

## **Does Distributed Leadership Affect Teachers' Organizational Commitment? A Multi-Level Analysis**

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### Abstract

In this study we investigate the relation between distributed leadership and teachers' organizational commitment.

Multilevel analyses on data from 1522 teachers in 46 schools indicated that 9% of the variance in teachers' organizational commitment is attributable to differences between schools. Furthermore, the analyses revealed that a cooperative leadership team and the amount of leadership support played a key role in teachers' organizational commitment. Also, participative decision-making, and distribution of support had a positive impact on teachers' commitment to the school. Distribution of supervision had a negative effect on teachers' organizational commitment.

This study revealed that distributed leadership is more than the aggregation of individual leaders. Not the decentralization of leadership functions, but mainly a cooperative leadership team and a supportive culture are related to teachers' organizational commitment. Therefore, the main priority for school leaders should be supporting teachers and to be cooperative and open.

### Introduction

Organizational commitment is the relative strength of an individual's identification with and involvement in a particular organization (Mowday, Steers, & Porter, 1979). Teacher commitment has been recognized as an effective route to school success (Fink, 1992) and is a pivotal link in educational effectiveness and improvement (Dee, Henkin, & Singleton, 2006). In past years, numerous studies indicated that teacher commitment is a critical predictor for teachers' work performance and the quality of education (Tsui & Cheng, 1999). Additionally, many researchers share a common view that teachers' commitment towards the school is affected by the leadership in schools (Hoy, Tarter, & Bliss, 1990; Koh, Steers, & Terborg, 1995; Nguni, Slegers, & Denessen, 2006). But, these studies adopted a person-centred approach in which leadership is a quality that exists in one leader, the school leader, and the effect of this one person on organizational commitment is examined. However, in the past decade traditional 'single person' leadership models are left in favour of distributed leadership forms (Gronn,

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2002; Spillane, 2006). Leadership is no longer regarded as an important characteristic of one super leader, but as a distributed practice (Spillane, 2006).

Notwithstanding that distributed leadership has become a buzzword in the current educational research literature; the effect of distributed leadership on teachers remains unexplored. Therefore, this study aims to gain insight into teachers' perceptions of distributed leadership and the effect on their organizational commitment.

### Theoretical Framework

Spillane (2006) defined distributed leadership as a practice distributed over leaders, followers, and their situation. This implies a social distribution of leadership, where the leadership function is stretched over a number of individuals and the task is accomplished through the interaction of multiple leaders. Similarly, Gronn (2002) stated that distributed leadership is an emergent property of a group or network of interacting individuals.

Although Spillane (2006) and Gronn (2002) theoretically defined distributed leadership, it remains a fuzzy concept to operationalize in empirical research.

In the present study, distributed leadership is conceptualized from three different perspectives.

1. We define distributed leadership as the degree to which leadership functions are distributed among formal leadership positions in the leadership team [i.e., the principal, the assistant principals, and the teacher leaders]. This focus on the division of leadership functions is in line with previous research (e.g., Heller & Firestone, 1995). The restriction to the members of the leadership team as actors among who the leadership is distributed, is based on Camburn, Rowan, and Taylor (2003). They stated that leadership functions are normally distributed across three to seven formally designated persons.

In the present study, we focus on the formal distribution of two core practices of successful leaders: the formal distribution of the supportive and supervisory leadership function. This distinction is based on the instructional and transformational leadership models (Hallinger, 2003; Leithwood & Jantzi, 1999). Transformational leadership models focus on the leaders' role in fostering and setting a collective school vision and motivating and stimulating members of an organization. In the present study, the transformational leadership functions - setting a vision and motivating followers - are labeled as supportive leadership. The supervision of teachers pertains more to instructional leadership and focuses predominantly on the role of the leader in directing, controlling, and monitoring in schools.

2. According to Gronn (2002) and Spillane (2006) distributed leadership is not restricted to the aggregated effect of a number of individuals contributing their initiative and expertise. Distributed leadership is also about the concerted action, which is the product of conjoint activity that emerges from multi-member organizational groupings acting in concert. This implies that defining distributed leadership as the aggregation of leadership functions among formal leadership positions is too restricted. Therefore, we also focus on the cooperation at the level of the leadership team. Based on the distributed leadership literature we can state that leadership requires a cooperative leadership team, leading towards

an emergent property. On the one hand, this collaborative structure implies that school leaders experience support from other school leaders, leading to mutual reinforcement, and thus a more effective leadership team running the school. On the other hand, the management structure becomes more complex and more conflicts between the leadership team members can arise. Hence, the leadership team should be a cooperative team characterized by group cohesion with clear agreements about the role divisions, and an orientation towards the same goals.

3. Additionally, apart from formal leadership positions, leadership can also be enacted by the entire educational community, rather than by a limited number of people at the top of the organization (Lashway, 2003). In order to study the involvement of teachers, we also concentrate on a form of distributed leadership among the whole school team, namely the participation of all teachers in school decision-making. This is in line with Leithwood, Mascall, and Strauss (2009, p. 7) who stated: “Participative leadership is among the lines of leadership research closely related to our meaning of distributed leadership.”

### Research Objectives

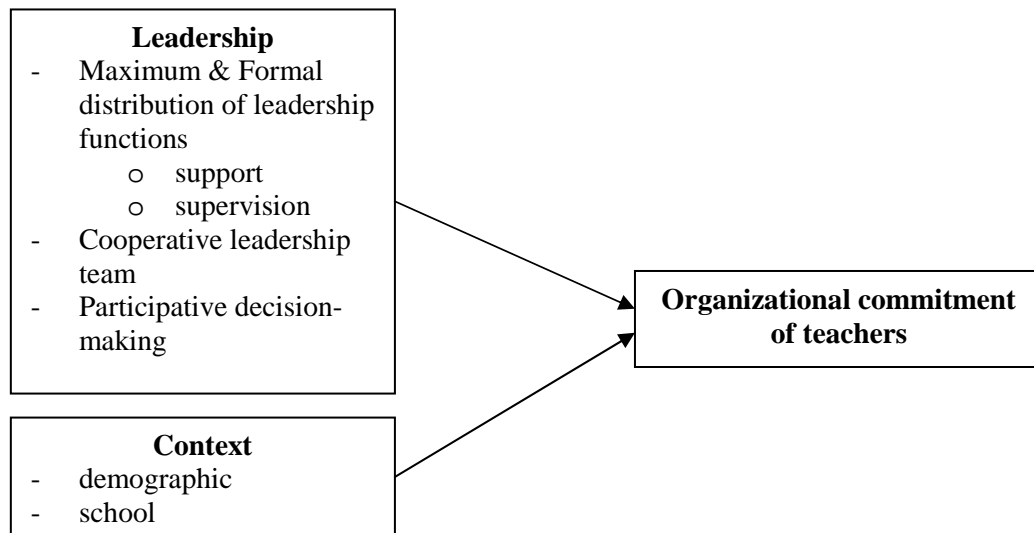
The main purpose of the present study is to investigate the relation between organizational commitment and distributed leadership. More specifically, we aim to examine the association between teachers’ organizational commitment and teachers’ perceptions concerning the quality or amount of leadership (i.e., maximum of support and maximum supervision) and distributed leadership (i.e., distribution of the supportive and supervisory leadership functions among the leadership team, cooperation of the leadership team, and participative decision-making of all teachers), taking the teacher and school level into account. Furthermore, this study aims to examine the relation between context variables and teachers’ organizational commitment.

Building on the theoretical model and the research objectives, the following research questions are put forward:

1. What is the relation between teachers’ perceptions of distributed leadership characteristics (i.e., cooperation of the leadership team, the amount and the distribution of the supportive and supervisory leadership functions, and participative decision-making) and the organizational commitment of teachers?
2. What is the relation between demographic (i.e., job experience, gender) and school structure variables (i.e., school size, school type, denomination, size of the leadership team) and the organizational commitment of teachers?

These research questions are presented in Figure 1.

Figure 1  
Research questions



### Research Design

In order to answer the research questions we developed the Distributed Leadership Inventory (DLI - cf. Appendix 1), which was administered to 46 secondary schools in Flanders (Belgium). The schools were selected from a list of 360 schools provided by the Flemish Ministry of Education by using a stratified random sampling, taking the geographic regions (i.e. the five districts of Flanders) and the educational network (i.e. private and public) into account. The questionnaires were handed to all principals, assistant principals, teacher leaders, and teachers of the second stage (i.e., 14-16 year old pupils).

A total of 2198 respondents, representing a response rate of 69 %, completed the DLI. 296 respondents had more than 10% missing data and were removed from the analysis. In this article we focus on the responses of the teachers (n = 1522). The sample included 41.9% male and 58.1% female teachers, which is similar to the male-female division in the Flemish population of school members (i.e., 43% and 57% respectively). The age of the teachers ranges from 22 to 65, with an average of 39. The mean length in the current job was 13 years, ranging from 0.1 to 40 years.

Since the data in the present study have an inherent nested or hierarchical structure, that is teachers (level 1) are nested into schools (level 2), interplay can be assumed between teachers as individuals and the social context (i.e., team or school) to which they belong (Goldstein, 1995). To take both the teacher and the school level into account, multilevel modeling techniques were used to explore the effect of leadership and context variables on the organizational commitment of teachers. The application of hierarchical models results in efficient regression coefficients estimates, correct standard errors and significance tests, which generally will be more conservative than the traditional ones which use aggregated measures ignoring the presence of clustering (Goldstein, 1995).

A number of multilevel models were fitted, using MLwiN 2.02. The best fitting model was designed gradually. First, the unconditional null model, with only an intercept and no explanatory variables included, was used to estimate how much of the variation in teachers' organizational commitment could be attributed to differences between schools and to differences in individual teachers. This null model served as a baseline with which to compare subsequent more complex models.

Second, the study variables were added to the null model. All determining variables were centered around their grand mean as is customary in multilevel analysis (Hox, 2002). Dummy variables were created for gender (male 1, female 0), school type (general education 1, technical and/or vocational education 0), and denomination (private schools 1, public schools 0). Initially, the variables were included in the model as fixed effects, assuming that their impact does not vary from teacher to teacher or from school to school. Since parsimonious models are preferred, non-significant effects were eliminated. Where a significant effect occurred, random variance at school and teacher level was allowed.

Model improvement was assessed by studying the decrease in the deviance values of the different models. The parameters of the multilevel models were estimated using Iterative Generalized Least Squares estimations (IGLS).

The complete set of models allowed us to deduce which variables are significantly related to teachers' organizational commitment and at which level variance occurs. Finally, in order to compare the magnitude of the different significant effects, effect sizes were calculated.

## Results

In Table 1 the results of the multilevel analyses concerning teachers' organizational commitment are presented.

Table 1  
Model Estimates of the Two-Level Analysis

Parameter	Null model	Model 1	Model 2	Final model	Effect size
<u>Fixed</u>					
Intercept	2.983 (0.036)	3.010 (0.028)	3.025 (0.032)	3.047 (0.030)	
Cooperative leadership team		0.309 (0.032)	0.315 (0.032)	0.299 (0.032)	0.28
Maximum support		0.300 (0.025)	0.294 (0.025)	0.311 (0.025)	0.30
Maximum supervision		-	-	-	-
Formal distribution of support		0.106 (0.022)	0.094 (0.022)	0.068 (0.029)	0.07
Formal distribution of supervision		-0.047 (0.014)	-0.047 (0.014)	-0.041 (0.013)	0.07
Participative decision-making			0.190 (0.029)	0.177 (0.028)	0.17
			0.062 (0.028)	-	-
Gender			-0.008 (0.001)	-0.007 (0.001)	0.11
Job experience			-	-	-
School size			-	-	-
Number leadership team			-	-	-
School type			-	-	-
Denomination					
<u>Random</u>					
Level 2 – school					
$\sigma^2_{\mu 0}$	0.044 (0.012)	0.009 (0.004)	0.012 (0.004)	0.013 (0.004)	
$\sigma_{\mu 0 \mu \text{DistSupport}}$				-0.008 (0.004)	
$\sigma^2_{\mu \text{DistSupport}}$				0.014 (0.006)	
Level 1 – teachers					
$\sigma^2_{\epsilon 0}$	0.440 (0.016)	0.253 (0.009)	0.245 (0.009)	0.242 (0.016)	
$\sigma_{\epsilon 0 \epsilon \text{Part}}$				-0.027 (0.009)	
$\sigma^2_{\epsilon 0 \epsilon \text{CohLT}}$				-0.031 (0.009)	

<u>Model fit</u>				
Deviance	3135.380	2260.996	2181.085	2137.225
$\chi^2$		874.384	79.911	43.86
df		5	2	4
p		0.000	0.000	0.000

The first step in the analysis was to examine the results of an unconditional two-level **null model**. The intercept of 2.98 in this random intercept null model represents the overall mean of the teachers' organizational commitment across schools. This implies that the sample teachers in general tend to be committed to the school. The null model reveals that the variance at school and teacher level is significantly different from zero (respectively:  $\chi^2 = 12.796$ ,  $df = 1$ ,  $p < .001$ ;  $\chi^2 = 738.328$ ,  $df = 1$ ,  $p < .001$ ), providing justification for using multilevel analysis.

It appears that 9% of the variation in organizational commitment is situated at school level, while 91% is attributable to individual differences, indicating that differences between teachers within schools largely exceed differences between schools.

Starting from the unconditional null model, explanatory variables are added in the second step of the analyses. First, in **model 1** the leadership variables are included as fixed effects. The results reveal that all variables have a significant influence on teachers' organizational commitment, except for the maximum supervision. The significant variables have a positive impact on organizational commitment. Only the distribution of supervision has a negative impact on teachers' organizational commitment. This implies that the more teachers perceive the supervision as distributed across different persons, the less committed they are towards the school.

Compared to the null model, the inclusion of the significant leadership variables resulted in a significant model improvement ( $\chi^2 = 874.384$ ,  $df = 5$ ;  $p < .001$ ).

**Model 2** retains significant results from the previous model 1 and adds context variables as explanatory variables. Both gender and years of job experience are significant predictors. More specifically, it appears that male teachers are more committed towards the school than female teachers. The results also show that teachers with more job experience are less committed to the school than teachers with less job experience. Comparing the deviances of model 1 and 2 shows that model 2 has a significant better fit than model 1 ( $\chi^2 = 79.911$ ,  $df = 2$ ;  $p < .001$ ).

At the final stage, random variance at school and individual level was allowed, yielding a fully random model (**final model**). The fixed part gives the mean value for each distribution and consists of two fixed, unchanging terms (i.e., the average slope and intercept across all schools/teachers). The random part of the model is expanded to include two extra terms for each variable that is allowed to vary randomly, which summarizes the variability of slopes and intercepts across schools/teachers, and a covariance which assesses the degree to which the two distributions are related. The final model points out that by allowing random variance at both levels, the deviance of the model decreases significantly ( $\chi^2 = 43.86$ ,  $df = 4$ ;  $p < .001$ ).

As to the fixed part of the final model, the intercept of 3.047 represents the overall mean in organizational commitment for teachers with a mean score on all the independent variables included in the model.

As a consequence of allowing random variance at school and teacher level, gender is no longer significant; the other explanatory variables from model 2 remain significant.

The random part reveals complex variances at school level for distribution of support. Specifically, differences in commitment between schools became smaller as teachers reported more distribution of support among the leadership team. At teacher level complex variances occurs for participative decision-making and cooperative leadership team: differences in commitment between teachers within a school became smaller if teachers reported more participation in decision-making and a more cooperative leadership team.

The effect sizes show that especially the maximum amount of support is strongly associated with organizational commitment. This implies that teachers are more committed to the school when they receive more support of the school leaders. Also, teachers' perceptions concerning the cooperation at the level of the leadership team has a strong impact on teachers' organizational commitment. Teachers are highly committed if they believe that a cooperative leadership team leads the school. Participative decision-making is also significantly related with organizational commitment. However, this relation is smaller than the relation between cooperative leadership team or amount of support, and organizational commitment. The distribution of support among the leadership team is, to a lesser extent, related with teachers' commitment. Teachers are more committed if support is equally distributed among the school leaders.

The opposite is true for the distribution of supervision among the formal leaders. Teachers who are supervised by one person are more committed than teachers supervised by multiple school leaders. Presumably, supervision by multiple school leaders leads to contradictory feedback on teachers' performance, which negatively affects their commitment.

## Discussion

Distributed leadership is a hot item in the educational management literature. However, there is limited empirical quantitative research concerning the consequences of distributed leadership. The main objective of the present study was investigating the effect of distributed leadership on teachers' organizational commitment. The focus was on the impact of the cooperation of the leadership team, the amount of leadership support and supervision, the distribution of support and supervision among the leadership team, and teachers' participative decision-making on teachers' organizational commitment. No previous research has examined the mechanisms through which this influence occurs. The effect of context variables was studied as well. Multilevel analysis was applied to take the nested structure of teachers within schools into account.

The study findings suggested that the teachers in the present study felt committed to the school, which confirms the results of Nguni et al. (2006), and Tsui and Cheng (1999). The fixed part of the multilevel analysis showed that the study variables significantly explained the organizational commitment of teachers. In other words, the individual perceptions of teachers concerning the distributed leadership in schools had an effect on the degree to which teachers can identify with and involve in schools.

The study revealed that teachers' perceptions concerning the cooperation of the leadership team and the maximum amount of support were the most important predictors for teachers' organizational commitment.

Previous research examining the relation between teachers' perceptions concerning the cooperation at the level of the leadership team is scarce. Based on the findings of this study, it can be stated that teachers who believe that their school is led by a cooperative leadership team, which is characterized by group cohesion, clear and unambiguous roles of the leadership team members, and shared goal orientedness, were more committed towards their school.

Also, the study revealed that the maximum amount of support teachers receive from the leadership team had an important influence on their organizational commitment. This confirms previous research of Nguni et al. (2006), and Singh & Billingsley (1998). No significant impact was, however, found for the amount of supervision, which is in contrast with Somech (2005). This result implies that the amount to which teachers feel supported by their leadership team was more important for their organizational commitment, compared to the amount to which teachers feel supervised by the leadership team. Teachers' perceptions concerning the amount to which the leadership team supervises and monitors the teachers had no significant effect on their organizational commitment.

Concerning the distribution of leadership functions our study revealed that the distribution of supportive leadership among the leadership team had a positive significant impact on teachers' commitment to the school. Teachers, who believe that support is equally distributed among the leadership team, had a higher organizational commitment than teachers who believe that support is centralized in one person of the leadership team.

In contrast, for the distribution of supervision our results showed that there is a significant negative effect on organizational commitment. In other words, teachers who are supervised by multiple school leaders felt less committed to the school than teachers supervised by only one person of the leadership team. Probably, teachers preferred clear supervision from one formal leader, instead of possible conflicting views and contradictory feedback from multiple members in the school.

Remarkably, the distribution of leadership functions among the leadership team plays a role to a lesser extent in defining the commitment of teachers to the school. Therefore, the main conclusion is that the distribution of the supportive or the supervisory leadership function among formal leaders should not be an aim in itself. Leadership is more than counting up the roles of multiple leaders, as Spillane (2006) stated.

Moreover, the assumed complexity, which can be caused by the distribution of leadership functions, has not by definition a negative effect on teachers' organizational commitment. An effective cooperating leadership team, and strong support of this team in schools were the key variables for the organizational commitment of teachers.

Next, our study showed that participation in decision-making increased people's commitment to the organization. This implies that teachers, who believe they have a voice in school decision-making, felt more committed to the school than their colleagues who state that they do not have opportunities to participate in school decision-making. This finding corroborated results of previous research of Diosdado (2008) and Kushman (1992). However, our study revealed that the effect of participative decision-making was rather small, compared to the effect of the cooperative leadership team and the amount of support. Our study revealed that the cooperative leadership team and the amount of support are more important than teachers' own opportunity to participate in school decision-making. This implies that teachers' perception concerning their empowerment to participate in school decision-

making was less influential in teachers' organizational commitment than their perceptions concerning the operation of the team who leads the school and the amount of support they receive from this leading team.

Concerning the context variables, our research revealed that teachers' job experience significantly affected organizational commitment in a negative way. This finding is in line with previous research of Brunetti (2001) and Reyes (1992) who came to the conclusion that more experienced teachers felt less committed to the organization than less experienced teachers.

The study revealed that the number of members in the leadership team had no effect on teachers' organizational commitment. This implicates that not the size of the leadership team was important. Instead, it was the collaboration and cooperation at the level of the leadership team that influenced teachers' organizational commitment.

No significant link appeared to exist between the other context variables and teachers' organizational commitment.

The random part of the multilevel analysis showed that only a modest proportion of the variance in teachers' organizational commitment is actually attributable to variation between schools (i.e., 9%). This suggests that teachers' organizational commitment depends more on what individual teachers think, rather than on a group effect arising from belonging to a particular school. This implies that although variations in leadership variables may be conceptualized at the school level, what individual teachers think is more important for their organizational commitment. This finding confirms previous research of Park (2005), and Tsui and Cheng (1999). However, it should be noted that 9% of between-school variance in teachers' organizational commitment should not be underestimated. Organizational commitment of teachers is not a purely individual matter.

## Conclusion

The study findings suggested that teachers' organizational commitment is mainly related to teachers' perceptions concerning the cooperation of the leadership team and the support received from this leadership team. Teachers feel committed to the school if it is led by a leadership team working in a cooperative way and where all leaders support teachers sufficiently. This is more important than an equal distribution of leadership functions among formal leaders in the school. Additionally, the study revealed that differences in teachers' organizational commitment are mainly situated within schools than differences between schools.

This study is bound by a number of limitations and further research is needed. In this study the focus was mainly on the distribution of two core leadership functions (i.e., support and supervision). However, one might suggest that the distribution of other leadership functions (e.g., building management functions, boundary spanning functions) or certain subject matters (cf. Spillane, 2006) can have a different relation to teachers' organizational commitment.

In addition, in this study only large secondary schools were elicited. Distributed leadership in smaller secondary schools or other educational levels, like primary or higher education, which are characterized by different management structures, could be studied in further research.

In this study, organizational commitment was treated as a global construct. It is recommended that future research re-examines the relationships between the independent variables and teachers' organizational commitment by elaborating the dependent variable using multidimensional constructs, like affective, continuance, or normative commitment (Allen & Meyer, 1997).

Next, the independent study variables accounted only for some proportion of influence on teachers' organizational commitment. It is expected that in addition to the independent study variables, other variables might also be considered as relevant predictors of organizational commitment and should be examined in future research. For example, self-efficacy, or the relation with pupils and colleagues, or organizational factors, like organizational stability, development stage, or school climate can be important predictors of teachers' organizational commitment and should be studied as well.

Final limitations concerned the research instrument. First, it should be stressed that only teachers' perceptions regarding the leadership factors were investigated in this study. More objective measures of the leadership variables, based on the perceptions of both school internal and external respondents could be used in future research. Second, the quantitative nature of the research instrument had its limitations. Future research should use other sources for investigating the study variables. Qualitative-interpretative research methods, like interviews or observations, could extend our understanding of how organizational commitment can be influenced by leadership variables.

Nevertheless, the current study points to teachers' perceptions on distributed leadership that contribute to their organizational commitment.

Therefore, the present study has important theoretical implications. Distributed leadership is an ambiguous and confusing concept. In the present study, a three dimensional approach was used. First, distributed leadership is defined as the distribution of leadership functions (i.e., support and supervision) among formal leadership positions in the leadership team. Both the quality of the team members' leadership (i.e., maximum leadership) and the degree to which leadership functions are distributed among the leadership team members (i.e., distribution of leadership), are analyzed. Second, the cooperation of the leadership team focuses on the leadership team as a whole. Third, participation in the school's decision-making includes leadership interactions among all school team members. They clarify how all team members are involved in the school's decision-making process. Furthermore, the effect of distributed leadership on organizational outcomes, like teachers' organizational commitment, is examined empirically. Organizational commitment of teachers is a key variable in the school improvement process. Recently, several scholars (Harris, Leithwood, Day, Sammons, & Hopkins, 2007; Mayrowetz, 2008) have indicated that studies analyzing the link between distributed leadership and organizational outcomes and school improvement are a priority in the development and validation of the concept of distributed leadership.

An important methodological implication is the use of a reliable and valid research instrument examining distributed leadership in large secondary schools. Also, the multilevel approach is a main strength of this study. Traditionally aggregated measures are used, which result in a loss of important information. In the present study, the relative contribution of factors at both individual and school level are considered, using a multilevel framework that explicitly capitalizes on the hierarchical nature of the data.

Furthermore, this study has practical implications for school leaders and policy-makers. The data presented here suggested that 9% of teachers' organizational commitment is attributable to difference between schools, this implies that 'schools matter' and that the leadership characteristics in general, and the cooperation of the leadership team and the amount of support in specific, should receive adequate attention in order to improve teachers' commitment to the school. However, our results revealed that organizational commitment is mainly an individual matter. Therefore, perceptions of teachers concerning the leadership characteristics of the school should be affected. To increase teachers' level of organizational commitment, large secondary schools need to invest in the perceptions of teachers concerning the cooperation among the leadership team members. It is important that the leadership team is not only characterized by group cohesion, clear and unambiguous roles, and goal orientedness, but also that this is explicated and openly communicated to the teachers. School leaders need to define and articulate their organizational vision, and roles, and act like a cohesive group in order to optimize individual teachers' commitment to the school organization. Additionally, teachers should feel supported by all members of the leadership team. This implies that setting a school vision and motivating followers should remain a core leadership function not only of the principal, but also of all leaders in the leadership team.

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## Appendix

The Distributed Leadership Inventory (based on: Author et al., 2007)

Scale	Example item	Based on	Scale	Cronbach's alfa
Cooperation of the leadership team	There is a well-functioning leadership team in our school Members of the leadership team have clear goals	Group cohesion (Litwin & Stringer, 1968) Role ambiguity (Rizzo, House, & Lirtzman, 1970) Goal orientedness (Staessens, 1990)	0-4	.93
Leadership Support	To what amount is (1) the principal; (2) the assistant principal(s); (3) the teacher leader(s) involved in ... ... premising a long term vision	Strength of vision (De Maeyer, et al., 2007) Supportive behavior (Hoy & Tarter, 1997) Providing instructional support & Providing intellectual stimulation (Leithwood & Jantzi, 1999)	0-4	support: .91 (teacher leaders); .93 (principals, assistant principals)
Leadership Supervision	... helping teachers ... evaluating the performance of the staff ... summative evaluation of teachers			supervision: .79 (teacher leader); .83 (principal); .85 (assistant principal)
Participative decision-making	Leadership is delegated for activities critical for achieving school goals Leadership is broadly distributed among the staff	Developing structures to foster participation in school decisions (Leithwood & Jantzi, 1999)	0-4	.81
Organizational commitment	My school inspires me to do the best I can I'm proud to be a part of this school team	OCQ (Mowday et al., 1979)	0-4	.91

Based on the leadership functions we calculated 2 new variables (cf. Conger & Pearce, 2003):

1. Maximum amount of the leadership functions (0-4) = the scores of the highest rated subgroup [i.e. the principal, the assistant principal(s), or the teacher leader(s)].
2. Formal distribution of the leadership functions (0-6) = the degree to which leadership dimensions are centralized by the principal or dispersed and shared across members of the leadership team (Mayo, Meindl, & Pastor, 2003).