4)
2	Assistant principal (13.0)	Assistant principal (23.6)
3	Reading specialist (12.3)	DI implementer (22.1)
4	Teacher (11.6)	Psychologist (18.6)
5	Teacher (9.6)	Teacher (16.4)
6	Teacher (9.6)	Principal (13.6)
...		
Average <i>indegree</i> centrality between teacher and leaders / support staff <sup>a</sup>		
Teacher <sup>b</sup>	5.2	7.8
Administrator and support staff <sup>c</sup>	12.2 <sup>*</sup>	26.7 <sup>*</sup>

Note.—<sup>a</sup>(In)degree centrality measures were calculated based on the cross domain network. <sup>b</sup>N<sub>Liberty</sub> = 30, N<sub>Liberty</sub> = 28. <sup>c</sup>N<sub>Liberty</sub> = 10, N<sub>Liberty</sub> = 9. <sup>\*</sup>*p* < .05.

Given that there is a difference in the overall network structure (i.e., density and centralization) between Liberty (discretionary) and Community (prescriptive) and that the order of the most central roles (degree centrality) in both schools meets the general expectations of the corresponding leadership approach, a more in-depth look into the leadership practice

between teachers and school administrators and support staff would help unpack the effects of these approaches to instructional leadership on social capital within the school. We calculated the indegree centrality to represent how connected an individual was by others to understand how individual's expertise is recognized by other network members. Table 4 presents the mean normalized indegree centralities of teachers and administrators and support staff across six domains at both Liberty and Community schools. The mean normalized indegree centrality among classroom teachers in Community was modestly higher than in Liberty (7.8 vs. 5.2) and no significant difference was found between Liberty and Community. However, the mean normalized indegree centrality among administrators and support was significantly higher in Community than in Liberty (26.7 vs. 12.2;  $t = -3.15$ ,  $p < .05$ ). While teachers were sought by 5-8% of their colleagues for advice/support in both schools, the administrators and support staff at Community played a much more prominent role in the school professional network in providing advice and support.

The centrality of the literacy coach and the DI program implementer at Community reflected a distributed information leadership strategy. Teachers at Community collected data on student performance and submitted it weekly to the literacy coach, who then compiled the data and reviewed it, a process the principal refers to as “funneling” the data. The principal explained how “we wanted to be looking at that data weekly so that we wouldn't have to go four weeks before we realized there was a problem with a classroom teacher or what was happening in that classroom.” The data—at least for literacy—are consolidated by the literacy coach, and the principal can potentially review the performance of any class at any time. The teachers “offload” their data tasks to the literacy coach, who relieves them of the responsibility of making sense of the information.

The DI program implementer at Community—another centrally located individual—reviews data on a monthly basis and creates a “Critical Index” for the principal's review. The principal offers an example of how the monthly review of the Critical Index highlighted lack of student progress in a particular curricular area in a group of classrooms, which led to a series of classroom visits, consultation with additional support staff, and meetings with the teachers in which she encouraged them to “step it up a bit.” Managing the weekly worksheets and monthly Critical Index is an intensive analysis process for school leaders. At Community School, these tasks are

performed by leadership team members whose regular engagement with teachers is reflected in the network centrality measures.

The leadership strategy around data collection and review processes looks quite different at Liberty School. When asked about the data reviewed at Liberty, the principal referred to a district climate survey and student promotion reports, the annual state assessment, and report cards. She admits, however, that the Liberty staff had not “figured out” how to “aggregate” report card or promotional information to discuss them as a school, and that “although some schools are quite systematic about it... I don’t think we have been as systematic, and that’s a place that we are moving.” Liberty is a place which responds to teacher initiative, as the principal describes: “Other times the teachers will get together and they’ll know of a program and they will approach me and say, ‘Can we implement this?’ and I say ‘Go for it.’” Liberty’s lack of a systematic curriculum initiative encourages teachers to use their best judgment in arranging classroom resources and engaging in instruction. This dispersed approach to the instructional program makes it difficult for leaders to coordinate data discussions around common practices.

In sum, the contrast between the discretionary leadership approach at Liberty School and the prescriptive leadership at Community School helps explain the variation in whole network patterns and aggregate centrality measures. Liberty’s emphasis on promoting teacher discretion as the core mechanism of instructional improvement results in a diffused advice/support network structure in which teachers individually seek help from various resources, including one another. Community, on the other hand, adopted a prescriptive approach that provides a common focus for data collection and analysis and that results in higher levels of (in)degree centrality for designated data leaders. Teachers at Community seek advice and support from these leaders on instructional matters.

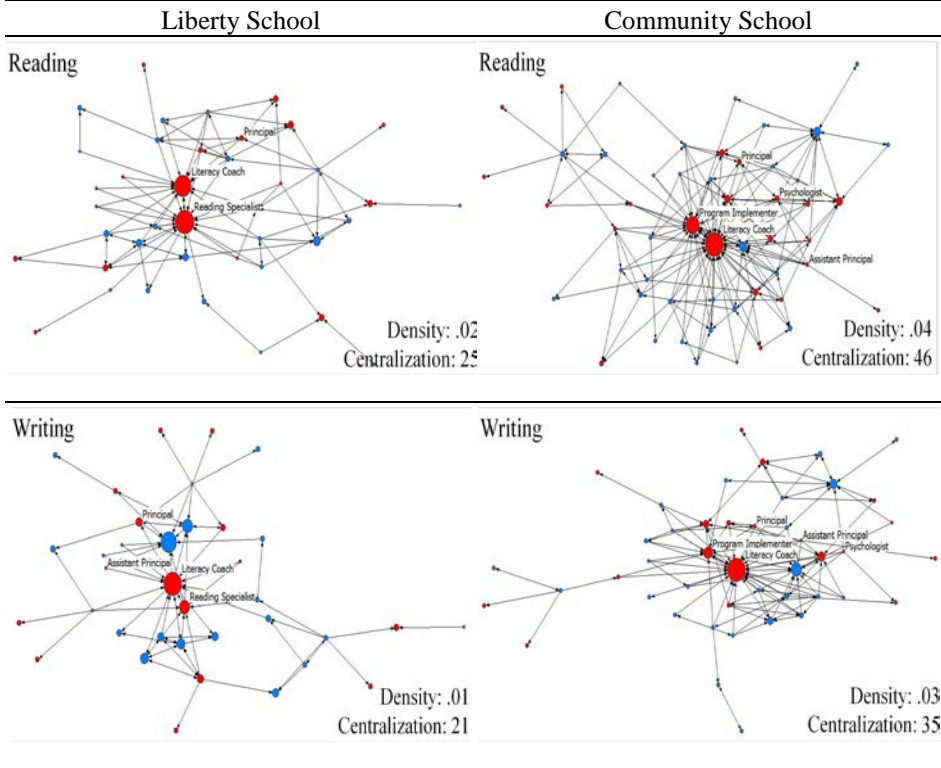
### **Cross-Domain Network Variations**

In this section, we compare the advice/support network structures across six domains to show how leadership priorities shaped teacher interactions around specific practices. A key aspect of distributed leadership is to understand how leaders create structures that support certain types of

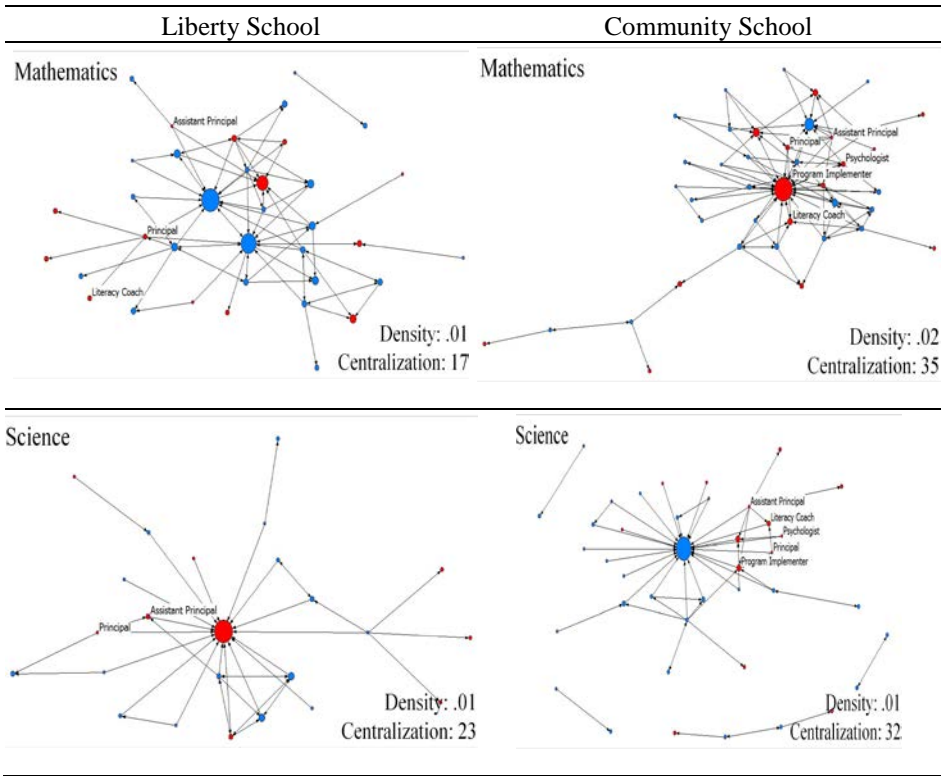
professional interactions; these interactions constitute professional networks that address particular tasks. We examine how teachers engage in reform-related professional interactions, and whether the pattern of interactions in each network corresponds with leadership priorities and initiatives.

We start with the advice/support networks for reading and writing (Table 5). Reading/writing is a district-wide mandated priority, and both schools have dedicated staff to support literacy instruction. Both schools have very similar sociograms, showing two centralized individuals (the literacy coach and reading specialist at Liberty; the literacy coach and DI program implementer at Community) who assist many teachers. Some teachers at Liberty School exercise their discretion at Liberty School to call upon their colleagues as well.

Table 5  
*Instructional Advice/Support Networks between Liberty and Community*







Note.—In all social network diagrams, the nodes represent individual school members and lines represent the exchange of advice/support ties between actors in each domain. The nodes are colored by role: blue/teacher and red/administrators and support staff; sized by indegree centrality: the larger the node, the more an individual receives advice/support ties from others. Node labels indicate key figures (e.g., principal, coach, or specialist, etc.) in each of the maps that pertain to the understanding of leadership priorities in the current study. Isolates are removed from the networks to better illustrate the active actors for each map. Network centralization presents in the form of percentage (%).

Compare these networks to those for mathematics, which is also a district-wide priority. At Liberty School, two classroom teachers are nominated as central individuals and Community School has only one centralized individual - the same DI program implementer in the literacy networks who creates the Critical Index. Liberty School designated “teacher

leaders” for mathematics at the primary and middle school levels, and primary and middle school teachers turn to them respectively. These teacher leaders led annual analyses of the state assessment data during a professional development day. However, teachers reported that this yearly event did not provide sufficient and ongoing data guidance to address daily instructional needs.

At Community School, the DI program implementer describes her division of labor with the literacy coach: “[The literacy coach] is really the reading and the language DI monitor, and I do the math, and then the upper grades we kind of share.” Between these two individuals, the core accountability areas are addressed for all teachers. The centrality of the two teacher leaders in Liberty School reflects the teacher autonomy apparent in the discretionary model, but these teachers were not as readily available to their peers as the DI program implementer is at Community School.

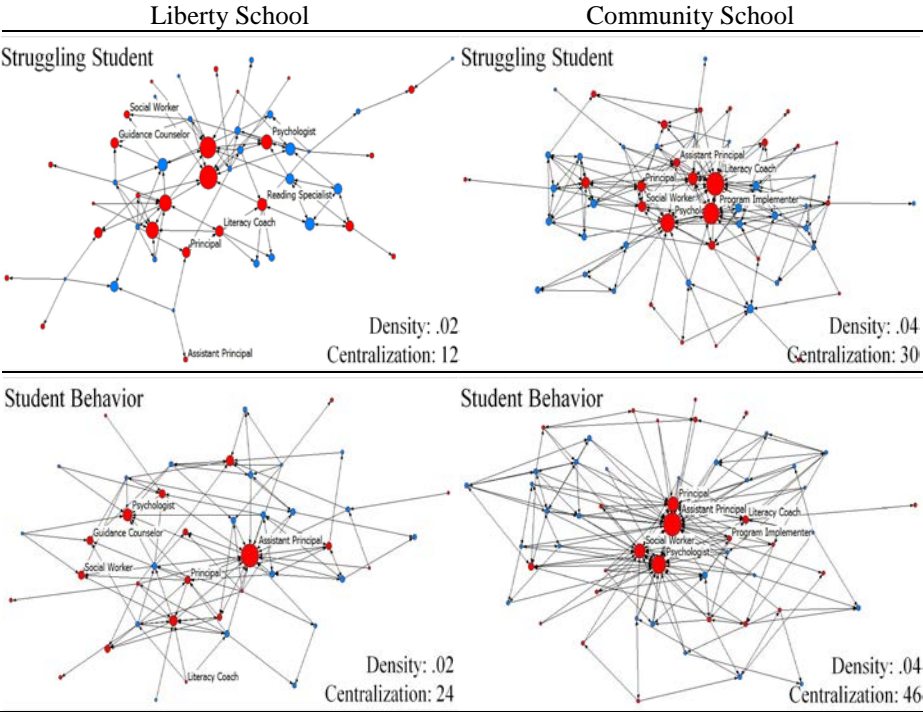
The network structure with respect to science advice/support reflects its lower emphasis and status. As the principal of Liberty put it, “I think everyone understands that reading and math are coming first right now” (the principal at Community expressed a similar sentiment). Similarly, a teacher at Community asserted “if something is going to get cut, it’s going to be science or social studies because the emphasis is on reading and math at this point of time.” As a result, the science networks at both schools were sparse (.01 density for both). In the absence of clearly defined roles and leadership attention, idiosyncratic networks coalesced around individuals at each school by virtue of their individual initiative rather than by design: a classroom teacher at Community and a science instructional aide at Liberty.

The contrast between the two schools’ leadership approaches is most apparent in the network structure regarding advice/support for academically struggling students (Table 6). Both schools devote a considerable attention to addressing the needs of struggling students, as shown by highest density across all networks at each school (.04 at Community and .02 at Liberty). At Liberty School, classroom teachers turn to a cluster of special educators (not prominent in any other networks) for assists in students who struggle academically (centralization of 12%). Notably, the two individuals who could help with literacy needs of students—the literacy coach and reading specialist—are not prominent in this network at Liberty.

Unlike Liberty, in Community School the same individuals who have appeared in the literacy and mathematics networks—the literacy coach and

the DI program implementer—appear centrally again in this network, joined conspicuously by the school psychologist (centralization of 30%). These three educators are members of the Community problem-solving team, the formal structure designed by school leaders to collaboratively address student learning and behavior issues. Liberty school also has problem-solving teams, but those members do not appear to be as central to professional community networks as they are at Community School. Teachers at Liberty seek help from specialists rather than its problem-solving team to address the needs of academically struggling students, but at Community these specialists include not only special educators but also those who also assist them with progress monitoring in literacy and mathematics.

Table 6  
*Non-Instructional Advice/Support Networks between Liberty and Community*



Note.—See Table 5 for detailed information.

Similarly, we observe in Community School an overlap between the academically struggling network and the advice/support network around student behavior problems. The student behavior network has the most dense and centralized structure (.02 density and 24% centralization at Liberty; .04 density and 46% centralization at Community). The assistant principal is prominent in this network in both schools, consistent with research on the role of assistant principals in primary and middle schools (Black, 1980; Matthews & Crow, 2003; Scoggins & Bishop, 1993; Smith, 1977; Weller & Weller, 2002). At Community School, however, the school psychologist, social worker, and principal—all members of the problem-solving team—are involved as well, and thus play a central role in both the academic and behavioral networks. Both the literacy coach and the DI program implementer bridge across reading, writing, mathematics, and academic needs. Single individuals who occupy central positions in multiple networks play an effective role in moving the flow of advice/support resources (Burt, 1992, 2000) necessary for aligned leadership priorities. Central individuals at Liberty vary across networks, and thus teachers receive less aligned support from central figures to address their instructional needs.

## **Discussion**

### **Leadership and Design**

The interview and social network data illustrated significant differences between these two otherwise similar schools. The theory of action for Liberty's discretionary model involves leaders who seek to support teacher discretion to set and solve instructional problems. The teachers are encouraged to build the curricular resources they see as suitable for meeting the needs of their students. The leaders organize and participate in meetings to reflect on school-wide data around student achievement and performance, and create student support services to address the needs of students who struggle – both behaviorally and academically. The leaders at Liberty leave decisions about instructional matters to teachers, who can collaborate as they see necessary, to meet the learning needs of students. The discretionary approach to instructional leadership created a strong feeling of professional

community at Liberty. However, from a data-driven leadership perspective, the separation of instructional from non-instructional support resulted in separate networks that served different organizational needs. If the role of data-driven decision making is to enable collective action about instruction, then the discretionary instructional leadership model adopted at Liberty struggled to create the kinds of professional community that could support data-driven improvement.

The leaders at Community school followed a prescriptive theory of action for instructional leadership. The prescriptive model began with the adoption of a comprehensive school reform model – Direct Instruction – that guided the decision-making of educators in the classroom. DI acted as an anchoring artifact to focus the work of educators across the school on the information that resulted from the intervention. The leaders at Community also adapted the problem-solving team as a structure to collect and process data about student learning as well as a consistent centralized consulting structure to provide services to teachers and students. From a data-driven decision making perspective, the Community leadership model separated the data-collection and interpretation function from the solution-implementation functions of the instructional system. The problem-solving team collected the daily DI reports to assemble the Critical Index reports, and then guided teachers on how to develop solutions for students in the classroom.

The enhanced capacity for data-driven practices for prescriptive instructional leadership runs counter to the current narrative about the relation of scripted curriculum to school culture and teacher professionalism. Prior research suggests that a prescriptive context of schooling tends to create a culture of deskilling where teaching practice is reduced to the implementation of scripted lessons (Apple, 1988; Barham, 1996; Little, 1990; Reilly, 1987). Prescriptive school models are criticized for eroding teacher professionalism by taking away authority over the curriculum (Mustafa & Cullingford, 2008; Pearson & Moomaw, 2005), and that teachers in schools with less authoritarian leadership models are more likely to view themselves as professionals (Tschannen-Moran, 2009). We did not find evidence of an association between centralized control and teacher isolation at Community School. The prescriptive leadership practices appeared to create densely connected and centralized professional interactions, with single actors bridging multiple networks to facilitate the flow of advice/support through the organization. The social resources took

the form of connections that provided teachers with ready access to the expertise of the centralized individuals to assist them with responding to student needs. While teachers in Community School had little control over the curriculum, they were able to use data in ways that gave them confidence in their classroom practices. Our data suggested the discretionary leadership model resulted in teachers feeling overwhelmed and less confident to meet the challenge of data-driven instruction, and, conversely, the prescriptive school provided teachers with access to an instructionally-focused problem-solving team that was engaged in all facets of instructional support. This allowed Community teachers greater access to resources they need to accomplish their work, which is a hallmark of professionalism (Horder, 2007; Swanson, 1995).

### **Organizational Cognitive Load and Design**

We cannot, of course, use arguments grounded in two case studies to make general conclusions about the relative quality of instructional leadership practices to data use in schools, or the influence of comprehensive school reforms on data-driven school cultures. We can however, use the depth and the scope of these case studies to propose a model to understand the differences between the schools that emerged in our interviews and social network analyses. We propose to borrow a concept from cognitive science, cognitive load theory, to show how these approaches to instructional leadership differ. Cognitive load theory (e.g., Sweller, 1988) analyzes problem-solving by distinguishing the relation between short-term and long-term memory. Short-term memory is able to respond quickly to process novel situations, but expensive in terms of cognitive resources. Long-term memory is composed of knowledge structures, or schemas, derived from experiences that allow us to turn novel events into recognizable situations. We have limited capacity for short-term memory, but nearly unlimited cognitive capacity to develop schemas. Cognitive load theory, when applied to instructional design, promotes the development of relevant schemas for complex problem-solving by structuring complex problem-solving tasks into chunks that off-load the pressure on working memory resulting in a more efficient use of scarce cognitive resources.

How does cognitive load theory help us distinguish between the discretionary leadership at Liberty school from the prescriptive leadership at

Community? From an organizational perspective, we can consider the *discretion* of individual actors in responding to novel situations as a rough analog to short-term memory, and organizational *routines* as analogous to the schema of long-term memory. Several key insights from cognitive load theory when applied to instructional design allow us to consider the two models of instructional leadership as distinctive approaches to the design of data-driven learning environments for teachers.

- First, from an instructional design perspective, leaders are responsible for *designing* socio-technical systems for the educators in their building. The challenges of data-driven decision making in schools include collecting the appropriate range of information, deliberating on how to transform the data into action, and reflecting on (then refining) the quality of the resulting action (c.f., Halverson et al., 2007).
- Second, leaders design data-driven learning environments by *chunking tasks* in ways that off-load the cognitive load of discretion by creating legitimate routines that can amplify the abilities of educators to handle novel situations. This chunking process breaks complex cognitive tasks into pieces that allow learners to focus attention on the tasks at hand rather than on the overall process. Organizational chunking means arranging complex tasks so that local discretionary action can be informed, but not overwhelmed, by the information faced by practitioners in the context of practice.
- A third design principle follows from the first two. Leaders can purposively design systems that can distribute cognitive load to make certain individuals central to organizational information network. Designing the information flow can create discrete responsibilities in cases where organizations need parallel and redundant networks; or alternatively the leaders can make the same individuals central to several information networks to create cross-disciplinary resource networks.

These insights into the design of information systems can shed light on the differences between instructional leadership choices at Liberty and Community. The leaders at Community School chunked the task of data-driven instruction into several parts. First, leaders and educators chose a comprehensive school reform model to anchor the instructional reform process. DI was a data-rich school-wide program that served as a frame of reference for educators at Community by narrowing the range of information for that were regarded as relevant for collection, reflection and action.

Second, leaders adapted the district-wide problem-solving team structure to serve as the information processing hub for the school<sup>9</sup>. The problem-solving team, composed of the principal, the assistant principal, the school psychologist, the literacy coach, the special education and the DI coordinator, collected daily DI reports from the teachers and made sense of where the instructional program was falling short in the classroom. This adaptation of the problem-solving team's function created an organizational routine that off-loaded the data interpretation task from teachers to school leaders. Third, teachers then implemented the decisions of the problem-solving team in their classrooms. Subsequent DI reports, circulated back to the problem-solving team, provided the ground for conversations about the degree to which the suggested changes in instructional practices were reflected in outcome data. Separating the data interpretation from implementation stages at Community had effects on the structure/pattern of professional networks of the school. Separating these functions created legitimate opportunities for teachers and leaders to interact around instructional issues, and placed leaders in the middle of both the school-wide and the classroom-level discussions about data and teaching. Further, the integration of daily instructional practice data into the work of the cross-disciplinary problem-solving team professionals in the school created more integrated networks of advice/support for educators in the schools. Special educators and assistant principals shared data reflection and decision-making tasks with the rest of the problem-solving team, and were thus provided opportunities to be recognized by teachers as legitimate sources of information about instructional and student support issues.

Liberty chunked the task of data-driven instruction differently. They decided against adopting a common program for instruction in favor of cultivating teacher ability to design and implement instructional programs customized to each classroom. This decision resulted in practices that stretched the capacity of the staff to use data throughout the school. Leaders designed and engaged in school-wide data reflection and interpretation activities, then, critically, relied on teacher discretion to both collect the appropriate information about daily classroom teaching and learning *and* to create opportunities for teachers to collaborate on instructional change. Further, the data practices in the schools were fragmented into regular classroom and special education networks. While teachers were responsible for generating and reflecting on classroom-level data, special educators were



responsible for diagnosing and designing interventions at the student level. Unlike at Community, the Liberty problem-solving teams were seen as special education, not general education, structures. One Liberty teacher noted:

When we were first trained in problem-solving, we were unfortunately trained from more of a special education point of view instead of the overall school approach and so we're still struggling to get everyone looking at how we deal with problems and that method because there's still people who think that its special ed—it's not a way of how we work in the school so it's something that we're still learning how to do. (Liberty upper grade teacher)

The identification of problem-solving teams with special education created separate discourses about data for classroom teaching and special educators, and neither was well-integrated into the school-wide discourse on disaggregating achievement data. While special educators served as central hubs in Liberty's struggling student network, they were frustrated by their inability to discuss their data-related practices with teachers at Liberty:

It was very frustrating because I think "here's this great data and we're not using it." I said "Let's look at where the kids are falling apart on the test . . ." There was a small [teacher] committee that looked at it (last year). They looked at the math test . . . they discovered a pattern which I had been aware of for a number of years. (Liberty special education teacher)

The discretionary instructional leadership practices at Liberty resulted in silos of professional capacity unable to form consensus around relevant data and make it available to school staff in order to improve instruction.

## **Conclusion**

Advocates and policymakers of systemic reform and data-driven accountability practices argue that schools must develop the capacity to transform student learning data into improved instructional practices (Datnow, Park, & Wohlstetter, 2007; Lachat & Smith, 2005; Petrides & Nodine, 2005; US DOE, 2009). From this perspective, since the system outcome data takes the form of student test scores, then the aim of system improvement ought to focus on the school capacity to use data to raise test scores for as many students as possible. While we cannot claim that the adoption of a comprehensive school reform model is a necessary condition

for improving test scores, we can say that the DI program in the Community School case provided a good example of how a shared curriculum narrowed the range of actionable data for a school community, and that the problem-solving team allowed school leaders to play a central role in professional networks for data-driven decision making. Advocates of teacher autonomy might argue, however, that test score data capture only a narrow range of valued outcomes for public school students, and that the orchestration of a system that turns teachers into the implementers of other people's decisions robs teachers of the kinds of discretion critical for recognizing and acting upon the real range of student learning needs (Anderson, 1987; McGrath, 2000; Simon, 1987; Stacey, 2013; Webb, Briscoe, & Mussman, 2009). From the discretionary leadership perspective, the prescriptive model not only reduces the cognitive load of Community teachers, it leaves them deskilled and unable to teach unless provided with advice and a script.

Our cases are unable to resolve the differences between these two politically volatile and contrasting views on instructional leadership. We can though, draw design implications from the two approaches to instructional leadership. First, adopting a focal artifact (Halverson, 2010a, 2010b), such as a comprehensive school reform program, can define what counts as actionable data across a school. This focal artifact does not need to be a scripted curriculum. In fact, the key feature of the adoption of a focal artifact seems to be the collaborative process of selecting and implementing it. Researchers have studied how interventions as diverse as project-based science (Krajcik, Czerniak, & Berger, 2002), collaborative curriculum design (Reiser, Spillane, Steinmuller, Sorsa, Carney, & Kyza, 2000) and new media based participatory cultures (Jenkins, Purushotma, Clinton, Weigel, & Robison, 2007) can create dynamic, data-driven communities around teaching and learning practices. At Community School, the collaborative process to select DI as the focal artifact resulted from professional interaction across the school; the adoption of DI led teachers to visit other schools, collaboratively design information pathways, and team meetings to monitor and refine implementation.

The second design lesson addresses the design of cross-school, multidisciplinary professional communities. Professional communities thrive when members rely upon one another for help with the core tasks of the organization (Louis, 2006). This reliance, characterized as relational trust (Bryk & Schneider, 2002) develops when professionals ask one another

for advice about the problems of practice, and are successfully advised. In some schools, such as Liberty, leaders may design professional networks around instruction but are left out of them. Community School, however, made key design decisions to engage leaders in the school instructional networks. By separating the data interpretation from the implementation process, Community school leaders made themselves consultants for teachers, and thus key members of the instructional networks. Focusing data interpretation in the problem-solving team led leaders to collaborate with one another on solutions for the classroom, which resulted in cross-disciplinary perspectives on instructional issues. The challenge of interpreting the data for action in the classroom brought the principal, assistant principal, school psychologist, literacy coach and special educators together as resources on which teachers could rely for academic and behavioral matters. The cognitive load framework thus helps identify how the task of data interpretation and implementation was structured by the two schools, and how leaders can use the design lessons of these cases to structure data-driven decision-making processes in their schools.

Our work sheds light on the existing literature around data-driven instruction and distributed leadership and further describes a critical phenomenon regarding teachers' confidence in coping with achievement data between these different leadership models. As most school reform efforts only focus on the technical aspect of educational improvement (e.g., adopting new strategies in practices, hours of professional development, etc.), these efforts often neglect the local design of structural (e.g., network resources in support of corresponding domains) and relational (e.g., consistent professional ties to useful resources) resources that may develop social capital for managing and using data for instruction. In pursuit of successful reform around teaching and learning outcomes, education leaders need to design data-driven instructional systems that provide ready access to professionals who can work with teachers to meet accountability demands.

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## Notes

<sup>1</sup> For several perspectives on the relation of data-driven accountability practices and school leadership, see [Hamilton, Halverson, Jackson, Mandinach, Supovitz, & Wayman, 2009](#); [Le Floch, Martinez, O'Day, Stecher, Taylor, & Cook, 2007](#); [Marsh, Pane, & Hamilton, 2006](#); [Stecher, Epstein, Hamilton, Marsh, Robyn, McCombs, Russell, & Naftel, 2008](#).

<sup>2</sup> The school names are pseudonyms.

<sup>3</sup> The sampling frame included all full-time licensed staff members employed at the school in the spring of 2007. The sample includes teachers, librarians, full-time special educators, counselors, social workers, administrators, and the like, but does not include many of the forms of employment within a school, such as educational assistants, part-time credentialed teachers (e.g., itinerant fine arts teachers), volunteers, or clerical staff.

<sup>4</sup> The teachers could also write in individuals who were not on the provided roster; write-in nominations generally consisted of school district staff or teachers at other schools. For each of the six domains, teachers could nominate up to nine individuals (seven fixed, two write-in). The responses were not valued, but rather were indications of whether the respondent sought advice and support from another staff member in one of the six areas, so these data represent the presence of a tie but not its intensity.

<sup>5</sup> Two constructs with respect to data-driven instruction were created using principal component analysis and maximum likelihood analysis. The first construct—School Leadership—consists of 11 items, explaining 65% of the total variance. The second construct—Use of Achievement Data—contains 9 items, explaining 62% of the total variance. Scale items and factor loadings are reported in Appendix.

<sup>6</sup> The scale we reported here refers to “evaluating progress” that contains 3 items. We asked participants at their school to assess the number of staff members who: “Have the skills or capacity to use data in a productive way?,” “Feel comfortable discussing data?,” and “Feel comfortable discussing data?” on a five-point scale from 1 (none) to 5 (75-100% ).

<sup>7</sup> Teachers could nominate up to nine others, so the maximum density we could observe in each school is approximately 9/73 or 0.12. If the response rate to Liberty School had been as high as the response rate to Community School, we believe that the differences between the two networks—especially with respect to their centralization—would remain apparent.

<sup>8</sup> Since the networks are of different sizes, we report normalized values in order to compare across the networks ([Wasserman & Faust, 1994](#)).

<sup>9</sup> For more detail on the role of the problem-solving team in data-driven instructional practices, see [Halverson & Thomas, 2007](#) and [Thomas, 2008](#).

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**Appendix****Factor Loadings and Reliability in School Leadership and Use of Achievement Data**

Item	Loading
<b>School leadership</b>	
Regular feedback ( $\alpha = .80$ )	
The school has an effective/ongoing system for evaluating the progress toward its goals.	0.86
School leaders provide regular feedback to teachers about their teaching.	0.84
Teachers are able to diagnose and address student academic problems early.	0.74
There is a shared, school-wide commitment to improving student learning.	0.69
Test score priority ( $\alpha = .74$ )	
Test score results helped me plan my instruction this year.	0.84
Test-score accountability has helped us focus on what's best for our students.	0.75
Improving test score results were a priority at my school this year.	0.74
Shared commitment ( $\alpha = .66$ )	
Teachers respect other teachers who take the lead in school improvement efforts.	0.83
It's OK in this school to discuss student data with other teachers.	0.65
Parents often receive high-quality information about student progress.	0.52
Teachers use common assessments.	0.43
<b>Use of achievement data</b>	
Reviews useful data ( $\alpha = .72$ )	
Our data analysis discussions result in concrete suggestions for action.	0.78
I feel that the time we spend reviewing data is well used.	0.78
I wish I could spend more time reviewing data with my colleagues.	0.73
I feel that the school reviews the right kinds of data to help me improve my teaching.	0.61

Item	Loading
State assessments ( $\alpha = .71$ )	
I use [state assessment] data to modify my instruction.	0.91
I have easy access to [state assessment] data.	0.83
Use of own data from PD and help from colleagues ( $\alpha = .60$ )	
My in-service professional development has adequately prepared me to use achievement data to improve instruction.	-0.78
I find the data I collect on my own to be more useful than [state assessment] data.	0.66
My colleagues have helped me to use achievement data to improve instruction.	-0.58



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## **Accreditation Routines in a Demoralized School: Repairing, Expanding, and Striving For Improvement**

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# Accreditation Routines in a Demoralized School: Repairing, Expanding, and Striving For Improvement

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## Abstract

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The purpose of this paper is to explore how accreditation processes aided a school principal in making reform happen. Using routinized action theory (Feldman, 2000), we examined how the routines in school accreditation were used to transform what had been a demoralized, low performing middle school. This theoretical lens is important as it demonstrates that routinized actions can offer more than stabilizing elements in a school organization but also help administrators seeking to make change. We begin by describing the setting of Ironwood Middle School, presenting the research inquiry methods, and examining how accreditation processes enabled the school to move forward in the face of uncertainty and instability.

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**Keywords:** organizational theory, educational routines, school change, accreditation, leadership, administration, management



# **Rutinas de Acreditación en una Escuela Desmoralizada: Soluciones, Desarrollo y Ganas de Mejorar**

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## **Resumen**

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Este artículo investiga cómo los procesos de acreditación ayudaron a un director de escuela a llevar a cabo una reforma. Mediante la teoría de la acción rutinaria ([Feldman](#), 2000), se examina cómo se utilizaron las rutinas de acreditación en la escuela para transformar una escuela secundaria desmoralizada y de bajo rendimiento. Este punto de vista teórico es importante, ya que demuestra que las rutinas no sólo pueden ofrecer elementos estabilizadores en la organización de una escuela, sino que también pueden ayudar a los administradores que pretenden realizar un cambio. Se describe el contexto de la *Ironwood Middle School*, se presentan los métodos de la investigación y se examina cómo los procesos de acreditación permitieron avanzar a la escuela en medio de la incertidumbre e inestabilidad.

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**Palabras clave:** teoría de la organización, rutinas educacionales, cambio en la escuela, acreditación, liderazgo, administración, dirección

Transforming a demoralized, low performing school can be challenging for any administrator (Bryk, Sebring, Allensworth, Luppescu & Easton, 2010; Darling-Hammond, 2010; Mintrop, 2004). While poverty rates in the United States continue to rise, there are fewer social supports for children and fewer resources available to them in schools, according to Darling-Hammond (2010). The once detailed requirements specified by the U.S. Elementary-Secondary Education Act (ESEA) in 1965 for ensuring comparable funding, staff, services and salaries between Title I (low income) and non-Title I, have been dismantled beginning in the 1980s under President Reagan. The lack of these safeguards has meant unequal funding, exacerbating racial and social status disparities evident in student outcomes. Further, qualified teachers are most inequitably distributed among schools, with wealthier districts offering teachers higher salaries, better working conditions, and professional development.

Yet school leaders are seen as the “key levers for school-based change” (Bryk et al., 2010, p. 61). In crafting a framework for what is essential for school reform, Bryk et al. write that:

*School leadership functions as the driver, directing attention to strengthening the ties among school professionals, parents, and the local community and to expanding the professional capacity of the school’s faculty to advance student learning. All adults within the school community share responsibility for fostering a student-centered learning climate that promotes pupils’ engagement with more challenging academic work in the classroom, with these studies being scaffolded by a coherent schoolwide instructional guidance system (p. 79).* [Italics in the original text]

In this study, we explored how the principal of a western U.S. middle school was able to draw upon accreditation routines in order to develop such a learning community and provide an appropriate instructional system. We conducted interviews with key informants at the school (i.e., administrators and teachers), reviewed documents prepared for accreditation, and analyzed the findings based upon routinized action theory. Using this theoretical framework, we considered how the leadership could promote ongoing and systematic reform, leveraging accreditation to transform the school.

To begin the article, we describe the focus and development of routinized action theory. Next, we present the goals of school accreditation as a means

to validate and certify the integrity of a school. Having laid out this theoretical and conceptual framework, we present the methods and findings in this case study. We posit that the routinized action of school accreditation processes can offer more than stabilizing elements in a school organization as has been the traditional view of organizational theorists.

### **Routinized Action Theory**

Routinized action theory focuses on how repeated patterns of behavior within an organization might influence what occurs on a daily basis. March and Simon (1958) defined routines as a “highly complex and organized set of responses” (p. 141) evoked by a stimulus such as a gong in a fire station that initiates a sequence of responses. Other definitions of routines include performance strategies, standard operating procedures, and performance programs (Starbuck, 1983). Traditionally, researchers considered that routinized actions might be determined by the rules and customs of the organization or group (Feldman, 1988, 2000), the involvement of multiple actors within the organization (Cohen & Bacdayan, 1994; Feldman & Rafaeli, 2002), and group members taking habitual and repetitive actions in a given situation (Gersick & Hackman, 1990). Threading together different definitions, Feldman and Rafaeli (2002) considered routines as “recurring patterns of behavior of multiple organizational members involved in performing organizational tasks” (p. 311).

While this theory has tended to focus on routines being stable, persistent, and unchanging, thus a source of organizational inertia, several researchers have advocated that routinized actions might contribute to change within an organization (Feldman, 2000; 2004; Feldman & Rafaeli, 2002; Gersick & Hackman, 1990; Pentland & Feldman, 2005). Individual members in an organization can make changes by reinterpreting what is intended and thus, will revise how routines are operationalized. To advance this notion, Feldman (2000) developed a typology depicting how and when participants changed routines while enacting them. One type of change can occur when problems necessitate a *repair* of a routine. A second type of change occurs when actions produce new possibilities not anticipated, thus *expanding* a routine in different directions or aspects. Finally, change can occur when intended outcomes are achieved but participants *strive* for more improvements. For these three types, Feldman (2000) stated that “Change

occurs as a result of participants' reflections on and reactions to various outcomes of previous iterations of the routine" (p. 611).

Holding the view that individuals reinterpret and revise routines, it is possible that routines in organizations can and do enable continuous change even as they offer constancy and stability. On one hand, routines by definition will reinforce expected and habitual behavior that can propel an organization forward during periods of unrest or unexpected circumstances. On the other hand, there is sufficient evidence by Feldman (2000) and others that routines provide avenues for change as individual members within an organization reflect and respond differently. That is, members can interpret what they are doing and demonstrate change, rather than merely repeating a given action.

Howard-Grenville (2005) argued that routines could be seen as capable of changing organizations. Based upon a case study of a private sector manufacturing company, she identified factors contributing to the flexibility of routines as well as their persistence over time. While individual agency was found to affect how routines were performed, the organizational context also set constraints on how routines were adapted. Further, the relative power of certain individuals created interplay between individual agency and organizational context. Members brought to performances of routines their own distinctive orientations toward the situation at hand, and their own intentions. Howard-Grenville suggested that this might explain why the actions of certain individuals might cause changes in routines, while others did not.

Routines in school organizations warrant examination for several reasons. First, educational leaders who are able to examine, analyze, and initiate changes in routines may help their schools adapt to critical changes in the environment. For example, Spillane, Parise, and Sherer (2011) identified how school administration dealt with a changing, more regulatory environment by employing organizational routines as a "coupling" mechanism. They illustrated how school leaders worked to change the formal structure of schools by designing organizational routines that enabled "coupling among government regulation, administrative practice, and classroom practice" (p. 588).

Second, administrators may use routinized actions to leverage fundamental change in an organization (Covrig, 2000). They could anticipate receiving more feedback from attempts to change daily routines

(e.g., a school schedule) than from revising formal organizational goals. In this context, studying routines could offer a means to better understand change because routines formalize initial ideas and values, thus transforming them into organizational activities. In a longitudinal study of a high school, Conley and Enomoto (2009) considered an implementation of a student attendance routine by examining qualities of the routine that contributed to change as well as stability in the organization (Feldman, 1988). Leaders were found to create opportunities for change by allocating resources, altering roles, and striving toward new goals in their habitual ways of acting.

Finally, the degree to which organizational routines are actually changed in reform initiatives and/or leverage change in the organization may be an indicator of school transformation. That is, a seemingly fundamental change that leaves daily routines unaffected may not result in major school reform (Conley & Enomoto, 2005). In Feldman's (2003) study of a university housing organization, the housing directors sought to change a routine so as to increase its consistency with a new organizational vision (i.e., encouraging the organization members to be more team-oriented). However, because of the persistence of other routines that were contradictory to that vision, changes in the performance of the new routine did not occur. In earlier papers (Conley & Enomoto, 2005, 2009; Enomoto & Conley, 2007; 2008), we have argued that routines in school organizations offer more than constancy and stability. Acknowledging that routines by definition reinforce expected and habitual ways of doing things, there seems to be sufficient evidence that routines provide avenues for change as individual members within an organization will reflect and respond differently. That is, members can interpret what they are doing and demonstrate responsiveness, rather than merely repeat a given action. In this way, changes are evident in everyday actions. Further, as Feldman and Rafaeli (2002) proposed, routines make for important connections linking members within the organization. People are able to understand what is needed as well as what the organization needs to accomplish. Both of these shared understandings relate to the importance of connections and how routines might serve as mechanisms for adapting to changing circumstances.

The role of management and leadership in any particular routine is worth examining. According to Feldman (1988), leadership can bring about organizational change by altering the rules that constrain behavior. Leaders can also direct available resources to individuals and groups and/or influence

"role perceptions in ways that alter what is appropriate for an organizational member to do when a given stimulus occurs" (Feldman, 1988, as cited in Conley & Enomoto, 2005, p. 12).

### **School Accreditation**

In validating and certifying the integrity of a school's academic program, accreditation agencies encourage and promote school improvement, thus fostering excellence in the education of young people. One regional accreditation agency specified its mission and objectives as follows:

the goal of any school should be to provide for successful student learning [with] programs [that] foster human growth and development, and enable students to become responsible, productive members of the school community and our democratic society. . . . For ongoing program improvement, each school should engage in objective and subjective internal and external evaluations to assess progress in achieving its purpose (WASC Words 2010, p. 2).

To achieve that mission and those objectives, the association has in recent years attempted to emphasize the need for schools to look more closely at numerous aspects including a school's vision/mission, stakeholder collaboration, curricular programs, assessments of student learners, student support activities, and parent/community involvement. Beyond the academic program and student achievement, the accrediting process assesses how individuals are working collaboratively and how stakeholders within the school and communities are involved. In the words of the school accreditation director, "The accreditation process is more than a stamp of approval or quality assurance. It is a collaborative results-oriented school improvement process that serves as the underpinning of an effective school" (WASC Words 2010, p. 8). Accordingly, Fisch (2010) characterized accreditation as a "method that engages the entire school community in a continuous process of improvement, reflection and self-evaluation" (p. 456).

Most states and/or school districts require that at least secondary schools complete an accreditation process. As a consequence, schools undergoing accreditation follow the protocols of their respective accreditation association depending on their location in the country. For example, WASC

is one of six regional accrediting agencies and it provides assistance to schools located in California, Hawaii, East Asia, and the Pacific Islands. Its accrediting procedure calls for three phases of full accreditation for an institution: a) school self-assessment reporting, b) on-site visit by external evaluators, and c) the commissioners' decision of school's terms ([WASC Accrediting Commission for Schools, n.d.](#)). Likewise, Fertig (2007) indicates similar guidelines are followed in the European Council of International Schools' (ECIS) accreditation process (pp. 336-337).

Research on school accreditation identifies several advantages to the accreditation process, including increasing the capacity of schools to engage in self-evaluation and set goals and objectives, as well as to become a catalyst for communication ([Conley & Enomoto, 2012](#); [Littrell & Bailey, 1976](#)). Standards for accreditation make for public accountability as noted in school inspection mechanisms established in regional as well as national systems ([Fertig, 2007](#)). According to Fairman, Peirce, and Harris (2009),

schools seek accreditation as a process that provides a visible credential validating school quality" that "signal(s) to parents, community members, students, colleges and universities that the school has met certain standards related to curriculum, teaching practices, learning opportunities, and physical resources for learning (p. 1).

But studies have also documented the problematic aspects of accreditation that may limit and constrain what can be done. For example, Fertig (2007) examined accreditation in an international school context and proposed that there was a central tension between the school's internal review and the external evaluation. In needing to maintain a focus on external evaluation, Fertig suggested that the reflection and "empowering" (p. 345) resulting from a self study may be scaled down. In a similar vein, Mullen, Stover, and Corley's (2001) collaborative action research study of one rural U.S. middle school placed teachers in an active role of reflecting on their experience of accreditation. The study revealed a "complex set of tensions that . . . [strained the] democratic ideals [of accreditation]" (p. 103). For example, protocols that specified action plan formats appeared to reduce the authenticity of the self study. "Acting as a manager of protocol, rather than an inquiry partner, the accrediting agency put strain on the purpose and value of self study" (p. 111).

Other researchers, by contrast, have demonstrated how accreditation might serve as a catalyst for change. Fisch's (2010) study of a large public middle school found that the accreditation process "serve[d] as a cultural symbol" (p. 484) beyond fulfilling the requirements of the accrediting association. When including a school portfolio in the accreditation process, narration and storytelling gave meaning and distinctiveness to the school improvement process. Storytelling in the school portfolio "provided an organizational experience for quality school improvement and offered a shared vision for stakeholders of an educational organization" (p. 484). Staiger (2004) documented the influence of the accreditation process to prompt a revision to a bell schedule in a magnet program for gifted students in an urban California high school. The school bell schedule had previously separated magnet students and regular instruction peers in different passing periods and breaks. Mullen et al. (2001) found that a middle school undergoing accreditation made "numerous gains from the accreditation process, particularly in staff performance and community stakeholder involvement" (p. 107). More than an external inspection process (Fertig, 2007), accreditation could offer a mechanism for a school to engage collectively in reform and renewal efforts (Fisch, 2010; WASC Accrediting Commission for Schools, n.d.).

In this study, we explored how accreditation routines, which are recurring and conducted at specific intervals (Feldman & Rafaeli, 2002), may generate school change and reform if harnessed by the leadership. In a process of validating and certifying the integrity of a school's academic program, accreditation agencies encourage and promote school improvement (Fertig, 2007; Staiger, 2004). Through a case study approach, we examined how the middle school principal was able to leverage the accreditation process to improve his school for the better.

## **Methods and Data Sources**

This case study is part of a larger investigation of accreditation and school reform (Enomoto & Conley, 2012). We selected the research design because our empirical study pertained to processes of change in routines embedded within the context of the organization. As Yin (2009) suggested, the case study strategy is appropriate for studies that ask "how" and "why" events occur and that concern people who are still accessible and able to recall



those events relatively accurately (Crossan & Berdrow, 2003). Case studies are useful, according to Stake (1995, 2010), for exploring a “bounded system” delimited by time and place, thus offering a snapshot of what occurred in an organization at a given point in time. This section of the article provides a description of the study methods and a brief background of the school.

To learn more about the school and its accreditation history, we reviewed documents related to the school’s accreditation such as its self study, visiting committee reports, and midterm progress report. For the principal’s experiences, we were able to draw from a leadership award application and letters of support from various people. In addition, we reviewed the school’s strategic action plan, school website, and other publicly available information sources.

During the spring of 2011, we interviewed the school’s principal and the curriculum coordinator. The principal was then asked to recommend teachers for interviews who had worked most closely with the school’s most recent accreditation, which was in 2008. In the interviews, we asked broad questions about the school, the accreditation routine in place in the school, perceived changes in the school as a result of accreditation, and perceived strengths and weaknesses of the accreditation process. The interview lasted about two hours after which we toured the campus and met with teachers in their classrooms. We spoke with eight teachers who taught different subject areas like science, math, English, social studies, special education, and vocational education. Also comments and support letters were used to validate how the school leadership was perceived by different constituencies like the counselors, department head, Parent Teacher Association (PTA) president, and former principal colleagues.

As the theoretical framework for the study was routinized action theory, we analyzed the data based upon Feldman’s (2000) typology to distinguish among three change responses (i.e., repair, expand and strive) that were occurring as evidenced in the interviews, accreditation documentation, and other data sources. The typology was helpful in assessing why school leadership and members might be making changes (i.e., to repair what had been unsuccessful; to expand an activity; and to strive toward improvement).

A second data analysis was related to how and whether routines were altered. For example, how did the leadership or school members enact organizational change? These included: (a) considering how the leader or

leadership team might have initiated change in response to the environment; (b) identifying how the accreditation routine might have been a lever for change; (c) examining evidence of changes or alterations made in daily practice; and (d) determining how members were enacting change in the school.

Our focus in this paper was on the change responses primarily and we attempted to determine how leadership was employing the routinized action of accreditation to reform the school.

### **School Context**

To set the context, we describe the setting and demographic characteristics of Ironwood Middle School. Pseudonyms were given to the school and its personnel for confidentiality purposes.

Located near a military installation, Ironwood Middle served a diverse socioeconomic and multi-ethnic student body of almost 600 students in 7<sup>th</sup> and 8<sup>th</sup> grades. Forty-two percent of the students received free or reduced cost lunches; 12.2% were identified for special education services, and 6.5% were of limited English language proficiency and required supplemental support. There were 41.5% Asian-American, 14.8% Native American, and 13.7% identified as other minority, totaling 70% non-white. There were 37 teachers and 4 administrators (a principal, assistant principal, curriculum coordinator and registrar).

Constructed in 1963, Ironwood Middle was designed to serve the students residing in the neighborhood. With rapid growth and urban development, the suburban community was experiencing numerous socioeconomic challenges, which included having low-income housing, overcrowding, income disparities between rich and poor, racial-ethnic tensions, and family stress. These challenges affected the school's attempts to provide a quality education for its adolescent students.

When Mr. Oliver Montez took over as principal of Ironwood Middle School, it was underperforming academically with few prospects for change. The majority of the students came from a low-income housing project. There was high turnover among the faculty and the staff morale was low. He described Ironwood in this way:

Our students did not believe in themselves, the teachers did not believe in the students, and the parents and community members did not believe in the school. While never openly expressed, the feeling in the community was that students attending [Ironwood Middle] were more at risk for academic failure, for juvenile alcohol/tobacco/drug use, and for gang or criminal activity than students attending other schools. Parents who had the means sent their children to private schools or found alternative public schools through the education process. This was not an option for the [public housing] kids whose parents lacked the means and resources to consider these choices.

The persistence of the problem created a mindset that low levels of student performance reflected the larger socio-economic context. With over 45% of the students qualifying for free/reduced lunch subsidies, and nearly 50% living in low income, public housing, the conditions were grim. Faculty and staff believed that Ironwood Middle students were doomed from the start and that the school was “powerless to affect change because it could not control the external factors that influenced the educational success” (School report, p. 7). Given the problem of a demoralized school, how might a routinized action like accreditation work to turn it around? That was what we explored in this case study.

### **Findings: Repairing, Expanding, Striving**

Feldman’s (2000) typology of change responses were repairing, expanding, and striving for change which were used to categorize the case study data. We illustrate the three change responses as examples of how the accreditation process aided the school principal in enabling the school to move forward despite its low performance and history.

#### **Repairing a Problem**

If actions do not produce the intended results or there are unintended consequences from the routines, then *repairing* is the strategy invoked by organization leadership and members. Because of the demoralizing situation of the school, the principal took action to repair the problem.

Ironwood Middle had received a three-year accreditation term in 1999. While noting that he had never been at a school with such a low rating, Montez could understand why things were not working. In writing Ironwood's 2002 self study report, school members were "brutally honest." They stated that "[data collection] validated what some of us had suspected, embarrassed others, and angered a few who questioned the findings. But in the end, [we] all agreed that everyone was responsible for school improvement" (School Self Study, p. 8). Ironwood Middle School's history of failed attempts, low academic performance, frustrated teachers, and lack of parent involvement, made for a nearly overwhelming task. Concurring with that assessment, a staff member commented that at the time, "the facilities were run-down, students were roaming the halls during class time, and quality teaching was the exception rather than the norm."

The principal took initial steps to improve the appearance of the environment, citing that changes to equipment and facilities could be done quickly. The classrooms had mix-matched desks and chairs; there was graffiti on the walls and no grass, only dirt in the courtyard. Mr. Montez painted the school walls and bought new furniture so all the classrooms had the same desks and chairs. He directed the custodial staff to plant grass, shrubs, and trees to improve the grounds. "There was more control over how we looked than how we performed [academically]." But, he said, these changes to the physical appearance were a start.

Believing that a change in attitudes was needed, the principal told his faculty that "the people who will change this school are right here in this room" meaning that they were responsible for making change happen. They should not think of him as "the white knight coming in to save the school." He emphasized that "failure was not an option" for this school. Yet the reality was that 40-50% of the kids did fail, so now what? "Let's focus on success. When kids know that they can't fail, then they aren't afraid to risk more. And teachers began to believe it too."

The accreditation process provided that lever for fundamental change. For example, the process required stakeholder groups to be involved in school improvement. Through this requirement, the principal could encourage faculty and staff to take the dominant role in the process, holding honest and open discussions about what needed to be changed. They shifted from complaining about the past history and present economic and social

conditions of families to directing efforts toward the knowledge and skills necessary for students to be successful.

Staff members candidly reported that:

[Accreditation] was not an easy process and [it] was viewed in many different ways, ranging from a troublesome process that created havoc and more work, to a process that offered exciting possibilities for extending authentic learning opportunities for students. Not all of us were prepared for the tremendous amount of time, anxiety and confusion that can sometimes arise when people must deal with change. The [accreditation] process forced us to look at our school from different points of view and honestly reflect where we stood as a school. . . . In the end [it] compelled us to move away from finger pointing and fault finding to taking responsibility for school improvement (Accreditation report, p. iii).

Examples of change at the school included aligning their curriculum with content standards, assessing teaching and learning, creating systems for supplemental student support, engaging in remedial reading across the board in all classes, and implementing more hands-on and project based learning. The aim was to have students exposed to rigorous learning experiences and expected to meet high standards. According to Principal Montez,

The faculty and staff have created and fostered a culture at this school that believes their accountability to ensure learning lies not to the principal but to the students they teach. Through their commitment and caring, teachers have become significant adults for our students whose influence and impact extend far beyond the years students spend at this school (Interview with the principal, p. 11).

Accreditation visitations in subsequent years 2002 and 2008 resulted in six-year accreditation terms. According to Mr. Montez, “These six-year terms are especially important to our staff since they represent an assessment by an external objective body of experts whose analysis is based on the research-based criteria of successful schools” (p. 13). Similarly, staff members commented that “Ironwood Middle School has made it a practice to earn a full six-year accreditation based on sound curriculum and practices.”

## Expanding a Routine

Having attained a suitable term of accreditation, the school could turn its efforts toward expansion and striving. As the two types of change are similar, we differentiate by noting that *expanding a routine* proposes doing things differently. This could be illustrated by how the principal expanded school leadership. By rotating those serving in leadership positions like department chair every two years, Mr. Montez was expanding or building the capacity for leadership among teachers and staff, thereby sustaining the efforts of reform and excellence. A school counselor commented that Mr. Montez believed “leadership should be fostered within the faculty and encourages us to take the role of department head and program coordinator at any time. He provides the vision and guidance with the expectation that we will emerge as school leaders to carry on” (Counselors’ correspondence, p. 2).

The principal also ensured that smaller learning communities were established, thus transforming what had been a junior high school into a model middle school. In its latest accreditation cycle, the restructuring meant that core teams were organized to be interdisciplinary with social studies, English, math and science forming the academic groupings around a middle school philosophy and addressing the adolescent development of the youngsters at Ironwood. In terms of priorities and decision-making, Mr. Montez demonstrated being student-centered. Mrs. Clarissa Chung, the curriculum coordinator with him for eight years, commented that “when [the principal] reminds the staff that schools exist for the education of the students, not as a place for administration and other adults to go to every morning, many decisions become ‘no brainers’.” This student-centered focus enabled him to question what was best and who would benefit from the resources used.

Moreover, the leadership invested in professional development sessions designed for teachers to expand their repertoire of practices, learn new technologies, experience hands-on problem solving lessons from a student’s perspective, and visit other sites to learn more. In addition to the Technology and Innovation Center (Tech Lab), there were interactive Promethean boards in math classrooms, graphic arts technologies, media arts equipment, and staging for student performances and presentations.

Allison Alvarez, a retired principal who has known Montez for almost 20 years commented on his leadership.

It is evident to a visitor on campus that Principal Montez has supported a professional culture that embraces collaboration, continuous learning and leadership at all levels. The pride that staff and students have in their school is clear in every conversation. The school functions as a system that continually renews itself on all levels, supported by many who share leadership and who will assure sustainability.

### **Striving for Improvement**

*Striving for improvement* (Feldman, 2000) is reflected in Ironwood Middle's academic progress beyond the students' mastery of basic skills. Evidence can be found in school requirements that all students, not only the gifted and talented, participate in competitive academic pursuits like projects for History Day and the Science Fair, competition in the Spelling Bee, and enrichment opportunities for dramatic arts performances. Student talent was also featured at the school's annual Open House, Pride Night, student performance exhibitions, and family fun nights.

Asked about Ironwood's next challenge, Mr. Montez said "We need to prepare our kids for the 21<sup>st</sup> century but we teach as we have been taught. Maybe I'm impatient." Collectively, faculty members grappled with how best to prepare Ironwood students for what might be next. They identified possible interdisciplinary thematic projects made possible with Science, Technology, Engineering and Math (STEM) funding. "This initial funding was greeted with great enthusiasm since it enabled us to translate previously researched hopes and make them classroom realities" (Interview with the principal, p. 12).

To extend the possibilities into a workable project, a team of 7<sup>th</sup> grade teachers had devised a scale model of an aquaponics system (i.e., a system combining aquaculture, for raising aquatic animals, with hydroponics, for growing plants in water), which enables the students to raise fish and grow green onions. Partnerships with businesses, the nearby high school, and the state university have made it possible to consider developing a marketable product as well as work with wind and solar energy resources. This endeavor

went well beyond the scope of what a middle school might be doing to educate its students.

During this time, the language arts faculty became fearful of what would happen to them. The principal told them that they needed to make a case for their value and importance in the 21<sup>st</sup> century. He felt that they could help develop that “moral compass” but they would need to recognize their own value and importance. He spoke of the skill set necessary for their students – skills like problem solving, critical thinking, adaptability and flexibility.

Commenting on their accreditation as a process for school improvement, the principal said “It’s already what we do.” “What do you do when you’re successful? That’s [somewhat] spooky to try something new. You take a risk.” He spoke of lacking the funding and resources but seeking to make a tremendous investment of \$100,000 to get a 3D laser printer and other emerging technologies. He suggested that that would be next on the horizon for the school.

According to Mrs. Chung, the curriculum coordinator, Mr. Montez “models a constant need to change – to ‘stay ahead of the game.’ Complacency is a pitfall to avoid. As a true educator with a passion to provide balanced and meaningful learning opportunities for youngsters, he is never satisfied because there is still work to be done” (Interview with the curriculum coordinator, p. 1).

## **Discussion and Implications**

By examining routinized accreditation processes at Ironwood, we found that these aided Principal Montez in repairing problems, expanding possibilities, and striving toward improving upon an ideal while retaining stability in the organization. Findings highlighted how accreditation processes like involving stakeholders in school improvement could be used to lever fundamental change. Other changes involved aligning the curriculum with content standards, assessing teaching and learning, creating systems for student support, engaging in remedial reading for all, and implementing more hands-on and project based learning.

All of these aspects made for a coherent and comprehensive program, essential for school reform (Bryk et al., 2010). The principal was able to manage and direct needed resources toward the priorities established in the school plan and accreditation process (Conley & Enomoto, 2005; Feldman,



1988). While his role was instrumental in bringing about organizational change, he could involve everyone because accreditation required that all stakeholders be part of the school self study, evaluation, and prioritization (Fertig, 2007; Littrell & Bailey, 1976). The theoretical lens of routinized action could be useful to educational administrators who seek to make change while preserving stability within their organizations.

Further, there was expansion of possibilities and striving toward improvements (Feldman, 2000). The principal worked to expand leadership by rotating faculty members in positions like department head and program coordinator. He also established smaller learning communities and invested in professional development sessions. These were designed for teachers to expand their repertoire of practices, learn new technologies, experience hands-on problem solving lessons from a student's perspective, and visit other sites to learn more. Striving for improvement meant that Ironwood was looking toward better preparing students for the 21<sup>st</sup> century in the school work that was expected, the projects they were taking on, and the attempt to "stay ahead of the game" by investing in emerging technologies as well as professional development.

Howard-Grenville (2005) suggested it would be helpful to differentiate between actors' intentions and their orientations toward a routine and this appeared relevant to our case. While intentions deal with the ends envisioned for the routine, an actor's orientation toward a routine means considering the past, present, or future. In her analysis of a road mapping routine in a private sector manufacturing company, Howard-Grenville found that the routine was used for multiple ends like goal setting, communication, enforcing performance standards, and other legitimate actions. The interviewees in the Ironwood case mentioned similar goals for the accreditation routine, with particular emphasis by Principal Montez on individuals and groups taking responsibility for school improvement. Actors' present orientation toward the routine was evident in choosing to expand current activities related to the situation-at-hand and available resources for projects made possible through STEM funding. A future orientation was evident in steps outlined as "next on the horizon" for the school, staying ahead of the game, and avoiding complacency.

These multiple orientations were consequential, according to Howard-Grenville, because they underscore that agents choose whether to use a routine iteratively in an orientation to the past, use it deliberately in

responding to present situations, or by projecting into the future. Supporting the idea that a routine is not simply fixed or stable but could be an “ongoing ... accomplishment” (Howard-Grenville, 2005, p. 635), the performative model utilized in this study directs attention to the multiple orientations of individuals and groups to the past, present, or future, and to the multiple intentions shaping particular performances of the routine.

Two caveats exist to our general finding that accreditation routines can be used by school leaders to leverage the change needed in underperforming schools. First, our findings indicate that accreditation was a catalyst to pull everyone together for school improvement. The question emerges whether a leader in another institution similarly attempting to leverage change would have been as successful. Could such school transformation be realized if the principal did not utilize other leadership dispositions (e.g., empowering staff, giving ownership to others, leading by vision) as demonstrated in this case? We examine this concern in a forthcoming paper as we contrast a high school where the leadership was in flux (Enomoto & Conley, 2012).

Second, school faculty and staff might have been primed for change. It was apparent from our case description that parents, community members, and students were willing participants in the changing the demoralized school and that general agreement existed that substantial change was both necessary and desirable. Recognition of this willingness to change may well have advanced accreditation-related reform in the school aside from the leader's direction and influence.

As U.S. schools struggle to be more accountable and standards-based, their organizations have been viewed as recalcitrant, enslaved to existing arrangements, and incapable of changing and reforming. This study suggests possible ways to think about routines like accreditation do indeed offer mechanisms for change while at the same time offering stability and constancy for organizational members. Our findings have implications for how school administrators might consider the leverage possible with accreditation processes.

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## **The Role of Leadership: The Challenge of Knowledge Management and Learning in Knowledge-Intensive Organizations**

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# **The Role of Leadership: The Challenge of Knowledge Management and Learning in Knowledge-Intensive Organizations**

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## **Abstract**

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Knowledge and learning are important driving forces for business success and competitiveness, especially in the knowledge-intensive organizations (KIO's) whose core business is to create and sell knowledge (e.g. education, R&D units, and consultancy organizations, among others). Previous works suggested one of the Critical Success Factor (CSF) of Knowledge Management (KM) practices is leadership, but only few of them referred it in a quantitative way. This paper aims to explore and explain the link between leadership and KM success. Results show a positive relation between the strategic dimension of leadership and the success of KM practices. This model was tested using Structured Equation Model (SEM). With this study we contribute to recognize the importance of leadership in order to improve the creation and dissemination of knowledge in a KIO's. In this way, these findings will help managers and teachers to increase the effectiveness of learning.

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**Keywords:** knowledge management, leadership, critical success factors, Knowledge-Intensive Organizations, strategy





# **La función de Liderazgo: El Reto de la Gestión del Conocimiento y el Aprendizaje en las Organizaciones de Conocimiento Intensivo**

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## **Resumen**

El conocimiento y aprendizaje son importantes impulsores para el éxito empresarial y la competitividad, en especial en las organizaciones intensivas en conocimiento (KIO's) cuyo negocio principal es crear y vender conocimiento (por ejemplo, organizaciones educativas, centros de I+D, empresas consultoras, entre otras). Investigaciones previas indican que unos de los factores críticos de éxito (CSF) de las prácticas de Gestión del Conocimiento (KM) es el liderazgo, pero poco de ellos lo analizan de manera cuantitativa. Este artículo tiene como objetivo explorar y explicar la realación entre el liderazgo y el éxito de la KM. Los resultados muestran una relación positiva entre la dimensión estratégica del liderazgo y el éxito de las prácticas de KM. Este modelo está testado utilizando modelos de ecuaciones estructurales (SEM). Con este estudio se contribuye al reconocimiento de la importancia del liderazgo para mejorar la creación y diseminación del conocimiento en las KIO's. En este sentido, los resultados ayudarán a los directivos y profesores para incrementar la efectividad del aprendizaje.

**Palabras clave:** gestión del conocimiento, liderazgo, factores críticos de éxito, Organizaciones de Conocimiento Intensivo, estrategia



Research on knowledge management (KM) has intensified in recent years because knowledge is considered one of the most important assets or organizations in the 21<sup>st</sup> century (Stankosky, 2005). To obtain sustainable competitive advantages, organizations must consider what everyone in the organization knows and how they use their knowledge (Albors-Garrigos et al. 2010). Drucker (1999) named current era as the knowledge era, referring to knowledge as the key factor for competitiveness in advanced economies.

Knowledge Management (KM) and Critical Success Factors (CSFs) are important issues in the current knowledge-based economies. There is a crucial need for a more systematic and thorough study of CSFs in order to carry out KM projects. Organizations' ignorance leads to inefficient projects that do not generate full benefits (Migdadi, 2009). Because CSFs are the driving force behind knowledge management projects, they not only generate knowledge in organizations but also stimulate the creation of knowledge and experience in all people, thereby allowing organizational knowledge to grow concurrently and systematically (Ichijo et al., 1998). According to McLaughlin et al. (2008), if one accepts the relevance of information access and sharing, and knowledge creation as part of an organizations ability to learn and be innovative then the interaction individual people have on core processes will have important impact on process performance. Nowadays, KIOs deals with the challenge of manage in an effective way the knowledge and learning.

The relevance of the idea of knowledge-intensive organizations (KIOs) as a knowledge company has increased in recent years (Alvesson 1993, Kärreman, 2010), even though there is still a lack of consensus on the definition of KIOs (Makani and Marche, 2010). According to the seminal work of Starbuck (1992) a KIO assumes knowledge as the more important resource, distinct from the labor- and capital-intensive organization. Nurmi (1999) consider KIOs as the "process what they know into knowledge products and services for their customers", such as consulting, training, education, research or auditing.

This paper aims to explore and explain the links between leadership and KM success in KIO's. The objective is to use structural equation modelling to measure the influence of leadership on the success of KM practices.

The remainder of the paper is structured in four parts. First, the literature on CSF in KM projects is reviewed, and the model and hypotheses are presented. Second, the research method is presented. Third, main results are described. Fourth, the discussion and future research directions are proposed.

### The role of leadership in KM success

The success of KM implementation is determined by a group of CSFs that have been studied by several authors, including Davenport et al. (1998), Holsapple and Joshi (2000), Skyrme and Amidon (1997), and Alsadhan et al. (2008). Saraph et al. (1989) view CSFs as those critical areas of managerial planning and action that must be practised in order to achieve effectiveness. These practices need either to be nurtured if they already exist or to be developed if they are not yet in place. In summary, they are internal and controllable factors whose application helps companies to maximize the effectiveness of their projects (Mas-Machuca & Martinez, 2011; 2012). One of the most important CSF in in a learning organization is the strategic dimension of leadership.

Table 1.  
*Critical success factors in the literature*  
*Source: Compiled by author*

Author(s) and year	Publications	CSF
Skyrme & Amidon (1997)	“The Knowledge Agenda”	<b>Knowledge leadership</b> Creating a knowledge-sharing culture Well-developed technology infrastructure Strong link to a business imperative Compelling vision and architecture Systematic organizational knowledge processes Continuous learning

Author(s) and year	Publications	CSF
Trussler (1999)	“The Rules of the Game”	Appropriate infrastructure <b>Leadership and strategy (management commitment)</b> Creating motivation to share Finding the right people and data Culture Technology (network) Availability to collaborators (transferring) Training and learning
Liebowitz (1999)	“Key Ingredients to the Success of an Organization’s Knowledge Management Strategy”	<b>KM strategy with senior leadership support and active involvement</b> A CKO or equivalent and a knowledge management infrastructure Knowledge ontologies and knowledge repositories Knowledge systems and tools Incentives to encourage knowledge sharing Building a supportive culture
APQC (1999)	“Knowledge Management: Executive Summary”, Consortium Benchmarking Study/Best Practice Report	<b>Leadership</b> Culture  Technology  Strategy  Measurement
Holsapple & Joshi (2000)	“An Investigation of Factors that Influence the Management of Knowledge in Organizations”	<b>Leadership</b>  Coordination Control Measurement
Stankosky	“A System Approach to	<b>Leadership</b>

Author(s) and year	Publications	CSF
<b>&amp; Balzana (2001)</b>	Engineering a Knowledge Management System”	Organization Technology Learning
<b>Wong (2005)</b>	“Critical Success Factors for Implementing Knowledge Management in Small and Medium Enterprises”	<b>Management leadership and support</b> Culture IT Strategy and purpose Measurement Organizational infrastructure Processes and activities Motivational aids Resources Training and education Human resources management (HRM) 3
<b>Hung et al. (2005)</b>	“Critical Factors in Adopting a Knowledge Management System for the Pharmaceutical Industry”	A trusting and open organizational culture <b>Senior management leadership and commitment</b> Employee involvement Employee training Trustworthy teamwork Employee empowerment Information systems infrastructure Performance measurement Benchmarking Knowledge structure

**Yeh et al.**      “Knowledge Management      **Strategy and leadership**

Author(s) and year	Publications	CSF
(2006)	Enablers: A Case Study”	Corporate culture People Information technology Content quality Collaboration Communication Formalization Budgetary support
Migdadi (2009)	“Knowledge Management Enablers and Outcomes in the Small-and-Medium Sized Enterprises”	The same 11 CSFs listed for Wong (2005)

Leaders can achieve the best climate and business performance (Goleman, 2000). They engage people to learning and change their ways. Previous research have shown that a climate of collaboration and leadership are positively related to knowledge sharing (Srivastava et al., 2006). According to Merat and Bo (2013) for a KIOs it seems that participation of people in leadership activities goes hand in hand with KM practices goes that are primaly dependent on face-to –face sharing of knowledge within organization. Table 1 show a representative sample of authors that illustrate it.

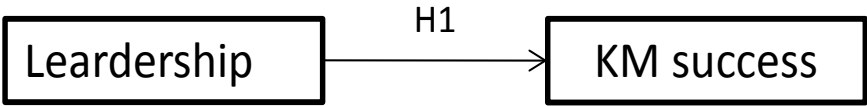


Figure 1: Link between leadership and KM

Source: Own elaboration

The hypothesis tested in our research is as follows:

*H1: There is a positive relationship between the degree of leadership and KM success.*

## **Scales and method**

As we mentioned before, among all the CSF identified by academics, in this article we have considered the strategic dimension of leadership. The role of leadership can contribute to improve effective learning (Leithwood et al., 2004). Our scale consists of these four items. “Top management support, organizational structure, incentives to encourage knowledge sharing, and KM strategy aligned with strategy”.

### **Top Management Support**

If the management does not support the knowledge creation and dissemination in organizations, the effectiveness of KM practices will be low. There is not something spontaneous or related to a small group in the organization. It is important to define draft guidelines referred to the strategic plan. Only in this sense, KM will be effective over time. Leadership and commitment are a necessary condition for success of KM (Davenport, 1998; Storey and Barnett, 2000; Sharp, 2003; among others).

In addition, this top management support must come from a leadership within the organization. Leaders are important because of they are examples and models of conduct to be followed by people (Holsapple & Joshi, 2000).

### **Incentives to encourage knowledge sharing**

Sharing information and knowledge is a question that depends on the people and their will. Leaders must motivate individuals to receive new knowledge and willing to share knowledge they have. Only if people are motivated and willing to work in a learning organization, will be achieved all the benefits. It is essential to establish incentives, rewards or recognition to encourage employees to share and apply new knowledge. Several studies as Yahya and Goh (2002) and Hauschild (2001) analyze how monetary and non-monetary incentives can be incorporated in the reward organization system.

The motivating factors are external (rewards such as money or grades) or internal (when you do something because it is inherently interesting or enjoyable). But currently, there are a new line of research that analyses the importance of prosocial motivation (Batson, 1987; Pérez-López, 1993; Grant, 2008). This motivation is generated by the personal satisfaction felt

when our actions meet the needs of others. Prosocial motivation is related to Maslow's superior motivation and could be included in what Herzberg refers to as non-hygienic factors. In order to share knowledge in KIO's it is important to consider also this new kind of motivation.

## **Organization structure**

Another key element to consider is the development of an appropriate organizational structure (Davenport, 1998). This implies a set of roles and tasks of KM (for example, Knowledge Manager or Chief Executive Officer, CKO) and multidisciplinary teams such as professional learning communities (PLCs). New forms of more flexible organizational structure that enable people to have more autonomy are needed. This is possible in a organization where the values that form the corporate culture are commitment, trust and collaboration. One of the best-known contributions in this field is the organizational structure of hypertext proposed by Nonaka and Takeuchi (1995).

## **KM strategy aligned with corporate strategy**

Finally, an element that will affect the achievement of KM success is to have a well-considered and formulated mission, vision and strategy. This provides the company to develop their skills in the best way. Only if KM practice are aligned with the strategy, the expected results will be achieved. This clear link between strategy and KM is supported by several authors as Liebowitz (1999), Zack (1999) and Maier and Remus (2002), among others. In addition, KM can help to the leaders to reorient the right organization direction.

## **KM success**

Researchers have long sought to define this concept by consensus, but it is difficult to do so because of the dynamic nature of knowledge. Still, defining KM success is crucial to understanding how these initiatives should be designed and implemented (Jennex et al., 2007). Jennex and Olfman (2006) define KM success as reusing knowledge to improve organizational effectiveness by providing the appropriate knowledge to those who need it



when they need it. Although there are multiple approaches to identifying or measuring KM success, in this study we have considered KM success as an outcome measure because this is the most relevant approach for the applied methodology. KM success is seen as a measure of the various outcomes of the knowledge-process capabilities that exist within an organization as a result of KM projects (Jennex et al., 2007). Skyrme and Amidon (1997) identify what they believe to be the success factors that organizations are able to reach through successful KM implementation: competitive advantages, customer focus, improved employee relations and development, innovation, and lower costs.

In our measurements of KM success, we have drawn on the quantitative studies of KPMG (1999), Chourides (2003), Choy (2006) and Jennex et al. (2007) and the qualitative studies of Allee (1997), Ruggles (1998), Wiig (2000) and Egbu (2005). Thus, we consider typical outcomes in terms of organizational performance: innovative ability and activity, customer satisfaction, competitive capacity and position in the market, service and process quality, productivity and sales, and employee satisfaction and skills.

Table 2.

*Cronbach's alpha and factor loading of leadership and KM success*

<b>Construct</b>	<b>Cronbach's alpha</b>	<b>Item</b>	<b>Factor Loadings Component</b>
Leadership	0.779	Top management support	0.786
		Organizational structure	0.701
		Incentives to encourage knowledge sharing	0.871
		KM strategy aligned with corporate strategy	0.735
KM success	0.802	Innovation	0.649
		Employee satisfaction	0.698
		Capabilities	0.715
		Quality	0.824
		Productivity	0.757

The empirical analysis considered a sample of consulting companies that work in the region of Catalonia (Spain). To carry out this study, we collaborated with the Catalan Association of Consulting Companies (ACEC), which represents more of 65% of the entire consulting sector in Catalonia. The data were collected by means of a questionnaire sent, in most cases, via e-mail. A total of 110 responses were received, of which only 100 were completed correctly. These 100 questionnaires corresponded to 23 consulting companies. Respondents were considered knowledge workers or KM project managers. The survey items were taken from the literature review. For each question, respondents were asked to indicate the extent of their agreement on a five-point Likert scale (1=strongly disagree; 5=strongly agree).

The companies can be classified into two groups by volume of turnover: small or medium-sized consulting organizations (invoicing <€50 million), which account for almost 40% of the responses, and large consulting organizations, mostly subsidiaries of multinational companies, which account for more than 60% of the responses. Similarly, the companies can be classified by number of employees. Nine percent of the consulting organizations analysed had fewer than 10 employees, more than half had between 10 and 250 employees, and the rest (38%) had more than 250 employees.

The data were analysed using SPSS Amos, a software package based on structural equation modelling (SEM) techniques (Arbuckle, 1996). The SEM approach was used to assess the proposed causal model. This technique makes it possible to use multiple indicators to measure constructs and account for measurement errors. The dimensional scales for each of the two constructs (leadership and KM success) were first assessed by using exploratory factor analysis and, following this, the hypothesis was tested.

## **Results**

We tested our measurement model for three aspects: internal consistency, convergent validity and discriminant validity. Internal consistency was examined using Cronbach's alpha. Nunnally (1978) recommended using a cut-off criterion of 0.70. The values of Cronbach's alpha for two scales (see Table 1) were 0.779 (leadership) and 0.802 (KM success). The second aspect, the reliability of the latent construct was assessed by a factor analysis

of the items by means of principal component analysis with Varimax rotation. All the items loaded quite well on their respective factors.

According to Hair et al. (2006), convergent validity conorganizationed evaluating the factor loadings of all the items  $\geq 0.7$  (see Table 2), and average variance extracted (AVE)  $> 0.5$  (see Table 4). AVE measures the amount of variance that a latent variable component captures from its indicators related to measurement error. Finally, to assess discriminant validity, we used the correlation matrix of all of the constructs and the square root of the AVE (see Table 2). The square root of the AVE for each construct should be greater than the level of correlations involving the constructs (Fornell & Larcker, 1981; Hair et al., 2006).

Table 3.  
*Means, standard deviations, average variance extracted (AVE), and correlations.*

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Average variance extracted (AVE)</i>	<i>Leadership</i>	<i>KM success</i>
<i>Leadership</i>	4.23	1.095	0.789	<b>0.888</b>	
<i>KM success</i>	3.79	0.908	0.743	0.308	<b>0.862</b>

Note: The bold numbers in the diagonal row are the square root of the average variance extracted.

A structural model analysis was conducted to examine the hypothetical relationship among the constructs. Figure 2 shows the results from the structural model used to test the hypothetical research model. The results support the hypothesis that leadership are positively related to the success of a KM practices.

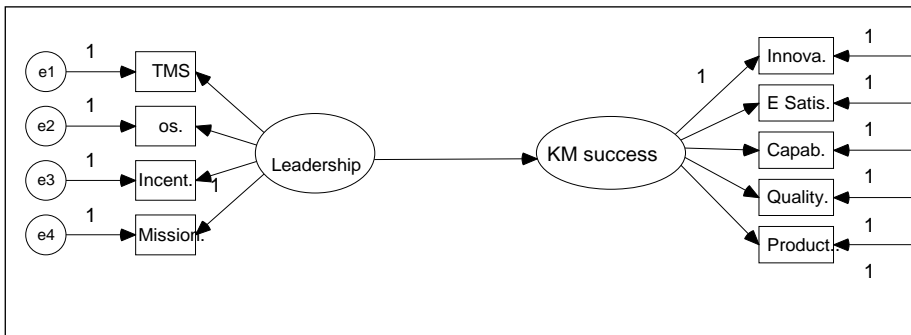


Figure 2. Path diagram of the proposed model

The overall validity of the model's results was evaluated with respect to best-fit indices: GFI (0.759), RMR (0.081), NFI (0.875) and CFI (0.810). These ratios reflect a moderate (due to the sample size) but acceptable level of overall model fit.

## Discussion and new lines of research

KM is still a relatively new field, and the empirical research related to design and implementation is not very extensive (Alsadhan et al. 2008). In this study, we have identified the CSFs of KM projects related to leadership and proposed a theoretical link. We measured the scales for leadership in relation to the success of the KM practices. The data were obtained by means of a survey of consulting organizations in Catalonia. While this method has a considerable disadvantage—the subjectivity of the person who completes the questionnaire—it also has the major advantage of being able to thoroughly address the subject of analysis.

A review of the literature on CSFs in KM projects found that only a few studies have employed empirical research in order to validate the relationship between CSFs and KM success (Alsadhan et al., 2008). We therefore made an effort to measure the CSFs and KM success using multi-item scales. The contribution of this study is the use of a quantitative method

(structural equation modelling) to generate more empirical support for the CSFs of a KM project.

Leadership has also been shown to be positively related to KM success and its adoption will increase the effectiveness of KM projects. At a company where top management provides support, where there is a suitable organizational structure, where incentives for sharing knowledge are in place and where the KM project forms part of the corporate strategic plan, there is a greater chance of success than in an organization that does not consider these factors.

Leadership must create a specific culture based on values such as trust, transparency or honesty for creating an environment conducive to the sharing of knowledge and information within the organization, and for people belonging to the organization to be able to learn and interiorize new practices. Also, it is important the flexibility and commitment. Each organization should be aware of the degree of flexibility it can sustain in accordance to the people who works on it. The greater the people's commitment to the company, the greater the degree of flexibility will be. To sum up, the values of corporate culture are the basis for building KM in an organization. Leader in KIO's have to share these values because of people have a clear vocation to learn, to improve and to innovate. Only an organization with these values (trust, transparency, honesty, collaboration, professionalism, flexibility and commitment) are one which is based on knowledge and has a very great potential for growth and learning.

The present study has several implications for management and education. The leadership role within a KM practices is mandatory in order to motivate employees to share knowledge. In addition, managers must incorporate KM into their mission and vision in order to compete in the knowledge economy.

The results of this research may show some avenues for further research. First, a plan to include more elements for expanding the model should be in place. For example, we can include more items to assess KM success from the customer's point of view. Second, both this study and the model are limited to the consulting industry in Catalonia (Spain). In order to expand upon this model and its explanatory capacity, it is necessary to conduct similar research in different types of KIO's others countries. For example, a similar study applied in schools or universities can be carried out in order to improve the learning and KM practices. In this sense, new lines of research

points out that successful school leadership must include a core of leadership practices that we may term educational, instructional, or learning-centered (Hallinger, 2009). All these new lines of future research will foster a better understanding of the relevance of KM for improving knowledge in all kind of organizations.

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## Management by Missions

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# Review

Cardona, Pablo & Rey, Carlos. (2008). *Management by Missions*. Basingstoke: Palgrave Macmillan. ISBN: 978-0-230-55152-7

Mission and values are core topics in modern practice of management. It is therefore not surprising that a flood of books and articles have been published where these concepts are viewed from a variety of perspectives. However, there are very few publications that successfully indicate the crucial importance of mission and values to an organization's success, but which also offer concrete ideas and some basic tools for their implementation into real business practice. Cardona and Ray succeeded in that aim and the result is this very actual, interesting, and, above all, useful book.

The model of “Management by Missions” (MBM), presented in this book, is based on three pillars: theoretical research (literature study), practical research (field study), and implementation consulting (practical application in companies). Accordingly, the book consists of three main parts which are different in approach, but still very connected to each other. The first part, entitled *Myths and Realities of Management*, examines some basic assumptions about what a company is and the purpose of its existence. In this part of the book authors systematically guide readers through the different ways of understanding an organization through last 100 years. Special emphasis has been given to the integral model of the company

whose understanding is crucially important for deeper understanding of the following two parts.

Main topics in the second part of the book, entitled *In Search of Corporate Culture*, are organizational culture, mission and values. Key concepts of the book here are explained in a very clear, but also in a fresh way, which will be useful even for those who are already intensely dealing with these issues. This part is based mainly on author's practical research and offers some very interesting and indicative findings. For example, authors present analysis results of organizational values conducted in companies of different nationalities, which enables creation of new organizational values classification. However, the results also indicate that culturally healthy company must cultivate and develop values from different values categories. This finding, like many others from this part of the book, has great scientific potential for further research and application, and can be an inspiration and a source of ideas for new scientific researches in this area.

After having read the first two parts of the book readers could hardly wait for the next, perhaps the most interesting part of the book, entitled *Toward a New Management Model*. Here, the authors present the results of their consultancy projects on strategy and cultural change based on MBM. Although the aim of the book is not to provide definitive solutions to management problems, this final part of the book is enough concrete. For example, authors present an important tool in the implementation of MBM – *The Mission Scorecard*. However, apart from the interpretation of that tool, authors give a concrete example of its usage in concrete business practice. Considering that there are a lot of such examples, a careful reader can get a complete picture about possibilities of changes in today's management models.

It also should be noted that the book successfully integrate some other concepts from this field, such as strategy and intrategy, unity as the bottom line of corporate culture, competency management, and leadership types with special emphasis on transcendental leadership. Connecting all these, as well as some other contemporary management concepts, enable observation of the main book topics in a broader context, which gives added value to the book.

To conclude – besides providing an actual topic, the book is an excellent combination of both theory and practice. This is logical considering that both

book authors build their careers in academic as well as in the business sector. This allows them to understand the problem of MBM not just in a way that it sounds nice, but also that it is very applicable in real business practice. The evidence of this is more than 100 companies that already have practical experience of MBM (one such case is presented in the last chapter of the book). Seen as a whole, the book will be useful not just for theoreticians and practitioners in the field of management, but also for practitioners in the field of educational management, in order to improve the quality of practice and education management.

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