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Indicators of improved learning contexts: a collaborative perspective on educational leadership

Introduction

In this article, we consider the improvement of learning contexts in a rapidly changing society (e.g. Hallinger & Heck, 2011; Day, 2009) from two apparently differing but in reality intertwined dimensions of leadership: 'education for leadership' and 'leadership in education'. The former refers to management education, the latter to leadership in educational environments. Our aim is to better understand what kind of leadership would be required within diverse educational organisations so as to respond to an increasingly unpredictable and complex world. In combining the two dimensions, we consider educational leadership not only from the increasingly adopted perspective of collaboration but also draw on other topical research.

Although 'education for leadership' and 'leadership in education' actually originate from differing ontologies and could be viewed as unconnected, we argue that this is not necessarily the case. Instead, we argue that deeper knowledge of the efforts of management education to respond to the global shift towards greater societal complexity would also greatly profit educational leadership. This is due to the fact that the world and its impact on school leadership in general and management education in particular is the same: uncertain and demanding. Moreover, the first author of this paper is a researcher in educational leadership while the second has expertise in management education. This fact also helped us to build a bridge between the two apparently differing dimensions.

Within this framework, we conducted a qualitative evaluation study (Patton, 1980) of a real management education curriculum reform in a global business school where tomorrow's

leadership is understood as a collaborative process (van Oord, 2013; Slater, 2005; Thomson & Hall, 2011). We exploited a specific model (Jäppinen, 2014) in order to understand what issues in particular would improve education while at the same time responding to the demands of a changing society (Day, 2009). We call these issues indicators. We will introduce indicators that have been suggested to better respond to the requirements of the on-going complexity shift and guide educational leadership towards better learning contexts for tomorrow. In other words, we attempt to evaluate what the requirements of educational leadership are in light of the intertwined dimensions of education for leadership and leadership in education. Consequently, we seek to answer the following question: what indicators of improved learning contexts should educational leadership pay special attention to in order to respond to increasing global complexity?

Next, we describe three topical perspectives on educational leadership with a view to improving learning contexts. We then present the model that we used in the qualitative analysis of the new curriculum (Creswell & Plano-Clark, 2011). After introducing the data and its analysis, we present the results: indicators for improved learning contexts that we consider essential to take into account in educational leadership for tomorrow. Due limitations on space, we have selected the ones that have arisen the most frequently for more detailed description. We also assume that they hold more interest for an international audience.

Educational leadership and improved learning contexts

To begin with, educational leadership for improved learning contexts has already been examined from many standpoints. We focus on three of the main ones. An increasingly common approach is to study educational leadership with respect to student achievement (e.g.

Donmoyer, Yennie-Donmoyer & Galloway, 2012; Leithwood & Jantzi, 2006; Robinson, 2008; Sebastian & Allensworth, 2012; Silins & Mulford, 2004). The second and more recent approach is to examine it through diverse collective modes (e.g. Goddard, Hoy & Hoy, 2000; Gronn, 2002, 2008; Harris, 2009; Scribner, Sawyer, Watson & Myers, 2007; Spillane, Halverson & Diamond, 2001; Thoonen, Sleegers, Oort & Peetsma, 2012; Thoonen, Sleegers, Oort, Peetsma & Geijsel, 2011). The third, growing but still rather slender, approach is to study educational leadership directly in relation to the increasingly complexity of society and the world of work (e.g. Anae, 2010; Beabout, 2012; Fullan, 2003; Hallinger & Heck, 2011; Mullen & Kochan, 2000). After this, we combine these three approaches under the notion of collaborative leadership in order to analyse the crucial indicators for successful educational leadership in tomorrow's world.

Student achievement and learning

Hallinger and Heck (2011) argue that the most crucial issue for educational leadership is to consider where leaders should target their efforts to gain a greater improvement in learning. Although, in principal, preparation programmes are one choice (e.g. Donmoyer et al., 2012), we will not be focussing on these or on the statistical or meta-level analyses that have commonly been applied in this approach in many educational leadership studies. Instead, we draw on topical management education. There are several reasons for this choice: the particular curriculum reform programme we examined was appropriate and readily available; management education with a global perspective is more adaptable than national or local preparation programmes for principals; and management education is particularly sensitive and responsive to the dynamics and increasing complexity of the world of work at large.

Many scholars argue that in the current era of worldwide economic and social turbulence, a more innovative approach is urgently needed to train leaders capable of managing under these conditions (Jäppinen & Ciussi, 2013). This argument also applies to education. Such approaches should focus on innovation creation, interconnectivity and networking, along with the provision of successful learning environments (e.g. Gosling & Mintzberg, 2004; Kane & Goldgehn, 2011; Muff, 2012; van der Colff, 2004).

There is a general need for leadership characterised by wisdom, courage, humanity, justice, fairness, and transcendence, while leadership should also be developed at the individual, group and organisational levels in order to guarantee improved learning (Crossan, Mazutis, Seijts & Gandz, 2013). Karakas (2010) emphasises emotional issues and human values in terms of creative minds, passionate hearts, and kindred spirits. In addition, a variety of learning-related terms have been used in this context, such as creative problem-solving, problem-based learning, teamwork, team leadership, learning to learn, dialogue, reflection, and social innovators (Crossan et al., 2013; Kane & Goldgehn, 2011; Sitkin & Hackman, 2011).

Consequently, we suggest that all the above-mentioned constituents are crucial in educational leadership for successful student learning, as all call for detachment from traditional models and mind-sets in order to respond to today's global challenges, for example, in terms of curriculum reform (Elizondo-Montemayor et al., 2008), as the curricula currently in use are often rather weakly related to the true demands of working life (Muff, 2012; Pfeffer & Fong, 2002). Here, collective modes of educational leadership could play a crucial role, as explained in the next section.

Collective modes

The second approach in educational leadership studies for improved learning contexts that we focussed on was interactive and synergetic co-performance executed through a collective learning process, that is, as a relationship between individuals and the collective. Such a fresh understanding of leadership as a collaborative activity has become essential, since worldwide societal, political, and economic issues are becoming increasingly complex and influence education at all levels (Burke, 2010; Crawford, 2012; Slater, 2005). As Slater (2005) states, a better understanding of collaboration is essential for educational theories, policies, and practices (see also Goddard et al., 2000; Leonard & Leonard, 2001). Consequently, many novel or remodelled concepts referring to collaborative modes of educational leadership have been proposed, such as shared, distributed, dispersed, flexible, generative, sustainable, transformational, or relational leadership, to mention only a few (e.g. Gronn, 2002, 2008; Hargreaves & Fink, 2006 Harris, 2009; Leithwood & Janzi, 2006; MacBeath, 2005; Raelin, 2006; Spillane, 2006; Spillane et al. 2001).

Due to this conceptual incoherence, we will look in particular at certain manifestations of educational leadership that are considered crucial for this second approach. These are leadership as interactive co-performance and collective learning, the importance of a close relationship between the collective and individuals, and, as a consequence, the process of synergy creation. As Scribner and others (2007) point out, the emphasis of leadership should be more on what the personnel do than who they are. Thomson and Hall (2013) further explain how the members of the collective, by their actions, construct a world that makes sense. In other words, leadership has to be associated with tasks and functions. Consequently, interaction between individuals plays a central role in accomplishing effective and successful leadership (Thomson & Hall, 2013). Crawford (2012) explains how this collaborative

interaction has been given many labels, such as distribution, sharing, collegiality, participation, or democracy. She continues by emphasising the importance of activities as collective performance.

Duncombe and Armour (2004) emphasise the value of collaborative learning (see also Bandura, 1997; Sergiovanni, 1998). They name the essential elements as mentoring, peer coaching, collegiality, critical friends, observation, and working and discussing together. For example, Raelin (2006) introduces action learning as one of the essential tools in explaining how learning is generated from human interaction arising from learner engagement in joint efforts to solve real-time problems. Van Oord (2013) also underlines the importance of the relationship between leadership and learning.

However, what is very often forgotten in the discussion on new modes of leadership is the obvious fact that to enable interaction and co-performance both the individual and the collective are needed (Crawford, 2012). Without individuals, no joint common acts can be performed. Roth and Lee (2006) see the dialectic of the individual and the collective as interplay where each aspect presupposes the existence of the other. Hence, co-performance and collaborative learning are simultaneously individual and collective endeavours, even if not always balanced. For example, Hutchins (1996) has proved how a group can have cognitive properties that differ strongly from those of the individual members. Roth and Lee (2006) further introduce embodied individual actions and activities as operations that make sense and refer to shared meanings. In this way, the members of the community are able to expand their learning and to capitalise on the collective (van Oorden, 2013). Burke (2010) remarks, for instance, how collective actions call for the development of collegial relationships, from spontaneous collaboration and role-sharing to formal relationships. Hence, it is important to move beyond one individual's knowledge and account for what the group knows and does collectively.

Finally, leadership as shared co-performance and learning is actually about synergy creation (Gronn, 2002, 2008; MacBeath, 2005; Mullen & Kochan, 2000). Ritchie and Wood (2007, p. 364) also note that the end goal is individuals who are able to share their initiatives and ideas in such a way that the result is greater than the sum of the actions of any of them alone. The empirical value of educational leadership as a shared and synergetic activity has been proved in many evidence-based studies (e.g. Scribner et al., 2007). Surowiecki (2004) explains how, under the right circumstances, groups can be markedly more intelligent and smarter than the smartest people in them.

In order to form a more coherent picture of collective leadership modes irrespective of differing names or labels, we argue that the true essence of leadership should be understood as a collaborative process, and one which seeks to respond to the complexity of social and working life (Sergiovanni, 1998). Educational leadership should reflect this continuous learning process and evolve so as to be adaptable both to the learners' needs and to the changing circumstances. This we will examine through management education. In this way, the process provides a bridge between educational leadership and management education (Figure 1). We discuss the nature of this bridge in the next sections.

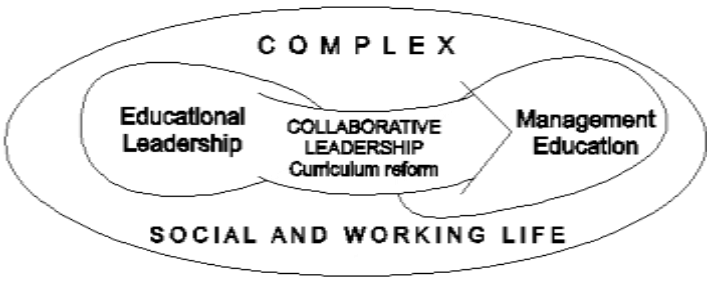

Figure 1. Collaborative leadership as a bridge between educational leadership and management education within the complex social and working life

In the third approach to educational leadership, we argue for the importance of acquiring an understanding of the consequences that continuous change brings about in the society and the world of work. Such an understanding could then lay a better foundation for the educational leadership of tomorrow to improve different learning contexts. Nevertheless, studies on educational leadership of this kind are still too rare. One possibility would be to approach educational leadership from the viewpoint of complexity science. However, this perspective would need to adopt a different kind of research design and methodology and is, therefore, beyond the scope of this article.

As Fullan (2003) points out, a real change in educational systems is extremely difficult to achieve because of the cultural stability that characterises school organisations (see also Sergiovanni, 1998). In facilitating change, leadership and its quality play a crucial role (Leonard & Leonard, 2001). However, although some rigorous studies exist, research on educational leadership, particularly from the standpoint of increasing social complexity in terms of rapid and continuous change continues to be in short supply. For example, Mullen and Kochan (2000) present an organic view of change in connection with networks. They explain how coalitions create a community for sharing a common purpose and act as a change catalyst.

One of the other few studies to address present-day social complexity and collective modes of educational leadership is that by Beabout (2012) who discusses turbulence and perturbance. Turbulence means increased uncertainty coming from outside the school, and perturbance refers to the outcomes of such turbulence when people come together answer the question "What's next?" (ibid., 17). Beabout also explains how a 'crisis' is a source for real change. Crises in national economies (e.g. global recession), the world of work (e.g. shifts in the demand and supply of labour, the disappearance of traditional occupations and the rise of new ones, unemployment), and human life in general (e.g. migration, family issues, social

justice vs. injustice) are increasingly common in our societies. These crises impose strong demands on educational leadership. Thomas and Mengel (2008) also propose that future leaders need to be able to deal with uncertainty and the unknown. They should be able to solve complex problems and cope with change. Thomas and Mengel (ibid.) call for emotionally and spiritually intelligent leaders able to engage in highly complex and unique projects.

We argue here that in response to social complexity, tomorrow's educational leadership should be considered as the outcome of a learning process involving interactive practices that extend across diverse social and situational contexts (Goldstein et al., 2010; Spillane, 2006). What matters are the actual procedural and dynamic measures and actions carried out by all of the relevant stakeholders (Bandura, 1997; Spillane, 2006). In complex change, leadership should be considered both as a threshold concept and as a mediator of networking, cooperating, and interconnecting in learning environments. This is the kind of leadership we call 'collaborative' (Slater, 2005, p. 321).

Finally, we argue that when educational leadership is seen as including a collaborative and synergetic learning process, manifested in the interactive co-performance of innovation creation, interconnectivity and networking, it has better chances of responding to the unpredictable dynamics of a complex social life. Hence, we suggest that, in order to manage uncertainty, collaboration should be at the heart of educational leadership in practice. We define this generic phenomenon as collaborative leadership (Jäppinen, 2014) in the next section.

Collaborative leadership

By collaborative leadership we refer, first, to a special set of synergetic practices and second, to a long-term social learning process where goal-oriented attitudes, intentions and measures shared by the whole educational staff are needed as regards the programmes, concepts and practices of teaching and learning, the values and the mission of the school, and its main learning goals (e.g. Duncombe & Armour, 2004; Goddard et al., 2000; Gronn, 2008; Leonard & Leonard, 2001; Slater, 2005; Scribner et al., 2007; Spillane et al., 2001; Thoonen et al., 2011).

Collaborative leadership is a shared endeavour whereby various individuals collectively engage in goal-oriented interaction as a whole and are able to create something novel through the process. In other words, collaborative leadership focuses on how a group of individuals comprising, for example, teachers, students, and workplace representatives, progressively work together in organisational contexts. In our study, this process concerned shared activities and co-performance embedded in practice in a curriculum reform in management education.

The TenKeys® model

The TenKeys model® of collaborative leadership that we used in the analysis is an ideal (Figure 2). While this ideal can never be attained in reality, it can be continuously approached. The model provides a platform on which actual manifestations of collaborative leadership can be assessed. Due its flexibility, the model can be applied to any organisation. The model describes collaborative leadership in any organisation at a moment when a group of people are jointly engaged in synergetic and goal-oriented work. Experiments with the

model have been conducted on several occasions, and it has proved successful in illustrating collaborative leadership in real educational environments (Jäppinen, 2012 a b, 2014).

The model describes educational leadership as a shared and situational phenomenon involving diverse characteristics of people, context, situation, time and space within a process of collaboration. The ideal is described through several attributes (Figure 2), such as polyphony, interaction, expertise, flexibility, commitment, responsibility, decision-making, negotiation, confidence-based control, and evaluation, along with a wide array of specifying nuances. Figure 2 images the attributes of collaborative leadership as the petals of a flower. Each petal enfolds several nuances; these will be introduced later in the Result section.

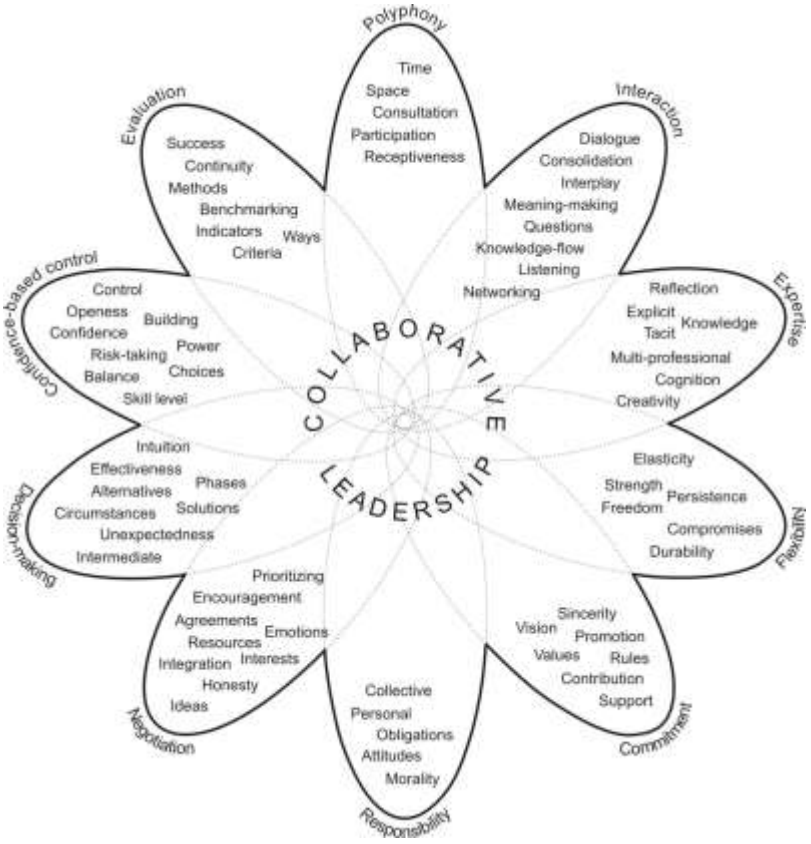

Figure 2. The ideal TenKeys® model of collaborative leadership: attributes and their nuances

The design and development of the model has taken several years, and has included both theory- and data-driven progressive qualitative and quantitative analysis (Creswell & Plano-Clark, 2011; Qualitative data analysis, online) where the attributes and their nuances were derived from two main sources. For example, the model includes several successful evidence-based collaborative elements found in other educational studies, such as the ten main tasks of pedagogical leadership, introduced by Sergiovanni (1998, pp. 41-42).

In building the conceptual ground, first, a comprehensive array of leadership theories and studies from different scholars using various synergetic terms was drawn, such as flexible, relational, distributed, shared, integrative, dispersed, or generative leadership (e.g. Bandura, 1997; Goldstein, Hazy & Lichtenstein, 2010; Graen, 2004; Gronn, 2008; Hargreaves & Fink, 2006; Harris, 2009; Hazy, Goldstein & Lichtenstein 2007; Leithwood & Janzi, 2006; MacBeath, 2005; Raelin, 2006; Senge, Cambron-McCabe, Lucas, Smith, Dutton, & Kleiner, 2000; Sergiovanni, 1998; Spillane, 2006). The second source consisted of the results on collaborative leadership features obtained from two large-scale nation-wide studies. When new collaborative attributes and nuances arose from the existing leadership theories and studies during the model development process, they were categorized and triangulated by research colleagues until saturation was reached.

The model was tested statistically when an executive team of five representatives from a wide range of educational organizations evaluated the state of their collaborative leadership on the basis of 45 statements in two nation-wide (name of the country) studies. Each statement contained a pair of attributes in random order. For the statistical analyses, nine new groups were formed in which all the couplings of each attribute with the other attributes were included. The values of Cronbach's Alpha varied between 0.890 and 0.950 (e.g. Jäppinen & Maunonen-Eskelinen, 2012). These extremely high values indicated that the model had strong inner validity.

Next, we will introduce the data of a specific curricular narrative created in management education, which we examined by means of a qualitative content analysis and applying the TenKeys® model. The analysis yielded certain indicators that we propose could be useful in responding to the complexity of social and working life today.

Method

Our qualitative evaluation study (Patton, 1980, pp. 41-43) represents a holistic, inductive and naturalistic method that accords with the idea of collaborative leadership. Hence, we analyse the narrative on the management education curriculum from the perspective of the attributes and nuances of collaborative leadership in order to identify indicators for improved learning contexts and to better understand how these could benefit educational leadership.

Data

To ensure the anonymity of the business school studied here, its name and location are not revealed. The school had been part of a global merger involving several national and international campuses. Consequently, the school now faced new challenges from the ensuing increase in the complexity of social and working life. The new organization, along with its new dean, stated that their long-term target was to become one of the globally highest ranked business schools. Moreover, they had set themselves a new goal for improving learning, i.e. training ethical leaders for a complex, global business environment. The top management had set up a 32-member transversal team, comprising six directors, 25 teachers from various campuses and one student, altogether 32 members, of whom 15 formed the core of the reform project. The core team began, collaboratively, to reform the pedagogical model and build an

innovative new curriculum in line with the school's updated mission and values. The role of the other members of the transversal team was more one of enhancing the process than a strictly creative one. The ensuing one-year curriculum reform process was analysed as a narrative.

The main data comprised a curriculum narrative in the form of a booklet of 123 pages, which was analysed using the TenKeys® model. The booklet was considered a narrative as it introduced the new curriculum in the form of a story including explanatory and descriptive drawings. The booklet neatly demonstrated collaborative leadership both as an outcome and as a synergetic learning process. It revealed the co-performance of the whole expert team in detail, including the impact of each individual member over the year-long process, and manifested the individual and collective sides of the collaborative leadership learning process as one of intensive co-working.

The booklet was supplemented with five in-depth, semi-structured, and recorded and transcribed interviews (or merely free-format discussions) representing over 30 percent of the core group, more specifically four professors and the student. These five persons were chosen as the main initiators of the curriculum. The project manager was one of them, while the student was included as a representative of the target of the reform. Since the main data source was the booklet, we conducted these five supplementary interviews to gain further information where this might be needed to better understand a particular indicators emerging from the analysis of the collaborative leadership process.

Qualitative content analysis

Our qualitative evaluation study (Patton, 1980) of the curriculum narrative draws on the method of qualitative content analysis, which is a type of systematic text analysis (Elo &

Kyngäs, 2007; Hsieh & Shannon, 2005; Mayring, 2000). In this method, the text, here the curriculum narrative, is distilled into categories according to themes and meanings, i.e. attributes and nuances of the model. The method offers several approaches to the categorisation process. In conventional content analysis, the coding categories are derived directly from the text data. In the directed approach, analysis starts with a predefined theory or relevant research findings. A summative content analysis, in turn, involves counting and comparisons of keywords (Hsieh & Shannon, 2005, p. 1278).

Qualitative content analysis can also be divided into inductive and deductive approaches (Elo & Kyngäs, 2007; Mayring, 2000). In the deductive approach, previously formulated and theoretically derived aspects are used, in the present instance the attributes of collaborative leadership. These predefined aspects are then studied against the text, here the narrative. In this way, the analysis allows the researcher to test theoretical issues for better understanding of the data (Elo & Kyngäs, 2007, pp. 108-109). The 'theory' also guides the initial coding (Hsieh & Shannon, 2005). For present purposes, we mainly used a mix of conventional and directed or deductive approaches.

To begin with, we scanned the curriculum text for features of collaborative leadership (Figure 2), searching for utterances, ranging from a few words up to whole sentences, that corresponded to attributes in the TenKeys® model. These utterances constituted the unit of analysis and were translated into English. The directed or deductive approach was used for constructing these as subcategories (Figure 3). That is, the subcategories were theory-driven. The directed or deductive approach was accompanied with conventional analysis when creating the three generic categories and one main category. In this way, we were able to construct an appropriate categorisation matrix (Figure 3) (Elo & Kyngäs, 2007, pp. 108-109). Inductive analysis was used only for describing the main category, i.e. Indicator, and its different manifestations. Figure 3 illustrates the basic analytical matrix.

The interviews as supplementary data were analysed using traditional qualitative concept analysis (Creswell & Plano-Clark, 2011; Qualitative data analysis, online). The unit of analysis for the interviews ranged from a few words up to whole sentences or even an entire speech turn. Here too, attributes of collaborative leadership were searched for, although they were not included in the categorization matrix. The TenKeys® model was used in order to avoid bias in the interpreting the results. The findings from the interviews were only used where needed to better understand the curriculum analysis.

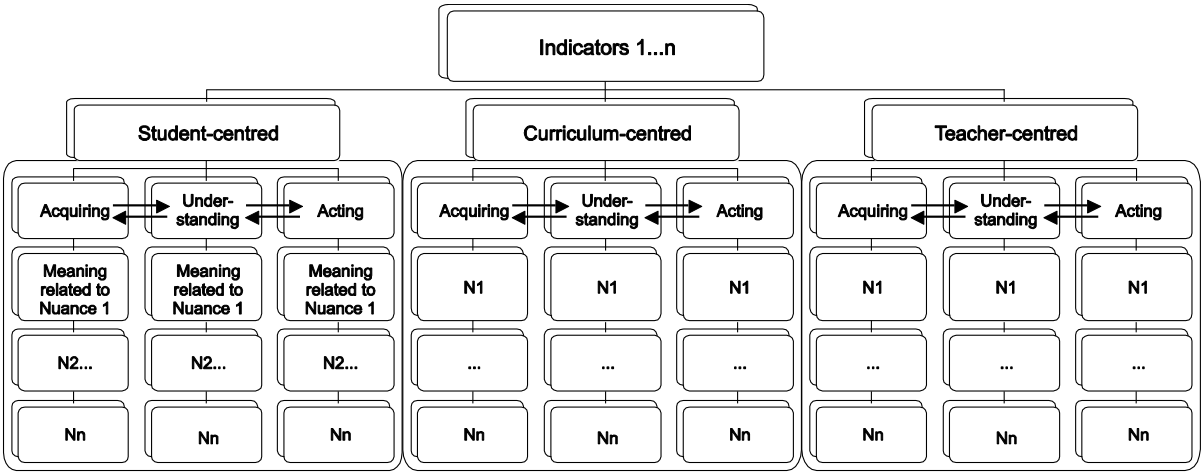

Figure 3. The analysis matrix

Categorisation

Subcategories: The utterances from the narrative were collected together under their respective attributes and then regrouped according to their nuances (Figure 2). These meanings were numbered N1….Nn (N=nuance) (Elo & Kyngäs, 2007, p. 111). At this stage, the boxes had not yet been regrouped under three columns.

Generic categories: Second, the generic categories were created by the conventional approach. The first three were named Curriculum-, Student-, and Teacher-centred, as

displayed in Figure 3. They refer to the main foci in collaborative leadership. Moreover, since collaborative leadership should also reflect a continuous learning process, a simultaneous analysis was conducted to identify such a process. The process-related categories form a continuous cyclical process of collaborative leadership (see arrows between the patterns, Figure 3). These theory-driven categories were Acquiring, Understanding, and Acting. (Acquiring refers to the phase where new knowledge has been gained on an issue. Acquiring also includes thinking but on a more superficial level. Understanding refers to a deeper level of thinking in which the knowledge acquired has been comprehended in such a way that it could be adapted in various circumstances. Acting refers to the phase where the acquired and understood knowledge has been concretely put into practice.)

In addition, for each attribute, a working matrix was established according to this basic model. Table 1 highlights one of these matrices, showing how the TenKeys X® was used in the analysis. However, the generic categories are not specified in the Results section. They only helped us to better organise the data after establishing the three columns within each generic category (Figure 3) (Hsieh & Shannon, 2005, p. 1278).

Table 1. Working matrix for polyphony

Attribute/ Nuances	**Polyphony** 1. Provision and allowance of space and time for everybody 2. Ensuring everybody's wide participation 3. Receptiveness to differences and different "voices" 4. Power questions 5. "Critical moments" where the direction suddenly changes		
	Process of collaborative leadership		
	Acquiring ⟷	**Understanding** ⟷	**Acting**
Curriculum-centered issues	1. Time management 3. Diversity management 3. Wider choices of ideas/solutions	3. Respect for diverse roles in collaboration	2. Networks 2. Transversal and integrative projects 2. Multi-campus activities 2. Interdisciplinary courses, debates etc. 2. Team-based projects 2. Transversal projects 4. Students and teachers as the main actors 5. Grouping and organization of items
Student-centered issues	1. Working with a large number of individuals and across a large number of cultures, time zones and distances	3. Understanding the emerging world	2. Projects by campus-wide teams 2. Student networks 4. Students as co-constructor of their own competences with other students and teachers 4. Students as change agents
Teacher-centered issues	2. Integrative approach of all obtained teaching	3. Focusing on each student's individual potential	4. Co-teaching

Main category: Indicators, the main category, were formed by a combination of deductive, inductive, and abductive thinking. This meant that an illustrative synthesis involving each attribute was drawn. This synthesis was then conceptualised and verbalised as 31 Indicators (Table 2). The Indicators were named through abduction, as an "educated guess", to best describe the entire collaborative leadership process (for more on abduction, see Pierce's writings in the online Stanford Encyclopedia of Philosophy). The frequencies shown in Table 2 indicate the most important attributes and Indicators (in bold) to be introduced in the Results section. The frequencies also give an idea of the quantities of the utterances. We assume that educational leadership would better benefit from the indicators with the highest frequency because relating studies have shown similar results as regards the most frequent attributes in educational leadership, although we consider all the indicators that emerged as important from theoretical perspective on improved learning contexts. However, owing to limitations on space, we can only briefly mention the less frequent indicators.

Table 2. Indicators

* (f): frequency of nuances utterances

Attributes	**Curriculum-centred**	**(f)**	**Student-centred**	**(f)**	**Teacher-centred**	**(f)**
Interaction	**KDB**	14	**Flow-Networking**	20	**Cross-Synergy**	**6**
Expertise	**Professional Mind-set**	13	**Actor**	18	**Professional Coaching**	**5**
Decision-making	**Complex Thinking Entrepreneurial Spirit**	9	**Designer**	20	**Uncertainty Methodology**	3
Polyphony	**Open Package**	12	**Co-Constructor**	6	**Multidimensionality**	3
Negotiation	**School of Life**	7	**Maturity**	5	Mind Mapping	4
Commitment	Sustain-ability	6	Choice Maker	2	Sense Making	**5**
Flexibility	Adjustment	4	Accompanied Freedom	4	360° Vision	3
Evaluation	**Embodied KDB**	4	Consolidated Metacognition	5	Performance Optimizing	2
Responsibility	Ethics Everywhere	2	High-Powered	4	Immersed Ethics	1
Confidence-based control	**Top Management Driven**	1	Risk Management	1	Cultural Awareness	1

First, we present the most frequent attributes of collaborative leadership that emerged from the analysis. We then describe the Indicators related to these attributes. In so doing, we will draw on their nuance-related meanings (Figure 2) and other content from the working matrices, and sometimes also from the interviews, to illustrate the Indicators in connection with the reality.

Results

Figure 4 shows collaborative leadership as presented in the curriculum booklet. The numbers attached to the attributes are given simply as an indication of their frequency of occurrence in the narrative. It is important to note that the researchers did not knowingly emphasise any of the attributes. The attributes and their Indicators emerged directly from the data from the application of inductive and abductive analysis. Hence, the authors did not invent them beforehand; instead, they genuinely arose from the content analysis.

In summarising the results, the generic categories (Curriculum-, Teacher- and Student-centred) and the process categories (Acquiring, Understanding, and Acting) are treated as an integrated whole. We now describe the attributes of collaborative leadership that were the most common, rich and multiform: Interaction, Expertise, Decision-making, and Polyphony (Figure 4). After this, we will present a set of indicators for the improvement of learning contexts. We consider, on the basis of our theoretical reflections, that these specific indicators are particularly important in view of tomorrow's educational leadership and coping with an increasingly complex society. For the four main attributes, we will give examples of nuances that we consider of particular interest to an international audience.

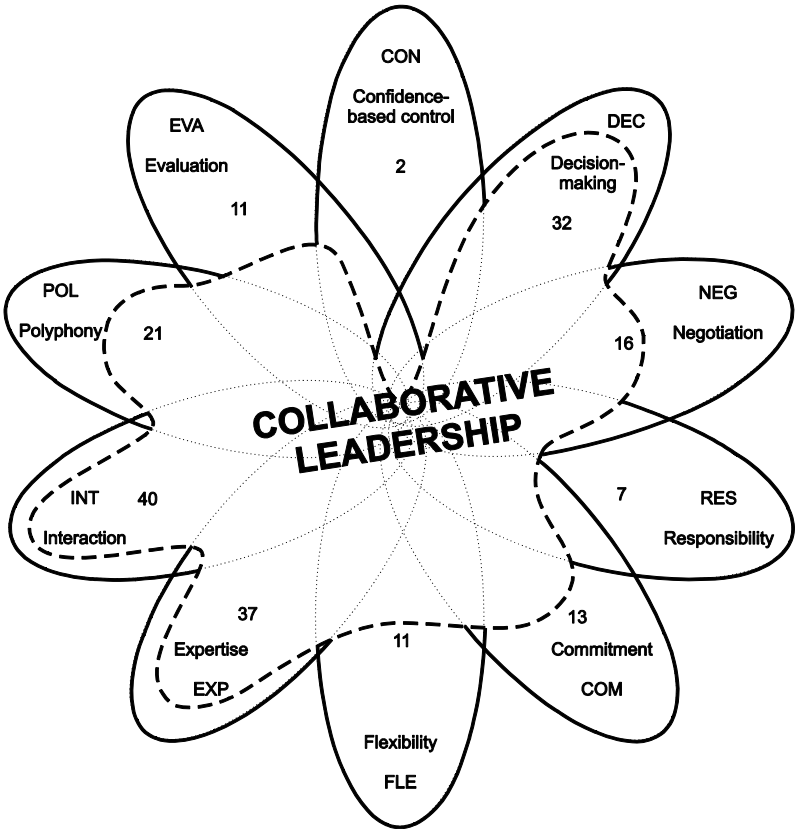

Figure 4. Collaborative leadership within the particular curriculum reform

Manifestation of collaborative leadership in relation to social change

Interaction was the richest attribute of collaborative leadership, displaying the following nuances:

- Systematic and continuous interplay: “participatory, interactive, and interdisciplinary courses”; “small groups with a facilitator”; “creative, stimulating and genuine collective, group, and team work”; “understanding the significance of working together”; “regular workshops”; “integration of different learning dimensions”
- Wide, continuous, and multiform dialogue: “interpersonal communication”; “learning to communicate”; “making inductive, abductive, and deductive arguments”;

"discussions and debates about today's important issues"; "communication as the basic element in the success of future leaders and managers"

- Significant and critical meaning making: "communication integrally linked with critical thinking"; "developing the meaning of an organization"; "understanding both the micro and macro perspectives of an organization"; "understanding rationality"; "expanding awareness of how to live in an unfamiliar culture"

- Significant and critical questions: "learning to ask good questions"; "learning to give constructive criticism"; "learning to question various materials"

- Fluidity of formal and informal knowledge: "avoiding knowledge fragmentation with respect to the real world"

Expertise was almost as rich an attribute as Interaction. This signifies the pivotal importance for collaborative educational leadership of the sharing of expertise. This is also evident in the many nuance-related examples:

- Treatment and distribution of explicit and tacit knowledge: "reorganisation, integration and contextualisation of knowledge"; "progressive knowledge building", "participating in international congresses and making a synthesis of them for sharing"

- Mediation of multi- and inter-professional knowledge: "getting an objective and wide knowledge of the main professions in current working/business life"; "multi-professional activities"; "innovative and different views of the world"; "acting professionally"; "developing expert working and high-level competences"

- Shared cognition: "surpassing intellectual limits"; "students as researchers, actors in the knowledge society, and consultants on leadership"; "experimentation in leadership by hobby groups"

- Common reflections: " collective, quality, and distributed reflections"

Decision-making was an attribute almost as rich as Interaction or Expertise. Below are some aspects worth considering with respect to educational leadership:

- Supporting multiform thinking and problem-solving: "problem-based learning"; "finding new and valid solutions"; "pedagogical exercises in making critical analyses and syntheses"; "recognising fallacies"; "advancing towards new thinking paradigms"; "evaluating the truth of claims"

- Uncovering background or underlying issues: "stating statistics and causal inferences"; testing hypotheses"; "articulating implicit assumptions"; "reliability of informational sources and the acceptability of contentions"

Polyphony implies sensitiveness to diversity in the organisation. It refers to diverse communicated opinions, comments, ideas, and proposals coming both from within the organisation itself, for instance, from administration, teachers, and learners, and from the outside, particularly from enterprises and associations, parents and other stakeholders:

- Ensuring everybody's participation: "transversal, team-based, and integrative projects"; interdisciplinary courses and debates"

- Receptiveness to differences and different voices: "diversity management"; "respect for diverse roles in collaboration"; "understanding the emerging world"

- Power distribution: "networks"; "focusing on each individual's potential"; "co-teaching"; "co-construction"

- Provision of and allowance for space and time: "time management"; "working with a large number of individuals across a large number of cultures, time zones, and distances"

Indicators for improved learning contexts in an era of social change

Table 2 summarises the Indicators for improving learning contexts extracted from the data. The names of the indicators (except KBD) were invented by the authors. The results take into account the synergy of the three main aspects of collaborative leadership: co-performance, unity of the individual and the collective, and a shared learning process. We have chosen for detailed examination only the indicators related to the most important attributes – Interaction (Int), Expertise (Exp), Decision-making (Dec) and Polyphony (Pol) – that are considered more general and applicable across wider cultural settings. We have also re-grouped similar indicators together to form a more coherent entity. Moreover, we discuss two additional indicators that we also consider important for educational leadership, based on the three theoretical approaches to improved learning contexts.

KDB, and Embodied KDB

The most frequent attribute was KDB (Int) (Snook, Nohria, Khurana, 2012). It refers to 'knowledge-ability', 'know-how' as 'doing', and 'being' as a fluid entity. That is, Knowledge + Doing + Being are equally important in leadership development (ibid.). KDB means an interconnection between self, school, and environment, as well as working life experiences, through co-created content and informal knowledge evaluation. Thus, it encompasses connections between subject knowledge and its concrete applications. In this way, the undesirable fragmentation of expert knowledge can be avoided and a connection with the real world established. KDB points to the need for participatory, interactive, and interdisciplinary learning. It is the link that guarantees that all aspects of the self and education are bound to each other. It also means that networks and transversal, team-based, and integrative projects are essential for learning.

Of the additional indicators, we discuss two in more detail. The first of these is Embodied KDB which refers to a holistic, accurate, and transparent evaluation which deals with every activity of the curriculum in real time. The focus of evaluation is not only on knowledge acquisition (K), but also equally on competencies (D) and behaviour (B). Consequently, an evaluation of this kind is continuous and gradual, comprising varying evaluation criteria according to the importance of the issue in question and concentrating on progression.

Flow-Networking, Cross-Synergy, and Multidimensionality

Flow-Networking (Int) denotes a heterarchical flow of knowledge across and between the stakeholders, and not solely hierarchical, bottom-up, or top-down delivery of knowledge. It is about learning from each other. It emphasises peer work and collective knowledge building. The focus is on creative, stimulating and genuine group and team work. Flow-Networking is about formulating inductive, abductive, and deductive arguments. It embraces both micro and macro perspectives and expands participants' awareness, for example, of how to live in an unfamiliar culture. Flow-Networking encompasses concept analyses and argument mapping, and helps in locating finding the limits of logic.

Cross-Synergy (Int) signifies synergy achieved by cross-teaching, as in, for example, interdisciplinary courses or team teaching in the same class to bring about more diverse and versatile expertise. Cross-Synergy is also very much about supporting students in developing their critical meaning-making.

Multidimensionality (Pol) means that each body of KDB related to a particular teaching content is contextualised for other teaching contents. At the same time, it takes into account personal development programmes, study content and structures, student associations, working life, and other essential environments.

Professional Mind-set and Professional Coaching

By Professional Mind-set (Exp), we mean a mind-set related to thinking patterns and attitudes that are not merely knowledge-based expertise but such expertise that is based on reflection, creativity and distinctiveness. Broadly, it encompasses not only explicit book knowledge but also tacit expert knowledge. Professional Mind-set describes the reorganisation, integration, and contextualisation of knowledge that includes distributed quality reflection on real-life working and professional issues.

Professional Coaching (Exp) highlights teachers as the main facilitators of students' learning processes and paths. Professional Coaching stresses the unity between thinking globally and systemic knowledge, anchored in real life issues through the past, present, or future. It is about teaching the whole as meaningful parts while avoiding fragmented knowledge. Professional Coaching enables contextualisation and adds to situated learning. It is also about taking into account students' special talents through the use of inductive and explorative pedagogy in developing the diverse competences and knowledge of students that is required by society but often underestimated in traditional education.

Complex Thinking and Entrepreneurial Spirit

Although Complex Thinking (Dec) and Entrepreneurial Spirit (Dec) relate to two separate concepts, we will deal with them simultaneously. In brief, Complex Thinking is about integrating creative, critical, global, and reflective thinking into a single entity, which then gives rise to responsible decisions. Entrepreneurial Spirit refers to acting as a social entrepreneur with an entrepreneurial mind-set while, at the same time, using Complex

Thinking. This requires the development of frameworks for creative problem-solving and critical thinking. Together, these two indicators refer to an ability to break reasoning down into its constituent parts and promote metacognition as reflection on one's own critical thinking.

Designer, Actor, and Co-Constructor

Three indicators point to the learner's central position in educational leadership. Designer (Dec) emphasises importance of freeing oneself from traditional insights when it comes to creative problem-solving. This means finding new and valid solutions to globally increasing problems, and testing various hypotheses to create theories of one's own. In doing this, recognition of fallacies is essential. Designer relates to learning to synthesise various materials, evaluate the truth of claims and the strength or validity of reasons and arguments, and articulate implicit assumptions.

Actor (Exp) means that an innovative curriculum needs to locate the students as the main actors in their own studies and in charge of their own personal learning paths. Actor also emphasises the role of an explorer, not an outsider. Progressive and visible knowledge and ability-maps must be provided. Such mapping could visually aid students in making choices in their studies.

Co-Constructor (Pol) further emphasises the active role that students should occupy. It signifies engagement in evolving and constructing, together with peers and teachers, the body of "knowledge, doing and being", that is, KDB. In other words, students act as real agents of change in distributed teams and through interaction with their environment as a whole. Being a Co-Constructor means working with a large number of individuals and across a variety of cultures, time zones and distances when acquiring knowledge and business skills.

Open Package, Uncertainty Methodology, and Top-Management-Driven

Open Package (Pol) relates to the appropriateness of the content, which must be easily understood, distributed, treated, and deployed. Although multiform, the learning content should be readily implementable by various stakeholders, such as the administration, as well as easily adaptable by teachers.

Uncertainty Methodology (Dec) concerns problem-based teaching. It provides students with a complex thinking toolkit and supports an open mind-set. It also helps them advance towards new thinking paradigms. In brief, it provides a novel methodology for acting in conditions of uncertainty and a cognitive toolbox to structure argumentative thinking in all manner of contexts.

The first noteworthy additional indicator was Embodied KDB; the second is Top-Management-Driven. They are worth presenting here since the interviewees emphasised the crucial role of the directors in initiating collaborative leadership. The expert group in question had the management's total confidence. As one of the interviewees stated:

"When I say 'we' it was the school, as the director wanted this new pedagogical programme… More than one hundred people from [the one school] went to [the other school] for a three-day seminar to design the foundation of this new school. And a group of people was promoted to create pedagogical innovations...The directors, they really worked closely with this group."

Discussion

This article is an attempt to better understand the requirements for educational leadership in the social and working life characterized by increasing complexity. Although the importance of collaboration is widely acknowledged in educational leadership research, its practical implementation, particularly as a synergetic learning process under conditions of continuous change and global complexity, has been little studied. Our article aims at contributing to fill this gap. For this purpose, we drew on two intertwined conceptions, 'leadership in education' and 'education for leadership'. These two dimensions were connected through the notion of collaborative leadership as co-performance and as an individual and collective learning process in order to gain synergy. We applied the idea of collaborative leadership, by means of a special model, to a curriculum reform process in management education.

We found that collaborative leadership was largely based on interaction, expertise, decision-making, and polyphony. Although all the attributes of collaborative leadership are important, our result indicates that educational leadership for tomorrow should, in particular, foster dialogue in developing common meaning-making; it should exploit diverse knowledge and practical understanding on a large scale and from across the entire community, and further decisions that support multiform thinking and problem-solving processes; and it should ensure that all voices are heard by allowing sufficient space and time for generating the collaborative process in terms of an equitable distribution of power. Moreover, in order to respond to global complexity and continuous change, educational leadership should, in particular, foster innovative learning conditions.

Although we have argued that all the indicators found are essential, some of them, however, should be highlighted on grounds of frequency. KDB may have a role as a meta-level indicator defining and underpinning all the others. When applied to evaluation, KDB entails

radical changes in educational systems. The other central indicators assist learners to construct their own learning paths and the leaders and teachers to act as coaches and facilitators in this construction work. A particularly interesting finding was a heavy focus on students. This is in line with the results of other studies (e.g. van der Colff, 2004; Muff, 2012; Sitkin, 2011) that have pointed to the importance of developing students' cognitive resources as well as social skills and teamwork abilities, and also their increasing personal involvement in tomorrow's leadership. For example, decision-making is usually perceived as an administrative and managerial task. Here, however, it is also considered through the end-users – students – a less commonly encountered viewpoint.

Our findings may not cover all the indicators of successful leadership needed to deal with a complex social life. However, we would argue that those identified here touch upon many aspects essential in seeking to realise this objective. We are also very well aware of the possible bias induced by the scope of a specific curriculum reform, as each educational organisation has its own characteristics. These weaknesses may be compensated by some advantages, however. First, the model draws on a voluminous body of theory- and practice-based sources embracing current understanding of successful leadership in complex environments. Second, the global character of the school in question and the diversity of the expert group that created the curriculum add to the validity of the results. Third, the working group inside the business school that created the curriculum represented rich and versatile expertise in various areas of education, along with workplace and student perspectives. Also, the freedom that prevailed in the group that created the curriculum adds to the validity of our results, as an extract from one of the interviews illustrates:

"Everybody who wanted to be involved was heard…all the people who were interested in moving forward in some way. It was a big group…made up of people who knew something

was wrong and who wished to move forward and were ready to listen and contribute…You didn't feel that people were holding back…people felt totally free to say what they wanted. Sometimes we agreed, sometimes we didn't but…never to the extent that people would not speak because they were inhibited. We felt no constraints."

Finally, we suggest that the indicators we found may help to build bridges between educational leaderships and the changing society in other educational organizations and at other educational levels as well. In sum, we believe that the present indicators hold value for educational leaders, especially in relation to collaborative modes of working to improve learning contexts.

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