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understanding school leaders' everyday thinking

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een wetenschappelijke proeve op het gebied van de Sociale Wetenschappen

Proefschrift

door

Hartger Wassink

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Organizations have reality only through human action, and it is that action (and the human will driving it) that we must come to understand.
T. B. Greenfield (1986, p. 71)

Some constructions of reality are better than others.
D. Willower (1998, p. 450)

"Do read a good novel now and then, or a good philosophical text, or, even better, a good biography. [Yes,] a good biography, that's really inspiring, not that boring dissertation."
—*Simon* (school leader participating in this study)

Voorwoord

(Preface in Dutch)

Dit is ongeveer de tiende keer dat ik aan een voorwoord begin. Alle eerdere pogingen hebben slechts draken van stukjes opgeleverd. In hoeverre deze poging daar bovenuit zal steken, valt nog te bezien. Nu heb ik tijdens het schrijven van dit proefschrift wel vaker momenten gehad dat ik niet wist hoe het verder moest, dus het proces herken ik wel. Alleen het rare is dat de gangbare remedies ervoor bij het schrijven van dit voorwoord niet lijken te werken.

De oorzaak van een schrijfblokkade is meestal simpel. Schrijven is denken, dus je kunt pas helder schrijven als je helder denkt. Zolang je nog niet kunt schrijven, denk je dus nog niet helder genoeg. Het grappige is, dat schrijven helpt bij het verhelderen van het denken. Dus doorgaans, door op te schrijven wat ik dacht, hoe onbeholpen en krom het ook op papier kwam, kreeg ik in ieder geval meer zicht op mijn gedachten. Zodra ze eenmaal op papier stonden, kwam er in mijn hoofd weer ruimte voor nieuwe, betere gedachten. Aan de hand daarvan kon ik de gedachten op papier weer verbeteren en aanscherpen, of domweg schrappen. Zo kwam ik meestal wel verder.

Het verschil nu tussen de tekst die ik geschreven heb voor dit proefschrift en dit voorwoord is dat dit voorwoord een reflectie is op het proces van het schrijven van het proefschrift. Aangezien bovenstaande procedure nog niet heeft gewerkt voor dit voorwoord, is de conclusie bijna onvermijdelijk dat het blijkbaar voor mijzelf nog niet helder is wat het doen van het onderzoek en het schrijven van dit proefschrift voor mij betekend heeft. Die helderheid geeft dit opschrijven van mijn gedachten me in ieder geval. Over de inhoud van dat denkproces hebben we het dan wel eens een andere keer.

Een aantal personen wil ik hier bedanken voor hun bijdrage aan het totstandkomen van dit proefschrift. In de eerste plaats alle schoolleiders die zo gastvrij en open zijn geweest om hun medewerking aan dit onderzoek te verlenen. In de tweede plaats mijn veeleisende en soms onnavolgbare promotor Peter Sleegers. Het heeft me moeite gekost om aan zijn manier van werken te wennen, maar zijn gave om door te blijven denken waar anderen ophouden, heeft me in het schrijven aan dit proefschrift veel verder gebracht dan ik ooit had kunnen vermoeden.

Mijn kinderen bedank ik voor hun levenslust en onontkoombare aanwezigheid, die zorgden voor de afleiding en relativering die ik nodig heb

gehad. Ik heb minder tijd besteed aan mijn proefschrift dan ik soms gewenst had, maar juist daardoor is het ook afgekomen. En tenslotte Susanne. Je hebt alles rondom dit proefschrift met me gedeeld, soms tegen wil en dank. Ondanks alles wat ik je heb aangedaan in de afgelopen vijf jaar, ben je naast me blijven staan. Je bent onuitsprekelijk lief.

Contents

"Welcome to the world of management science [in which] managers (…) feel [relieved] as their responsibility for value choice is devolved into a technical, non-responsible realm where choice is a product of scientific analysis, not personal judgement. Choosing responsibility leaves one in an exposed and vulnerable position, and so science comes to the administrators' rescue: science not the administrator makes the decision, thus absolving the administrator from responsibility. (…) We should be studying decision-makers, how they make their decisions and what they decide. (…) The [decisions] may be good or bad, but someone is responsible for them. This is a hard road and one reason why it is difficult to be a manager (…)."

(Greenfield & Ribbins, 1993, p. 252)

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Everyday thinking processes of school leaders

The complexity inherent to the job of the school leader has increased in recent years. Research into educational leadership, although looking for new ways to approach the field, up to now has not yet provided a satisfying answer how school leaders cope with complexity in their work. In this chapter, three recurring themes in the research are discussed. These three themes are used to explain why we have chosen to study the nature and function of school leaders' daily thinking processes.

Introduction

"Ed seemed to be moved about through most of his day by little problems brought to him or created for him by others, rather than by any grand design of his own of what he wished to accomplish." This observation is quoted from Wolcott's classic ethnographic study of Edward Bell, an elementary school principal (Wolcott, 1973, p. 34). And even now, after 30 years, it still aptly characterizes school leaders' daily work. Nothing much has changed, or so it seems.

But in recent years several major changes in the context of schools have taken place that have led to a significant increase in the complexity characterizing school leaders' work. Most notably is the growing pressure school leaders have experienced over the past two decades to implement educational reforms and to achieve ongoing school improvement (Geijsel, Sleegers, & Van den Berg, 1999). As a result of this, school leaders have had to redefine their role in the school organization (Datnow & Castellano, 2001). Furthermore, the job of the school leader has become more complicated because of the ongoing pressure that society is placing onto schools in terms of high expectations and accountability (Leithwood & Earl, 2000). Finally, important changes in the organizational structure of schools have led to a shift in the organizational positions and responsibilities of school leaders. Developments like Local Management of Schools (UK), Site-Based Management (USA) and similar processes of decentralization elsewhere in the world significantly affect the nature of school leaders' daily tasks (Caldwell & Spinks, 1998; Hooge, 1998; West, Jackson, Harris, & Hopkins, 2000).

Arguably, these changes have led to an increase in the complexity of day-to-day leadership in schools. School leaders more and more are confronted with a complex set of diverging demands, issues, and problems, often with strong moral connotations (Begley & Johansson, 2003; W. D. Greenfield, 1995; Murphy, 2002). For research into leadership in education, this means that the notion of leadership that is entertained should acknowledge the ability of school leaders to integrate various issues, problems and priorities into a coherent policy for the school (Imants, 1996; Sleegers, 1999). As Begley argues: "An image of leadership is [needed] that is a values informed leadership—a sophisticated, knowledge-based, and skilful approach to leadership. [A] form of leadership that acknowledges and accomodates in an integrative way the legitimate needs of individuals, groups, organizations, communities and cultures" (Begley, 2003, p. 1-2). It can be argued that, as this "skilful leadership" draws on the ability of school leaders to appropriately use their knowledge and values in daily practice, the focus in research should be on school leaders' cognitions—more specifically, on their cognitions within daily practice.

The quote from T. B. Greenfield at the beginning of this chapter alludes to the change in research focus that seems to be needed. Greenfield (Greenfield & Ribbins, 1993) argues that much of mainstream research into educational administration is infused with the illusion that science will eventually provide prescriptions on school leaders' actions with regard to maximizing school effectiveness (cf. Hallinger & Heck, 1998). With regard to the conception of science entertained, educational administration research has since long been taken a positivistic-objectivist approach, aimed at formulating general applicable theories (cf. Evers & Lakomski, 1996). But, as Murphy states, "the outcomes of the quest for a science of administration were considerably less robust than had been anticipated" (Murphy, 1992, p. 67). In addition, Murphy concludes that the value of such a "science" is becoming increasingly obsolete as far as a viable description of school leader's daily practice is concerned. The alleged 'bankruptcy' (Murphy, 2002, p. 66) of the traditional approach has led several researchers to conclude that a science of educational management is a meaningless enterprise. It is argued that, as education is infused with values, and as values are considered part of the subjective realm, choosing between competing values can only result from personal reasoning (T. B. Greenfield & Ribbins, 1993). These are considered subjective processes which are not open to objective scientific scrutiny (Donmoyer, 1991). However, as Evers and Lakomski (1996) argue, a strict subjectivist viewpoint is not very feasible, as this negates the "capacity of humans to extract useful patterns from an evidently nonrandom flux of experience" (Evers & Lakomski, 1996, p. 386). They argue that a reconciliation of the traditional approach

and the subjectivist critique is possible by studying the reasoning, problem solving and decision making of school leaders "as involving the simultaneous satisfaction of multiple soft constraints, including constraints that express values" (Evers & Lakomski, 1996, p. 398).

The motives, intentions, and values that are part of the daily thinking process of school leaders, constitute a black box in research in educational administration (W. D. Greenfield, 1995; Heck & Hallinger, 1999; Leithwood, Begley, & Cousins, 1990). In recent years, several scholars have emphasized that more insight is needed into just how school leaders cope with day-to-day complexity (W. D. Greenfield, 1995; Revell, 1996; Spillane, Halverson, & Diamond, 2001; Vandenberghe, 1995). What seems to be missing is an insight in how 'ordinary' school leaders develop their leadership and their school to achieve better results (West et al., 2000). In other words, what is needed are theory-informed descriptions of "the how of leadership" (Spillane, Halverson, & Diamond, in press).

In this research, therefore, the focus is on the daily practice of school leaders' work. More specifically, we will explore school leaders' everyday thinking processes, by studying their tacit knowledge, their problem solving processes, and their visions. The focus on everyday thinking processes calls for a small scale research strategy. By making a detailed study of a limited number of school leaders, important individual differences between school leaders are acknowledged. In this way, we will gain insight in how school leaders actually use their knowledge and develop personal strategies to cope with complexity in daily practice.

To a certain extent, the research at hand can be considered as an elaboration of the cognitive perspective on educational leadership (cf. Hallinger, Leithwood, & Murphy, 1993b). Our research is similar to this perspective in its focus on school leaders' thinking processes with respect to explaining differences in their actions. However, in our research, the focus is on cognitions of school leaders in daily practice, to understand how they use and develop their knowledge and how they develop their personal leadership in resonance with the daily context in which they are functioning (Hart, 1993; Smylie & Hart, 1999; Vandenberghe, 1995).

This chapter is an introduction to the empirical studies presented in chapters 2, 3 and 4. In the first section of this chapter, we will discuss some recent themes in research in educational administration, and the implications with regard to our research. Next, we will describe our approach, which specifically focuses on school leadership in daily practice. After that, we will discuss the design of the overall research project from which the three studies presented in this dissertation originate. Concluding, in the

last section of this chapter, we will briefly introduce the three empirical studies.

Themes in research into educational administration

Research into school management and educational administration has been closely linked to developments in general leadership theory, outside of education (Gunter, 2001). However, during the 1980s, a diversification in approaches to the field has occured that continues to exist until today (Murphy, 2002). Murphy (1992) therefore calls the period beginning in the 1980s the "dialectic era". The variety in approaches that has occured, has resulted in several recurring themes in research into educational management and administration. The following themes can be discerned.

1. A growing uneasiness within the field with regard to the lack of feasible results from decades of research into effective educational leadership, and the quest for new conceptions of leadership to address this problem;
2. The scarce, but recurring criticism with regard to the epistemology entertained in mainstream research, mainly inspired by the criticisms of T. B. Greenfield;
3. The growing interest of some scholars in qualitative research methods in social science in general, and educational studies in particular, and the disputes that have resulted with proponents of the conventional quantitative, positivistic research method.

The search for more feasible conceptions of leadership

As for the first theme, several authors have discussed the problem of the lack of substantial and feasible outcomes of research into educational administration (Hallinger & Heck, 1998; Heck & Hallinger, 1999; Murphy, 1992). Efforts to develop theories have scarcely been of direct relevance to educational leaders in practice. Especially, existing approaches have failed to provide anwers to questions with regard to problems and issues school leaders are confronted with in their daily lives. Even more, Murphy (2002) is rather cynical with regard to the results of theory-building in educational administration. He states that the field has been "building a bridge to nowhere", by "[developing] strategies to try to transport knowledge from the academic to the practice community" (p. 70).

It can be argued that most research that is carried out in educational administration starts from a rather normative-prescriptive perspective (Gunter, 2001). In addition, an important problem advocates of alternative approaches highlight in conventional research, is the simplistic notion of the school leader as "one individual as the initiator of change and transfor-

mation—the principal" (Gronn & Ribbins, 1996, p. 470). Furthermore, Gronn and Ribbins observe that "leadership has usually proved appealing because of its promise of the influence and change to be wrought by highly placed individuals" (1996, p. 453). This observation could explain why models of leadership in education have failed to address the complexity that educational leaders are faced with.

The need to address this complexity in leadership research has anything but decreased over the past two decades. Since the end of the 1980s, government initatives to improve schools have mushroomed in the Netherlands, as elsewhere in the Western world. Schools are being confronted with the task to implement several, sometimes overlapping renewal projects at the same time. Goals are often ambiguous and sometimes even conflicting, not in the least because of a lack of sound testing of the innovations through empirical research (Van Veen, 2003).

In search for leadership conceptions that are effective with regard to the implementation of educational innovations, several more elaborate conceptions of leadership have been developed since the 1980s. Most notably in this respect is the notion of transformational leadership that has been adopted for the educational situation by Leithwood and colleagues (Leithwood, 1992, 1994). Transformational leadership refers to the extra motivation that some school leaders can generate within the school organization. It is contrasted with transactional leadership, which refers to leadership that addresses the 'ordinary' management needs of a school organization. Transactional leadership is considered insufficient when there is a demand for innovation or change in an organization (Geijsel, Sleegers, Leithwood, & Jantzi, 2003; Geijsel et al., 1999). However, as Smylie and Hart (1999) point out, often the focus in research into transformational leadership still remains rather restricted to the behavior of the leader as a single person, and the interactive aspects of how transformational leadership takes effect, are neglected.

Another alternative approach has been the cognitive approach to educational leadership. This approach has taken as a starting point that the cognitive processes of school leaders could reveal an important insight in how school leaders solve complex problems (Hallinger et al., 1993b; Leithwood & Steinbach, 1993, 1995). This so-called cognitive perspective aimed at gaining more insight in the thinking processes of school leaders that guide them in their actions (Leithwood et al., 1990). This is assumed to result in a better understanding of how school leaders exercise vision (Hallinger, Leithwood, & Murphy, 1993a). Additional research suggests that transformational leadership is related to school leaders' expertise in problem solving (Leithwood & Steinbach, 1993). However, unequivocal

evidence that problem solving expertise is a dominant factor in school leaders' effectiveness has proved to be difficult to find (Leithwood, Hallinger, & Murphy, 1993).

In addition, researchers have become aware of the importance of taking more roles of leadership into account than the sole picture of the school leader. It has been recognized that research that starts from the notion of the school as a traditional bureaucracy, with the school leader controlling and directing from the top, has not provided the answers to the question how schools can succesfully implement reforms (Smylie & Hart, 1999). Prominent examples of more elaborate conceptions of leadership have been leadership as a property of the organization, instead of an individual characteristic (Firestone, 1996; Ogawa & Bossert, 1995) and studies into teacher leadership (Smylie, 1997). These theories are more realistic in the sense that they take a broader set of factors into account as far as a conception of leadership is concerned.

In spite of the diversity of approaches that have been developed in the "dialectic era", important questions still have remained unanswered. In recent years, Revell (1996) and Vandenberghe (1995) have pointed at the lack of attention in research to the daily context in which leadership in schools is exerted. More specifically, Revell (1996) argues that existing studies of leadership fail to acknowledge the complex, instantaneous nature of the job of the school leader. W. D. Greenfield (1995) also addresses the lack of an adequate understanding of the complexity of school leaders' daily work. An important question to be asked, according to Greenfield, is: "What does day-to-day leadership and administration in a school actually look like at a concrete level?" (W. D. Greenfield, 1995, p. 78).

The recurring criticism on the epistemology used in mainstream research

It could be argued that in spite of all efforts to develop new ways of studying school leadership, a classic 'technicist' or 'management by ticklist'-approach still prevails (Gunter, 2001, p. 39). Research that tries to come to a deeper understanding of leadership, is scarce. Heck and Hallinger even speak of a "limited epistemological perspective" (1999, p. 141). The alleged dominance of the positivist approach is the focus of an ongoing dispute with regard to the premisses of research into educational administration, starting with a seminal paper by T. B. Greenfield (1993). This paper, delivered at a conference in Bristol in 1974, caused a crack in the stronghold of the positivistic approach to educational leadership, originating in the Theory Movement that emerged after World War II (Evers & Lakomski, 1991). As Heck and Hallinger contend, the influence of this approach is still discernable today: "Logical positivism and the 'Theory Movement' framed the quantitavely-oriented discipline of educational

administration during the 1950s, 1960s, 1970s and 1980s. (…) This mode of scientific inquiry (…) came to define accepted norms of research." (Heck & Hallinger, 1999, p. 142).

Greenfield's main argument is that there is too much a tendency to understand educational leadership as a system that abides to laws of cause and effect. In his point of view, there is no "social truth" (Evers & Lakomski, 1991). Leadership in schools, according to Greenfield (1993) has to be considered as a social construction within a specific context, and in itself can be understood as a context for human action. By looking at organizations and leadership in this way, aspects of meaning are intricately bound to all actions and human interactions that take place within the school as a context. Therefore, the focus should be on the human action in the school organization, and not on the school as a rational, objective organizational system and the functional role of leadership within it (Greenfield, 1986).

During the 1970s and 1980s, the argument for a "subjectivist" approach by Greenfield and his adherents seems to have gained appreciation only on a theoretical level, as few empirical work explicitly refers to his insights (Heck & Hallinger, 1999). Greenfield himself has argued that his work nevertheless has had a significant impact on the field of research into educational administration (Greenfield & Ribbins, 1993). On the other hand, while Greenfield, and like-minded authors, from time to time have put their critique forward, the preassumptions of the dominant approach have never been completely refuted (T. B. Greenfield, 1993; Gronn, 1996; Hodgkinson, 1999).

Efforts have been made, mainly by Evers and Lakomski (1991; 1996) to build a new epistemological base for research which incorporates some of Greenfield's ideas. However, these views did not result in a fundamental different approach to empirical studies in educational administration. This is rather surprising, because at the same time a growing interest in the field of educational research has occured with regard to alternative, mostly qualitative orientations toward research methodology. This is the third issue that we would like to discuss.

The growing interest in qualitative research methodology

The third development relates to the interest in small-scale, qualitative research designs, that has grown as of the 1980s. Up to that time, research into educational leadership had been carried out using almost exclusively a large-scale quantitative approach. But, as Heck and Hallinger state: "Existing conceptualizations were challenged during the 1980s" (Heck & Hallinger, 1999, p. 142). Heck and Hallinger distinguish between interpretive, and critical theories of knowledge as the main alternatives for

the dominant positivistic approach in what they call a "proliferation of paradigms" (Heck & Hallinger, 1999, p. 143).

According to Donmoyer (1985), studies of the effectiveness of educational leadership provide only limited insight in how principals contribute to the school's achievements. He shows how ethnographic methods might constitute an important alternative approach. He states that qualitative, ethnographic methods are better suited to focus on beliefs, attitudes, and subjective meanings of principals, which are considered important mediating variables.

The majority of quantitative oriented researchers have remained hesitant to consider qualitative approaches as fully equal to quantitative approaches (Donmoyer, 1999). As a result, the quasi-experimental design using a cross-sectional survey has remained the method of choice for the majority of researchers in the field. As Heck and Hallinger (1999, p. 141) put it: "[Scholars] have conducted ... empirical research ... with a bias toward quantitative methods." Some researchers even argue for more rigid experimental designs to study the effectiveness of school leaders (van der Grift & Houtveen, 1999).

Nevertheless, as consensus has grown with regard to the norms defining acceptable qualitative research, qualitative methodology has gained a foothold in the field. It is acknowledged that qualitative methods could fill in the blank spots with regard to educational administration that are difficult to cover using large-scale quantitative research methods (Heck & Hallinger, 1999). Therefore, in this research, we use a small-scale, qualitative research design, in order to be able to closely study, describe, and understand school leaders' daily thinking processes.

Outline of the research

Two main implications for the research at hand can be derived from the discussion of current themes above. First, it becomes clear that, as a result of the growing need to understand how schools can cope succesfully with innovations and the increasing demand for effectiveness, several new approaches in theory with regard to educational leadership have been developed. Second, however, probably because of a limited variety of methods employed in mainstream research, there still is a lack of adequate theories that describe what school leaders actually do in real life while performing their job. In this research, we try to address both of the issues.

To this end, firstly, an elaborate perspective on educational leadership is adopted. This means that we conceive of leadership in schools as a process, that involves multiple actors in an interactional process of mutual influence, in a specific social and structural context. We will further explain

this below. Secondly, we aim at understanding the way school leaders cope with complexity in their daily work.

Our research is grounded in a social-cognitive perspective (cf. Spillane, Reiser, & Reimer, 2002) and is carried out using a predominantly qualitative methodology (Alvesson, 1996; Conger, 1998). Our research perspective follows from the conception of leadership that we start from. When school leaders determine how to exert guidance in a specific, complex situation, they will first try to understand, or make sense of the situation (Weick, 1995). Therefore, to study leadership in schools, we think it is important to focus on the cognitive process with which school leaders come to an understanding of their situation. Second, in studying this cognitive process, we acknowledge that the situation should not be regarded as an objective context in which sensemaking takes place, but that context is a constituting element of this process. Therefore, the cognitive process that is studied, is considered to have important social ramifications. Furthermore, to be able to elicit in detail the complex ways in which the individual cognitive process of the school leader is connected to the social situation in which it is performed, we have adopted a small-scale, qualitative research design (Alvesson, 1996; Conger, 1998).

In our view, insight in the daily cognitions of school leaders is important to understand how school leaders make sense of the complexity they are faced with in their daily work. This could be a fruitful avenue to get a deeper understanding of the role of leadership within a school organization, as sensemaking and organizing are very closely related (Weick, 1995). Our research, in this respect, should be considered to be a contribution to, and not a refutation of existing models. That it is important to focus on how school leaders make individual interpretations of their personal situations is only a starting assumption for this research; it is our aim to explore the elements of the situated process that constitutes the transition from individual cognitions to collective sensemaking in the school.

Focus of the research

To get an adequate insight in the daily complexity of the work of school leaders, it seems important to change the focus in research from generic characteristics of the person of the school leader to the situation in which leadership is exerted. However, in broadening the scope to the socio-cultural context in which leadership takes place, it is important to keep recognizing the special role of the school leader (W. D. Greenfield, 1995; Sleegers, 1999; Smylie & Hart, 1999). After all, it is the school leader who is held accountable for taking the right initiatives in aiming for improvement of the school's effectiveness (W. D. Greenfield, 1995). Furthermore, in fostering a positively stimulating culture in the school, the school leader

has a central role (Smylie & Hart, 1999). Also, the school leader has a central role in continuously searching for and developing new ways of integrating the diversity of issues that are confronting the school (Sleegers, 1999). Finally, it is important to note the unique role a school leader plays as a leader of an organization that has learning as its core process. Not only is the school leader a manager of learning processes of others, but he also serves as a "model learner" for the school community. The way school leaders use and develop their personal knowledge while performing their job can be considered to have an important impact on teacher development and student learning (Kochan, Bredeson, & Riehl, 2002).

This means that in this research we focus on the special role of the formal school leader in taking initiatives to "stimulate, guide, cultivate, sustain and support" processes of leadership within the school (W. D. Greenfield, 1995, p. 62). More specifically, we focus on the daily thinking processes of individual school leaders, to understand how school leaders develop and use their knowledge, because we assume that the day-to-day motives, strategies and reasoning processes that guide school leader practices are of special importance. As Spillane, Halverson and Diamond state: "To gain insight on leadership practice, we need to understand a task as it unfolds from the perspective and through the 'theories in use' of the practitioner. And we need to understand the knowledge, expertise, and skills that the leaders bring to the execution of the task." (Spillane et al., 2001, p. 25).

Key concepts used in the research

School leaders' thinking processes have been studied from various viewpoints by other researchers. In this study, we will use three concepts that we have derived from earlier research: tacit knowledge, problem solving and vision. The three concepts represent the main approaches on managerial thinking processes or cognitions that have been employed in recent years in research in (educational) management and administration. In the following sections, we will discuss the three key concepts and how they can contribute to our understanding of school leaders' daily thinking processes.

The three concepts (tacit knowledge, problem solving and vision) are not mutually exclusive, but show some conceptual overlap. The three concepts represent three important theoretical approaches that have been taken towards the study of (educational) managers' thinking processes in recent years, each approaching the topic from a different viewpoint. For the purposes of this research, we have studied thinking processes of school leaders by combining the three approaches. We will try to apply the existing knowledge with regard to the three theoretical concepts, to study the thinking processes of school leaders as they take place during their

day-to-day work, while school leaders are making sense of the complexity that they are confronted with. We will now briefly discuss each of the three concepts; their theoretical backgrounds, and the way in which we adopt the elements for the purposes of this study.

Tacit knowledge and educational leadership

According to Argyris (1999), tacit knowledge is the basis of effective management as it is considered the knowledge that is used to perform a job in a skilful way. According to Argyris (1999) this knowledge resides in so-called theories of action; "programs in the minds [of managers] on how to act effectively" (Argyris, 1999, p. 126). Two types of theories of action can be discerned: the espoused theory, that usually is kept tacit, and the theory in use, that can be inferred from actual behavior. According to Argyris, it is important that managers learn to reflect on their tacit knowledge (i.e. their espoused theories), and be able to link those to their actions, in order to develop their personal expertise.

Weick (1995) conceives of tacit knowledge as "maps" in the mind of managers. He explains how managers use their thinking processes to map their environments. These mental maps that managers employ, contain the causal theories they hold with regard to "how things work." Therefore, the tacit knowledge of school leaders as represented in cognitive maps could be considered to contain the "substance that provides a meaningful frame" to make sense of their situation (Weick, 1995, p. 121).

Weick (1995) argues, in a similar way as Argyris, that leaders' actions do not follow directly, as a consequence, from their thinking. Rather, according to Weick, there exists a "gap" between thinking and action. "It is this gap that encourages updating" (Weick, 1995, p. 124), With this, Weick means that there is a permanent exchange between the initial cognitive strategy managers exert (i.e. their tacit knowledge), and the way they perceive how their strategies work out in daily practice.

The role of tacit knowledge with regard to the administrators' job performance has been studied previously in educational settings (Nestor Baker & Hoy, 2001). Also, cognitive maps, or cause maps (which can be considered a special type of cognitive maps, see Eden, 1992) have been used to understand processes of collective sensemaking in schools (Lotto & Murphy, 1988). However, research has not yet been carried out with regard to cause maps of school leaders.

We assume that by eliciting school leaders' implicit reasoning processes using a causal mapping technique, we can gain more insight in the actual process in which school leaders use their tacit knowledge to guide the school in daily practice. Therefore, for the purposes of this study, we will

explore the structure and content of the cognitive maps school leaders hold with regard to the daily performance of their job.

School leaders' problem solving processes

We have discussed earlier how the link between thinking and action of school leaders has been elaborated in the cognitive perspective on educational administration (Hallinger et al., 1993b; Leithwood et al., 1990). The main assumption for the cognitive perspective is that better thinking of school leaders results in higher expertise and subsequently higher effectiveness (Leithwood et al., 1993). "Better thinking" has been elaborated in the cognitive perspective as the capacity of school leaders to solve complex problems, as problem solving is considered as an important part of school leaders' work (Leithwood & Stager, 1989).

Up to now, however, research has predominantly focused on the general characteristics that distinguish expert problem solving educational leaders from non-expert school leaders. While taking this focus, the question how individual school leaders solve problems in their complex daily practice has received considerable less attention. In the research at hand, it is assumed that by exploring the idiosyncracies in the individual problem solving processess, we can build new theoretical knowledge on how school leaders go about solving problems during their day-to-day work, in addition to knowledge on general characteristics of school leaders' problem solving (Eisenhardt, 2002). Therefore, in this research, we will explore the individual, situational aspects of school leaders' problem solving processes.

Vision of school leaders

The third notion we will explore in this research, is the connection between school leaders' daily cognitions and school leaders' visions. "Vision" is widely accepted to be an important factor for effective educational leadership (Hallinger & Heck, 2002; Imants, 1999). Vision can be conceived of as an image that is formed in the mind of the school leader, and therefore it can be considered to be, at least initially, a cognitive activity.

Ample research has been carried out into the effects of visionary leadership on school effectiveness (e.g. Geijsel et al., 2003; Leithwood, Jantzi, & Steinbach, 1998). However, it has remained unclear, up to now, how the concept of vision itself can be understood. Leithwood, Jantzi, and Steinbach have described the process of vision articulation by the school leader as "the practices on the part of the leader aimed at identifying new opportunities (…) and inspiring others with [it]" (Leithwood et al., 1998, p. 80). However, research into what school leaders actually do when they identify opportunities for the school, and enact this vision to give

guidance in daily practice has been scarce (Hart & Bredeson, 1996; Kelly & Bredeson, 1991; Sergiovanni, 1991).

In this research, we aim at further exploring the role of "vision" in day-to-day school leadership. We will explore the images school leaders hold of the school and the future, and their reasoning with regard to how they aim to put these images into practice. We assume that, in that way, we will come to a better understanding of how school leaders, in daily practice, can exert sustainable leadership within the complex context in which they have to carry out their work.

In sum, in this research, we explore three approaches (tacit knowledge, problem solving expertise, and vision) with regard to school leaders' thinking processes, to understand how school leaders make sense of the complexity they are faced with in daily practice, while carrying out their work. The guiding research question is:

• How can we understand the nature and function of school leaders' daily thinking processes by studying their tacit knowledge, their problem solving process, and the role of vision in daily practice?

Design of the research

This study can be considered to be an interpretative study (Piantanida & Garman, 1999). Interpretative research can be discerned from normative research (Cohen, Manion, & Morrison, 2000). An important assumption for this study is, that human action should be understood from the subjective position of the participants in that action. Not the "objective" action itself is the central focus of study, but the meaning that is attached to the actions by the persons themselves. In interpretative research, the emphasis is therefore more on describing and understanding action, in relation to an individual intention, and less on the prediction of behavior in relation to certain conditions (Cohen et al., 2000).

Our viewpoint can be further clarified by referring to the distinction that can be made between rationalistic and naturalistic research, as described by Guba and Lincoln (1999). Following this distinction, the research at hand can be considered to be a naturalistic study. We concur with Guba and Lincoln in that there is not one, observable reality, but that multiple realities exist, which are constructed in the human mind. This does not necessarily imply that, in specific situations, all constructions of reality are equally effective. As Willower (1998, p. 450) states: "Some constructions of reality are better than others".

We concur with Tolman (1999), who states that the human action only gets meaning in relation to the other members of the group in which the action is performed. "Action is a coordinated part of social activity that

must be accompanied by a shared meaning of the action that is reflected consciously by the actor" (Tolman, 1999, p. 73). Therefore, we aim at studying how school leaders construct meaning as a result of social interaction in their work contexts.

Second, we assume that the nature of the object of study (thinking process of school leaders) makes it very difficult to take an objective, detached position as a researcher. The unique relation that exists between a researcher and the participants in the study cannot, and, in our opinion, does not need to be "written out" the research report (cf. Woods, 1999). It is our belief that a real "objective" assessment of the processes that take place, and the explanations and meanings that are being given, is not possible. Even more, we contend that it is unavoidable to adopt a subjective point of view in the study of human interaction (Berlin, 1998).

The naturalistic approach taken in this research thus aims at understanding school leaders' daily thinking process by giving an interpretive description of these processes as they occur in real-life situations.

Aim of the research

The research design that we have chosen has implications with regard to the the nature of the results that this research yields. This study is not a problem-solving research, in the sense that through strict formulation and testing of hypotheses a theory will validated. Rather, this study can be considered to be a problem-stating research (Wolcott, 1990). The results of this study provide starting points for the formulation of new theoretical propositions, that can be validated by new research, or in practice.

This research will not produce an exact prescription of what school leaders ought to think or do in order to be highly effective in their practice (Gunter, 2001; Wolcott, 1973). Rather, we aim to describe what actually goes on when school leaders are thinking and reasoning while guiding the school in daily practice, within their specific contexts.

With regard to the conception of "context" adopted in this research, it is important to note, that it is not simply conceived of as an abstraction of certain circumstances that influence the effectiveness of school leaders. Context is considered to be a crucial part of how school leaders think and act. We concur with Tolman (1999), who argues how human action is essentially social in nature. Context is not just a coincidental background for human action, but an essential part of it. According to Tolman, individuals can "appropriate" knowledge through experience and social interaction. This process of appropriation involves a continuous interaction between the individual and his or her social context.

The results of this study should be conceived of as an exploratory process model (Eisenhardt, 2002) that describes how, in daily practice, the thinking

process of the school leader develops and how it influences, through a continuous interaction process, the school policy process.

Method of research

Our standpoint with regard to what the ain of the research is, has implications for the method that we employ. As a result of the premises as discussed above, we have developed a qualitative, naturalistic research design. In this, we refer to Guba and Lincoln (1999) who state that it seems more appropriate for studies in education to focus on patterns of interaction between actors in the field, than to look for causally determined relationships between objective factors. Education is value-laden, which renders many important concepts in this respect (leadership, effectiveness, "good" education, important goals of education) ambiguous in their meaning, and therefore difficult to study in an objective way (Donmoyer, 1991).

In a similar line of reasoning, Conger (1998) argues that leadership as a complex phenomenon can best be studied using qualitative methods. According to Conger, quantitative oriented research tends to reinforce the distorting notion of leadership as a static, individual quality. This implies that large-scale quantitative research methods are not always feasible in educational leadership research.

Finally, in taking a small scale, qualitative methodology, we assume that we will better able to maintain a "situational focus" in our research (Alvesson, 1996). This means that in our research we focus on describing and understanding the situation of specific school leaders, in specific contexts, rather than on stable patterns of behavior, or general (causal) relationships between sets of variables. We expect a situational focus to be helpful in achieving our aim to give realistic accounts of the way school leaders make sense of their complex, daily situations, thus increasing the level of ecological validity (Maso and Smaling, 1998).

Design of the empirical studies

This research has been designed as a case study (Piantanida & Garman, 1999). More specifically, this study is designed as a multiple case-study (Swanborn, 1996). Ample data, gathered with different techniques and on several points in time, have been gathered with a small group of individual participants (Guba & Lincoln, 1999). The object of this type of data collection is to arrive at a rich description of the situation studied, supported by personal observations and interpretations of the researchers, that have been made explicit as much as possible (Morgan, 1993).

There is a gradual change of focus that can be discerned in the three empirical studies that constitute this dissertation. The first study, reported on in chapter 2, is influenced by a 'classic' cognitive conception of leadership

and cognitions of leaders. Cause mapping techniques are used to elicit the tacit knowledge of school leaders with regard to the way they exert their leadership. We have held interviews with school leaders, out of which we have elicited key concepts. Subsequently we have constructed cause maps, using statistical modeling techniques.

The second study, reported on in chapter 3, approaches the domain of school leader cognitions from a situated perspective. We have focused on the reasoning of school leaders with regard to how they solved a complex problem in daily practice. In this study, an interpretive research method. We have held interviews with the participating school leaders. The interviews were quantitatively analyzed, aimed at eliciting comparable elements of problem solving processes across participants.

In the third study, reported on in chapter 4, the focus has been on school leaders' vision. In this study, we have broadened the scope of the research to the linkage between the thinking process and school leaders' action, within a specific context. In this study, in order to arrive at a "thick" description of leadership, we have combined several data sources to be able to interpret leadership "situations" from several vantage points (Alvesson, 1996)

An important aspect of the design of the research is the alternation in the phases of data collection and data analysis. This is an important characteristic of qualitative, naturalistic research (Eisenhardt, 2002; Strauss & Corbin, 1998; Wester, 1995). We have planned the research over a prolonged period of time, divided in two phases, reported on in three empirical reports. This provided the opportunity to let the interpretation of earlier gathered data guide the gathering and interpretation of new data.

During the research project, a gradual shift in the research approach has occured as a result of our efforts to gain insight in the dynamics of school leaders' thinking processes in daily practice. From a relatively standardized, objective research approach in the first study we moved towards a more subjective, interpretive approach in the second study. The approach that we have taken in the third study can be characterized as an heuristic, inter-pretative, reflexive analysis (Alvesson & Sköldberg, 2000). The heuristic, reflexive way in which we constantly analysed and compared interviews, observations, interpreting them from our subjective, personal point of view as a researcher can be considered as an effort to "enter the mind" (Berlin, 1998, p. 53) of the participants in our study, the school leaders.

Validity

We have ensured the validity of the research in a number to of ways. In the first place, we have collected data in three studies, carried out separately, over a period of three years. This prolonged period of time made it possible to collect data in several contexts and environments (Guba

& Lincoln, 1999). Also, we used a range of techniques to collect data in our study (Conger, 1998). The fact that we used several methods of data collection over a prolonged period of time, provided the opportunity to compare different results of different viewpoints with regard to the social phenomenon under scrutiny. This process is also called data triangulation.

Second, in this study we have aimed at maximizing ecological validity (Maso & Smaling, 1998). Ecological validity is the extent to which the characteristics of the situations in which we have studied school leaders' thinking processes can be applied to other situations in the real world. If we describe situations which enough detail and clarity, so as to make them recognizable for outsiders, the better 'users' of our research can assess the value of the results of our research for their specific situations.

Third, during the carrying out of the research, we have kept structured track of our activities. This was done by writing memos, and keeping a log file of the main activities that were performed, decisions that were made, and reflections on the progress of the research. Furthermore, an overview of research activities that were performed with the distinctive participants was kept. Through this "audit trail" the process of the research becomes traceable for outsiders. In addition, it is a very useful tool for researchers to maintain consistency in the way the study is carried out (Meadows & Morse, 2001; Taft, 1999).

Fourth, in the main study as well as in the pilot studies, we have performed member checks, by discussing preliminary interpretations of the data with participants themselves (Guba & Lincoln, 1999; Meadows & Morse, 2001). These member checks can be considered as a literal dialogue between researcher and research participants, with regard to the analysis of data (Alvesson & Sköldberg, 2000).

Fifth, at regular intervals, we as researchers held meetings to discuss the interpretations of the research (Guba & Lincoln, 1999). These discussions, as well as the memos that were feeding it, and resulting from it, can be considered as the internal dialogue that continuously takes place between the researchers and the subject of their research (Alvesson & Sköldberg, 2000).

Generalization

Qualitative research in particular has to do with describing subjective interpretations of reality. An important assumption with this is that there are no unquestionable "true" descriptions of reality possible, but that we are dealing with several partial descriptions of reality from different vantage points (Alvesson & Sköldberg, 2000). To an important extent, this research draws on the individual insights and thinking processes of the researcher that carries it out and reports on it. This implies that the way in

which the results of this study can be generalized to other situations differs from conventional conceptions of generalization.

A lot has been said about validity and generalization in qualitative research (Donmoyer, 1999; Guba & Lincoln, 1999; Maxwell, 2002; Meadows & Morse, 2001). In our opinion, this is not an appropriate place to repeat this discussion. At this point, we would like to argue that adopting a situated perspective does not have to mean that generalization becomes impossible. Important is, that the data in the research are being made "accessible"; so as to be open to other interpretations than that of the researcher (Alvesson, 1996) and to be used to interpret other situations (Donmoyer, 1990, 1999). Eventually, this research is about aiming for the description of configurations of processes, related to certain contexts, or a process-oriented approach. It is more about the "mode of ordering" than about "the order itself" (Alvesson, 1996, p. 479).

As we have argued before, this research is not a normative study that aims to specify formal, objective factors with regard to school leaders' thinking and action in relation to their effectiveness. Rather, we aim at providing a tentative framework for the description of the elements that play a role in the process by which school leaders' thinking processes affect the school's policymaking process. Ideally, this framework serves as a starting point for practitioners to reflect on their practice, and for researchers to devise hypotheses that could be tested in experimentally designed studies. This provides the possibility for a context-bound process of generalization, or 'generalization by analogy' (Maso & Smaling, 1998).

Overview of the book

The first study, entitled "Cause maps and school leader's tacit knowledge", is presented in chapter 2. The underlying assumption for this study is that aspects of the structure and content of school leaders' thinking can be related to their effectiveness. The first study is aimed at getting a better understanding of the school leaders' daily, tacit thinking processes. It sets out to capture school leaders' tacit knowledge into cause maps. Subsequently, these cause maps are analysed for their structure and content, to explore what this yields for our understanding of the way school leaders frame the situations that they encounter, to determine their courses of action.

The goal of the second study, presented in Chapter 3, entitled "A situated cognition perspective on school leader problem solving", is to develop a framework for describing the way school leaders solve complex problems in daily practice, while acknowledging the situativity of the problem solving process. In the study, an interpretation is made of the thinking processes of seven individual school leaders, who serve as exemplifying

cases to understand how the personal interpretations school leaders make of their individual situations shape their choices in the problem solving process. The study gives insight into how different school leaders, although confronted with a similar problem, can take very different approaches with regard to the solution of the problems. The cognitive elements that are formulated in this study provide a framework to interpret daily problem solving processes of school leaders, in acknowledgement of the context in which the school leader works.

The linkage between the thinking process of school leaders and the context in which this takes place is taken as a starting point for the third study, reported on in chapter 4. This study, entitled "You'd better know where you're going" focuses on the way vision gets shape in the day-to-day practice of school leaders. In this study, a conception of the role of vision is elaborated, in which two components of vision are discerned: a cognitive and a social component. This distinction is used to describe and understand the way school leaders use their vision as an instrument to enact their leadership in the school. It is concluded that vision should not be conceived of as an all-comprising, inspiring motivational "tool" used by the school leader. Rather, vision of school leaders remains rather implicit in the mind of the school leader, and is only partially reflected in school leaders actions. Nevertheless, through the continuous interaction that takes place between school leader and other actors within the school organization, vision development as a process is an important instrument with which the school leader can guide the sensemaking process in the school.

In the fifth and final chapter, conclusions are drawn with regard to the overall research question, and implications for research and practice are discussed.

Cause maps and school leaders' tacit knowledge

The complexity of the work of school leaders has intensified in recent years. The basic assumption underlying this article is that school leaders should develop a coherent vision of the school to effectively cope with the increased complexity of their work. In order to develop such a coherent vision, integration at a cognitive level is needed. In order to gain insight into both the complexity and integrity of the visions of school leaders, their tacit knowledge is studied using cause maps. More specifically, a method to elicit and interpret cause maps is explored and the analysis of the tacit knowledge of school leaders as expressed in the structure and content of their cause maps indeed shows them to differ with regard to the level of cognitive integrity and balance within their cognitive repertoires.

Introduction

The job of the school leader is complex by nature. According to Goldring and Greenfield (2002), the complexity of the job is determined by the central activities within the school—namely teaching and learning—and by the highly normative and people-intensive character of the school administration task. The complexity of the job has increased considerably over the past few decades, moreover, as a result of various political and social developments (Jones, 1999). Since the 1980s, schools have been faced with more or less continuous pressure to implement educational innovations (Geijsel et al., 1999). And in more recent years, an increasing emphasis on accountability has forced school leaders to continuously monitor and improve the educational quality of the school (Leithwood & Earl, 2000).

The increased complexity of the school leader's job has thus expanded the need for a personal and well-integrated vision of the school (Imants, 1996; Sleegers, 1999). Stated differently, the assumption that a well-integrated vision of education, and of the school, constitutes an important part of effective school leadership has received widespread support (Hallinger & Heck, 2002). According to Hallinger and Heck (2002), a personal vision allows school leaders to focus on the most important problems among the abundance of problems and issues confronting them. A personal

and well-integrated vision also helps school leaders adopt and follow a consistent problem-solving strategy, which is particularly important within the complex social context in which school leaders conduct their work (Goldring & Greenfield, 2002).

A significant amount of research has been conducted on the problem-solving skills of school leaders (Allison, 1996; Leithwood & Steinbach, 1995). Little research has been conducted, however, on the manner in which school leaders actually put their own specific visions into daily use for the interpretation, integration, and solution of problems (Hart, 1993). Hart (1993) emphasizes the importance of knowledge on the social processes within the school for school leaders to effectively address critical issues within the school. The type of knowledge Hart refers to is cognate to the type of knowledge referred to by other researchers as tacit knowledge (Schön, 1983; Sternberg, Wagner, & Okagaki, 1993; Woll, 2002). However, the tacit knowledge of educational leaders, in general, and effective educational leaders, in particular, has not received much research attention. The main proposition underlying the present study is therefore that examination of the tacit knowledge of school leaders enables us to not only clarify the differences between school leaders but also any differences in how they cope with the daily complexities of modern school leadership and—in the end—the elements of effective school leadership.

Tacit knowledge is assumed to include the personal values that guide decision making processes (Cooper & Heck, 1995). These values usually remain implicit, but constitute nevertheless an important part of school leaders' cognitions. Studying school leaders' tacit knowledge could shed more light on the values that guide school leaders' practices (Leithwood et al., 1990).

As will be discussed in greater detail below, tacit knowledge refers to the internal and often implicit modes of reasoning used to achieve a particular goal in daily practice. In the present chapter, we will explore a method of describing the structure and content of the tacit knowledge that school leaders have within the domain of problem solving.

Theoretical framework

Tacit knowledge can be defined as implicit knowledge of how things work in practice and thus knowledge based on experience. Nestor Baker and Hoy (2001) have conceptualized tacit knowledge as a specific type of cognitive skill used for goal achievement (Nestor Baker & Hoy, 2001). Other terms used to describe tacit knowledge are "practical knowledge" (Meijer, Verloop, & Beijaard, 1999) or "practical intelligence" (Gardner, 1999; Sternberg et al., 1993). Tacit knowledge can be distinguished from

formal or academic knowledge in that it usually remains unspoken and thus implicit in the thinking process (Schön, 1983). The implicit nature of tacit knowledge also makes the concept difficult to formalize (Ambrosini & Bowman, 2001).

Tacit knowledge is also frequently characterized in terms of its function —namely knowledge of what works and does not work in a given situation, which makes it particularly useful for the management of everyday situations. "It is the knowledge base that enables us to face the everyday world" (Sternberg et al., 1993, p. 207). Tacit knowledge applies to specific contexts and is therefore practice-oriented. As Wagner and Lynn Carter (1996) describe it, tacit knowledge is the practical know-how with a particularly important function during the conduct of a job or task.

Tacit knowledge is usually acquired during the conduct of a job or task. It is not synonymous with experience, however, as it is the result of personal reflection on individual experiences (Meijer et al., 1999). This process of reflection produces mental models or scripts, which can then be used in new situations (Ambrosini & Bowman, 2001). It is thus important to note that tacit knowledge is, on the one hand, the result of reflection on previous experiences and, on the other hand, part of the knowledge that itself guides the process of reflection. And this situation entails the risk of self-reinforcement of the status quo as a potential negative side-effect (Argyris, 1999).

The tacit knowledge of school leaders

In a study of the tacit knowledge of superintendents, Nestor-Baker and Hoy (2001) found a relation between the quantity of tacit knowledge and superintendent success. Drawing on Argyris (1999), they then concluded that tacit knowledge constitutes an important resource for the achievement of particular organizational objectives within the school. School objectives are often implicit and rather long-term, which means that school managers must indeed draw upon tacit knowledge to transform school goals into actual everyday "routines that work" (Nestor Baker & Hoy, 2001, p. 87). And this transformation process can be construed as a more general problem-solving process that requires school leaders to simultaneously solve a number of subproblems in order to attain a solution to a larger problem (Wagner & Lynn Carter, 1996).

The aforementioned translation process calls for a considerable amount of flexibility. According to Bolman and Deal (1993), for example, school leaders must develop the cognitive capacity to "frame" each situation they encounter in order to adequately interpret and respond to it. Bolman and Deal distinguish four types of frames, which will be considered in greater detail below: structural, political, human resource, and symbolic frames.

And while school leaders typically prefer one frame over another for dealing with standard day-to-day problems, Bolman and Deal argue that school leaders should learn to expand their "cognitive repertoires" by applying alternative and possibly novel frames to new or nonroutine situations.

In the present research, we assume that the cognitive repertoires of school leaders are reflected in their tacit knowledge and that two aspects of their tacit knowledge seem an interesting starting point for research. First, their tacit knowledge should be adequately structured in order to enable the integration of new information and knowledge with already existing knowledge. Second, the content of their tacit knowledge should involve a sufficiently broad cognitive repertoire in order to provide the alternative viewpoints or approaches needed to successfully solve many different and often changing problems. We will examine these aspects of the tacit knowledge of school leaders in greater detail, by exploring the technique of cause maps as a research instrument.

The use of cause maps to study tacit knowledge

The elicitation of cause maps constitutes a research technique that has been widely used to describe the strategic thinking processes of managers (Eden, 1992; Laukkanen, 1994). Stated more generally, the elicitation of cause maps is a technique used to make knowledge that usually remains largely implicit more explicit (Ambrosini & Bowman, 2001). Although interest in the tacit knowledge of school leaders has increased during the past few years (Nestor Baker & Hoy, 2001), the elicitation of cause maps has yet to be undertaken within the field of educational administration.

A cause map is a special type of cognitive map, which is also known as a concept map and widely used within the field of educational research to assess the conceptual development of students with regard to a particular subject (Novak, 1998). Meijer, Verloop, and Beijaard (1999), for example, have used concept maps to study the thinking processes of teachers while carrying out their work. In addition, concept maps have been used as an intervention tool to support the implementation of educational innovation programs (King, Allen, & Nguyer, 1998).

The term cognitive map refers to the graphic representation of cognitive processes—typically using nodes and links between nodes. The nodes represent the key concepts or building blocks entertained by an individual with regard to a particular topic (Eden, 1992). And the links between the nodes represent the manner in which the different concepts are related to each other to build a particular line of reasoning. Although cognitive maps should not be assumed to depict cognition itself (Eden, 1992), there is a close correspondence between the actual thinking processes of individuals and the data represented in their cognitive maps (Verburgh, 1994). That

is, cognitive maps encompass both the key concepts entertained by an individual with regard to a specific topic and the manner in which the individual relates the relevant concepts to each other within a particular situation (Bougon, 1983).

Both Verburgh (1994) and Meijer (1999) argue that cognitive maps depict not only that knowledge which is used but also information with regard to the manner in which this knowledge is put to use and cognitions that would otherwise remain implicit (Verburgh, 1994). As stated before, with the term "cause maps" we refer to a special type of cognitive maps (Eden, 1992). In cause maps, the links between the nodes represent causal relations and thus depict means-ends beliefs that may, in turn, determine the plans and actions chosen by the individual to attain a particular end state (Bougon, 1983). Cause maps are action-oriented (Ambrosini & Bowman, 2001), and they can thus be taken to represent "the necessary base for the construction of plans" (Lotto & Murphy, 1988).

The characteristics of cause maps, and the way cause maps and cognitive maps are used in research, correspond with the characteristics of tacit knowledge as discussed earlier in this paper. There are three focal points of congruence.

First, cause maps are useful for illuminating the individual context-specific aspects of thinking processes (Ambrosini & Bowman, 2001). The analysis of idiographic cause maps provides the opportunity to give full attention to individual cognitive processes, that otherwise could have been neglected too easily (Eden & Ackermann, 1998). This makes cause maps very useful for describing tacit knowledge, because tacit knowledge is embedded in individuals (Ambrosini & Bowman, 2001) and therefore can vary in amount and nature from person to person.

Second, tacit knowledge is implicit by nature, and therefore difficult to study. Ambrosini and Bowman (2001), however, state that there are several levels of tacitness, of which cause maps reveal the type of tacit knowledge that could be articulated, but generally remains implicit in daily situations.

Third, both cause maps and tacit knowledge are action or practice oriented. Practical knowledge is "about how things work"; this, according to Ambrosini and Bowman (2001), is stored in the mind in a causal way. In concurrence, Laukkanen (1994) states that cause maps represent causal, strategic thinking processes, or, in other words, the thinking process with regard to how knowledge is applied.

Characteristics of cause maps

With respect to the structure of cause maps, we can speak of cognitive complexity and cognitive integrity. The concept of cognitive complexity is derived from Verburgh (1994) who uses the term "richness of conceptual-

ization" to refer to the number of associations found between the concepts in a cause map. The higher the number of associations, the richer the conceptualization or cognitive complexity of the cause map. Conceptual integrity refers to the type of structure characterizing the map as a whole. Three types of possible structure have been spoken of to date: a spoke structure, a chain structure, or a balanced-net structure (Kinchin, Hay, & Adams, 2000). When a cause map resembles the hub of a wheel, most of the concepts are directly linked to a single central concept, which makes it easy to add new knowledge to the existing structure but does not provide a very powerful mode for reasoning.

When a cause map has a chain structure, most of the concepts are arranged in the linear order of causality, which provides a powerful mode for logical reasoning but may complicate the addition of new knowledge due to its linear rigidity. The balanced-network structure represents a combination of the spoke and chain structures: a "highly integrated and hierarchical network demonstrating a deep understanding of the topic" (Kinchin et al., 2000, p. 47), which enables both the easy addition of new knowledge and also the drawing of sensible connections between the topic of the map and a new or larger context. This description is conceptually similar to what Bereiter and Scardamalia (1986) describe as the "coherent and usable way" in which expert knowledge is structured.

With respect to the content of the cause maps generated for a number of school leaders within the context of the present study, Bolman and Deal's (1993) theory of multiple frames will be applied. According to Bolman and Deal, different frames may be used depending on the particular situation while the following four basic types of frames can be distinguished:

- the structural frame: characterized by an emphasis on productivity, clear goals and roles, and rational coordination;
- the human resource frame: this frame emphasizes individual needs, motives, and opportunities for participation in decision making;
- the political frame: characterized by attention to the power arena, scarceness of resources, and the inevitability of conflict;
- the symbolic frame: characterized by a focus on symbols, meanings, and faith. Behavior is governed by informal and often implicit rules and agreements.

For purposes of daily problem solving, school leaders may often prefer one type of frame over another. However, novel frames can and should be used to understand new or nonroutine situations, which may then expand the individual's cognitive repertoire and thereby foster the more adequate conceptualization of varying situations in the future.

In this study, we will use Bolman and Deal's (1993) notion of multiple frames to interpret the contents of the cause maps. In this way, we assume

to be able to relate in a feasible way cognitive maps as a representation technique to the function these maps have as a frame of reference in daily practice. We will explore the extent to which the four main frames of reference are reflected in the cause maps of the school leaders participating in this research. This will give some insight in the differences between school leaders with regard to the extent in which their cognitive repertoires could be labeled as extended or limited. We will use the notion of frames of reference by Bolman and Deal (1993) as a tentative tool for analysis. However, because of the explorative nature of the current research, this study does not entail a validation of the conceptual framework as proposed by Bolman and Deal (1993).

Based on the aforementioned theoretical insights, we assume that insight into the structure and content of the cause maps generated for the school leaders within the context of the present study can provide insight into the complexity, integrity, and flexibility of their thinking and cognitive repertoires. And along these lines, the following research questions were formulated.

- Are cognitive complexity and cognitive integrity useful descriptors for the structure of the cause maps found to characterize the different school leaders?
- Do the four types of frames proposed by Bolman and Deal (1993) provide an adequate way of interpreting the content of the cause maps for the school leaders?
- And how do the structure and content of the cause maps appear to relate to each other?

Method

Seven school leaders from comprehensive Dutch high schools were asked to participate in the present study. As the research was largely exploratory in nature, the main criterion for the selection of the participants was to obtain information-rich cases (Patton, 1990). Almost all of the participants are experienced school leaders with a clear capacity to reflect on their own thinking process. While efforts were made to include female participants, this proved very difficult because there are very few female school managers in the Netherlands. All of the participants are thus male. An overview of the characteristics of the participants is presented in Table 2.1, and it should be noted that the names of the participants are pseudonyms.

As can be seen, some of the school leaders have only been a school leader for a few years but have extensive experience, for instance as a consultant or manager in a field outside education. Others have been in education for all or almost all of their lives and recently moved to another school

and/or another appointment. Within the table, the participants are ranked according to their experience as a school provides some indication of their level of expertise as a school leader.

Table 2.1: Overview of characteristics of the participants

| | Position | Experience (in years): | | |
		as school leader	current position	total professional experience
Peter	Principal	20	4	32
Henk	Vice-principal	19	1	23
Ben	Principal	15	12	30
Jacob	Principal	13	3	31
Paul	Principal	12	12	20
Piet	Vice-principal	5	5	15
Robert	Principal	2	2	25

Data collection

The procedure followed to elicit the data for the cause maps is based on Bougon's Self-Q method (Bougon, 1983; Bougon, Baird, Komocar, & Ross, 1990; Wassink, 2000). First, the school leader participated in a semi-structured interview regarding his beliefs with respect to the day-to-day practice of managing a school. The topic was intentionally formulated rather vaguely in order to allow the school leaders to elaborate on those aspects which they themselves considered important using their own words and without too much a priori structure. In such a manner, it was attempted to stay as close as possible to the individual school leader's personal interpretation of the situation (Hart, 1993; Ribbins, 1999).

Second, a list of the central concepts mentioned in the interview was next drawn up for each school leader. This list thus reflects the core concepts with regard to the day-to-day management of a school for the individual participant as it was attempted to keep as close as possible to the original formulations of the school leader during the interview. Third, each school leader was asked to indicate what they considered the 15 most important concepts from the list of central concepts derived from the interview.

Fourth and finally, the school leaders were asked to indicate any relations of influence between the 15 concepts and the other 14 concepts. During this process, the participants were asked to focus on the process of leading the day-to-day activities within the school. The strength could be indicated along a 5-point scale ranging from 1 (= no relation) to 5 (= very strong

relation). Data with regard to the 15 key concepts and the associations rated by the school leaders constituted the input for the construction of the cause maps.

In this phase of the study, emphasis was put on obtaining authentic representations of the modes of reasoning of the participants, represented by the concepts derived from the literal utterances of the respondents themselves, and the relationships between these concepts, again indicated by the respondents themselves. These 'member checks' maximized the influence of the respondents on the reduction of the raw interview data, and therefore contributed to the validity of the study (Meadows & Morse, 2001).

Data analysis

Both qualitative and quantitative analyses were undertaken. To start with, the key concepts in the texts from the initial interviews were coded using a standard set of criteria, formulated beforehand. All of the coding was done by one of the researchers. To enhance the validity of these qualitative analyses, the participants were also asked to examine and comment on the initial formulation of the concepts.

The structural characteristics of the cause maps formulated on the basis of the 15 most important concepts from the interviews and the relations between these concepts were next analyzed using quantitative techniques derived from (social) network analysis (Scott, 1991; Verburgh, 1994) and the UCINET-V-software (Borgatti, Everett, & Freeman, 1999).

The cognitive complexity (Verburgh, 1994) of the structure of the school leaders' thinking was assessed in terms of the density and reciprocal density of their cause maps. The density of a cause map was calculated as the number of links observed between the concepts in the map divided by the total number of possible links between the different concepts. Similarly, the reciprocal density of a cause map was calculated as the percentage reciprocal relations observed. The higher the density, thus, the greater the number of associations drawn by the school leaders between the central concepts regarding their work. The higher the percentage reciprocal relations, the greater the mutual influence between the concepts (Bougon et al., 1990). And the higher the density and reciprocal density, the higher the cognitive complexity of the school leaders' thinking (Verburgh, 1994).

The cognitive integrity was assessed in terms of centralization (Freeman, Borgatti, & White, 1991) and network transitivity (Borgatti et al., 1999). Centralization indicates the extent to which the concepts within a network or cause map are arranged around a single concept. When the degree of centralization reaches the maximum of 100%, the structure resembles a wheel. Network transitivity indicates the extent to which a linear sequence

of three or more concepts simultaneously exists with direct links from the first to the third concepts within the sequence and thus the level of chaining. The lower the degree of network transitivity, the greater the concepts are linked in a simple linear order and the more the map resembles a chain structure. It is assumed that neither a pure spoke structure nor a pure chain structure produce maximum conceptual integrity. Rather, a moderate level of both indicators reflecting a mix of the two structures and thereby a balanced-net structure constitutes a high level of conceptual integrity (Kinchin et al., 2000).

In the analyses of the structure of the cause maps, the focus is on just how the different concepts within the cause maps are related and what this tells us about the manner in which the tacit knowledge of the school leaders is organized. In the analyses of the content of the cause maps, the focus is on which concepts are used and what this can tell us about the nature of the school leaders' knowledge within a particular domain. Bolman and Deal's (1993) theory of multiple frames was used to interpret the content of the cause maps.

Multidimensional scaling (MDS) was performed for every cause map to estimate the distance between the concepts within a two-dimensional space (Kruskal & Wish, 1978). The distance between two points within a network indicates the degree of similarity or closeness between the two points (Knoke & Kuklinski, 1982). As the ALSCAL procedure assumes that the data in the matrix are symmetric, however, we first had to symmetrize the data. This step resulted in a loss of information but was justified by the assumption that the relative distance between two concepts can be conceived of as a function of both possible relations; when two concepts relate in both directions, they can be assumed to have more "to do" with each other and thus have a higher proximity to each other than when there is a relationship in only one direction. It should be noted that, although formally we can no longer speak of "cause maps", as they should contain the information on the direction of relations that we have lost in this step, for reasons of consistency, in the remainder of this study we will adhere to this terminology.

Using the ALSCAL algorithm, the concepts were next distributed within a two-dimensional space for each participant. In the interpretation of the plots, we were primarily interested in the closeness of the different concepts to each other and each plot was analyzed individually for every participant. The underlying conceptual dimensions were left uninterpreted because they are incomparable across participants.

The main objective of these analyses was to highlight any patterns of internal coherence and thus conceptual similarity within the cause maps for the school leaders . Therefore, we sought to elicit groups of concepts

that are more close to eachother. We assume that these groups of concepts are perceived by the participants to be more similar (Knoke & Kuklinski, 1982). Second, it was our goal to interpret the observed clusters of concepts within the general framework proposed by Bolman and Deal (1993). Two criteria were thus used to cluster the concepts for a particular school leader: the relative closeness of a concept to other concepts and evaluation of whether the content of a concept was relevant to the content of the other concepts within a particular cluster.

Subsequently, the clusters were examined for their common underlying significance or frame of reference—which could be structural, political, human resource, and/or symbolic. The interpretations of the common themes of the clusters were performed by one of the researchers in cooperation with the others. In several rounds of discussion of preliminary interpretations, consensus was sought after with regard to the criteria that guided the clustering process. The results of these discussions and the implications for subsequent analyses were logged in a so-called "audit trail" (Meadows & Morse, 2001).

Results

As explained above, the cognitive complexity of the cause maps was operationalized in terms of density and reciprocal density. The cognitive integrity of the cause maps was operationalized in terms of centralization and transitivity. An overview of the scores for the density and reciprocal density (i.e., cognitive complexity) of the cause maps for the different participants in addition to their amount of experience as a school leader is presented in Table 2.2.

Table 2.2: Cognitive complexity of cause maps in terms of density and reciprocal density of associations between concepts in relation to experience of participants as a school leader

	Experience as a school leader (yrs)	Density (0-100%)	Reciprocal density (0-100%)
Jacob	13	16	2
Paul	12	17	6
Piet	5	18	9
Ben	15	20	20
Henk	19	23	6
Robert	2	34	10
Peter	20	47	34

As can be seen, the density of the cause maps for the seven participants ranged from 16% to 47%. It can be argued that the more associations a person perceives between concepts, the richer the conceptualization of the situation and the greater the possibilities for the interpretation of new situations (Verburgh, 1994). The results show most of the participants in this study to have equally rich conceptualizations. Two exceptions are Robert and Peter, who have much richer conceptualizations (34% and 47%, respectively).

The reciprocal densities of the cause maps ranged from 2% to 34%. This shows the participants in this study to widely vary with regard to the presence of feedback loops in their cause maps or—in any case—their awareness of such feedback loops (Verburgh, 1994). Inspection of Table 2.2 also shows no strong relations between the density and reciprocal density of the school leaders' cause maps. The participant who scored highest for density also scored highest for reciprocal density while the other participant scoring high for density only scored moderately for reciprocal density.

Inspection of the cognitive complexity of the cause maps in relation to the number of years of experience as a school leader for the different participants shows no strong relations. The relatively inexperienced school leader, Robert, produces a cause map with a relatively high level of density, for instance. Conversely, the very experienced school leader, Ben, only produces a cause map with a modest level of density.

In Table 2.3, an overview of the scores for the cognitive integrity of the cause maps for the different participants in addition to their experience as a school leader is presented. As noted above, cognitive integrity was operationalized in terms of the degrees of centralization and transitivity. The degree of centralization within the cause maps for the different participants only varied between 2% and 10%, which shows none of the cause

Table 2.3: Cognitive integrity of cause maps in terms of centralization and transitivity of associations between concepts in relation to experience of participants as a school leader

	Experience as school leader *(yrs)*	Centralization *(0-100%)*	Transitivity *(0-100%)*
Peter	20	2	100
Piet	5	2	99
Jacob	13	3	81
Ben	15	4	74
Paul	12	5	26
Robert	2	6	55
Henk	19	10	42

maps to be highly centralized. In other words, there is no single concept that appears to account for the connections between the other concepts within the cause maps for the school leaders studied here. The cause maps never have a purely spoke structure and only slight differences exist between the participants with regard to the degree of centralization.

The degree of transitivity within the cause maps was found to vary from 26% to 100%. This means that the cause maps for the school leaders had anywhere from a moderate to a high (i.e., maximum) level of transitivity. In the cause maps for five of the seven participants, moreover, most of the direct connections between two concepts were also accompanied by a connection via a third concept.

An inverse relation between the two measures of cognitive integrity was also found with those participants scoring lowest for centralization scoring highest for transitivity and those participants scoring relatively higher for centralization scoring relatively lower for transitivity. The cause maps of Peter and Piet are almost completely decentralized and thereby completely transitive while Henk's cause map is the most centralized and accompanied by a moderate degree of transitivity. One exception to the generally negative relation between centralization and transitivity is found for Paul's cause map, which shows moderate centralization and low transitivity or more of a chain structure than the cause maps for the other school leaders studied here.

In sum, the analyses of the structure of the cause maps for the school leaders studied here showed rather high levels of cognitive complexity. Two participants showed very high levels of cognitive complexity. In contrast, considerable variability was found in the cognitive integrity of the cause maps across the participating school leaders. Although no pure spoke or wheel types of cognitive structures were found and all of the cause maps thus involved a balanced-net structure, some of the school leaders appeared to have more focused cause maps than others.

Content analyses

In Table 2.4, the different clusters of concepts found per participant are listed. As can be seen, the four frames described by Bolman and Deal (1993) are clearly represented. For all of the school leaders, the first cluster contains concepts relating to clear goals or a structural frame (e.g., keep direction, central outlines, focus on educational policy. Again for all of the school leaders, the concepts in the second cluster consistently relate to a political frame (e.g., force decisions, allocate means, think ahead) and thus show a concern for the allocation of scarce resources and trying to achieve things in an arena of diverging interests.

Table 2.4: Clusters of concepts per school leader

Cluster 1 Structural	Cluster 2 Political	Cluster 3 Symbolic	Cluster 4 Human Resources
Henk			
• conduct tasks	• work systematically	• allocate means	• provide support
• active policy making	• mutual attunement	• impose limits	• be sensitive
• vision	• force decisions	• give teachers space	• listen
• think together			• cooperation within
• keep direction			directorate
Jacob			
• implement changes	• strategic external	• non-formal staffing	• confer with others
• change culture	contacts	policy	• delegate
• will to change		• keep balance	• concern for well-being
• responsibility		• provide feelings of	of students
• urgency		trust	• foster feeling that
• continuity of		• pater familias	"change is fun"
education			
Peter			
•set policy	• confer with others	• unite different roles	• initiator
• set goals		• clear relationships	• acquire support
• inventor			• foster positive
• will to change			• provide feelings of
• enhance efficiency			trust
• work systematically			• take others seriously
			• indirect guidance
Robert			
• focus on educational	• achieve things	• create professional	• be friendly
policy	• delegate	culture	• foster enthusiasm
• assess resistance	• establish	• indirect guidance	• acquire acceptance
• vision	committees	• impose limits	• be open
	• think ahead		• initiate

Table 2.4 (continued)

Structural	Political	Symbolic	Human Resources
Ben			
• overlapping management tasks	• foster develop-ment of arguments	• quality of staffing policy	• strengthen position of middle management
• financial control	• harmonize differing interests	• contribute personal opinions	• decentralize educa-tional policy
• central guidance	• personal change capacity	• acquire basis	
• major lines of focus		• give teachers space	
• responsibility			
• give direction			
Paul			
• keep balance	• acquire support	• personal develop-ment of students	• facilitate
• set strategy	• mutual respect	• specialized staff	• bottom-up decision making
• keep direction	• force decisions	• foster reflection	• delegate
• sense uncertainty		• accentuate quality	• articulate responsibili-ties
Piet			
• keep direction	• allocate means	• keep fire burning	• provide adequate feedback
• major lines of focus			• be open
• provide arguments			• promote a learning organization
• give guidance			• foster communication
• give direction			• develop middle management
• make vision concrete			• inspire
• make plans			

Once again for every participant, the concepts in the third cluster relate to the symbolic frame (e.g., foster reflection, create professional culture, indirect guidance) and thus show consideration of the culture implicit in the school organization. Finally, the concepts in the fourth cluster for all of the participants pertain to the human resource frame, as described by Bolman and Deal (1993), and thus show a concern for the needs of the individual and the provision of opportunities to participate in decision making (e.g., facilitate, provide adequate feedback, be open).

When the distribution of the concepts across the different clusters is also examined across the different school leaders, it can be seen that the concepts are not equally distributed across either the clusters or the school leaders. The cause maps for Peter and Piet, for instance, show an emphasis on two of the four frames—namely the structural and human resources frames with a concomitant underrepresentation of the political and symbolic frames—while the cause maps for Paul and Henk show a more equal distribution of concepts across the four frames.

Relations between structure and content

To examine the relations between the structure and content of the different cause maps, the results of the content analyses were compared to the results of the structural analyses. In order to do this, the distribution of the key concepts from the cause maps across the four clusters or content frames for each of the school leaders was first characterized as "balanced" or "unbalanced." Next, the scores of the school leaders on the four measures of cognitive complexity and cognitive integrity were categorized as: high, moderate, or low. The results were then summarized for comparison and are reproduced in Table 2.5 below.

Inspection of Table 2.5 shows the distribution of the concepts within the cause maps for the school leaders studied here to often be unbalanced and the cognitive complexity of their cause maps generally characterized by a low degree of density and a low degree of reciprocal density. With regard to the cognitive integrity of the cause maps for the school leaders, those with a high level of transitivity tended to show a less balanced distribution of concepts across the four content frames while those with a moderate level of transitivity tended to show a more balanced distribution of concepts across the four content frames. As the cause maps for almost all of the school leaders showed a low level of centralization, this measure yields little information with regard to the relations between the structure and content of the cause maps for the school leaders studied here.

Table 2.5: Results of analysis of content and structural characteristics of the cause maps

| | Distribution of concepts | Cognitive complexity | | Cognitive integrity | |
		Density	*Reciprocal density*	*Centraliza-tion*	*Transitivity*
Peter	unbalanced	low	low	low	high
Piet	unbalanced	low	low	low	high
Jacob	unbalanced	low	low	low	high
Ben	balanced	low	high	low	moderate
Paul	balanced	low	low	low	low
Robert	balanced	moderate	moderate	low	moderate
Henk	balanced	high	high	moderate	moderate

At this point, the cause maps for two of the school leaders will be presented and described in order to gain greater insight into the tacit knowledge of school leaders within the domain of daily problem solving. The concepts are positioned according to the two-dimensional structure indicated by the MDS analysis. The cause map for Piet is presented in Figure 2.1 and depicts an unbalanced distribution of the key concepts across the four content frames; the cause map for Ben is presented in Figure 2.2 and depicts a balanced distribution of the key concepts across the four frames.

Inspection of Figure 2.1 shows the concepts associated with the four content frames to be distributed in Piet's cause map in the following manner. The large cluster of concepts stretching from the top to the bottom of the left
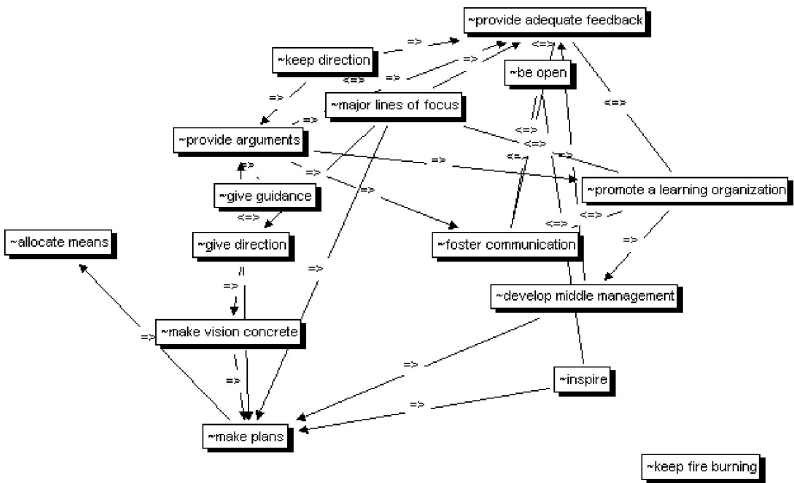

Figure 2.1: Piet's cause map

side of the plotted cause map represents the structural frame. Such concepts as "major lines of focus," "keep direction," and "give direction" together with "make vision concrete" and "make plans" appear to be critical to this frame. And some examples of just how Piet applies the structural frame during the daily course of events can be found below.

> That is one of the four…uh…four location managers who form together with the principal the strategic group that …uh…determines the major lines of focus.
> *(Piet, major lines of focus)*

> But [...] one of the things that I definitely consider to be my task is [...] to make the translation to concrete things.
> *(Piet, make vision concrete)*

> And the second part, which plans—which result-oriented agreements as it is called in the jargon—are we going to make and, in any case, implement in the next year at the latest and what do we have to do for this in the short term, who is going to do what, who is going to take the intitative, and how can we tell if it has worked. That…yeah…that is where I am, yeah.
> *(Piet, make plans)*

The aforementioned statements illustrate how Piet, together with the other school administrators, coordinates the main policy for the school. The statements also show how he subsequently considers it his task to translate this policy into concrete plans, set clear goals, and outline the steps needed to achieve these goals.

Related to the concept of "make plans" is the concept of "distribution of means," but this concept is located such a distance from the other concepts within Piet's cause map that it is taken to represent a separate frame—namely, the political frame. And an example of just how Piet applies this political frame during the course of daily events is presented below.

> [...] for instance like this morning, we had a meeting—staff planning —about how to allocate the personnel to different locations. Well, that's very complicated and always a huge puzzle, you have to make things fit, and then with the scarce resources available.
> *(Piet, allocate means)*

As can be seen, Piet is clearly considering the problems associated with the allocation of scarce resources within the school.

Located next to the cluster of concepts representing the structural frame in Piet's cause map is yet another rather large cluster of concepts pertaining to the human resources frame. Typical for this frame are such concepts as "provide adequate feedback," "foster communication," and "develop middle management." Statements reflecting the application of a human resources frame by Piet are the following.

> Also, when I receive signs that things are not going well, I try
> to tell the people as quickly […] as possible.
> *(Piet, provide adequate feedback)*

> Well, one of the things we agreed upon was to organize the
> management differently. Somewhat smaller directorate, more
> middle management for specifically the goal of providing
> guidance with regard to the primary task, namely good
> education and taking care of your students.
> *(Piet, develop middle management)*

These statements show Piet to consider the individual needs of the teachers. His intention is to address any concerns expressed by the teachers as quickly and adequately as possible. The second statement illustrates Piet's belief that strengthening the position of the middle management will help promote the primary process of teaching and learning.

A concept that is clearly not related to any of the other concepts in Piet's cause map and therefore occupies a solitary position is "keep the fire burning." This concept depicts the symbolic function that Piet considers himself to have and is illustrated by the following statement.

> But in harsh daily practice, […] it all erodes a little and, well,
> one of the things I definitely see as my task is to poke around
> in the coals and keep the fire that once roared so fiercely at
> least burning.
> *(Piet, keep the fire burning)*

In other words, Piet refers to a symbolic framework to explain how the concepts of keeping the faith, promoting trust, can help removing the daily obstacles that can hinder teachers' morale and motivation.

Let us now turn to the example of a balanced cause map provided by Ben and depicted in Figure 2.2. As can be seen, the concepts associated with the four clusters or frames are distributed as follows. The first cluster,

which is the structural cluster, is positioned on the left side of the cause map and clearly isolated from the other concepts constituting the cause map. This cluster consists of the concepts "overlapping management tasks," "financial control," "central guidance," "give direction," "major lines of focus," and "responsibility." Illustrative of how Ben applies the structural frame during the daily course of events are the following statements.

> In the end, it is you who will be spoken to and you who is responsible, so you're the one to take the plunge with regard to decisions.
> *(Ben, responsibility)*

> You write, I have done that, a paper which outlines on the topic, and that paper, oh golly, I don't make all of it up on the spot, it concerns developments that the four schools have been dealing with, things you put together. I say, now, that can be the basis for our school for the next five or ten years. And the raw version of the paper is then circulated to all of the middle management teams.
> *(Ben, major lines of focus)*

> Our function, my function, is—I think—to primarily keep giving direction to where the school as a whole should head. [...] that departments develop themselves, also educationally, you can worry about that or not, that happens, but it is imperative that you keep guiding that development from here, keep giving direction.
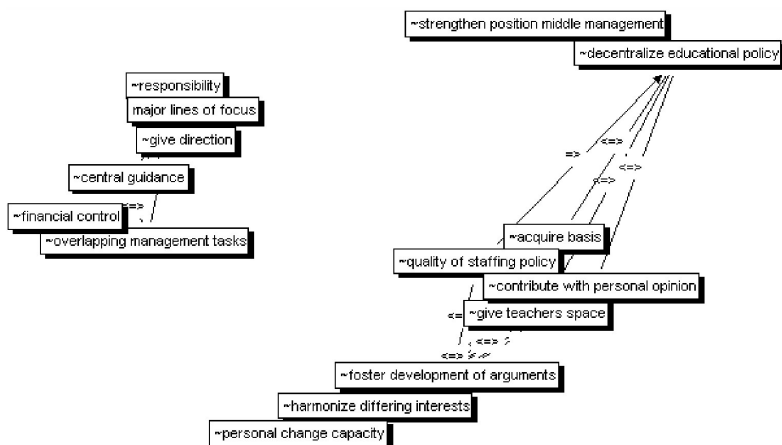> *(Ben, give direction)*

Figure 2.2: Ben's cause map

These statements clearly show Ben to see himself as fulfilling an important function with regard to giving direction to school policy, establishing guidelines, and bearing responsibility.

The second cluster of concepts clearly represents the political frame and is located at the bottom of Ben's cause map. Illustrative of how Ben applies this frame during the daily course of events are the following statements.

> And then, I try mostly to arrange—whether I'm talking about a department, a steering group, or a committee…whatever situation you're in—for people to provide good arguments for what they want to achieve. Things work, but that is not always the case and then there has to be enough [interaction] within the group to arrive at a particular standpoint.
> *(Ben, foster development of arguments)*

> I listened to the things while knowing that I couldn't please everybody.
> *(Ben, harmonize different interests)*

> Attunement of the departments to each other, thus management consultations and attunement of things to each other and, yes, the thing that we are completely preoccupied with at this moment is to make one school out of four schools and you also notice that there are other interests at the department level and we have to somehow keep these together.
> *(Ben, harmonize differing interests)*

These statements show Ben's acknowledgement of the existence of diverging concerns within the school and the fact that he must pay careful attention to these.

The third cluster of concepts represents the human resources frame and is located at the top of Ben's cause map. "Strengthen position middle management" and "decentralize educational policy" appear to be critical concepts, and illustrative of Ben's application of these concepts and the human resources frame are the following statements.

> So we now have a structure, still a structure, in which a great deal is done in committees and particularly in the middle management teams, which…uh….are being given an

increasingly important role in…uh… development and, to be
concrete now, where we want to go as a school.
(Ben, strengthen position middle management)

Because I…uh… think that educational development rests
primarily within the department itself
(Ben, decentralize educational policy)

The preceding statements highlight Ben's attention to the empowerment of
the lower levels of management via the delegation of responsibility for the
educational development of the school.

The fourth and final cluster of concepts pertains to the symbolic frame
and is located in the middle-right of Ben's cause map. The symbolic frame
in the case of Ben consists of the concepts "acquire basis," "quality of
staffing policy," "contribute with personal opinion," and "give teachers
space" Illustrative of the daily application of such reasoning are the
following statements.

If we notice a new development that a number of people
consider useful, then I have the following principle: we discuss
this in a plenary meeting, but I am not going to count votes.
If I see or sense that one-third of the club agrees, one-third
tolerates, and one-third is opposed, then we make a start.
There's a basis to begin from. Then you have one, two,
three—it depends—months or years to make it happen. If you
do not succeed within that time to reduce the opposition to
two people, then you didn't do your best or the idea was not
good or whatever. Or…or…the other way around. You may
have evoked the opposition yourself [...]. But you have to be
able within a certain amount of time to get 80-90% to say
that it is a good idea, this is a good development, we support
it.
(Ben, acquire support)

Yes, but after 31 years of experience in education, I have my
own opinion. I think you should naturally never—certainly in
the position of principal—never […] let things—how should I
put it—just boil up and then attempt to give form to this; no,
I certainly have my own opinion.
(Ben, contribute with personal opinion)

> Well, I think that's walking on a tightrope, isn't it? That's certainly our job, but...uh...when do you express your own opinion more emphatically and when do you not? That depends on the topic, and the moment. What a job, huh!
> *(Ben, contribute with personal opinion)*

The above statements indicate how Ben relies on his own intuitions with regard to certain management issues. Sometimes he just pushes a new development through to see whether support gradually will increase or not. In addition, he does not hesitate to articulate his own opinion when he thinks that this constitutes a valid contribution. The above statements also therefore refer to an indirect type of leadership.

The examples above show how different school leaders use different facets of their tacit knowledge to translate their visions of education for application within the daily school context. During the complex course of daily problem solving, they translate abstract personal considerations and values into ways of reasoning that are congruent with and readily applicable to the concrete daily school context. When the statements from Ben, who has a balanced cause map, are compared to the statements from Piet, who has an unbalanced cause map, we can tentatively conclude that Ben builds more elaborate explanations with a greater number of links to actual school situations and events than Piet.

Discussion

Three questions guided the research reported in this paper. The first question was: Are cognitive complexity and cognitive integrity useful descriptors for the differences detected in the structure of the cause maps generated for the school leaders studied here? The structural analyses revealed only slight differences in the cognitive complexity of the cause maps. More specifically, the maps for all of the participating school leaders were found to be rather complex. Greater variation was found for the cognitive integrity of the cause maps with the maps for some of the school leaders more focused than the maps for the other school leaders. This finding suggests that, although school leaders may show similar levels of complexity for their tacit knowledge, the manner in which their tacit knowledge is structured and the degree of integration may clearly vary.

The second research question was: Do the four types of frames proposed by Bolman and Deal (1993) provide an adequate way of interpreting the content of the cause maps for the school leaders? The content analyses showed the four basic frames to indeed be represented in the cause maps for the seven participants and therefore provide a useful characterization of

the content of the school leaders' tacit knowledge. For some of the school leaders, a clearly uneven distribution of key concepts across the different frames was found. According to Bolman and Deal, the availability of multiple frames enables school leaders to flexibly frame situations and thereby construct new solutions when needed, which may also further expand their cognitive repertoires at times. The results of this study also suggest that some school leaders may have more extensive and balanced cognitive repertoires than others.

The final research question was: How do the structure and content of the cause maps appear to relate to each other? Comparison of the structural properties and content of the cause maps for the school leaders studied here revealed a relation between the degree of transitivity (i.e., structure) and degree of balance (i.e., content). More specifically, school leaders with a stronger focus or level of integration within their cause maps were also found to have a more even distribution of concepts across the different frames while school leaders with less focused or integrated cause maps were found to have an uneven distribution of concepts across frames. In keeping with Bolman and Deal (1993), we take an uneven distribution of the key concepts within the cause map of a school leader to indicate a limited cognitive repertoire and a more even distribution of the key concepts to indicate an extended cognitive repertoire. And, indeed, the school leaders with cause maps that were more focused in the present study tended to have more extended cognitive repertoires while the school leaders with less focused or indistinct cause maps tended to have more limited cognitive repertoires.

Given that the research reported on in this paper was largely exploratory in nature, the results presented here are only tentative and of limited value for purposes of generalization. The classification of the results from the structural and content analyses for comparison purposes was very informal due to a lack of concrete criteria for the determination of "high" and "low" scores. The indicators used to analyze the structure and content of school leaders' tacit knowledge nevertheless revealed some interesting differences across the school leaders and some important relations between the structure and content of their cause maps.

The aim of the study reported in this chapter has been to explore a possible method for describing the structure and content of school leaders' tacit knowledge. This provides one approach to studying thinking processes of school leaders in day-to-day practice. However, a weakness of the method of data analysis employed here, is that a lot a quantitative manipulations, at the expense of valuable information, have been necessary, to eventually reveal only modest differences. Furthermore, implicit in the approach taken in this chapter is the notion that a certain cognitive structure will provide

the most effective cognitive repertoire. It can be questioned whether this presupposition can be sustained using the design employed here, if we consider the context-specific nature of the underlying qualitative data. In the next chapter, therefore, we will explore a second approach, specifically addressing the idiosyncratic nature of school leaders' thinking processes.

A situated cognition perspective on school leader problem solving

A considerable amount of research has been carried out into school leader problem solving, mostly from a classic cognitive perspective. In this study, a situated perspective on cognition is adopted, which focuses on the underlying dynamics of problem solving processes. A multiple case study of seven school leaders solving problems in their daily context of complexity has been carried out. Qualitative data analysis yields a framework of nine categories of cognitive elements, which can be used to describe and interpret the problem solving processes of school leaders within their daily context. Detailed analysis of individual problem solving processes shows how the cognitions of school leaders on the problems they are dealing with, are rooted in idiosyncratic personal experiences, and are developed in continous interaction with the social context of their work.

Introduction

Problem solving has since long been regarded as a central component of school leaders' work (Allison, 1996; Hemphill, 1958; Leithwood & Stager, 1989). School leaders' expertise in solving complex problems is considered to be a useful indicator for the general effectiveness of their leadership (Leithwood et al., 1990; Leithwood et al., 1993). In the present study we take a situated approach to describing the problem solving processes of school leaders.

This study starts from the assumption that the social context in which school leaders work is crucial to understanding the way they solve problems. Although the context of the work of school leaders has become increasingly complex (Goldring & Greenfield, 2002), not much research has been done into how school leaders solve problems in their contexts of daily complexity. Research into day-to-day cognitions of school leaders is deemed of importance to get more insight in the black box of values, feelings and modes of reasoning, that guide the actions of school leaders (Hart, 1999; Leithwood et al., 1990; Sleegers, 1999).

Research that has been earlier carried out into school leader problem solving from within the cognitive perspective is based on insights from

"classic" cognitive psychology (Leithwood et al., 1993; Leithwood & Steinbach, 1993). In the cognitive perspective, the main focus is on internal thinking processes of school leaders (Billett, 1996). In this line of research, problem solving is conceived of as an instrumental process, in which school leaders can have a general expertise, that is considered an important factor in their overall effectiveness (Leithwood et al., 1993). As a result of this focus, considerably less attention has been given to the "how" of problem solving in the daily context of the school. In recent years, however, attention has grown for conceptualizations of learning and knowledge creation, in which the situatedness of knowledge in specific contexts is acknowledged (Billett, 1996).

The aim of this study is to explore how we can employ the new conceptualizations of learning to describe and understand how school leaders actually solve problems in their daily situations—how this is connected to specific circumstances and the idiosyncratic experiences of school leaders.

A study of the "how" of problem solving in daily practice could give new insights in the aspects of problem solving processes in their daily social contexts. This would reveal more of the underlying dynamics of how school leaders have *appropriated* the knowledge and expertise needed to deal with the problems they are confronted with (Tolman, 1999). It focuses on the concrete connections that exist between school leaders' problem solving, and the social environment in which it takes place. This is an important addition to the knowledge on formal relationships between the abstract concepts with which the problem solving process is described in the existing research literature.

Theoretical framework

Interest in research into the problem solving strategies of school leaders has increased in the beginning of the 1990s as a result of the development of the cognitive perspective on educational administration. The cognitive perspective focused on thinking processes of school leaders to explain differences in their effectiveness (Hallinger et al., 1993b). Until then, the empirical research of school leaders was predominantly aimed at school leaders' behavior (West et al., 2000). The interest in school leaders' cognitions was a result of the assumption that a closer study of the invisible mental processes of school leaders could provide explanations for differences in their observable behavior (Leithwood et al., 1990).

Leithwood and colleagues have reported on research into the problem solving process of school leaders in a series of publications (Leithwood & Stager, 1989; Leithwood & Steinbach, 1991, 1993). Leithwood and Steinbach have studied characteristics of the problem solving process of

school leaders who were considered highly effective. These studies have resulted in the "multicomponent model of executive problem solving" (Leithwood & Steinbach, 1995). According to Leithwood and Steinbach, six cognitive elements in general are characteristic of the problem solving process of expert school leaders (Leithwood & Steinbach, 1995, p. 123): interpretation, goals, constraints, solving processes, values and moods. These characteristics are grouped in two basic categories: Interpretation and Solving.

Studies into school leader problem solving from a cognitive perspective have often been aimed at assessing the general characteristics of expert school leaders (Leithwood & Stager, 1989; Leithwood & Steinbach, 1991, 1993). This being a valuable aim in itself, it has left the question unanswered how school leaders go about solving problems in their individual situations. The assumption for the study at hand is that, by focusing in detail on the individual problem solving processes of school leaders, we can get insight in the different ways school leaders use their knowledge in *specific situations* (cf. Westheimer, 1999). In this we follow Hart (1993), who states: "[principals'] opportunities to exert influence on schools depend on their ability to understand and use their personal and social power *in the particular context in which they work*.' (p. 49, original emphasis).

Studying the diverse ways in which school leaders in individual ways, in specific contexts, make sense of the problems that they are confronted with, gives an insight in the way in which school leaders cope with complexity in their day-to-day work (Gronn & Ribbins, 1996). As a result of the diverse ways in which school leaders are confronted with educational reforms, local developments, and problems that are specific for the school at which they work, not all school leaders are dealing with similar problems at the same time (Lugg, Bulkley, Firestone, & Garner, 2002). Furthermore, it is likely that school leaders differ in the extent to which they experience certain situations as problematic. By describing the idiosyncratic meaning school leaders attach to aspects of the problems they have to deal with, we can gain insight in the interaction between the problem solving process and the context of increasing complexity of school leaders' work.

In this study, "context" is not conceived of as an instrumentalist abstraction of certain mediating circumstances that affect the influence of an independent on a dependent variable. Context is considered to be intricately bound to the object of study. In this, we follow Tolman (1999), who argues how human action is essentially social in nature. Context is not just a coincidental background for human action, but an essential part of it. Tolman uses the term "appropriation" to indicate the developmental process by which an individual accumulates useable knowledge through experience and social interaction. In this study, we aim to gain insight in the

way school leaders have appropriated the knowledge and skills they use to solve complex problems in their day-to-day practice.

In addition, Tolman (1999) argues that studying the concrete connections that exist between the learning of the individual and of the web of social relationships in which this takes place reveals the underlying, dynamic processes of knowledge building in social practice. For this study, this means that we focus on how school leaders use and develop their knowledge to solve problems in day-to-day practice.

Additional insights from the situated perspective

In recent years, a distinction has been made between the cognitive and the situated perspective with regard to learning and knowledge creation (Anderson, Greeno, Reder, & Simon, 2000; Anderson, Reder, & Simon, 1997; Billett, 1996; Greeno, 1997). This distinction appears to be relevant to research of problem solving by school leaders. The situated perspective differs from the cognitive perspective in that it emphasizes the linkage between the cognitive process and the social and instrumental context (Putnam & Borko, 2000). However, the situated perspective is not contrary to the cognitive perspective. Rather, according to Billett (1996), the two perspectives can be considered to be complementary to each other. The contribution that is made by the situated perspective consists of considering the way people "access their knowledge" in daily practice (Putnam & Borko, 2000, p. 12).

In the same vein, according to Billett, in the situated perspective, the emphasis is on how "engagement in situated learning provides *access to* forms of knowledge and the *development* of expertise." (Billett, 1996, p. 277). Because of this consideration of the *development* and *daily use* of knowledge, the situated perspective could be an important addition to the cognitive perspective, because the latter is mainly focused on relatively static characteristics of expertise. Billet (1996) discerns a number of domains in which it is possible to make a connection between the cognitive perspective and the situated perspective. These domains of congruence are represented by the following propositions, that have relevance to both perspectives.

- Expertise is domain-specific;
- Knowledge is constructed through problem solving;
- Knowledge accumulation is a result of negotiation in social contexts;
- Transfer is socially and culturally determined; this means that 'far' transfer is difficult to realize;
- The efforts that a person gives are related to what that person thinks is possible in a given social situation;
- Personal dispositions, based on personal history, are related to cognitive structures and cognitive activities.

Although the propositions are considered meaningful assertions from both the cognitive, as well as the situated perspective, the research questions that can be derived from these propositions differ for each of the perspectives. From the cognitive perspective, general factors (e. g. context, or personal characteristics) are assessed to find explanations for the level of expertise. From the situated perspective, characteristics of specific situations are described, that give insight in the individual use and development of knowledge. These questions—and the answers to it—are not mutually exclusive. They emphasize different aspects, and therefore, are complementary to each other.

For instance, with regard to the first proposition, from a cognitive point of view the question could be formulated how expertise can be measured, regardless of domain characteristics. From the situated perspective, on the other hand, it is interesting to assess how a person has developed his or her individual expertise, as a result of the characteristics of the specific domain. In the same way, with regard to the second proposition, it can be argued from the cognitive perspective that it is interesting to study to what extent problem solving expertise can be related to proficiency in a certain knowledge domain. From the situated perspective, it is interesting to study how the process of knowledge construction develops as a result of problem solving in specific situations.

The central focus of this study is an elaboration of the situated approach to school leader problem solving. As we have argued above, existing research in school leader problem solving has been carried out starting from the cognitive perspective. By approaching the domain from a complementary, situated perspective, we aim to give additional insight in the _how_ of school leader problem solving. With this, we hope to gain an understanding of the problem solving process of school leaders that is rooted in individual, context-specific explanations of the problem solving process. In our view, such a situated analysis provides useful additional insight in the way school leaders actually solve problems in their day-to-day practice.

Problem solving in day to day complexity

With regard to the study of problem solving in daily practice, a distinction can be made between formal and informal reasoning (Woll, 2002). According to Woll, models of formal reasoning usually are built in laboratory research, in which context-free data are used. Informal reasoning, in contrast, refers to processes of problem solving within the context of daily practice. Woll places an emphasis on complex everyday problems for which 'ill-structured' laboratory problems form a subsitute. Real problems from daily reality have more personal relevance and therefore are characterized by another kind of complexity (Woll, 2002).

For the solution of everyday problems, according to Woll (2002), personal experience and emotions are of special importance, as well as the awareness of social relations and the complex whole of diverging interests that are involved in the problem solving process. In other words, problems derived from day-to-day reality almost always consist of multiple subproblems, lack a standard-solution, and are likely to have several possible solutions. With this, the real, daily problems constitute an important source for the study of problem solving.

The question what school leaders actually think and do while they solve problems in their daily practice has, up to now, received little attention (W. D. Greenfield, 1995). For the purposes of our study, we aim specifically at the study of problems that are experienced by school leaders themselves in daily practice. We assume that the relevant daily thought processes only surface when a real, subjectively experienced problem is discussed.

In this study, we assume that exploring the problem solving process of school leaders from a situated perspective, can provide relevant information with regard to how daily problem solving processes actually take place (Wagner & Lynn Carter, 1996; Westheimer, 1999). And in this way we hope to contribute to "the understanding of everyday human performance" (Billett, 1996, p. 264). Billett states that, although the cognitive perspective acknowledges the influence of social circumstances on processes of knowledge building and problem solving, "[it] fails to provide an account of the consequences of different kinds of sources" (Billett, 1996, p. 276). The goal of this study, therefore, is to provide such an account by describing the individual ways in which school leaders solve problems in their daily practice, and the personal knowledge they draw on in the process. The following research question has guided this research:

- How can we describe and understand the way school leaders actually solve problems in their daily practice?

Method

Because we aim at making an interpretation of the individual problem solving process of school leaders, a qualitative-interpretative research approach has been adopted. This study is designed as an explorative case study (Gherardi & Turner, 2002).

Only a few questions were formulated beforehand to guide the interviews. The questions aimed at stimulating reflection with the participant. An example of such a question is: "Can you tell me about a recent problem that you have had to deal with, which has had its effect on the school as a whole?" Other questions served to elicit the underlying modes of reasoning. An example of this type of question is: "What were your considerations

with regard to (…)?" Beforehand, a few themes had been formulated, (e.g. teachers, students, parents, and organizational processes) to ensure that the topic of the interview was approached from different angles. However, these topics were not introduced in a strict order into the conversation. It was tried to create a natural setting for a conversation. Because of the minimal structure applied beforehand, the interviews vary with respect to the number of aspects and the range of viewpoints discussed with regard to the problems. The interviews typically lasted 60 to 80 minutes, and were audiotaped and transcribed verbatim afterwards.

Seven school leaders (of whom five male and two female) from schools for Dutch secondary education participated in this study. An overview of the participants is presented in Table 3.1.

Table 3.1: General characteristics of the participants in this study

	Position	experience as a manager (in years)	experience in this position (in years)	number of students
George	principal	18	13	2600
Jennifer	vice-principal	9	9	1600
Karen	head of department	5	4	2000
Dan	principal	10	3	1400
Hubert	principal	20	17	1250
Bert	principal	18	2	1100
Eric	principal	15	2	900

The participants have been interviewed on a concrete, complex problem, with which they recently had had to deal with. Purposely, the choice and formulation of the problem was left to the participating principals, to make sure they themselves experienced it as a problem.

Analysis

The transcribed interviews have been used as input for the qualitative analysis. For the analysis, we made use of the Atlas-ti qualitative analysis software (Muhr, 1997). The process of analysis has been performed along the lines of the grounded theory approach (Strauss & Corbin, 1998; Wester, 1995). Through several stages of coding, derived from Wester and Peters (1999), a consistent framework of codings has been developed.

In the first stage, the exploration stage, the text segments (quotations) have been coded by an open coding procedure. In this stage, two of the researchers worked together to formulate meaningful codes. In formulating these codes, the aim has been to grasp the central meaning of the quotations.

In this way, three of the total of seven interviews have been analyzed by two of the researchers. This way of coding together by two researchers is also called "check coding" (Meadows & Morse, 2001). In this stage, we purposely did not use any theories from literature to interpret the ways of reasoning of the participants. This process is also called "bracketing" (Meadows & Morse, 2001).

In the second stage, the specification stage, the codes assigned to the quotations have been arranged in such a way, that meaningful sets of categories of codes resulted. These categories have been given a name that represented the function the codes had in the problem solving process of the school leaders.

Subsequently, in the next stage, the reduction stage, the codes have been assigned to the categories in a process that is called axial coding (Strauss & Corbin, 1998). Within the categories, if necessary, the formulation of the codes has been adjusted. This has been done in such a way, that the way of formulating a code is consistent within the category as a whole (Britt, 1997). In total, nine categories have been developed in this way. These nine categories are considered to be representative of the elements of the thinking process of school leaders, or, in other words, the cognitive elements with which the school leaders built their way of reasoning with regard to the problem solving process.

After these three stages, consensus was arrived at between the two researchers. Subsequently, one of the researchers has proceeded with analyzing the remaining four interviews. In this way, all seven interviews have been analyzed and coded, making use of the framework of nine categories that was developed in the first three stages.

In the fourth stage, the integration stage, the resulting sets of codes and categories have been used to make interpretations of the problem solving process for every respondent. In this stage, the focus has been on individual accounts of the participants, as they could be elicited from the interviews. In this stage, we have looked for contrasting cases to elicit differences between school leaders in the way in which they approached the problem solving process. Specifically, we have looked at the way in which these differences could be explained using the "sources" (Billett, 1996) that school leaders draw from for their reasoning processes. To this end, the problem solving accounts of the school leaders were compared horizontally, that is, across the categories of codes. As a result of this horizontal analysis, two contrasting cases have been elicited. These two cases are compared more in detail, by going back to the original statements of the school leaders, to get an understanding of the day-to-day problem solving processes of school leaders within their specific situations.

Results

The reduction stage of the qualitative analysis, as discussed above, has resulted in a coherent system of codes, distributed over categories. The core of this system are nine so-called "cognitive elements": internal context, external context, experience, values, moods, end-goals, sub-goals, task conceptions and principles. These cognitive elements represent several types of considerations that the school leaders in this study have used to explain their reasoning process with regard to solving a complex problem in daily practice. Table 3.2 presents the cognitive elements, including a sample quotation for every element.

The element "internal context" relates to the perception of circumstances in the school that are perceived to affect the problem solving process. "External context" relates to the perception of circumstances outside of the school. In both cases, the descriptions of context should not be considered as exhaustive, objective descriptions of reality, but as an individual interpretation of a specific situation.

The element "experiences" relates to the reflections of school leaders on their personal experiences. It contains descriptions of events in their personal history, that are used to support their current way of reasoning. "Values" concern the deeply felt beliefs of school leaders with regard to how things ideally should be in the school. "Moods" relate to he feelings or emotions, that in the perception of school leaders affect the problem solving process.

"End-goals" concern the description of situations that school leaders aim to achieve in three to five years. Achieving these goals can be regarded as the solution of the current problem. "Sub-goals" are more concrete situations that school leaders aim to achieve on the short term, usually whitin a year. This category concerns important conditions for the overall solving of the problem.

"Task conceptions" relate to the beliefs of school leaders with regard to the tasks that are perceived to be essential to the job of the school leader. The element of "principles" concerns the practice oriented, domain-specific knowledge, acquired by experience, that serves as a rule of thumb for the day-to-day actions of the school leader.

The nine categories of cognitive elements formulated above show some overlap with the six elements of Leithwood's model discussed earlier. We will discuss this overlap more in detail in the discussion section of this paper.

The cognitive elements in the nine categories, as presented in Table 3.2, are grouped into two types. The first type of elements is considered to be a "means" in the thinking process (Billett, 1996). As a means are considered

Table 3.2: Nine cognitive elements, and sample quotations

MEANS
Internal context
"It is a school that, yes, well has known some problems. The former principal has been fired, and there were, well, troubles involved with it. Al lot yes, the interesting thing on this school is, that there were all kinds of problems, but they didn't have a lot to do with the school itself." *(Bert, lack of leadership)*
External context
"We had been experiencing for a longer period that students were getting more assertive. They don't want to stay in class anymore if they have the idea that they're not learning anything new. So, we've had some experience with students that went shopping around. They would say: I've already finished the lessons of subject A for today but in a moment I'll have class in subject A, why can't I just do a class in subject B now and go home early? We saw an increase in that kind of behavior." *(Jennifer, increasing assertiveness of students)*
Experiences
Look here, as I said before, I also taught on [that other] school, and that is a typical succesful school, in the 15 years that I taught overthere, teachers have never thought about doing things differently. Because the students kept coming. And we just did, you know, students in rows, you tell something and that's it. Nobody ever asked: shouldn't that change? *(Dan, personal memories of being a teacher)*
Values
"Well, what is an important value to me, is that there, in the contact between people, is an recognition of the personal responsibility of people. And if people want to pick up that responsibility, I give them lots of space." *(Eric, personal responsibility)*
Moods
"And eh, yes, well to be honest, I have to say that sometimes, I have to take a deep breath" *(Eric, heavy-hearted feelings)*

the elements in the cognitive process, on which the school leader builds his interpretation of the problem: internal context, external context, experiences, values and moods. The second type of elements can be considered to be a provisional result, or "product" of the thinking process (Billett, 1996). As a product, subsequently, can be considered the outcomes of that process of reasoning: endgoals, subgoals, taskperceptions and principles.

Table 3.2 (continued)

PRODUCTS
End-goals
"How can we be attractive again for students? Or, my contention, if we will not be attractive, than apparently we are not adding anything of importance, to what's already there, and than we're closing down [in three years]. Well, that was the last thing they would like to see happen, so there had to be looked for ways to make this school more attractive."
(Dan, attract new students)
Sub-goals
"We've just started with the introduction of bilingual education in the [vwo]. That was a success mainly with the teachers. The scientists, as I call them, the university-educated teachers. They want to impart knowledge. They were very enthusiastic and meanwhile, all those teachers have had extra training in English, they did very well at the training. Because they were motivated to go the extra mille. Same goes for students, we already have two classes of bilingual education."
(Dan, bilingual education)
Task conceptions
"The most important things I do are peeping and chattering. Lots of chattering. Dropping some ideas here and there. Of course, you have to be careful, because there are people who immediately think: 'Oh, he has said that, so that's what's going to happen'. You know, I am a rather big guy, and especially in the beginning I was very dominant in the school. But I had to be like that, this school needed it, and that was why they hired me. So, I have a rather commanding presence."
(George, talking with teachers)
Principles
"So we as management made a proposal to all teachers: we have to implement a specific educational concept. In that case, we'll all start at zero, we all have to get training, we all will be visiting others schools, making new course programmes, buying new course programs. We will all start at zero, from the first grade up. All departments."
(Dan, starting from scratch creates equality)

However, this is not a clear-cut distinction, because it does not completely acknowledge the mutuality in the process by which knowledge is constructed. Rather, in daily practice, a mutual influence exists between the two types of elements, because the processes of interpreting the situation and applying knowledge are intertwined (Billett, 1996, p. 277).

Table 3.3: Comparison of content of problem solving processes between school leaders

	George	Jennifer	Karen	Dan
MEANS				
internal context	•emphasis on planning and control •minimal inconvenience for students •no culture of professional feedback •school leader enjoys confidence •recent changes in organizational structure	•culture of enthusiasm •culture of mutual respect •lead on other schools •culture of freedom and responsibility	•repercussions of latest reform initiative	•merger resulted in conflict situation •ageing team members are threat to renewal
external context	•increasing complexity of education	•increasing assertiveness of students		•government-imposed initiatives to change
experiences	•experience as army officer	•bad experience with workgroups •sabbatical leave has resulted in new priorities	•teaching more fun than managing •personal life experience	•dissappointment after first results •personal memories of being a teacher •alternative path from teacher to principal
values	•heart for education	•enthusiasm	•use personal beliefs •think practice oriented •achieve results	•keep looking at students
moods	•anger			•revenge

Table 3.3 (continued)

	George	Jennifer	Karen	Dan
PRODUCTS				
end-goals	• closer guidance of educational processes	• enhancing the school profile	• optimizing the linking role of the lower classes	• attract new students
sub-goals	• delegate responsibility to departments • achieve organizational consistence • achieve consensus in management team • enhance professionality of managers	• implement time table allowing for subject combinations	• achieve consensus in managent team • discuss classroom consultation	• enforcement of change • enhance school profile • bilingual education • educational renewal
task conceptions	• coaching • acquire basis • bear end responsibility • talking with teachers • have vision	• bear end responsibility • oral communication • concentrate at major lines	• listen actively • take care of attunement • aim for personal redundancy • caring for team members	• facilitate • take initiatives • process supervision
principles	• if you look at problems as challenges, there are no constraints • you have to stick close to your team for effective innovations • personal responsibility enhances quality of functioning of teachers • external support neutralizes value-laden changes • showing courage gives authority • listen to resistance without letting go of major lines of focus	• imposing basic structure fosters responsibility • emphasize positive aspects fosters enthusiasm • developing plans by teachers increases workability • high demands leads to high performances • be clear about what can be expected • discontinue workgroups on time to accelerate innovation	• acquire basis group by group • stress equality to foster common responsibility • help take away obstacles to increase motivation • step by step to best solution • be open to avoid frustration • imposing an innovation has the opposite effect	• starting from scratch creates equality • constrain opportunities to give directoin • implement step by step to give room to get accustomed • take initiatives without imposing them • experience of success gives motivation

Table 3.3 (continued)

	Hubert	Bert	Eric
MEANS			
internal context	• number of students is increasing • "out-of-the-ordinary" culture • risk of getting stuck • chaotic timetable	• threat of conflict in school • lack of leadership • heterogenity in lower classes • progressive identity	• problematic history of mergers • culture of indirectness • lack of structure • procedures prevail over content
external context	• restrictions on budget	• need of innovative education • external imposed changes threatens heterogenity of lower classes	• close-knit community • demand for broad range of education
experiences	• importance of personal responsiblity	• anticipate on events • not principled, but pragmatic • strong team demands • change of job gives new inspiration	• discipline in keeping to agreements • experience with organization of professionals • keeping to personal borders • from consultancy to shop floor • getting stuck in lack of professionality
values	• letting go • use personal beliefs • broad-mindedness	• radiate enthusiasm • people's manager	• personal responsibility • intuition
moods	• powerless		• heavy-hearted feelings

In the fourth stage of the analysis, the integration stage, we have focused on the way the set of cognitive elements can be used to describe the individual problem solving process of school leaders. In this description the accent is on representing the individual problem solving process as an idiosyncratic, personal story. We are interested in understanding how the nine cognitive elements that can be discerned in the account of the school leaders, work together to give an explanation of 'real-life' problem solving processes of school leaders.

Table 3.3 (continued)

	Hubert	Bert	Eric
PRODUCTS			
end-goals	• restructuring of the school year	• extent heterogenity to 3rd grade • expand market position of school	• attract new students • increase indepence
sub-goals	• timetable allowing for block periods	• clustering of cognitive subjects • restrain intake of students	• eliminate autonomy • discuss problems out in the open
task conceptions	• supervise decisionmaking • coaching • facilitate • carry out ideas • care for team members • realize plans	• plan and control • bear end responsibility • develop major lines of focus • process supervision • change roles • serve as a role model	• make open for discussion • bear end responsibility • streamline • combine different roles
principles	• acquiring basis is starting point for innovations • high demands lead to high performances • indirect influence by exerting vision year after year • raise ideas early to check feasibility • give freedom to teachers to allow for creativity	• be clear in choices to be able to keep to major goals • acknowledgement of the problem is first step in solution process • keep things together is more important than keeping to principles	• ignore negative reactions • negotiate according to clear rules • centrality of professional responsibility

Table 3.3 above shows an overview of the codes, that represent the elements of content of the thinking process of the school leaders, classified according to the nine general categories of cognitive elements.

A first way of reading Table 3.3 is by comparing elements of the problem solving process across the participating school leaders. In Table 3.3 we can see that some school leaders have made more elaborate interpretations of the internal and external contexts of their problems than others. For instance, George and Bert appear to make relatively extended interpreta-

tions of several aspects of their contexts. Others only show a very slight interest in contextual aspects; Karen, for instance, did not mention aspects of external context.

Furthermore, notable differences are visible with regard to the amount of sub-goals that school leaders set in order to achieve their end-goals. Some school leaders, like Jennifer and Hubert, have mentioned only one sub-goal, whereas others have named several sub-goals. The same goes for the extent to which school leaders draw from their personal experience. Some school leaders (e.g. Bert and Eric) have talked extensively about former experiences, while others did not (e.g. George and Hubert). Less differences can be discerned with regard to the amount of task conceptions and principles: all school leaders employ a considerable amount of these types of cognitive elements. Also, all school leaders have one or more guiding values.

The horizontal analysis suggests that the nature of the problems of the school leaders differs. Looking at the end-goals that are mentioned, we can see that some participants have discussed topics that are very close to the educational core of the school, while problems of others are in the organizational domain of the school. On the other hand, the comparison suggests that most schools are dealing with a context of change. For instance, several school leaders refer to problems with regard to the size of the school, or the number of students. Also, in the internal context, often aspects of colliding cultures after a merger, or necessary change of culture are mentioned. Table 3.3 illustrates how the complex context of change affects the individual situations of school leaders in specific situations.

In addition, the horizontal analysis gives insight in the way that the problem solving processes differ in complexity between school leaders. The school leaders in this study appear to differ with regard to the extent to which they elaborate the aspects of the problems. This could suggest that some school leaders, with regard to a given issue, are capable of taking a broader range of aspects into account than others (Wassink et al., 2003). (See also Chapter 2).

A second way of reading Table 3.3, is by making a vertical analysis of the problem solving process of individual school leaders. The individual codes for school leaders in the nine general categories, reveal the specific, idiosyncratic aspects of the problem solving process of the participating school leaders. This gives, in a nutshell, an impression of the specific problem a school leader has had to deal with, and his or her most important considerations with regard to solving it. For instance, if we look at George's case, we can see that he is trying to achieve a closer guidance of the core of the educational processes in the school, by focusing on the organizational structure of the school and the professional culture in the school. On the

other hand, Jennifer is much more concerned with enhancing the school profile by emphasizing the role of enthusiasm and personal responsibility.

By analysing how different elements of the problem solving process relate to each other, and "work together" for the school leader when proceeding in the problem solving process, we can arrive at a deeper understanding of the real life, day-to-day problem solving process of the school leaders. Therefore, we will now compare the problem solving process of two school leaders, Dan and Eric, more in detail.

We have selected Dan and Eric, because they have a similar end-goal for their problem. In addition, they both are relatively new school leaders to their school, and both of their schools have had recently to deal with a merger process. This makes the differences in the approaches to the problem between Eric and Dan more sharply visible, in the light of the differences in their personal interpretations of their situations.

Both Dan and Eric apparently cope with the problem of how to increase the intake of new students. However, by looking at the content of their problem solving process as presented in Table 3.3, we see that Dan and Eric differ considerably in their approach to the problem. We will now provide more detailed descriptions of the problem solving accounts of both Dan and Eric.

Case 1: Dan

Dan has been the principal of a comprehensive school for secondary education in a small city. The problem with which Dan is coping is the decreasing intake of new students. The end-goal he has formulated for his problem is to stop this decline.

> The assignment [to make something of] a school that is doing badly, while I for myself only know succesful schools, eh, the assignment is to make something of it. And it's always, it has to stop going badly, and when is it not going badly anymore? When the intake is rising. So that's when I think I have accomplished my mission.
> *(Dan, attract new students, End-goals)*

The school is the result of a merger process, that has not been very succesful. According to Dan, it is mainly due to the fact that most of the teachers in the school are well over fifty and are not very enthusiastic with regard to renewal. As a result, the school has gained a dull profile.

> So you'll first have to determine why you're not attractive. And then we arrive at a well-known problem. The young,

enthusiastic teachers have been fired one after the other,
I have fired at least 20 of them. Because of the decrease
in student enrollment. And, I am somewhat exaggerating
now, the old, grey mice, who aren't keen on something new
anymore, who have their best years behind them, they are still
here. So, this school is no longer attractive for students.
*(Dan, ageing team members are threat to renewal, Internal
Context)*

Dan is eager to reviving things in the school. He thought it is important
to start a new initiative as soon as possible. Because he wants, at the same
time, to solve the animosity between the two groups of teachers, a division
that dates back to the former merger schools, Dan thinks he has to propose
something that would mean a fresh start for the school as a whole.

So, we as management team, we did the proposal to all
teachers: we have to commit ourselves to a new educational
system. Because, then we'll all start from scratch, we have to
get training, and follow courses, we will visit other schools
together, and decide on new textbooks. We'll all start from
scratch in the first year, all sections.
(Dan, starting from scratch creates equality, Principles)

By getting the whole school to work on the implementation of a new
educational system, he hopes to do away with the old differences in the
school: everybody has to start from scratch. In addition, Dan thinks it is
very important to start something new, because he himself, as a teacher,
never was compelled to do things differently.

Look here, as I said before, I also teached on [that other]
school, and that is a typical succesful school. In the 15 years I
have taught at that school, teachers never tought about doing
things differently. Because the students kept coming. And we
just did, you know, students in rows, you tell something, and
that's it. Nobody ever asked: shouldn't that change?
(Dan, personal memories of being a teacher, Experiences)

He has developed the idea in the course of the years, that it is important to
be forced to keep looking at students, observing them, in order to change
the teaching practices.

> If you look at students, really observing them, I am
> convinced, that that changes the way you teach.
> *(Dan, keep looking at students, Values)*

However, the next question was: What should the school do? Which new educational system should it adopt? In this, Dan proceeded energetically. He imposed a transition to Dalton-type education. He has chosen for this type of education, because it constituted a major renewal for the school, and because it was totally different from what other schools in the city were doing. Het didn't give much room for the development of alternative plans, to make sure his plan would be implemented.

> If I have to level 120 people before I can finally do something,
> in other words, first show them what exactly is 'Dalton'-
> education, except for the vague concepts I just mentioned, er,
> if I first have to impart that to everyone, and then we'll have
> to make a choice in favour or against it, then it won't happen.
> So, well, I think it's just one of those things, in which you'll
> have to be very paternalistic and just say: it is good for us.
> And good for you too, it's only that you don't see that it is
> good for you.
> *(Dan, constrain opportunities to give direction, Principles)*

That Dan proceeded so energetically, can be explained from the fact that he as experience as a manager outside of education, and doesn't have 'a past' in this school as a teacher or middle manager. This means that he is not handicapped by all kinds of unwritten rules within the school, that he has to abide to.

> I used to be teacher, and I was an alderman in the council
> of my town. And I think that combination has made me
> principal of this school. So, the funny thing is, I have never
> been, I didn't know a thing of the principalship, so eh, I didn't
> know all those abbreviations, and about processes in the
> school, only to a limited extent because I had nine teaching
> lessons in the week, that was all, and I really didn't know
> much. But I know the way things work in town hall very well,
> because I have been there for twelve years. And that's what
> they keep saying to me here: this is not town hall!
> *(Dan, alternative path from teacher to principal, Experiences)*

A second explanation can be that he has known this school as a student. That acquaintance didn't work out well: Dan left the school without a diploma. He thinks there could be an element of revenge, that motivates him to insist on such profound changes in the school.

> I discussed this the other day with someone, who started talking about, er, well, that's kind of psychological, there's an element of revenge in it. I have been a student at this school, and I failed the final examination. I left without a qualification, first thing I did here was to erase the dossier on me. I haven't finished grammar school, I left furiously. And then, when an agency contacts me to become principal at this school, my first thought is: Right! I told somebody and he said: what's that, some kind of revenge? Yes, well, I hesitated to say so, yes or no. Maybe. What I did feel was, that when they came to ask me, I thought, right, and now I'm re-entering through the front door because I had left through the back door. [I liked that idea], I thought there was something about it.
> *(Dan, revenge, Moods)*

Concludingly, we can state that Dan, in order to achieve an increase in student enrollment (the End-goal in his problem solving process), has set as subgoals to enhance the school profile, and enforce educational change. In this, he is lead by his personal experience as a teacher, that has caused an aversion of keeping things as they are. Second, he is led by his lack of experience as a school leader, as a result of which he can proceed in an unbiased manner.

Case 2: Eric

Eric has been the principal of a comprehensive school for secondary education in a little village for a couple of years now. The problem with which Eric copes is small intake of new students over the past few years, which is a threat to the survival of the school.

> We have to work on getting things a bit more filled up here. Well of course, so few students, and such a broad supply of types of education, that yields small groups, and those groups have to get filled up. That is the trouble. The other day, I made a comparison of our situation, like, we are swimming hard to the beach, and a big wave is behind us. And we have to keep ahead of that wave. If we succeed, we reach the

> beach, if we don't, the wave will pull us back into the sea.
> And it looks like we're gonna make it [just in time].
> *(Eric, attract new students, End Goal)*

In Eric's perception, the situation is urgent to prevent the school from being closed. The present school is the result of a merger process, that wasn't a big success. In Eric's perception, that is due to the characteristics of the school culture. It is a indirect culture, in which problems are being denied.

> That happens a lot here, I can tell you. Problems are being
> denied, we don't know what to do about them, so we just put
> it away. Well, and that I'm teaching, while the class room is
> being torn down by the students, and that my colleague in
> the next class room can't teach because of the noise, well, yes,
> that is not my problem, is the youth of these days. Well, in
> my opinion, [if you reason like that], you're turning reality
> upside-down.
> *(Eric, culture of indirectness, Internal Context)*

In addition, the problem of the school culture is difficult to solve, according to Eric, because it is strongly connected to the culture of the village. The people in the village are a tight-knit community, with strong social control, which makes it difficult to have a differing opinion. In Eric's opinion, this explains why people avoid conflict as much as possible.

> That is very, well, I think it is kind of unsavoury, but is a
> close-knit community, and it gets opened up now. I don't
> live in the village myself, I didn't want to, but most of the
> teachers do. They have all their contacts in the village, so a
> lot of discussions here are hidden battles for power, or hidden
> defence of buddies..
> *(Eric, close-knit community, External Context)*

This interpretation of the situation by Eric determines the way he approaches the problem solving process. An important second end-goal of Eric is to change the current culture in the school, and increase the personal responsibility of the teachers.

> But, where, what do you think you are doing? In fact, I am
> fostering reflection, self-consciousness. You have to acquire
> knowledge of yourself, because there is always a relation to
> your environment. And in doing it, in experimenting, you are

working on your self-confidence. And the goal that you will achieve is independency. So, you can, out of yourself, make choices and learn. To me, that is the core of independence.
(Eric, increase independence, End-goals)

His aim for indepence and personal responsibility within the school can be explained from the importance of these topics as personal values for Eric.

Therefore, to me, the criterium of personal responsibility, and being conscious about that, to yourself, and to colleagues, to me that is essential. That is where it's all about. I think that is the core of what I want to achieve with the school.
(Eric, personal responsibility, Values)

Second, he knows from his personal experience as a former consultant, that it is important to work from your personal, internal motivation. If you do something, that isn't of value to yourself, it won't be of value to others.

One could say, also in education, in commercialization, it's about building a relationship with a customer, right? And I think, it's only possible to do things right, if that what you come up with is of value to yourself. If there's a connection between the message that I bring and who I am myself. [If I think] I don't have to believe in certain theories, but [can] sell them anyway, that won't ever work. I've experienced that, that you're really trying to sell baloney. But if you're really passionate about something, you yourself, and have a certian insight, then you'll always find ways, er, then you'll notice that customers will pick it up differently.
(Eric, from consultancy to shop floor, Experience)

In his way of approaching the problem, this means that Eric tries to approach his colleagues in the school in a business-like manner. This is an infringement of the culture of nepotism that still exists in the school.

It is my opinion: I don't have to be close friends with people here. We're just doing our jobs. I mean, when I'm going to buy stamps, I don't have to be friends with the person at the post office's counter, do I? You should look at it from a more business-like perspective.
(Eric, centrality of professional responsibility, Principles)

Therefore, he thinks it is important to keep to a personal, internal border. He gives the example of a teacher who threatened to accept a job elsewhere, if he wouldn't get a pay rise.

> You are inclined to give in to such demands, because, go out and try to find a new teacher. The one I have is bad, but try to find another one. And those lessons are here to be given. You know, deep inside, there is a border you shouldn't cross. Well, I know that border is there. But you are negotiating a thousand times, and at the thousand-and-first time, you suddenly realize that you have crossed the border. And then it's too late.
> *(Eric, keeping to personal borders, Experiences)*

Eric appraoches the problem by negotiating with teacher to very clear and strict rules. He starts from the personal responsibility of people. In addition, he wants to maintain a business-like approach, to foster the personal responsibility of teachers.

> The reason that is behind that is, that I try to negiotate with people in an honest way, in a straight way. Everyone is treated alike. And by negotiating with me in a equal, business-like way, they can propose anything. But it's always: you give some, you take some.
> *(Eric, negotiate according to clear rules, Principles)*

> And the result is, that they can hide themselves behind "difficult" students to a far lesser extent. Like, it's no use teaching these kids, or eh, nowadays, those kids have no decency, look at their parents alone. I admit that there are problems, but you have to formulate an answer for yourself, you can't just leave it at that.
> *(Eric, centrality of professional responsibility, Principles)*

However, this negotiating according to strict and business-like rules can't be applied in the school just like that. The rather closed and indirect culture forms a major obstacle. Therefore, an important sub-goal that Eric has set, is making problems open for discussion in the school. This sub-goal can be explained from the specific experience of Eric as a consultant, that colors his interpretation of the situation he is in now.

A grown-up attitude, like, I am responsible for my own work, and I can be held accountable for it, and if I have good and fair reasons, I can get support from the management. (…). In stead of, er, if I try to be as nice as possible, and not being to self-willed, and being nice to the students, then no-one will notice that I can't cope. No! Just let it show if you can't cope, then we can do something about it, I can send someone in, who can support you.
(Eric, discuss problems out in the open, Sub-goal)

In sum, we can state that Eric, in order to enhance the prospects of survival of the school, aims at increasing the student intake and modernizing the school culture. In this, he tries to eliminate the vast autonomy teachers have gained over the years, and second, tries to discuss problems more out in the open. He repeatedly refers to his experience as a management consultant to explain the steps he has taken in the problem solving process.

From the two cases that we have discussed above, we can derive that a difference in content of the problem solving process of Dan and Eric exists. The end-goal of the problem solving process for both school leaders is the same. Both school leaders see as the biggest problem for their school, that the enrollment of new students is too low, and should increase. However, Dan and Eric differ in the way they approach the problem. Eric's end-goal (achieving an increase in student enrollment), is translated in different subgoals than Dan's end-goal. This difference has to do with the differences in their background, the different ways in which they interpret their current situations, based on the different cognitive frameworks that they employ.

The differences are revealed in the subgoals they set to solve the problem, but also in the principles that they employ to solve the problem. Dan is much more inclined to take tough measures than Eric is. Eric emphasizes the role of negotiation; Dan thinks it is important to constrain options. These principles can be considered as aspects of product of the problem solving process (Billett, 1996). The differences in the "product"-aspects can be explained out of the differences in the "means"-aspects, or "sources" of the thinking process. These are the personal experiences, and the individual perceptions of the internal and external context within which the school leaders solve their problem. Dan, for instance, admits his (negative) personal experiences as a student on the school play a role. Eric, on the other hand, makes reference to his value of personal responsibility as an important source for his problem solving process.

Discussion

The main research question for this study has been: How can we describe and understand the way school leaders actually solve problems in their daily practice? The nine types of cognitive elements that we have presented in Table 3.2, can be considered to be an answer to the question of how the daily problem solving process of school leaders can be described.

Comparison with existing research

The nine categories presented in this study to some extent overlap with the categories of Leithwood and Steinbach's model (Leithwood & Steinbach, 1995). Our distinction between means and products in the problem solving process to some extent resemble the basic processes of interpretation and solving the problem that they have distinguished. Second, the elements of (sub- and end-)goals, values, and moods exist in both this study and in the Leithwood model.

There also are some noticeable differences between the two models. In stead of six, we have formulated nine categories of cognitive elements. The elements interpretation, constraints and solution processes which appear in Leithwood's model, are not part of our model. Elements that do appear in our model, but not in Leithwood's are: (internal and external) context, experiences, task conceptions, and principles. On the other hand, when taking a closer look, it can be concluded that the description of some of our categories resemble the description Leithwood and Steinbach (1995) give of some categories of their model. For instance, our category "principles" is rather similar to their category "solution processes".

In sum, we can state that the cognitive elements that we have found to be characteristic of the problem solving processes of the school leaders in this study, are to a large extent similar to the cognitive elements found by Leithwood and Steinbach (1995). The results of both approaches appear to be complementary to each other, as, to a certain extent, the same types of cognitive elements appear to be of importance. An important difference between their model and ours, is the way how the cognitive elements work together to represent the actual problem solving process as it takes place in daily practice.

Contribution of situated cognition perspective

In this study, the focus has been on describing and understanding the daily thinking processes of school leaders. This has resulted in a stronger emphasis on the individual interpretation of the problem situation. By using the nine categories, we have made a detailed interpretation of two participating school leaders to understand how the problem solving process

of school leaders actually develops in specific situations, and how school leaders appropriate the knowledge they use during their day-to-day work.

Eric and Dan, the school leaders that have been discussed in the exemplifying cases, coped with a similar problem. In addition, they apparently both use a comparably wide range of cognitive elements to interpret and solve their problem. Nevertheless, important differences appeared to exist in the way they handled the problem, when the idiosyncratic content of the problem solving processes of Eric and Dan is studied.

The distinction that we have made between considerations of school leaders that are "means" for the problem solving process, and considerations that are "products" of the problem solving process is helpful to reveal how school leaders draw on knowledge earlier acquired, interpretation of contexts, and long-held beliefs, to determine what their role is with regard to a specific problem situation, and which strategies they should employ in solving it. Using several types of considerations, school leaders make a meaningful interpretation of the complex situation they are confronted with, and choose a course of action.

The nine categories, and the way they are used to interpret school leaders' problem solving processes in their actual daily contexts, give some insight in the connections that exist in real life between school leaders' modes of reasoning and the social environment in which they participate. By focusing on these connections, we have revealed some of the underlying dynamics of how problem solving processes of school leaders take place and develop in daily practice. This is a useful contribution to exisiting knowledge with regard to characteristics of expert school leaders, because it gives insight in the process of knowledge usage that is behind the relative static assessments of the level of problem solving expertise in the existing research literature.

It is important to understand that the development of knowledge occurs in participation in a social context (Greeno, 1997). Spillane and his colleagues even argue that context should be regarded as a constituting part of the knowledge of the school leader (Spillane et al., 2001). In this study, we have only focused on the thinking process of school leaders, as it could be derived from the interviews that we have conducted. However, especially for research from within a situated perspective, it is important to also consider the actions of school leaders in specific situations. Observing school leaders while performing their job in daily practice, could reveal important first-hand information on their actions, that can support the data obtained derived from interviews (Conger, 1998). In that way, it becomes possible to explore the way school leaders develop their knowledge, through interaction with others in daily practice (Bredeson & Hart, 1996; Smylie & Hart, 1999).

"Groups tend to recognize the leader role in those who have acquired a greater spontaneity, a greater ability to deal with the unknown as it emerges from the known context."

(Griffin, 2002, p. 217)

"You'd better know where you're going": Vision and day-to-day leadership in schools

This study describes how school leaders use their vision in their day-to-day leadership, using notions of distributed leadership and collective sensemaking as central theoretical concepts. It is argued that vision of school leaders can be considered to consist of two components: a social and a cognitive component. Case studies of four school leaders are employed to illustrate how school leaders make use of the continuous interaction between the two components of their vision in day-to-day leadership. It is concluded that vision cannot be precisely circumscribed, as it is largely implicit and continuously evolving. In addition, it is illustrated how vision and leadership in the school can develop in mutual interaction, and how the role of the school leader changes in this process. Concludingly, it is argued that school leaders can foster sustainable guidance by focusing on their special contribution to the collective sensemaking process in the school.

Introduction

In research on educational administration, increasing attention is being paid to the role of vision for effective educational leadership (Hallinger & Heck, 2002; Hallinger et al., 1993a). In recent years, vision has received renewed interest as it is considered to be an important element of transformational leadership (Geijsel et al., 1999; Leithwood, 1992; Leithwood & Steinbach, 1993; Leithwood, Tomlinson, & Genge, 1996). However, in most research on transformational leadership, the conception of vision is rather restricted: Vision is largely construed as only a characteristic of the person of the school leader (Smylie & Hart, 1999). And vision is instrumentally mostly conceived of as a static contributor to school effectiveness (Gunter, 2001).

As a result of this restricted conception of vision, the impression can arise that the "vision" of the school leader is a coherent and inspiring story that makes the future of the school clearly visible and therefore provides a continually inspiring form of leadership (cf. Sergiovanni, 1991). However, the daily practice of school leaders is far from this idealized picture. In fact, much of the daily work of school leaders consists of operational tasks and dealing with more or less trivial incidents, which many school leaders see

as a source of annoyance as it keeps them from doing their "real work" (Revell, 1996). It can be argued, however, that coping with the endless stream of minor issues and the creation of a larger strategy or vision out of these smaller problems constitutes the key to effective leadership (Hart & Bredeson, 1996). This notion is the central focus of the present study.

The aim of this paper is to explore the role of vision in day to day school leadership, by focusing on the way school leaders go about in their daily work, leading the school. It is our goal to describe the way vision is used in "day-to-day leadership (…) as revealed in the concrete actions of (…) school leaders" (W. D. Greenfield, 1995, p. 78). The citation from Griffin (2002) above illustrates the conception of leadership adopted in the present research. Vision is not construed as a "great story" to be disclosed to the members of the school organization but, rather, as the process of giving meaning to the unknown as it emerges from reality. In other words, by creating a vision during the clarification of new developments in existing situations, leadership develops. By taking this conception of vision, the focus of the research moves from the person of the leader to the social context within which the school leader carries out his job.

The central assumption undergirding this research is that leadership is not a characteristic of the individual school leader but a process shaped by the daily interactions between the school leader and the school organization (Goldring & Greenfield, 2002; Spillane et al., 2001). Processes of collective sensemaking occur, to give meaning to the specific situations and events encountered within the school context (Smylie, Conley, & Marks, 2002). Just how school leaders can make a significant and sustainable contribution to the processes of collective sensemaking, while exerting their vision, is the central question that guides this study.

First, we will present a review of the literature on school leadership and the role of vision. Then we will consider some cases of school leadership to clarify the role of vision in day-to-day school leadership. Finally, we will consider the implications of this interpretation of the role of vision, by going back to the research literature.

Conceptions of leadership and vision

School leadership involves social participation between individuals in specific situations (Goldring & Greenfield, 2002; Griffin, 2002; Spillane et al., 2002). An important assumption underlying this study is that the school leader can only provide guidance based on vision by interacting with the other members of the school organization on a daily basis. In other words, "getting things done requires heavy reliance on face-to-face interactions" (Goldring & Greenfield, 2002, p. 6). And it is assumed in

the present research that the actions of school leaders in daily practice and the reasoning accompanying these actions can reveal important aspects of how they guide the daily processes in the school (Spillane et al., 2001). This changes the focus of research into educational administration from the person of the leader to the broader context of social interaction in which school leaders perform their job (Hart & Bredeson, 1996).

Goldring and Greenfield (2002) emphasize as a central function of leadership in schools the attainment of shared norms within the school organization (cf. Lortie, 1975). The school leader, in order to exert sustainable influence, will have to aim at creating collective meaning through making viable contributions to processes of collective sense-making in the school. According to Goldring and Greenfield, this stresses the central role that the school leader has in stimulating and shaping processes of collective sensemaking in the school (Goldring & Greenfield, 2002, p. 7). In this study, we will empirically explore this assumption by studying the role of vision in daily practice of school leadership.

For the purposes of this study, we adopt a social-cognitive perspective on educational leadership because, in our view, cognitive processes of school leaders are central to the way they initiate and promote the process of collective sensemaking. Two components of vision appear to be of particular relevance to understanding the manner in which school leaders communicate their vision. We will refer to them as the cognitive and the social components of vision. The cognitive component of the visions of school leaders pertains to that part of the vision that usually resides implicitly in the mind of the school leader. The cognitive component thus refers to the internal, idiosyncratic manner in which the individual school leader makes sense of the situation being experienced. This component is in a way similar to what Weick (1995) calls a cognitive "map." It pertains to the personal considerations of the school leader with regard to what is important and necessary within a specific situation, and that play a critical role in their functioning. Second, considerations of what is feasible and accepted within the context of the school also play a critical role (Hallinger & Heck, 2002; Murphy, 2002). In other words, "vision" is about the personal images that the school leader has of his or her (tentative) theories and strategies with regard to the goals of the school and how to attain them.

The social component of the visions of school leaders pertains to that part of the vision that is actually manifested. Elements of the school leaders' vision become visible via enactment of the internal, implicit part of the vision by the school leader in actual practice. Within the context of a particular situation, the school leader projects his or her own image of

the situation. The school leader formulates his or her vision in the manner judged most apt for guiding the situation at hand.

The distinction between the cognitive and social component relates to Argyris' (1999) distinction between "espoused theories" and "theories in use." That is, the vision that the school leader develops (or the espoused theory) is not necessarily the same as the vision that is actually enacted (i.e. the theory in use). As Weick (1995) has argued, however, it is difficult to distinguish between the two types of theory as "people espouse their way into theories of use, they move from controlled to automatic processing, and are jarred back into controlled processing when the automatic processing associated with theories-in-use is interrupted" (p. 124). In other words, the two aspects of vision (i.e., the personal images and strategies to realize them) appear to be complementary and largely inseparable. It is only in daily practice that the viability of a theory is revealed (Schön, 1983). Sensemaking only occurs within the context of the daily actions of the school leader and others. And real meaning in the form of sustainable guidance can only be constructed by actively engaging in social reality (Griffin, 2002).

Conceptions of leadership

Before we will explore the role of vision in the guidance of the school, we will first clarify the conception of leadership utilized in the present study. As will be seen, we concur with the description of leadership provided by Greenfield (1995, p. 62):

> School leadership involves a complex set of influence
> processes and activities undertaken to improve a school's
> effectiveness through voluntary changes in the preferences
> of others that are initiated, stimulated, guided, cultivated,
> sustained, and supported by formal and informal leaders, and
> especially by the school administrator.

Two aspects of the conception appear to be of particular importance within the context of the present study. First, leadership is conceptualized as a "complex set of influence processes." This means that it is not about a single, direct mode of influence by the school leader on the school organization but a complex, mutual process of interaction between school leader and members of the school organization. Processes of collective sensemaking can occur as a result, and this can then lead to changes in behavior. Second, the actions undertaken by the school leader are considered very important. The school leader must act or, in other words, participate in social reality in order to guide the school.

The present conception of school leadership reflects a gradual change of focus in theories of educational administration across the past few decades. Two particularly important developments can be discerned. First, increased attention is being paid to the manner in which leadership can be conceived of as being 'distributed' across the social and structural context within the school organization (Firestone, 1996; Smylie et al., 2002; Spillane et al., 2001). In school administration research, leadership is no longer considered a role attached to one specific individual or formal position within the organizational hierarchy but considered a function that can be distributed across a number of individuals within the organization (Firestone, 1996). This means that in the assessment of the quality or effectiveness of leadership in schools, not only the hierarchical leader but also the organization as a whole should be considered (Ogawa & Bossert, 1995; Sleegers, 1999).

A second important development is the increased attention to school leadership as a "fluid and emergent" process and not a "fixed phenomenon" (Harris, 2002). As Gronn (2000) has observed, leadership emerges from the interaction between leader and organization. And although often only the influence of the leader on the organization is considered, every action on the part of the leader provides the starting point for a cascade of little influences within the complex school organization. In other words, leadership should not be considered a static phenomenon that just happens to exist; it should be construed, rather, as a dynamic process that evolves from an "instance of influence" initiated by a single individual—not necessarily the formal leader of the school. Not only the school leader influences the course of things within the school, as prevailing conceptualizations of school leadership imply, but everything that happens in and around the school also influences the school leader (Bogotch & Roy, 1997; Gronn, 2000).

The approach we employ in this study concurs with recent notions on a distributed perspective on school leadership as discussed above (Spillane et al., 2001; in press). In addition, our approach relates to the notion of interactional leadership as proposed by Smylie and Hart (1999). They describe this as "the overt actions, including language, covert deliberations and plans (…) that influence others in a continuing cycle of exchange and communication." (Smylie & Hart, 1999, p. 429). This entails a focus on the complex social processes that characterize the work of educational leaders. Hart argues that more insight is needed in school leaders' thinking, because principals who are capable of reflecting on their actions increase their knowledge and skill in coping with the complex social processes (Hart, 1993, 1999).

In sum, an important implication for the present study is that the leadership of a school is not confined to the person of the school leader.

School leadership can be conceived of as an amalgam of mutually influential processes or a cascade of little changes leading to a particular result.

Leadership thus emerges and develops. But this is not the entire story. In addition to the influence of processes within the school (W. D. Greenfield, 1995) and deciding on the right actions to undertake (Griffin, 2002), the school leader must also make sense of new situations. That is, the school leader can play a critical initial role (Goldring & Greenfield, 2002) in the construction of meaning (Harris, 2002; Lambert, 1998) or process of collective sensemaking (Spillane et al., 2002). The school leader, as a result of his or her hierarchical position within the school organization (Sleegers, 1999), has greater freedom and responsibility to decide what should be done, what is feasible, and what is acceptable to the others within the school organization (Griffin, 2002). From this perspective, it should be clear that the clarity of vision, the adequacy of the new meaning attributed to a situation, and the feasibility of a vision are critical determinants of effective school leadership. And this is how school leaders can distinguish themselves and their positions from that of others in school organizations.

Conceptions of vision

In the literature, two complementary views on the concept of vision can be discerned. In the first place, vision can be considered as a specific cognitive process on the part of the individual school leader. Or, in other words, as something that the school leader sees but others do not—as yet (Hallinger & Heck, 2002). Such "seeing" is the result of the thinking process that discovers new patterns in what otherwise seems to be a chaos. In this approach to "vision" of the school leader, the focus is on the "image" that the school leader has of the situation of the school, in relation to current issues and future developments.

Alternatively, vision can be construed as the result of a process of social interaction. In this approach, the focus is on the function that vision has in the guidance that school leaders provide, based on the charisma that they derive from their visions (Weber, 1948b). According to Wofford, Goodwin, and Whittington (1998): "Followers are encouraged to meet self-actualizing needs using self-reinforcement as the basis of control." The leader inspires by his or her vision, and striving for this vision contributes to the well-being of members of the organization. From this point of view, it is emphasized that the functionality or effectiveness of a school leader's vision depends on the acknowledgement by the other members of the school organization. The school leader must show, over and over again, the feasibility and sustainability of his or her vision (Weber, 1948b, p. 246), which means that the school leader should be in continuous interaction with the rest of the organization. Similarly, the vision of the school leader must "be perceived

by teachers as meaningful" (Leithwood et al., 1998, p. 74). Given the large degree of professional autonomy that teachers have, such recognition is of particular importance, because "the professional administrator maintains power only as long as the professionals perceive him or her to be serving their interests effectively" (Mintzberg, 1989, p. 181).

In this study we will combine the cognitive and functional approaches to school leaders' vision. In chapters 2 and 3, we have explored two approaches to the cognitive aspects of school leaders' work. We have studied thinking processes of school leaders, which can be considered to represent the cognitive viewpoint on vision, in two ways: as tacit knowledge, represented by cause maps, and as problem solving cognitions. In this chapter, we seek to integrate these approaches into the concept of vision. Tacit knowledge, as a frame of reference to interpret new situations, and problem solving cognitions, as school leaders' modes of reasoning to support their actions are conceived of as the building blocks constituting school leaders' personal vision.

School leaders put their vision into practice by engaging in a process of social interaction, which consists of many small day-to-day social interactions (Griffin, 2002). Through this process of interaction, the vision will be more concrete for all who are involved and the vision gets "shared" in the school. According to Smylie and Hart (1999), "a solid and shared understanding… develops among people as they interact over time, interpret the communication they receive from one another, and act in turn" (p. 429).

The implicit thoughts and knowledge of the school leader are made explicit, discussed with others, and thus constitute a starting point for influencing the process of collective sensemaking within the school organization (Weick, 1995). For this study, this implies that we adopt a conception of vision, that includes both the cognitive and social approach. The two components of vision are complementary to each other. Acknowledgement of this complementarity is necessary to understand how school leaders use vision to give guidance in daily practice.

In the present study, the focus is on the role of the personal visions of school leaders, within the social context in which they carry out their work. While developing and exerting their vision, school leaders connect their personal, implicit cognitions to the collective domain of sensemaking in the school organization. They are "socially reconstructing" their personal visions (cf. Coburn, 2001, p. 147), while making the transition from their personal considerations to actively guiding the school policy making process. This study can be considered as an integrative study in that it combines the approaches of the first two studies on the individual cognitions of schoolleaders, connected to a description of leadership situations.

In this paper we will explore, by focusing on the way school leaders enact their vision in day-to-day practice, how the specific role of the school leader can be described in a social-cognitive conception of leadership. Specifically, we will focus on the question how school leaders can influence the process of collective sensemaking in the school, while enacting their personal visions in day-to-day practice.

Method

In the following, it is attempted to show how school leaders use their visions in day-to-day practice. In order to do this, a multiple comparative case study was undertaken with six school leaders. We opted for a qualitative study as we thought this would best capture the complexity of the day-to-day interactions and actions of school leaders (Conger, 1998). Our use of quotations is based on the premise that the participating school leaders can adequately reflect upon their personal thinking and actions (Alvesson & Sköldberg, 2000). The quotations have been interpreted by the researcher on the basis of the interviews and school observations, and we therefore characterize the present study as ethnographic (Schwartzmann, 1993).

The participating school leaders have been interviewed on three occasions and observed on four occasions. The three interviews each had a different structure and focus in order to elicit information on different aspects of the school leader's thinking process. The first interview was a general introductory interview. The second aimed at expliciting the personal vision of the school leaders by constructing a cause map (Wassink et al., 2003). The third interview aimed at eliciting the personal cognitions that played a role with regard to a specific problem solving process (Wassink et al., 2002).

For the observations, standardized observation protocols based on the work of Bales (1976) and Sims and Manz (1984) were used. In addition, extensive notes were taken by the researchers during all of the observations. After each observation, a brief informal interview with the school leader was undertaken in order to gain insight into his or her intentions and his or her evaluation of what occurred during the observation. Finally, on each school site, focus group discussions were held with a small group of teachers and a group of students.

The data have been analyzed in several iterative processes of analysis, description and interpretation. This can be characterized as a hermeneutical process, in which the researcher interprets and analyzes on several levels. The data have been analyzed in two steps. As a first step, the data for the cause maps, the problem solving process and the observations of leadership behavior were summarized in individual reports. For each case study, an individual report was written and sent to the participant; when

the participant chose to do so, a concluding discussion of the report was also undertaken.

Second, the initial case study results have been examined for deeper significance with regard to what can be derived from them with regard to the role of vision in day-to-day school leadership. In an iterative process of analysis and description, we have elicited the elements of the underlying process with which school leaders enact and develop their personal vision, in relation to specific leadership issues that they have to resolve. To achieve this end, we took a "situational focus" (Alvesson & Deetz, 2000). This means that, for every case, we selected an issue that occurred in the interviews as well as the observations. This proved not to be possible for all six respondents (see below). Starting from a specific leadership "situation" derived from one of the observations, in which the issue previously selected was at stake, we subsequently tried to reconstruct the process of vision development and enactment using the data from the interviews, observations, and field notes. In this way, we have used the primary data on the cause maps and problem solving processes for a "second order analysis" (Alvesson & Sköldberg, 2000). To this end, we condensed the initial data to "thick" descriptions of the role of vision in day-to-day leadership of school leaders.

This process can be considered to be a continuous alternation of "constructing the phenomenon" and "contextualizing the phenomenon" (Denzin, 2002). This process continued up to and including the reporting of the results of the analysis, as writing can be considered the final stage of qualitative analysis (Woods, 1999). It was attempted to make the analyses as explicit as possible (Alvesson & Sköldberg, 2000) and, to this end, a system of memos was used to record the different analytic steps and thereby provide a so-called "audit-trail" (Meadows & Morse, 2001; Taft, 1999).

In the next subsections, we will illustrate the mutual interaction between the cognitive and social components of vision and describe a number of ways in which the visions of school leaders appear to develop and guide their daily interactions. To illustrate the cognitive component of the visions of the school leaders, data from mainly the initial interviews and—to a lesser extent—the interviews following the observations were used. To illustrate the social component of the visions of the school leaders, only data from the observations and brief interviews following the observations were used. It is assumed that the underlying intentions of the school leaders can be revealed in such a manner (Conger, 1998).

Although six school leaders participated in the study, data on only four school leaders are presented here. This is because of two reasons. First, because of practical constraints, it is not possible to extensively discuss all six cases in this paper, and illustrate them with original quotations from the

interviews. Second, for two of the school leaders, the data collected proved to be less useable than for the others. For one of the school leaders, the core leadership issues that were discussed in the interviews, could not be connected to the data derived from the observations. The issues that were put forwards during the interviews did not return during the observations, nor the informal interviews afterwards. For the other school leader, an incident occurred that significantly influenced the process of data gathering. Because of this incident, two informal interviews after observations were cancelled by the school leader. The remaining data that were collected proved too be insufficient to make a sensible reconstruction of the process of vision development. Therefore, when deciding which school leaders to include in the present report, we chose to present the school leaders whose cases were most 'clear', and provided a complete range of the aspects of the process of vision enactment that we wanted to explore.

Results

In this section, we will present four cases of school leaders. Each of these cases illustrates a different aspect of the way in which school leaders use their vision to guide the process of collective sensemaking within the school. The first case is discussed as an example of how the the continuous interaction between the cognitive and the social components of school leaders' visions takes place. The second case draws attention to the way school leaders can make the transition from their personal visions to the collective process of collective sensemaking in the school. The third case is an illustration of the way school leaders can aim for a distribution of leadership processes in the school, which has consequences for their role as a leader. Finally, we will present a fourth case that shows how school leaders can improve the effectiveness of their guidance by making a conscious effort to use their vision to influence the process of collective sensemaking.

We have chosen to present the cases in a 'running story', discussing only that parts of the case, and highlighting only that statements of school leaders, that are needed to make an interpretation of the key elements in the process as a whole (Alvesson & Deetz, 2000). In the discussion section, after this section, we will summarize the key elements that we have derived from the four cases, and make a more detailed comparison of how the cases relate to these elements.

Case 1: The continuous interaction between the cognitive and social components of vision

The personal beliefs of school leaders seem to play a crucial role in their interpretation of a particular situation and are largely the result of earlier

experiences. We will now introduce Paul, the chairman of a newly formed partnership of comprehensive secondary schools. While the merger has produced a single comprehensive school, considerable disagreement still exists with regard to the goals of the merger on the "shop floor" and—in addition—the schools must implement a new educational innovation program. In the case of Paul, his beliefs regarding the organizational structure of the new school appear to constitute an important part of his vision.

> There is only one thing that I am not going to discuss and that is whether the comprehensive structure is the best organizational structure or not because this is my firm belief. You have to reach above the school location itself (…). Only in such a manner is it possible to confront the unevenness, the internal competitiveness, and the impossibility of quickly routing students through the different levels of education. The comprehensive structure makes it possible to say that we are all this [vmbo] or all that [havo/vwo]. And we then have a common interest.
> *(Paul, interview 2)*

In the above, Paul expresses the importance of a comprehensive school structure. It is not the physical school locations that are most important but the different educational sectors or types of education being offered, which means that multiple educational divisions may exist within a single school location. In the current situation in which the school location is dominant, there is considerable competition between locations even when they offer the same type of education.

Paul also emphasizes the importance of giving the different school locations sufficient space to create their own policies—as long as they work in a professional manner to develop the educational responsibilities of teachers.

> This model [of the organization] starts from the idea that the school location is relatively irrelevant. But we (…) place professionals (…) together in departments. We thus force them to professionally shape their educational program according to their subject, their specialty, and the type of student they have. And if this is different at location A than at location B, well, that's fine. Splendid! Let there be a mutual reinforcement, let there be some complementarity.

> For the school group or school community, in both cases,
> "education" is the guiding principle.
> *(Paul, interview 2)*

Paul has extensive experience as a school leader at another comprehensive secondary school and very positive memories of this period. His positive experiences from the past constitute an important argument for his introduction of similar leadership elements into the new situation. The goal he has set for himself for the next few years can also be traced back to his former experiences: He wants to transform the school organization from a location-oriented structure to a sector-oriented structure, just as he successfully did at his former school.

In addition, the experiences of Paul as a teacher play an important role in his school leadership. He considers personal freedom and individual responsibility to be important values, for example, and these therefore play an important role in his daily leadership.

> When I first started, my principal said: Paul, this is the key
> to your classroom, this is your budget, go for it! And, if you
> need anything, just give a yell. That attitude, I have tried to
> adopt that myself. So, that was about 25 years ago. In my
> view, it was excellent, that attitude. I liked the sheer profes-
> sionality of it. Because it is assumed that you are strong, that
> you have mastered the basics…well, I hadn't mastered the
> basics… that you had the basic knowledge…which I also
> didn't have…and you're hired (…). After that, it's your game.
> That was an experience of enormous importance.
> *(Paul, interview 1)*

Paul utilizes a number of strategies that he knows from experience are likely to realize certain aims. These strategies are not directly related to his beliefs about what is good or important but, rather, the achievement of results under particular circumstances. The main theme underlying the strategies is thus a pragmatic one: achieving an acceptable result—no matter what form.

> People have to see at least a little bit of the fun in it. They
> have to say, yes, I like that, that's a good direction for deve-
> lopment. And it can be the high road or the low road as far as
> I am concerned.
> *(Paul, interview 2)*

An interesting aspect of the case of Paul is a discrepancy between the social component of his vision and the cognitive component at one point. In Paul's communication of his goals for the school to his colleagues, the ideas expressed earlier in the interviews where only partly recognizable. In the interviews, Paul emphasized how important a single corporate identity for the school was to him as a first and symbolic step towards further integration of the different schools after the merger process. The quotation below is taken from one of the initial interviews.

> And finally, the sense of community that emanates from a quality mark. If you are part of [this school], you are the best. That should be the goal. When you see the portal [in our logo], well, that is our identity. When you go through that portal, you have arrived at a good school.
> *(Paul, interview 1)*

Extended observation and interviews with Paul across a period of several months showed the guidance of the school on the basis of his vision to not be easy. When meeting with the management team, which consisted of eight school leaders from the different school locations, the discussion turned to the establishment of a common "corporate identity." Although Paul was chairing the meeting, he initially kept a low profile. Later, he took control of the discussion and rather abruptly ended the discussion by proposing that the topic be placed on the agenda for the next meeting. The topic nevertheless returned a few times during the meeting, which suggests that Paul had not really ended the discussion.

   At this point, we detected a discrepancy between what Paul stated in the initial interview and his behavior during the meeting. Clearly, there was a problem of acceptance of the corporate identity among some of the local school leaders. Paul pragmatically chose not to confront this resistance directly and did not use the opportunity to again explain the importance of a common identity. He listened rather passively to the complaints being aired and, after some time, simply ended the discussion. Paul also perceives the gap between how he wants to lead the school (the cognitive component of his vision) and what he can put into practice at this moment (the social component of his vision) and solves this discrepancy by adjusting his goals, as the next citation illustrates.

> I draw only loose boundaries. I did not interfere in the discussion because it didn't cross those boundaries. The boundary is: The school as a whole must be clearly recognizable. This means that the corporate identity must be

communicated, and that is the logo with the portal in it. The freedom that the local schools have is to choose the color for the logo and an additional color for their own individual logo. The portal is obligatory. And then, in the coming years, we will take steps to gradually decrease the importance of the local school profile.
(Paul, interview after observation 1)

In the interview following the observation, Paul further justifies his actions by stating that more central guidance is necessary.

The problem of integration will keep coming up for some time. There is not always that much cordiality. But the problem also has to do with the fact that there is no collective guidance of this type of administrative process in our organization. There is no ICT policy, and we lack a good PR staff to deliver an implementation plan for the corporate identity.
(Paul, interview after observation 2)

The following quotation shows Paul to clearly recognize that his former situation is very different from his current situation. It also shows him to be searching for a means to adjust to the new situation while still taking a clear stand with regard to the people in the new school (or the cognitive component of his vision).

I have been thinking, it also has to do with the phase of my functioning [at this school], right? In any case, that seems to play a role, building up a position, a relationship, that it's all a bit in a preliminary phase… I think that has something to do with it.
(Paul, discussion of preliminary results)

From the cautious manner in which Paul is proceeding, it is clear that he is making very subtle and thorough considerations and thereby placing his earlier experiences within a new perspective. In other words, he is adjusting the cognitive component of his vision to the social component and vice versa. He proceeds step-by-step and, during this process, reflects upon his actions and the results of them.

Case 2: The connection between vision and the process of collective sensemaking
School leaders can apply their vision to foster the collective process of sensemaking in the school. Not only is it important for school leaders to be

able to express their personal vision in the school; they must also know how to interpret events occurring in daily interactions, and how to communicate their interpretations to support their vision. If the school leader is able to consistently denote the way in which his vision connects to results achieved in daily practice, the school leader can nurture and facilitate the process of collective sensemaking. However, this is not a straightforward process.

The precarious aspects of this process can be illustrated with the case of Charles, who has been a school leader for more than ten years. The school he is leading is a medium-sized independent school in a suburb of a large city. Being a former experimental middle school, the school still has a culture in which independence and unconventionality are highly valued.

Charles is searching for the right way to influence the process of collective sensemaking within his school in order to implement an important innovation project. The innovation involves the conversion of a recently concluded evaluation study, into a structural system of quality control for the school.

> I have set two things as an aim for myself for the next three to four years. I want to see that the school has a good system of quality control, and I want to see that the integrated personnel policy is sufficiently developed. That we have greater insight into the professional development, schooling…how career development interviews with teachers can be conducted more systematically. Those are really the goals that I have set for myself.
> *(Charles, interview after observation 3)*

The development of quality control has to do with Charles' aim of creating a school culture characterized by personal responsibility on the part of teachers for renewal and improvement.

> What I would really like to achieve is that people feel a collective responsibility for the school. And that we work much more from a base of internal commitment to the school.
> *(Charles, interview 2)*

> Teachers should no longer say: "Oh dear, they all failed the test and I think it's so stupid. They'll never learn it this way." No, if anything goes wrong, you have to examine why it went wrong and you have to think: What am I going to do to improve [it]. That's the cycle that has to be introduced here.
> *(Charles, interview after observation 3)*

To get the project going, Charles has formed a project committee with individuals from various sections of the school organization. In addition, he has freed up a teacher for two days a week to chair the project committee.

> No, it's a very essential project that we're doing at the moment. And people's initial reactions were, like: "You're giving Robert eight task hours, that's two whole days. I'd like to have that too." That's really how they reacted. And then I have to, my role is to see that things come together. Of course, I have to make sure that, as far as I can see, the things that are happening are related to the central developments within the school.
> *(Charles, interview after observation 3)*

It is Charles' aim to have the project committee operate on an independent basis as quickly as possible.

> I just have to, eh…look, the committee was a personal initiative of mine. But I want the committee to operate independently as soon as possible.
> *(Charles, interview after observation 3)*

However, Charles has encountered a problem with Robert, the chair of the project committee. Charles senses that Robert is not yet capable of running the committee. He has also noticed that the other members of the committee do not have full confidence in Robert's capabilities. For this reason, Charles continues to be involved in the committee to a considerable extent.

> Well, that really took some effort. To gain his confidence, assure him that he wasn't being used for a trivial job and that he really has some substantial [authority] within the school. And to gain the confidence of the management team and give them the idea that Robert really knows what he's doing.
> *(Charles, interview after observation 3)*

> And the other side is that the others in the school management don't think that. "Okay, so he invented a nice social employment project for a few people…".
> *(Charles, interview after observation 3)*

The precarious aspects of the collective sensemaking process were visible in the observed meeting of the quality control committee. Charles was present

at the meeting because he considers it an important topic. But the meeting was chaired by Robert and not Charles. At the beginning of the meeting, Charles was rather passive. He only provided explanation when asked to do so. Later in the meeting, Charles became more and more involved in the discussions. At some points, he took total control of the meeting and, at one point, he even called in a teacher working elsewhere in the school as he thought that she could provide some relevant information. In such a manner, Charles clearly increased his influence on the atmosphere of the meeting. When the meeting started to come to an end, Charles made some impatient expressions and he frequently interrupted others to make concrete proposals for agreements.

After the observation, Charles explained his actions. He explained that he called the teacher (referred to as "B" hereafter) into the meeting because he sees her as the future leader of the project committee, as the person to replace himself. Charles does not, however, explain what this means for the position of Robert, the current chairman of the project committee.

> Yes, look here. Actually, in half a year's time, I think B will carry this project and not me. It's very possible. […] But we should be just a little bit further in the process. And I have to carry it just a little bit further. And, then, I think, it will be both M and B who will sit in on the committee meetings. And I shouldn't do it anymore.
> *(Charles, interview after observation 3)*

Charles is hesitant to hand over the initiative as he fears that his goals will not be achieved. However, it is unclear whether he is actually making any progress in this respect with his current actions. Charles, himself, expressed his own doubts about his personal approach: he feels that he is doing to much trivial tasks by himself.

> I have to learn for myself not to immerse myself in day-to-day work, but…eh…Look, such as the way things have gone during the past year: Too much daily practice, too many emergency responses. I don't like that. So, eh… Things need to be different.
> *(Charles, interview after observation 3)*

These data suggest that Charles is struggling to find a way to involve his colleagues in the management of the school and to encourage the others in the school to function more independently. He frequently has to help solve

little problems and therefore feels that he has not provided sustainable guidance.

The idea of implementing a quality control system, based on the evaluation study recently carried out, was looking promising. But, as long as Charles' colleagues do not have the idea or the experience that Charles' vision and ideas lead to sensible results, it may be very difficult for Charles to infuse the school with a culture of independent evaluation and improvement. It seems that the process of collective sensemaking in this school has only progressed to a rather limited extent. Charles certainly has a vision and some shared values have certainly been established, but the combination of the two has not resulted in clear goals for the teachers and others to pursue. This is a threat to the efficacy of Charles' guidance and the school organization itself, and the teachers sense this discrepancy as the following quote illustrates.

> In my opinion, there is vision but a lack of guidance. Well, to me these are two separate things. The vision is there, the ideas are there, with Charles. I can hear them from him. But there is no guidance in the school based on this. (…). At times I think… it's fine to raise all kinds of ideas and you can say this and that…and that's important, too. But if you think everything is important, a lot of people end up screaming in the end. Like: "Guys, please, make up your mind! Please say what we're going to do! And give some guidance, so we can do our own thing within some boundaries. But please say what you want!"
> *(focus group with teachers, Charles' school)*

The struggle of Charles to adjust his behavior as a leader and make it reflect what he wants to achieve has resulted in no more than Charles constantly having to take responsibility. The desired transfer of responsibility that he wants to achieve has yet to happen.

Case 3: The changing role of the school leader as leadership becomes distributed

An illustration of the way school leaders' role in the school's policy making process changes, if an attunement of school leaders' vision and the school organization is achieved, is the case of Harry, the third case that we would like to discuss. At the moment of the study, Harry was the leader of a small junior high school for some ten years. The school is part of a larger combination of schools but has retained much of its autonomy. Since the start of the school, some 25 years ago, the school has been characterized as having an alternative and innovative culture. Harry feels at home within

this culture and, to him, it is important that one stick to one's beliefs even when they may differ from those of others. An important goal for Harry is thus to preserve the specific character of the school he is leading.

> (…) the fact that a group of people came together and stated: this is the kind of school we want to have in our town. As a result of that, the school has a very specific perspective on education. [That is why] this is again an important moment for me as everything for the vmbo [junior level of vocational secondary education] has to kneaded to fit into our school policy.
> *(Harry, interview 1)*

The following quotation shows how Harry tries to carry out his vision, which includes willfulness as an important value.

> What's more, I think it is in my nature to be willful and even obstinate. My environment plays an important role in this because there are more people like me in this school. So it…I don't know where it starts or ends…but you can say that within the culture of our school it is, well, maybe expected that I say: now, not in this way.
> *(Harry, interview 2)*

Harry nevertheless sees a discrepancy between the special character of the school culture that he clearly wants to retain and the educational renewal processes that are currently being imposed by the government. According to Harry, the school has dealt rather awkwardly with innovation programs initiated by the government in the past. And he thinks this has often led to the opposite effect.

> What you can see is that we were going through a difficult period, during the years around the implementation of the basic secondary curriculum [a government-imposed educational renewal in the Netherlands during the 1990s]. At that time, things were a bit stuck here, people were feeling like… Why are we doing all this? Why should we do this anyway? And I think we made a mistake then although you can only see this in hindsight. We perceived the basic secondary curriculum as a threat. It was not as good as what we did ourselves, so we all had the idea that we would be moving backwards. But at the same time, a lot of the elements from

the basic secondary curriculum could help us make our school look more like an ordinary school. In such a manner, we could be more attractive for the market while still doing our own thing. We forgot…how should I say it…to also make a real lead out of our already existing lead over other schools. *(Harry, interview 1)*

For Harry, fostering a sense of community within the school with people collaborating at equal levels is another important aspect of his vision. By stimulating equality, people feel more at home, collaborate better, and are better able to implement educational renewals.

Well, of course, there's something behind this. If we are working together in such a working group, then a sort of community develops, like we are all speaking the same language. Well, that's kind of the whole story…Yeah, I don't know, there are two aspects to the sense of community. First, if we are discussing things here together, everyone has to [participate]. Second, it is just being attuned to each other. *(Harry, interview 2)*

And, empowering people, that is also very important to me, agreeing on which tasks people have to perform and which support is necessary to do this. *(Harry, interview 3)*

Harry's opinions with regard to cooperation based on equality are visible in not only the cognitive component of his vision but also in the social component. When we observed a meeting of the management team at Harry's school, Harry did not chair the meeting. The meeting was chaired by the deputy school leader instead. Harry did not participate in the discussion of the implementation of a new educational renewal; he only spoke when he was asked to comment on something. In some instances, he did interrupt to clarify or summarize the specific agreements made during the meeting. Harry later explained that he purposely did not chair the meeting in order to prevent confusion of content and process. And by not chairing the meeting, he could concentrate on the content of the discussion.

If you also have to lead a discussion, let me put it this way, one of two things you can do well, but not both. When you are focused on the topic and concentrating on the content of the discussion, you don't look at how everybody behaves and

> reacts to the person who is speaking. Or you are preoccupied
> with leading the discussion, which means that you neglect the
> content contribution that you could make.
> *(Harry, interview after observation 3)*

An additional advantage of this division of roles during a meeting is, according to Harry, that the sense of equality within the school is clearly enhanced.

> …I become equal to the others. I, too, have to raise my hand
> to request permission to speak.
> *(Harry, interview after observation 3)*

In conclusion, by continually emphasizing the unique identity of his school and the shared responsibility of all those involved in the school for this identity, Harry thinks that teachers may be less opposed to the renewals being imposed upon them. He thinks it is best to give them the space to work the relevant policy out for themselves and for implementation into actual practice. And Harry thinks that he only has a very tangential role to play in this process. In this way, leadership has become distributed in his school.

> My role, I think, is to keep drawing attention to: What kind
> of school is it again that we want to be? Which way are
> we going? So, time and time again, I have to try and verify
> whether everybody shares that idea, sees it, knows it.
> *(Harry, interview after observation 3)*

Harry experiences a reasonable level of consistency between how he wants to lead the school (the cognitive component of his vision) and what he can attain in actual practice (the social component). And an important advantage for Harry is that he has been working at the school for quite some time. He knows the school quite well, and he knows what he can expect of the teachers. Similarly, the teachers know what they can expect of Harry.

> It also plays a role, I know it is a bit cunning what I am
> saying now, but it's true, I am honest in that respect, so, it
> also plays a role that I know the school.
> *(Harry, interview 2)*

In sum, the case of Harry shows continuous interaction between the cognitive and social components of a leader's vision to be critical for effective and sustainable leadership. Over the years, a close correspondence between Harry's vision and the school policy has grown. Harry has been able to disseminate his vision in the school organization, transforming, in the process, the nature of the guidance he is giving. His guidance can be characterized as covert and indirect in nature, as leadership has become distributed in the school. The emphasis in his current role is on monitoring the policy making process, and articulating, if needed, the underlying values that guide the sensemaking process.

Case 4: Achieving sustainable guidance by linking vision to success experiences

A fourth case in our study shows the continuous drawing of connections between the vision of the school leader and examples of success attained via such a vision to also be critical. In this way, the school leader can make a conscious effort to guide and focus the process of collective sensemaking in the school. This is illustrated with the case of Simon, who has been the leader of a comprehensive school in a small city for more than twenty years. He has always stressed the importance of a clear vision and making sure that everyone knows where the school is heading, and he illustrates this by referring to the story of "Alice in Wonderland."

> Alice is wandering through Wonderland and, at a certain point, she arrives at a crossroads with no signs. Which direction should she go? Cheshire Cat, who is also a character in the book, next arrives and Alice asks the cat: "Which way should I go?" And the cat says, "I don't know. It depends on where you want to go." They then have a little conversation, and the conclusion is: If you don't know where you want to go, you'll always arrive somewhere else. And Alice always arrives somewhere else, that's what the book is all about. Whether this is good or bad is not always clear because she arrives in both good and bad places. She arrives in situations that she wants to get out of as soon as possible, but she also arrives in situations where she wants to stay. She never knows ahead of time. Well, and that's what I keep telling my people, if you don't know where you want to go, you'll keep arriving somewhere else, which can work out either well or not so well. You're taking a big risk, so you'd better know where you want to go. That's what I always keep in mind.
> *(Simon, interview 2)*

A central element in Simon's vision is maintaining a balance within the school organization. This pertains to a balance between anarchy and order in Simon's eyes. It also pertains to serving the interests of several groups or coalitions within the school at the same time. Simon is continuously searching for a balance while retaining his own independent position.

> Yes, that balance (…). Look, (…) a lot of things should be in balance, but with regard to this, there also has to be a balance in serving the interests of people. Look, a school is very political. I sometimes call it a political arena, there are so many interests. In the first place between the teachers and the students, and between the teachers and the management but also the parents, and of course among the teachers themselves. Those interests often differ a lot, too. (…) In the school, there's a lot of coalition-forming going on (…). And look, in that political arena, as a leader, as a school leader, you have to maintain a certain balance in this, to see that not always the same people get what they want or are duped (…) because, you see, I have seen this a lot with other principals. You become a principal who is the prisoner of a small inner circle or a certain coalition (…) and that is what I mean by balance. It is immensely important, and people have to hear this because that is another part of success with regard to authority, I think: People have to understand that I am not going to favor this group or that.
> *(Simon, interview 2)*

Simon's attempts to maintain a balance are very apparent within the social component of his vision as well. We observed a meeting in which the new policy of the school with regard to teachers' tasks was discussed. A teacher—and not Simon—chaired the meeting. And Simon's contribution was very diverse. Much of the discussion would just pass him by, but then—sometimes very suddenly—he would become intensely involved in the discussion. When he spoke, he stated his opinion very clearly; he also showed any disagreement with the opinions of others very clearly.

Simon was very aware of what he did. He sensed that the atmosphere of the meeting was such that he could provide his opinion without restraint. He also thought it was important to provide his opinion because he assumed that his role was, at least in part, to provide background and other information regarding current school policy. This clearly constitutes the maintenance of a type of equilibrium: When there is too much lenience, Simon tries to spark things up a little.

> Yeah, that is something that I see to. Maybe it has to do with the teacher in me, you know, explain things to them one more time. [The assistant principal] is not like that. Not enough like that, if you ask me. So I sometimes take on the role, when he doesn't do it. I wait for a certain amount of time…not too long…and then I do it myself.
> *(Simon, interview after observation 2)*

> Yes, I think it's important. And yes, it may sound odd, but I think I derive a certain amount of authority from doing such. And well, yes, of course that is a role I have. (…) Well, clearing things up or stating things one more time in an articulate manner or giving more background information…I think you gain some authority doing that. That's what I mean.
> *(Simon, interview after observation 2)*

Simon thinks that his vision has been successful up to now and this experience plays an important role in his decision to proliferate his personal opinions. The school has performed well over the years; the Educational Inspectorate has reported very positively on the school. And Simon sees that he has gained authority as a result of these results and his way of doing things, which has led to a successful school.

> But apparently, I did well, so to say, in all those years. And, of course, that is a development. Then again, because I regularly deliver speeches in front of the whole school, I also state my opinion in public, so they know what to expect. Just today there was a discussion on teacher workload, and that was not a very pleasant story, but, okay, we have to do it that way. I have delivered speeches like that many times, and I often did have very pleasant, beautiful stories to tell. And er, you grow into that, and then you gradually grow towards each other.
> *(Simon, interview after observation 2)*

In Simon's opinion, the fact that he was not afraid to tell the unpleasant stories, but on the other hand, did not forget to tell the good stories either, and the fact that he has retained his independence within the school organization, have given him the authority needed to lead the school. He

understands that the authority that stems from his hierarchical position alone is not enough.

> Look, today I was talking to someone. And he said to me, people follow you because you have enormous authority. And here, in this school, it is a fairly natural authority. And it is not just because I am the principal, that's not the way things work here. Teachers won't buy that here. They'd laugh in your face if you tried.
> *(Simon, interview after observation 2)*

This case shows Simon to be capable of putting the cognitive component of his vision into practice in several ways. He has nurtured the process of collective sensemaking over the years and, as a result, his vision (i.e., the need to balance various interests and maintain a balance between chaos and order) has become intricately woven into the policy process of the school. The success of the results that he has achieved then provides additional support for the guidance that he supplies on the basis of his vision.

Discussion

The aim of the present study has been to better understand how school leaders shape and apply their visions for the day-to-day task of leading a school. We have started the article by stating that a constituting characteristic of leadership is the provision of guidance by the exertion of influence. Based on the cases presented in this paper, it is suggested that this occurs via the daily actions of the school leader and depends on the translation of his or her implicit cognitive vision into concrete social interaction.

In the presentation of cases above, we have highlighted some key elements in the process by which school leaders use their vision to give guidance in day-to-day practice of the school. The interpretation of the cases in light of the key elements have led us to formulate three domains that are crucial to understanding the way school leaders can make the transition from developing their personal vision to guiding the collective policy-making process, based on their vision.

The first critical domain is that of the personal vision of the school leader. This entails the continuous interaction between the cognitive and social components of the school leader's vision, as a result of the ongoing interaction between the school leader and the surrounding environment.

The second critical domain is that of the nature of the process of collective sensemaking in the school. It relates to the cyclical interaction process that occurs in the school between the process of collective sensemaking with

regard to certain situations on the one hand, and choosing courses of action that lead to certain results on the other. The actions and results are being interpreted, providing a new start to the collective sensemaking process. In this process, school leaders can confront their personal vision with the beliefs and opinions of other members of the school organization. In this way, school leaders can make a conscious effort to influence the collective sensemaking process in the school. On the other hand, their personal visions will also be influenced by engaging in this process.

The third critical domain is that of focusing of the collective sensemaking process by the school leader. This pertains to the change in the school leaders' role that occurs after a school leader has exerted a coherent influence on the collective sensemaking process over a prolonged period of time. In such a case, the school leader has infused the collective sensemaking process with his or her vision.

As a result, other actors in the school have internalized the core values that represent the school leaders' vision. When this has occured, school leaders can alter the nature of their influence on the collective sensemaking process. The course of the school policy has been set; the collective sense-making process has been focused. And the role of the school leader changes to monitoring the process and keeping it up to date with regard to new external developments.

Illustration of the critical domains with cases

The first case presented above, is an illustration of the first domain. The story of Paul shows how the confrontation of existing viewpoints with a new situation can prompt the school leader to actually revise his personal beliefs. The assumption is that the maintenance of an interaction between the personal cognitive components of a school leader's vision and the socially enacted component can foster the development of a more useful vision. Context and vision interact. The school leader influences the context, and the context influences the school leader.

The case of Charles, the second case presented above, is an illustration of the second domain. In this case, the school leader can be seen to have not worked out the manner in which he wants to put his personal vision into concrete practice sufficiently. The school leader has developed a vision, which is accepted by the teachers in the school. The cognitive and social components of his vision up to this point are consistent: Charles has translated a fairly abstract idea (quality control) into a tangible reality (a committee, chaired by a teacher).

However, Charles is ambivalent about the extent of freedom he wants to give to the project committee. It is therefore still difficult for the teachers and other members of the school organization to link visible outcomes to

the vision of the school leader. Teachers do not know which goals to pursue and the process of collective sensemaking is running the risk of becoming stagnated.

In case of Harry, the third case presented above, it is illustrated just how the distribution of leadership can be further advanced to include a wider range of individuals and structures within the school organization. This case is an illustration of how leadership can be conceived of as being "distributed" across the school's social and situational context (Spillane et al., 2001). That is, the distribution of school leadership in this case clearly is an instrument for the guidance of school processes (Smylie et al., 2002).

The assumption that can be derived is that the role of the school leader in the process of distributing responsibility and leading on the basis of vision should be aimed at the promotion of collective sensemaking. To achieve this, the school leader may have to reformulate and reinterpret his or her own beliefs in light of new developments at times.

The case of Simon, the fourth case presented above, is an illustration of the third domain, and integrates the elements that have been illustrated by the other cases. It reveals how the role of the school leader can change, if the collective sensemaking process has gained a momentum of itself. Simon shows to have a high level of congruence between the cognitive and social components of his vision. Also, he is very aware of his role in influencing the collective sensemaking process, by bringing up ideas and giving his opinion in meetings. Finally, he has experienced that he has gained authority by articulating results in public, and linking them to his personal vision. This has increased the strength of the guidance he can give in the school.

The case illustrates how school leaders can continually renew their authority from the results that they have successfully achieved on the basis of their vision. More specifically, just how school leaders acquire authority and distribute responsibility on the basis of not only their hierarchical position but also their personal achievements is illustrated. In this sense, the case of Simon is an illustration of Weber's statement that charismatic authority complements hierarchical authority (Weber, 1948a). Following Weber, it can be stated that school leaders can only exert an indirect kind of power, for which they have to employ their charismatic authority (cf. Mintzberg, 1998). School leaders cannot force others to carry out tasks and responsibilities that have been agreed upon but they can encourage, through the charisma derived from their visions, members of a school organization to change their behavior in order to reach those goals perceived as worthwhile. Weber (1948a) describes how charisma loses its effect after a certain period of time and can gradually become a part of the daily routine. Therefore, in order to maintain one's charisma as a source of indirect power, continuous renewal of one's vision is thus necessary.

This description of the process by which the leader can exert indirect influence has a close correspondence with the idea put forward in this paper of the school leader giving guidance by influencing the exchange of beliefs that takes place during processes of collective sensemaking. In such a manner, the school leader legitimizes his or her current position and acquires authority (Mintzberg, 1989; Weber, 1948b).

Conclusion

The findings of this study suggest that the quality of both the interaction between the cognitive and the social components of school leaders' vision, and the interaction between school leaders and their social and structural environment, are critical for the strength of the guidance school leaders can exert within the school organization.

This implies that there is a continuous tension between school leaders' visions and the processes of collective sensemaking in schools. If school leaders can make sensible connections between their personal visions, and the process of collective sensemaking, leadership becomes distributed within the school. If this occurs, school leaders can create time and space for themselves to give guidance on another level. Their focus shifts from the daily aspects of the policy making process to the overarching goals and underlying values that guide the schools' policy making process. In this role, the school leader can maintain a continuous, dynamic interaction between the school organization and the school environment.

An implication of this study is that it is very difficult—if not impossible—to describe the entire cognitive component of a school leader's vision at a particular point in time. The same holds true for the social component of a school leader's vision; those elements that become "visible" are only part of the vision as a whole—namely the part that is of specific relevance to a given situation. And even then, the part of the vision that becomes visible can seem to provide a rather arbitrary interpretation of the situation. As Isenberg (1986) states, leaders reason in a plausible and not just logical manner. Leaders often search for the most feasible or plausible manner of reasoning and not for the best or most complete manner of reasoning.

Given that vision is the result of a thinking process aimed at making sense of a particular situation, vision is continuously evolving (Imants, 1999). Situations change along with how school leaders interpret particular situations and thus the elements of their visions as well. T. B. Greenfield (1993, p. 109) describes how "organization" comprises action as an abstraction which cannot be precisely circumscribed itself. In the same way, "vision" can be conceived of as comprising the intentional contributions of the school leader to daily social interactions, and with which the school

leader influences sensemaking processes. However, it seems impossible to give an exhaustive description of a school leaders' vision itself.

Summarizing the role of vision within the daily practice of school leaders, we can conclude that the formulation and communication of an all-encompassing, all-inspiring vision is not a feasible description of the manner in which school leaders proceed. School leaders certainly have a vision, but their visions are largely implicit and only receive expression in bits and pieces (Mintzberg, 1998). Vision is an intangible feature of the daily actions of school leaders and only materializes during social interactions. In this article, we hope to have provided some insight in the way in which school leaders can make a conscious effort to develop their unconscious reasoning, and, in such way, enhance the strength of their guidance.

Understanding school leaders' daily thinking processes

In this chapter, we will formulate an answer to the research question as presented in chapter 1:

- How can we understand the nature and function of school leaders' daily thinking processes by studying their tacit knowledge, their problem solving process, and their visions?

We have explored this research question by carrying out three empirical studies, each addressing a theoretical approach to school leaders' daily thinking: tacit knowledge, problem solving expertise, and vision. Below, we will argue that from these three concepts, the concept of vision provides an integrative approach to capture school leader's daily thinking processes. We will present a model of school leaders' thinking processes in day-to-day leadership. Our model is a tentative effort to give a general description of the way school leaders influence processes in the school. We will accentuate some implications that follow from this model and that could serve as starting points for new research.

The interrelatedness of tacit knowledge, problem solving and vision

To answer the main research question, as formulated above, we will now discuss the three approaches that we have taken in this research to study the nature and function of school leaders' daily thinking process. For each of the three approaches (tacit knowledge, problem solving, and vision) we will summarize the main findings and assess what they contribute to our understanding of the function of the thinking process of school leaders in guiding the school.

Tacit knowledge

In the first empirical study, reported on in Chapter 2, we have focused on the tacit knowledge of school leaders. Tacit knowledge is considered to play an important role in the daily thinking processes of school leaders. We have explored the structure and content of the tacit knowledge of school leaders by eliciting cause maps. The cause maps represent the reasoning processes

of school leaders with regard to the way they lead their schools. In Chapter 2, we have studied the cause maps of seven school leaders. We studied aspects of structure of the cause maps of the school leader by comparing the cognitive complexity and cognitive integrity of the cause maps. This referred to respectively the amount of relationships between concepts in the map, and the extent to which the structure of the map resembles a centralized spoke-structure, a linear chain-structure, or a combination of both types. In addition, we analyzed the maps for aspects of content. We assessed the balancedness of the cognitive repertoire of the seven school leaders, by making use of the notion of cognitive frames as developed by Bolman and Deal (1993).

School leaders showed to differ in the way their tacit knowledge was structured. Some school leaders had more complex maps than others, and also the type of structure of the maps differed across the participating school leaders. Also, they showed to differ with regard to the content of their tacit knowledge. Some school leaders have more balanced cognitive repertoires than others.

The main result of the study reported on in Chapter 2 for the overarching research question is that cause maps appear to be a useful way of representing the implicit thinking process that school leaders employ during their day-to-day work. The metaphor of a map is an appropriate way of explicating the daily thinking processes, that otherwise would remain implicit (cf. Weick, 1995). However, the method employed to construct the cause maps proved to be complicated, with modest results with regard to the relation between cognitive structure and content of the thinking processes that could be revealed.

With regard to the nature of the thinking processes, this study has provided insight in the way school leaders make representations of their situations by focusing on several related key concepts. In this view, the function of the daily thinking process is to give meaning and structure to complex situations, and provide guidelines for taking reasoned action.

Problem solving

The second empirical study, reported on in Chapter 3, focuses on problem solving processes of school leaders. A situated perspective is adopted to gain insight in the way school leaders actually solve problems in their daily context. For this study, we interviewed seven school leaders on their thinking and reasoning process with regard to solving a rea-life, complex problem. The accounts as elicited with the interviews were analysed using principles of the grounded theory-approach.

In Chapter 3, the focus has been on describing how school leaders solve problems in their daily situations. To this end, a framework of nine cognitive

elements was developed, that refer to the elements in the problem solving accounts of the school leaders. This framework was used to describe two cases of school leader problem solving more in detail. It was concluded that the framework developed gives a rich, situated understanding of the way school leaders go about while solving real-life, complex problems. By focusing on the connections school leaders make between steps in the problem solving process and the specific situation, we have revealed some of the underlying dynamics of how problem solving processes of school leaders take place and develop in daily practice.

With regard to the nature of the thinking processes of school leaders, the study reported on in Chapter 3 has provided insight in the way school leaders employ several types of considerations in their reasoning process with regard to solving a complex problem. With regard to the function of the thinking process, this emphasizes the way in which school leaders make interpretations of their specific situations. And how they, in the process, give new meaning to earlier experience and aspects of context.

The main result of the study reported on in Chapter 3 for the overarching research question therefore is that thinking processes of school leaders, with regard to the way they give guidance in day-to-day complex situations, should be studied in acknowledgement of the specific situation in which school leaders work. In doing so, the interrelatedness of problem solving and the situation becomes visible: not only is the school leader interpreting the situation by making use of his earlier experience, the process of interpreting and solving in the new situation also adds to his experience, and is used as a basis for new processes of problem solving in the future. The chapter ends with the suggestion that more insight can be gained in this process through additional study of school leaders' daily actions, in relation to their thinking processes.

Vision

The third empirical study, reported on in Chapter 4, focuses on the way school leaders use their vision to exert leadership in daily practice. The results of the first two empirical studies are taken as a starting point for this study. In Chapter 4, we reported the results of a comparative case study including six school leaders. A combination of interview techniques and observations was employed to gain detailed insight in the thinking processes and actions of school leaders while giving guidance to the school in day-to-day practice.

In Chapter 4, it is concluded that school leaders' vision constitutes of both a cognitive and a social component. School leaders use and develop their vision by engaging in a continuous interaction between the two

components. Furthermore, school leaders' vision is found to be a central element of the collective process of sensemaking that occurs in the school.

In this view, the nature of daily thinking processes of school leaders seems to be a continuous interaction between cognition and action. The function of the thinking process, seen in this way, is to make sense of new situations, geared at giving guidance in a certain direction. The view adopted in Chapter 4 integrates the insights from the study of tacit knowledge using cause maps (school leaders employ mental maps to give meaning to situations, and build guidelines for action) and the study of problem solving (school leaders make new interpretations of experience and context, in each new situation that they encounter).

Furthermore, it adds a cyclical element to the role of thinking processes in day-to-day school leadership. School leaders develop their vision to make sense of their personal situation, and by communicating this vision, they influence the collective process of sensemaking in the school. As this is a cyclical process, the way school leaders give guidance using their vision should also be considered in a cyclical fashion.

The nature and function of school leaders' daily thinking processes

As we have discussed before, this research has started from a social-cognitive perspective on leadership. This means that we have focused on the thinking processes (cognitions) of school leaders, while acknowledging that school leaders' individual cognitions are shaped by continuous interaction in their social contexts. The aim of the research has been to provide an exploratory process model, that tentatively describes this complicated process and can serve as a starting point for further research, and as a hermeneutic tool to understand practice.

Based on the results of the three empirical studies, we therefore have elaborated a model representing the nature and function of daily thinking process of school leaders, presented in Figure 5.1.

In the model, the personal vision of the school leader is represented by the central sphere. As explained before, based on the results of the three studies, vision is conceived of as the concept that integrates both tacit knowledge and problem solving. School leaders' vision comprises both the cognitive frame of reference to interpret situations, and guidelines for action to achieve envisaged goals. These two sources constitute the cognitive component of vision, and based on the results of Chapter 4, we can add the social component of vision.

Together the two components make up school leaders' vision. The cognitive component comprises a various set of notions, beliefs, values and principles, that are to a large extent the result of earlier experience. School leaders, when confronted with new situations, make use of these tacit

cognitions, to interpret the situation, and take initiative for action. This should not be understood, however, as a linear-rational process. Rather, it should be considered to be a mere plausible way of reasoning (Isenberg, 1986). School leaders use only that part of their cognitions, that seems to be most appropriate and sufficient to confront the situation at hand. In enacting these cognitions, a feedback process occurs. School leaders, when hearing and seeing what they put into practice, can subsequently adjust their cognitions. These are processes that work "on the fly"; even while school leaders are speaking, they can decide to change the direction of their words. This process relates to Weick's maxim: "We do not know what we think, until we hear wat we say" (see Weick, 1995, p. 12).

The second sphere, around the central sphere, represents the collective sensemaking process, as this develops in the school. The two spheres are linked via school leaders' contributions, through their visions, to the process of meaning (re)constructing with other members of the school organization.
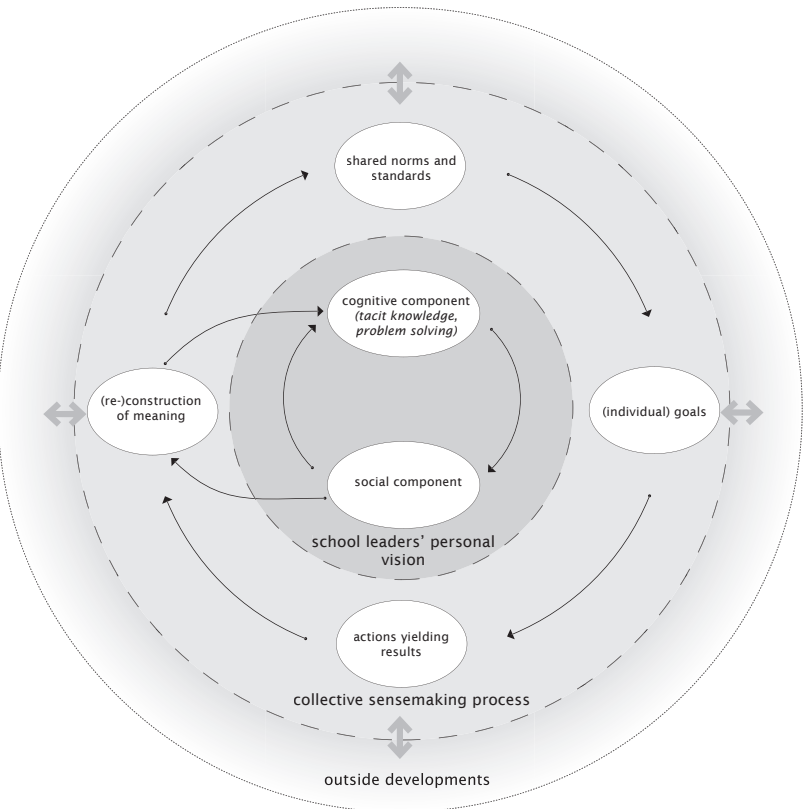

Figure 5.1: Model representing the nature and function of daily thinking processes of school leaders

Not only direct, personal feedback occurs from school leaders' (verbal) actions to their cognitions, but also feedback through interaction with others takes place. In this interaction school leaders contribute, through their visions, to the process of collective sensemaking in the school. Collective sensemaking is the process by which ambiguity in organizations is reduced (van der Meer & van Dijk, 2002; Weick, 1995). The collective process of meaning construction is the central point in the school policy process in which members of the school organization negotiate to arrive at an interpretation of the situation that is shared among the participants. People make use of their personal cognitive repertoires to participate in the process of meaning construction. As a result of this process, a shared set of meanings about what is important for the school organization to strive for can be arrived at. These shared norms and standards are an important base from which people derive the goals they set for themselves.

By goal setting, people are inclined to adapt their actions to strive for these goals. Again, this should not be conceived of as a strict lineair influence. Very often, people's actions are not explicitly goal-oriented. However, it is assumed that, when people set goals for themselves, based on values that they respect, they will eventually change their actions in the direction of that goal (Hallinger & Heck, 2002).

The actions that are taken will lead to alterations in the situation in the school. The new situation, and the results of the preceding actions are the new starting points for the process of meaning construction: again, an interpretation of the current situation has to be made, and the views of all actors involved will be shared to come to a common understanding.

At his point in the cycle the opportunity arises for school leaders to connect their visions to the results achieved. By making such connections school leaders can show how their vision is of importance to achieve specific results. It can be argued that, in that way, the guidance school leaders can give, based on their vision, increases in strength, as school leaders are more able to make sensible connections between their visions and favourable results schools have achieved.

The elements of tacit knowledge and problem solving are thus integrated in the concept of vision, in the central sphere of the model. This sphere represents how the interaction between thinking and enactment results in a continually evolving personal vision of the school leader.

A second interaction takes place between the school leader and the collective sensemaking process in the school. In this interaction, school leaders, through "negotiation" of their personal vision with the insights that are put forward by other actors, can make the transition of the realm of their personal vision to the school policy process. This is how school

leaders can guide the school policy process, based on their vision. It is important to note, however, that this is always an indirect, interactional way of giving guidance.

Discussion

In Chapter 1, we started out this research by discussing some issues with regard to educational administration research. We concluded that there was a neglectence of the "how"-question with regard to educational leadership in day-to-day practice. We formulated as the main goal of this research is to generate an exploratory framework for understanding how school leaders' thinking is related to guiding the school policy making process.

We can now assess the extent to which this research contributes to an understanding of the role of school leaders' daily thinking in relation to the guidance they can give in the school. To this end, we will discuss a few propositions with regard to the model presented above. First, school leaders' vision is created while it is enacted. This implies that vision is continually evolving, as situations change, and school leaders adjust their viewpoints. Second, the model suggests that the most effective and sustainable way for school leaders to give guidance to the school policy process is via the process of collective meaning construction. By looking at the model, we can see that it is no use for a school leader to set goals, without making reference to the underlying values. If a school leader would proceed in such a manner, chances are that the goals will not be accepted, because no negotiation has taken place with regard to what the most important problems are, and to what shared values these problems relate. In the same way, shared values cannot be imposed "out of the blue"; they have to be the result of a collective process of meaning (re)construction. So it is this latter process that school leaders should direct their attention to.

Third, in guiding the collective sensemaking process, it is very important for school leaders to include the interpretation of previously attained results, favourable as well as unfavourable. This is because the results of previous actions consist a very important source for collective meaning construction, and school leaders should make an effort to show how the results relate to their vision. In that way, they can make their visions more concrete, which enhances the chances of understanding and acceptation within their school organizations. Eventually, after an enduring period of influencing the sensemaking processes in a way that yields positive results, and after succesfully linking the results to their visions, school leaders could be able to give guidance in a very effective way.

Fourth, the results of our research suggests that the function of school leaders' daily thinking processes, is to guide their personal processes of

sensemaking, while at the same time monitoring the influence it has on the collective sensemaking process in the school. This double responsibility of school leaders characterizes their unique role within school organizations. It also underscores the importance of the ability of school leaders to be reflective on several levels at the same time: on the level of their personal interpretation processes, on the way this relates to their personal actions, and on the level of how this influences the collective sensemaking process in the school.

Reflections on the research design

In this research, we have employed an interpretive, naturalistic reserach desgin, as disciussed in Chapter 1. An important assumption with respect to our approach to analysis has been, that if we really want to develop an understanding of the reasoning, the intentions that guide and inform their actions, we will have to make use of the implicit knowledge that resides in ourselves. As Alvesson and Sköldberg state: " 'Interpretation' implies that there are no self-evident, simple or unambiguous rules or procedures, and that crucial ingredients are the researchers' judgment, intuition, [and] ability to 'see and point something out' " (Alvesson & Sköldberg, 2000. p. 248). However, this does not mean that all of the researchers' pre-existent knowledge should be made explicit before the 'real' value of this study can be assessed. It would be practically impossible to discuss all of the researchers' pre-understandings and biases, and the way this has influenced the research in various stages.

In addition, it is important to realize that the object under scrutiny, educational leadership, and more specifically, the opinions and thought processes of school leaders, are very difficult to "catch" in an objective manner. It can be argued that the school leaders who participated in this study have not only expressed their personal opinions, but also, in a way, have tried to conform with the existing discourse on educational leadership, of which they form an active part (Alvesson & Sveningsson, 2003).

Rather, most important is, to acknowledge that there have been pre-understandings, which have been of influence on the research process. In qualitative research, the researcher him- or herself is the most important tool, and this "tool" is always biased (Mason, 1996). Therefore, the analysis, of which writing up the results is the final stage, should be considered as part of a dialogue—between researcher and research subjects, and eventually, between researcher and reader (Alvesson & Sköldberg, 2000).

This dialogue has no formal ending, neither does it lead to an objective, and final conclusion. However, we can use this dialogue to clear up the differences in our understandings of social reality, and arrive at a common

interpretation of reality. In this, it is the responsibility of the researchers to provide an account of their interpretation of reality that is open to other interpretations (Alvesson, 1996). We hope to have provided such an account in this research.

Suggestions for future research

With regard to future research into leadership in education, we would like to address three issues. In the first place, the results of our research suggest that, in future research, it will be important to not only focus on the (tacit) knowledge of individual, formal school leaders, but to use a broader scope of the implicit reasoning and thinking that is brought to the task of leading by all individuals involved. As Spillane et al. put it: "If expertise is distributed, then the school rather than the individual leader may be the most appropriate unit for thinking about the development of leadership expertise" (2001, p. 27).

This means that, for an adequate assessment of the factors that influence school effectiveness, not the characteristics of the person of the leader are central to the study of leadership, nor the individual perceptions of the effects of leadership, but that leadership interaction should be taken as the unit of analysis. Leadership is constituted by a cascade of interrelated exchanges between individuals in an organization, in which shared and individual roles, as well as power relationships, are under continuous negotiation. Based on the results of this research, we argue that cognitions and actions of formal leaders and the opinions of other members of the school organization with regard to the effectivity of the leadership, only get real meaning if they are interpreted in the light of these interactions. Therefore, these exchanges in social reality should be central to research into leadership. In this respect, interesting connections can be made with research into learning and development of teachers.

Second, in future research, more attention should be paid to the way reflection processes of school leaders develop and how they can be made explicit to school leaders themselves. We have argued that school leaders should be able to be reflective on several levels at the same time. School leaders themselves will have to develop such a capacity for reflection, in their daily practice, in order to enhance their leadership effectiveness. In the words of Clegg and Billington (1997): "Leadership is a reflective practice on the part of the practitioner. This reflection needs to be harnessed to an aim, in other words, to the vision of the school. (…) It is a continuous, intertwined process".

It is important to study more in detail how school leaders not only build on their personal experience, but also, through their personal reflections with regard to that experience, develop their ability to solve problems

in daily practice. In other words, we need to further increase our under-standing of how school leaders access as well as develop their personal knowledge within specific contexts (Tolman, 1999).

An implication of this viewpoint is that development of knowledge and expertise cannot be decoupled from context (cf. Bolhuis, 2000). Bolhuis (2000) explains how, if a person's proficiency with regard to a certain domain increases, the independency in choosing a goal and an approach also increases. Learning of novices is mainly determined by the moment and the context; whereas learning of experts is determined to a considerable extent by personal goals, that originate from personal beliefs (Bereiter & Scardamalia, 1986). This means that an important way for school leaders to develop their effectiveness in solving problems in the day-to-day context of their work, is to actively engage in reflection on their personal beliefs, the goals that they set, and the eventual results that can be achieved (cf. Schön, 1983). How this reflection takes place, and how school leaders actually build their knowledge using it, should be studied in future research.

Third, the results of this research suggest that in future research, there should be a greater emphasis on longitudinal research designs. After decades of predominantly cross-sectional research designs, the possibilities of "single-shot" survey research to reveal the determining factors of effective school leadership seem to have been exhausted (cf. Witziers, Bosker, & Krüger, 2003). Based on the results of this research, it could be argued that the factors determining the effectiveness of leadership in schools with regard to achievements at the level of the school will become only visible by closely following developments in schools over the course of several years. This calls for longitudinal research designs, preferably designs that acknowledge the importance of interpreting leadership situations in their specific contexts, and are flexible enough to incorporate new insights while carrying out the research.

Implications for practice

In this research, we have aimed at understanding the way school leaders think in daily practice. We hope this understanding can help practitioning school leaders to better understand their personal role, reflect on it, and develop their personal expertise. However, it has not been our aim to provide prescriptions on what the "best" way of thinking should be for school leaders. In this, we concur with Spillane, Halverson and Diamond, (2001) who state: "By making the "black box" of school leadership practice more transparent through the generation of rich knowledge about how leaders think and act [researchers] can help leaders identify dimensions of their practice, (…) and think about changing their practice. … Rather than providing a (…) blueprint for that practice." (p. 27). Therefore, it has been

our aim to support school leaders in their practice (Spillane et al., in press), by informing them how to make choices in their leadership, and to reflect on their choices and their role as administrators (Hodgkinson, 2003).

In the motto that opened Chapter 1, Greenfield alludes to the responsibility that school leaders have for the choices that they make in day-to-day practice. The responsibiliy school leaders bear is the result of the relative freedom they enjoy in carrying out their task. This freedom implies creativity of school leaders. Being cautious to rely to much on the agency of the school leader as single actor within the school, we concur with Prawat and Peterson that "powerful ideas" are a primary resource for educational leadership (Prawat & Peterson, 1999, p. 220). This notion stresses that school leaders can effectively influence the process of sensemaking by bringing in new and strong ideas. However, this implies that school leaders have a certain amount of creativity to come up with such ideas. The process with which school leaders develop and formulate those ideas is not likely to be a very rational process. This suggests that rather irrational, unpredictable sources like personal creativity should not be neglected as important factors of effective educational leadership (Hodgkinson, 1999).

In sum, in spite of our efforts to devise a realistic model for the work of school leaders, the essence of how school leaders turn their vision into tangible successes remains a mystery. The factors that distinghuish school leaders who can turn their vision into achievement from those who don't, probably will never be completely uncovered. Nevertheless, with this research, we hope to have given some more clues where to look for them. Hill and Guthrie (1999) have coined the term "integrative capital", which relates to the extent to which school leaders integrate the complexity of developments and issues that confront the school. This capacity seems to capture the essence of succesful school leadership aptly, as it entails a type of leadership that both unites and directs—integrative leadership.

Epilogue

> "Schools are unlike other organizations in important ways"
> *(W. D. Greenfield, 1995, p. 61)*

In the same way as Goodlad stresses, in the introduction to the seminal volume "The moral dimensions of teaching" (Goodlad, Sirotnik, & Soder, 1990), how teaching is a special case within the professions, to conclude this study, we would like to argue that leading teaching professionals is a special case within the leadership profession. There are a surprising lot of

parallels between leadership and parenting (Popper & Mayseless, 2003). Education has a pervading moral responsibility and it is impossible for school leaders to evade this responsibility: "All who work in schools and carry the title "teacher" or "principal" or "supervisor" are educators, whether teaching in a classroom or seeing to it that the conditions there are maximally educational for all" (Goodlad, 1990, p. 28). This leads to the inevitable conclusion that educational leaders have a more delicate task than other leaders.

Not only do they have to administer the school as functional managers, but also, in facilitating and fostering the personal responsibility of teachers, they function as a role model for educating and mentoring students in the school (cf. Murphy, 2002, p. 187). An underperforming school leader therefore is bad for the school in a double sense: bad in a functional sense, with respect to school effectiveness, and bad in a moral sense, regarding teacher development and student education. On the other hand, school leaders who excel in their jobs, can exert their positive influence in two ways: to the school as an effective and rewarding professional community, and to the students as future participants in society.

Hence, because of the important role school leaders play in the processes of sensemaking that schools are pervaded with, and the way these processes are intricately bound to important pedagogical issues, thirty years after Giesbers' (1973) statement that, in order to 'survive' in modern educational administration, school leaders should study organization science rather than pedagogy, I dare to make the opposite proposition: in order to adequately cope with the complexity inherent in daily educational leadership, school leaders should study pedagogy rather than organization science.

"[…] Bij alles wat zij zeggen beroepen de auteurs zich op andere auteurs die iets dergelijks of iets anders over de zaak gezegd hebben—alsof dat de lezer iets schelen kan. 'Sie vergleichen,' zegt Schopenhauer, 'was dieser gesagt und was jener und was wieder ein anderer und noch einer, und suchen daraus klug zu werden.' Als je iets te zeggen hebt, is de lezer geneigd op te merken, zeg het dan, en hou Käte Hamburger erbuiten. En vaak is de lezer geneigd met Schopenhauer uit te roepen: 'O, wie wenig muss doch einer zu denken gehabt haben, damit er soviel hat lesen können!'"

—Karel van het Reve, *Het raadsel der onleesbaarheid*

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Samenvatting

(Summary in Dutch)

Hoofdstuk 1

Wat denken schoolleiders tijdens het uitvoeren van hun werk? Door welke overwegingen laten zij zich leiden? Hoe beïnvloeden deze overwegingen hun dagelijks handelen? Welke functie hebben ze in het leiding geven aan de school? Hoe kun je deze denkprocessen, die zich grotendeels onbewust afspelen, inzichtelijk maken? Dit zijn de vragen waar in dit proefschrift een antwoord op gezocht wordt.

Nu de omgeving van scholen door overheidsmaatregelen en een veranderende maatschappij steeds complexer wordt, en daarmee ook de baan van de schoolleider, is het van belang na te gaan hoe schoolleiders omgaan met deze toegenomen complexiteit. We gaan er in dit onderzoek van uit dat dit met name zichtbaar is in denkprocessen van schoolleiders, en dan specifiek in het denken tijdens de realiteit van alledag.

Veel onderzoek naar schoolleiderschap en schoolmanagement heeft zich gericht op het achterhalen van de succesfactoren van effectief schoolleiderschap. Allerlei theorieën en modellen zijn daarvoor ontwikkeld, maar keer op keer wordt geconstateerd dat de kloof tussen de theorie en de weerbarstige praktijk nauwelijks minder is geworden. In dit onderzoek is daarom gekozen voor een kleinschaliger, kwalitatieve benadering, om meer zicht te krijgen op het alledaagse "hoe" van schoolleiderschap.

Uit bestaande literatuur zijn drie invalshoeken gekozen, van waaruit we de dagelijkse denkprocessen van schoolleiders benaderen: *tacit knowledge*, probleemoplossen, en visie-ontwikkeling. In alle gevallen gaat het om een grotendeels kwalitatieve benadering. Door middel van interviews en observaties hebben we geprobeerd dicht bij de dagelijkse werkelijkheid en de individuele beleving van schoolleiders te blijven. Het onderzoek bestaat uit drie empirische studies. In de eerste studie stond het begrip tacit knowledge centraal. Dat zou vertaald kunnen worden met 'stilzwijgende kennis' of 'praktijkkennis', maar aangezien beide termen onbevredigend zijn, laat ik het onvertaald. In de tweede studie ben ik dieper ingegaan op de denkprocessen van schoolleiders bij het oplossen van complexe problemen. In de derde studie heb ik me ten slotte gericht op het begip 'visie' in relatie tot het sturing geven van schoolleiders aan de dagelijkse praktijk.

Het onderzoek geeft beschrijvingen van het proces waarmee schoolleiders individueel betekenis geven aan de situaties waarin ze zich bevinden. De interpretaties die gemaakt zijn, hebben daarmee een subjectieve lading;

ze bevatten zowel interpretaties van de onderzochte schoolleider als van de onderzoeker. Deze subjectiviteit is, gezien de aard van het onderwerp, nauwelijks te vermijden. Het onderzoek was daarom ook niet zozeer gericht op het vinden van universele verklaringen. Het doel van het onderzoek was eerder om op exploratieve wijze, vanuit unieke interpretaties van het onderzochte fenomeen, te komen tot een nieuw theoretisch beschrijvend model, wat verder getoetst kan worden in de praktijk of in nieuwe onderzoek.

Hoofdstuk 2

In de eerste studie stond het begrip *tacit knowledge* centraal. Ik ben gestart vanuit de veronderstelling dat het voor schoolleiders van belang is een coherente visie te ontwikkelen, om van daaruit adequaat betekenis te kunnen geven aan de complexe dagelijkse praktijk, en een consequente aanpak tijdens de uitvoering van de visie aan te houden. De visie van schoolleiders is voor een groot deel impliciet: het gaat om onuitgesproken denkbeelden, die op een complexe manier met elkaar samenhangen. In die zin heeft het veel overeenkomsten met het begrip tacit knowledge: ook daar gaat het om onbewuste kennis, verkregen uit ervaring, die wordt toegepast om concrete nieuwe situaties te begrijpen. In dit artikel heb ik een manier onderzocht om deze tacit knowledge van schoolleiders in kaart te brengen.

Dat in kaart brengen moet letterlijk genomen worden: er zijn schema's gemaakt, zogeheten *cause maps*, te vertalen met causaal schema. Door middel van een bepaalde procedure is in wisselwerking met zeven deelnemende schoolleiders een aantal kernbegrippen uit het denkproces van iedere schoolleider ontleend, waarna deze kernbegrippen met elkaar in verband zijn gebracht. Zo werden zeven individuele cause maps gemaakt.

Vervolgens werd nagegaan wat je van deze cause maps kunt zeggen. Ze werden onderzocht op structuur en op inhoud. Met betrekking tot de structuur is nagegaan of er verschil was tussen schoolleiders met betrekking tot de complexiteit van de schema's, de aard van de cognitieve structuur, en het verband met de inhoud van de schema's. Voor het interpreteren van de inhoud van de schema's is gebruik gemaak van het theoretisch raamwerk van Bolman en Deal. Zij geven een aantal *frameworks*, interpretatiekaders, van waaruit schoolleiders de werkelijkheid kunnen benaderen. De theorie is, dat naarmate schoolleiders beter in staat zijn diverse interpretatiekaders te gebruiken, ze sneller en beter een oplossing zullen vinden in onbekende situaties.

Uit het onderzoek is gebleken dat de deelnemende schoolleiders verschilden met betrekking tot de complexiteit van hun cause maps, hoewel de verschillen slechts klein waren. Grotere verschillen waren er ten aanzien van de cognitieve structuur: sommige schema's hadden een duidelijker focus dan anderen. Hieruit blijkt dat er onderscheid valt te maken tussen

de complexiteit van kennis, in de zin van de hoeveelheid verbanden tussen concepten, en de manier waarop kennis gestructureerd is.

Een resultaat met betrekking tot de inhoud van de denkprocessen was dat de deelnemende schoolleiders verschilden in de breedte van hun cognitieve repertoire. Sommige schoolleiders hadden een duidelijke voorkeur voor één interpretatiekader, terwijl anderen meer gebalanceerd diverse interpretatie-kaders hanteerden. Voor de deelnemende schoolleiders in dit onderzoek leek er een verband te zijn tussen de mate waarin de cognitieve schema's een duidelijker focus hadden in de structuur, en de mate van gebalanceerdheid van het cognitieve repertoire.

Deze exploratieve studie heeft wat interessante inzichten opgeleverd, hoewel er ook nog wel wat haken en ogen zaten aan de gebruikte methode. Het grootste bezwaar was dat er relatief complexe, kwantitatieve bewer-kingen nodig waren om de gegevens te interpreteren. Het is de vraag of deze bewerkingen voldoende recht deden aan de unieke, individuele situatie waar de oorspronkelijke gegevens aan ontleend zijn. In de tweede plaats was impliciet in deze benadering nog de veronderstelling dat er bepaalde, algemene kenmerken van cognitieve structuur te vinden zijn die meer effectief zijn dan andere. Het is de vraag die veronderstelling kon worden waargemaakt in de gebruikte onderzoeksopzet. In de volgende studie is daarom dieper ingegaan op de idiosyncratische aspecten van denkprocessen van schoolleiders.

Hoofdstuk 3

In hoofdstuk 3 werd het oplossen van complexe problemen door school-leiders als invalshoek op de denkprocessen van schoolleiders genomen. Uitgangspunt in deze deelstudie was dat de context waarbinnen school-leiders hun werk uitvoeren, en dus ook problemen oplossen, van cruciaal belang is voor de wijze waarop ze te werk gaan. In deze studie heb ik daarom een gesitueerde benadering gehanteerd, waarin het probleemoplos-singproces wordt geanalyseerd zoals het zich voordoet in het specifieke geval van een schoolleider, in de "context".

Context werd hierbij niet opgevat als een instrumentele abstractie, maar als een essentieel onderdeel van het menselijk denken en handelen. De over-wegingen die een schoolleider gebruikt om zijn handelen in een bepaalde situatie toe te lichten en te verantwoorden, zijn op allerlei specifieke, unieke manieren verbonden met de aspecten van de realiteit waar hij mee te maken heeft. Probleemoplossen wordt in deze opvatting niet gezien als een kwestie van het verwerven en dan toepassen van kennis, maar van het verbinden van bestaande kennis met een specifieke situatie, wat weer leidt tot uitbreiding van die kennis. Dit proces zou je 'toe-eigening' van kennis door de schoolleider kunnen noemen: de kennis die hij heeft in abstracte

zin, wordt steeds 'eigener', naarmate hij meer verbindingen kan maken met de dagelijkse realiteit.

De situatieve benadering die ik heb gehanteerd onderscheidt zich van de klassieke cognitieve benadering, door de erkenning van de directe verbinding tussen het cognitieve proces en de sociale context. Het gaat om elkaar aanvullende benaderingen: zowel vanuit de cognitieve, als de situatieve benaderingen worden processen van denken en leren onderzocht; alleen de vragen die gesteld worden zijn anders. In deze deelstudie heb ik vanuit de situatieve benadering onderzocht hoe processen van kennisconstructie bij schoolleiders zich ontwikkelen als gevolg van probleemoplossen in specifieke situaties.

Met dit onderzoek wilde ik beter inzicht te krijgen in hoe de alledaagse probleemoplossing door schoolleiders plaatsvindt. Met name was ik geïnteresseerd in de 'bronnen' voor de overwegingen die schoolleiders hebben. Ik veronderstelde dat de manier waarop schoolleiders problemen aanpakken, sterk bepaald wordt door eerdere ervaringen. Dit onderzoek had als doel na te gaan hoe die individuele ervaringen doorwerken in huidige denkprocessen. Dit is van belang om te weten, omdat we hiermee ook meer te weten krijgen over hoe je de individuele expertise van schoolleiders zou kunnen ontwikkelen.

In het onderzoek zijn zeven schoolleiders geïnterviewd over een recent, complex probleem waar ze mee te maken hebben gehad. In deze interviews heb ik voortdurend doorgevraagd op de stappen die de schoolleiders hebben gezet in het probleemoplossingsproces, en de overwegingen die ze daarbij hebben gehanteerd. Deze interviews werden kwalitatief ganalyseerd, wat resulteerde in negen categorieën van 'cognitieve elementen', ofwel verschillende soorten overwegingen die een rol hebben gespeeld in het denkproces.

De negen categorieën waren: interne context, externe context, ervaring, waarden en stemmingen (deze vormen samen de groep 'middelen'); vervolgens einddoelen, subdoelen, taakopvattingen en principes (deze vormen de groep 'producten'). Het onderscheid tussen middelen en producten geeft aan dat er een groep overwegingen, de 'middelen', is die als een soort basiskennis wordt gebruikt om situaties te interpreteren, en een groep, de 'producten', die het voorlopige resultaat is van het denkproces. In de praktijk is er niet sprake van een simpele volgorde in denkstappen, maar vindt er een voortdurende wisselwerking plaats tussen de soorten overwegingen. De gevonden categorieën kwamen overeen met andere indelingen in categorieën, zoals ik die in de literatuur op het gebied van onderzoek naar schoolleiderschap heb gevonden.

Om na te gaan hoe de verschillende soorten overwegingen in samenhang door de schoolleider gebruikt worden om zijn probleemoplossingsproces

mee te verantwoorden, heb ik daarna de verhalen van twee van de zeven schoolleiders diepgaand met elkaar vergeleken.

Beide schoolleiders hadden te maken met het probleem van een teruggang in leerlingenaantallen op hun school. De twee schoolleiders kozen echter voor fundamenteel verschillende oplossingsmogelijkheden. De ene schoolleider ging geleidelijk aan te werk, probeerde te werken vanuit de eigen verantwoordelijkheid van docenten, terwijl de andere schoolleider veel meer zelf beslissingen nam, en deze oplegde aan de schoolorganisatie, om een doorbraak te forceren. Deze verschillen waren te verklaren uit de achtergronden en ervaringen van de twee schoolleiders.

Op deze manier heb ik inzichtelijk gemaakt hoe de twee schoolleiders zich gedurende hun loopbaan kennis over het oplossen van complexe problemen hebben eigengemaakt. Hierdoor werd zichtbaar hoe de manier waarop schoolleiders te werk gaan, op specifieke punten verbonden was met de situatie waarin ze zich bevonden, en de persoonlijke ervaring die ze met zich meenamen.

Deze verbindingen hebben een eigen dynamiek, die van belang is om te begrijpen waarom schoolleiders te werk gaan zoals ze doen, in de dagelijkse praktijk. Het onderzoek heeft een aanvullend inzicht gegeven ten opzichte van de relatief statische kenmerken van expertise uit de cognitief-psychologische benadering. Naast het herkennen van algemene kenmerken van expertise, is er zo ook zicht verkregen op de individuele processen waarmee kennis en expertise in de dagelijkse praktijk gebruikt worden.

Hoofdstuk 4

In hoofdstuk 4 heb ik, om zicht te krijgen op dagelijkse denkprocessen van schoolleiders, de invalshoek van 'visie-ontwikkeling' uitgewerkt. Een belangrijke veronderstelling voor deze deelstudie is geweest, dat visie opgevat kan worden als een voortdurend doorgaand proces waarmee betekenis wordt verleend aan de werkelijkheid zoals die zich voordoet. Visie is dus niet een allesomvattend "groot verhaal", waarmee de schoolleider iedereen in de school inspireert en motiveert, en een pasklare oplossing voor problemen aan ontleent. Dat simpele plaatje doet geen recht aan de dagelijkse werkelijkheid van schoolleiders, waarin zij vooral bezig zijn met relatief triviale klusjes en voortdurend kleine deelbeslissingen nemen. Wel is het zo dat de schoolleider zijn persoonlijke visie kan verhelderen, voor zichzelf en voor anderen, juist door alle kleine stapjes die hij voortdurend zet. In de tweede plaats ben ik uitgegaan van de stelling dat een centrale functie van schoolleiderschap is, om gedeelde normen voor de schoolorganisatie te ontwikkelen. De betekenis die gegeven wordt aan de werkelijkheid zal binnen de school tot op zekere hoogte gedeeld moeten

zijn (collectief moet worden), om ervoor te zorgen dat iedereen dezelfde uitgangspunten nastreeft.

In dit onderzoek heb ik willen beschrijven hoe schoolleiders gebruik maken van hun visie, om het proces van collectieve betekenisverlening in hun school te sturen. Door te bestuderen hoe schoolleiders, in de dagelijkse praktijk, hun persoonlijke visie ontwikkelen en gebruiken, wilde ik dit proces inzichtelijk te maken aan de hand van een aantal concrete casussen. Dit is van belang, omdat er wel al veel onderzoek naar visie van schoolleiders gedaan is, maar het daarbij onduidelijk blijft hoe het sturing geven met visie nu precies in de dagelijkse praktijk plaatsvindt.

Ik heb gebruik gemaakt van een sociaal-cognitief perspectief op leiderschap. Dit betekent dat ik de cognitieve processen van schoolleiders centraal hebben gesteld. Ik heb onderscheid gemaakt tussen twee aspecten van visie: de sociale en de cognitieve component. De cognitieve component van visie is het deel, dat zich grotendeels impliciet afspeelt in de gedachten van de schoolleider. De sociale component is datgene wat hiervan door de schoolleider naar buiten gebracht wordt, in (sociale) interactie met anderen. Deze twee componenten beïnvloeden elkaar wederzijds, en samen vormen ze een doorgaand proces waarmee de visie van de schoolleider zich blijft ontwikkelen. Dit onderscheid komt overigens grotendeels overeen met het onderscheid dat Argyris maakt tussen *theories-in-use* en *espoused theories*.

Leiderschap heb ik hier opgevat als een complexe set van beïnvloedings-processen. Leiderschap is daarmee niet een eenduidige, lineaire beïnvloeding van de schoolorganisatie door de schoolleider. Eerder is er sprake van een vloeiende, wederzijdse kettingreactie van kleine beïnvloedingen tussen de schoolleider en de schoolorganisatie. De schoolleider heeft hierin wel een bijzondere positie. Uiteindelijk is de belangrijkste functie van de school-leider om processen van betekenisverlening in de schoolorganisatie in te kaderen en richting te geven. Door zich te richten op betekenis geven en het expliciteren van de hoofdlijnen, kan hij het leiderschap verder 'verspreiden' in de school, waarmee de leiding die hij geeft, duurzamer wordt.

Over een periode van anderhalf jaar heb ik bij zes schoolleiders, telkens gedurende enkele maanden, een aantal interviews afgenomen en observaties gedaan. Daarnaast heb ik gesprekken gehouden met docenten en leerlingen. In een aantal interviews is de persoonlijke visie van de schoolleider besproken. In de observaties is nagegaan op welke manier de schoolleider leiding gaf, en (door middel van nabesprekingen) welke overwegingen hij had voor deze manier van handelen. De resultaten hiervan zijn aan de schoolleiders teruggekoppeld in de vorm van individuele verslagen.

Voor dit onderzoek werd vervolgens, met de individuele verslagen als uitgangspunt, in een 'tweede niveau'-analyse nagegaan welke onderlig-gende patronen te herkennen waren in de relaties tussen het denken en doen

van de betrokken schoolleiders. Door voor iedere schoolleider één concreet thema te zoeken dat zowel in de interviews als observaties terugkwam (kernsituatie-analyse), hebben ik reconstructies gemaakt van het proces van visie-ontwikkeling en het gebruik van visie tijdens het leiding geven. Voor twee van de zes schoolleiders bleek dit niet mogelijk, aangezien de onderwerpen die aan de orde waren tijdens de observaties niet goed aansloten op hetgeen besproken was tijdens de interviews.

Uiteindelijk heb ik dus vier casussen op deze manier kunnen analyseren. Deze casussen geven inzicht in de wisselwerking tussen de cognitieve en sociale component van visie; de overgang van persoonlijk visie-ontwikkeling naar collectieve betekenisverlening; de manier waarop schoolleiders hun leiderschap verder kunnen verspreiden in de schoolorganisatie; en hoe rol als leider op die manier langzamerhand verandert.

Hoofdstuk 5

In hoofdstuk 5 heb ik de resultaten van de drie deelstudies samengevat om conclusies te kunnen trekken ten aanzien van de algemene onderzoeksvraag. Ik kom tot de conclusie dat het begrip 'visie' kan worden gezien als een integrerend begrip, dat de andere twee concepten, tacit knowledge en probleemoplossen, in zich bergt.

In hoofdstuk 5 heb ik een model gepresenteerd waarin ik de aard en functie van de dagelijkse denkprocessen van schoolleiders heb weergegeven. Het model bestaat uit twee cirkels. De binnenste cirkel betreft de persoonlijke visie van de schoolleider. Deze visie is weergegeven als een voortdurend doorgaand proces, waarin de sociale en cognitieve component van de visie van de schoolleider op elkaar van invloed zijn.

De tweede cirkel daaromheen is die van het collectieve proces van betekenisverlening in de school. De schoolleider kan dit proces beïnvloeden door met behulp van zijn visie indirecte sturing te geven. Deze sturing richt zich met name op de betekenisconstructie die plaatsvindt in sociale interactie. Deze betekenisconstructie kan bepaalde gedeelde uitgangspunten (standaarden, normen en/of criteria) opleveren, die een belangrijke leidraad vormt voor de doelen die gesteld worden in de schoolorganisatie. De doelen die gesteld worden zorgen ervoor dat acties in gang worden gezet, waarvan de resultaten een aanleiding zijn voor hernieuwde betekenisconstructie.

Naar aanleiding van dit model heb ik gesteld dat functie van denkprocessen van schoolleiders tweeledig is. Aan de ene kant moeten schoolleiders sturing geven aan hun persoonlijke proces van visie-ontwikkeling (wat ook een vorm van betekenisverlening is); aan de andere kant moeten ze het effect daarvan op het collectieve proces van betekenisverlening in de gaten blijven houden. Schoolleiders moeten daarom op drie niveaus kunnen reflecteren: op hun persoonlijke niveau, hoe ze situaties interpreteren, en welke alterna-

tieve interpretaties mogelijk zijn; op het niveau van de verbinding van deze interpretaties met hun (verbale) handelen; en tenslotte op het niveau van de beïnvloeding van het collectieve betekenisverleningsproces in de school.

Voor toekomstig onderzoek heb ik drie mogelijke accenten genoemd. In de eerste plaats een nadere uitwerking van onderzoek naar schoolleiderschap als in de organisatie 'verspreid' fenomeen. Welke interacties vinden er plaats, welke patronen van leiderschap zijn er zichtbaar, hoe ontwikkelen zich deze patronen? Hier ligt ook een belangrijke verbinding met onderzoek naar het leren en ontwikkelen van docenten in de schoolorganisatie.

Een tweede accent heb ik gelegd op onderzoek naar reflectieprocessen van schoolleiders. Hoe verlopen deze processen, en hoe kun je ervoor zorgen dat ze leiden tot een hogere effectiviteit van het handelen van schoolleiders? Van belang is hierbij, om de verbinding met de dagelijkse context waarin schoolleiders zich ontwikkelen, niet te verliezen. Er is al veel bekend over algemene kenmerken van expertise; een nadere invulling van deze algemene kennis met concrete voorbeelden van expertise-ontwikkeling door reflectie uit de praktijk zou zeer interessant kunnen zijn.

Het derde accent wat ik genoemd heb, volgt uit de voorgaande twee. Dit heeft betrekking op een pleidooi voor meer longitudinale onderzoeksopzetten. Het lijkt erop dat de mogelijkheden van het traditionele onderzoek, waarin binnen een relatief korte periode wordt gezocht naar de relatie tussen schoolleidersgedrag en schooleffectiviteit, zijn uitgeput. Wat noodzakelijk lijkt, is om langduriger, en meer in detail te onderzoeken hoe de ontwikkeling van leiderschap als een interactief proces, verspreid in de school, zich verhoudt tot ontwikkeling van de schoolorganisatie als geheel.

Appendix

Synoptic chart Study 1

Phases in data collection

participant no.	interview date	conceptual analysis	feedback round 1	construction of matrix	feedback round 2
1	May 1999	June 1999	Feb 2000	March 2000	April 2000
2	May 1999	August 1999	Feb 2000	March 2000	April 2000
3	May 1999	Sept 1999	Feb 2000	March 2000	April 2000
4	May 1999	Nov 1999	Feb 2000	March 2000	April 2000
5	May 1999	Nov 1999	Feb 2000	March 2000	April 2000
6	May 1999	Dec 1999	Feb 2000	March 2000	April 2000
7	May 1999	Dec 1999	Feb 2000	March 2000	April 2000

Key steps in analysis

step	description	first proceedings	last proceedings	key concepts added	methodology used
1	assessing structure of cause maps	May 2000	Nov 2000	density, centrality	network analysis
2	labeling aspects of structure	Aug 2000	Dec 2000	cognitive integrity; cognitive complexity	
3	assessing content of cause maps	Nov 2000	Nov 2002	domains of knowledge	multidimensional scaling
4	interpreting content of cause maps	July 2002	Oct 2002	structural, political, symbolic, human resources	
5	interpreting structure and content of cause maps	Nov 2000	Nov 2002	cognitive repertoire	within-case analysis
6	reporting of results	Dec 2000	Nov 2002		cross-case analysis; selecting contrasting cases

Synoptic chart Study 2

Phases in data collection

	interview date
participant 1	May 1999
participant 2	May 1999
participant 3	May 1999
participant 4	May 1999
participant 5	May 1999
participant 6	May 1999
participant 7	May 1999

Key steps in analysis

step	key stages	first proceedings	last proceedings	operations
1	exploration stage	June 1999	August 1999	defining meaningful segments; formulating open codes
2	specification stage	August 1999	March 2002	defining categories of codes; function of category in problem solving process
3	reduction stage	September 1999	March 2002	axial coding: adjusting the codes to the categories; filling up the categories
4	integration stage	March 2001	March 2003	using categories and codes to describe problem solving accounts
5	reporting of results	May 2001	September 2003	horizontal analysis; contrasting cases; vertical interpretation

Synoptic chart Study 3

Phases in data collection

partici-pant	interview 1	interview 2	interview 3	observa-tion 1*	observa-tion 2*	observa-tion 3*	observa-tion 4*	focus group teachers	focus group students
1	May 2001	May 2001	May 2001	May 2001	May 2001**	Sep 2001	Oct 2001**	Oct 2001	Oct 2001
2	May 2001	June 2001	May 2001	May 2001	June 2001	Oct 2001**	Oct 2001	June 2001	June 2001
3	Sep 2001	Oct 2001	Sep 2001	Sep 2001	Oct 2001	Oct 2001	Oct 2001	Sep 2001	Oct 2001
4	Sep 2001	Oct 2001	Sep 2001	Nov 2001	Nov 2001**	Nov 2001**	Jan 2002	Mar 2002	Mar 2002
5	Oct 2001	Oct 2001	Nov 2001	Nov 2001	Nov 2001	--***	--***	May 2002	May 2002
6	Nov 2001	Jan 2002	Jan 2002	Feb 2002	Feb 2002	Feb 2002	Feb 2002**	Feb 2002	Feb 2002

* including interview after observation, unless indicated otherwise
** no interview after observation
*** unexpected early end of participation

synoptic chart study 3 –continued—

Key steps in analysis

step	description	first proceedings	last proceedings	foci in analysis	"techniques" employed
1	interpretation of cause maps	May 2001	May 2002	complexity; integrity; meaning attached by participants	MDS, qualitative interpretation of explanation of participant with regard to cause map
2	interpretation of problem solving processes	May 2001	May 2002	means; products in problem solving process	qualitative analysis using a priori scheme of categories
3	interpretation of observations	Oct 2001	June 2002	direct/indirect guidance	interpretation of frequencies of utterances
4	writing of individual reports	Dec 2001	July 2002	n/a	
5	discussion of results with participants	April 2002	Sept 2003	n/a	
6	interpretation of cases in light of central research question	Aug 2002	Sept 2003	personal background; contextual aspects; defining 'goal' and 'source' variables	"Second order" analysis of qualitative data (Alvesson & Sköldberg, 2000)
7	determining central events	Jan 2003	May 2003	recurring, central themes in observations and interviews	"situational focus" (Alvesson & Deetz, 2000)
8	interpreting relations between visions and behavior	Jan 2003	Sept 2003	congruence and discrepancy between central themes in observations and interviews	
9	reconstruction of cases starting from central events	May 2003	Oct 2003	explanation of events in light of interaction between social and cognitive component of vision	

Curriculum Vitae

Hartger Wassink werd op 16 juli 1971 geboren in een plaatsje in een van de ingepolderde delen van de voormalige Zuiderzee, die toen nog samen de Zuidelijke IJsselmeerpolders heetten. Vanaf 1972 heet dit dorp Dronten. Hartger deed in 1989 zijn vwo-examen aan het toenmalige Johannes Calvijn Lyceum in Kampen, wat tegenwoordig Ichtus College heet. In hetzelfde jaar ging hij studeren aan de Katholieke Universiteit Nijmegen. Na het behalen van zijn propedeuse sociologie veranderde hij van studierichting. Hij combineerde grote delen van de studie arbeids- en organisatiepsychologie met delen van bestuurs- en beleidswetenschappen, schreef zijn afstudeerscriptie bij de vakgroep onderwijskunde en studeerde af in de Sociale Wetenschappen in augustus 1995.

Na zijn afstuderen deed hij een jaar onderzoek naar de veranderende rol van managers in het agrarisch onderwijs aan de vakgroep Agrarische Onderwijskunde van de Landbouw Universiteit Wageningen, tegenwoordig Wageningen Universiteit en Researchcentrum. Na afloop van dit onderzoek begon hij in 1996 als intercedent bij Randstad Uitzendbureau. In 1999 kwam hij als AIO terug bij de vakgroep Onderwijskunde van de KUN. Sinds oktober 2003 werkt hij als adviseur voor Interstudie, een adviesbureau voor onderwijsmanagement in Arnhem.

What do school leaders think while performing their jobs? What is the nature of these thinking processes? And what is their function, with regard to the day-to-day leadership in the school? These questions are central to the research reported in this book. Three approaches to studying the thinking processes of school leaders are explored. A naturalistic, interpretive research approach has been taken, to gain more insight in the "how" of daily school leadership. By giving tangible descriptions of real-life leadership situations, this book provides new insights in the dynamics of how school leaders think and act to deal with daily complexity in their schools.

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