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EDUCATIONAL LEADERSHIP & MANAGEMENT | RESEARCH ARTICLE

On the frontline of CCSS implementation: A national study of factors influencing teachers' perceptions of teaching conditions and job satisfaction

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Abstract: The Common Core State Standards (CCSS) represent an unprecedented change in American education. As an increasingly integral part of the school accountability movement under No Child Left Behind and Race to the Top, responsibility for implementing CCSS rests largely with school leadership. One important factor in the success or failure of these efforts is the perceptions and experiences of the teachers who will ultimately employ CCSS in the classroom. This survey study examined teachers' views of CCSS implementation, teaching conditions, collaboration, and job satisfaction. Factor analysis revealed that the openness and activeness of school leadership had a significant effect on teachers' perceptions of implementation, suggesting that attention to these aspects of leadership is an important consideration during transition to CCSS.

Subjects: Educational Change & School Reform; School Leaders & Managers; School Leadership, Management & Administration

Keywords: Common Core State Standards; educational leadership; education reform; educational change

1. Introduction

The adoption and implementation of the CCSS in 43 states arguably represents the most significant educational change in American history. Although the federal government had no official role in the development of the standards themselves, their adoption and implementation have been closely woven into the fabric of federal legislation under No Child Left Behind (NCLB) and Race to the Top

ABOUT THE AUTHORS

The authors are members of a research team made up of Faculty and Graduate Students at the University of Arkansas. The research team examines issues surrounding the adoption of the Common Core State Standards in Arkansas and across the USA.

PUBLIC INTEREST STATEMENT

This paper investigates how school leadership affects teaching conditions during the implementation of the Common Core State Standards (CCSS). Our primary findings are that teachers generally have a positive opinion of CCSS, though their experiences are impacted by the openness and activeness of their school leaders. Teachers who implemented CCSS under the leadership that was open, flexible, and active experience better teaching conditions and have a higher opinion of the standards themselves. Our findings suggest that reflective examination of the manner in which school leadership facilitates the implementation of CCSS in schools is worthy of purposeful consideration.

(RTTT). The CCSS and the assessments designed to measure student achievement will be the primary vehicle for determining school effectiveness under federal legislation. As such, the implementation of CCSS in states, districts, and schools has become an urgent priority.

Facilitating successful long-term educational change requires the support and commitment of many stakeholders, especially the teachers on the front lines of classroom implementation. Research on educational change clearly establishes the role teachers' job satisfaction plays in their commitment to educational change (Ma & MacMillan, 1999), the correlation between teachers' perceptions and implementation of innovation (Ashton & Webb, 1986; Smylie, 1988), and the link between teachers' perceptions and school performance at the individual and school levels (Bandura, 1993, 1997; Goddard, Hoy & Hoy, 2000). As such, the perceptions and experiences of teachers should be an important consideration for school leaders charged with guiding CCSS implementation.

Despite a quickly growing body of literature regarding the CCSS, there remains a need for research that examines teachers' perceptions of CCSS implementation, and its resultant effects on teaching conditions and job satisfaction. The purpose of this study was to help fill this gap in the CCSS literature by investigating teachers' views of the CCSS and the factors influencing their perceptions of its implementation. When implementing initiatives that compel teachers to change their practices, it is helpful to understand the successes and struggles encountered during the change process. Paying attention to teachers' perceptions can uncover practices that will lead to greater effort and persistence. Understanding these experiences will enable leaders to design processes with more likelihood of sustainability and effectiveness. Therefore, this study sought to answer the following research questions:

- What are teachers' views of CCSS implementation?
- What factors are related to teachers' perceptions of the CCSS implementation?

2. Review of the literature

2.1. Common Core State Standards

According to the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO), the CCSS Initiative was a state-led effort that included governors and state commissioners of education from 48 states, 2 territories, and the District of Columbia. An advisory group consisting of representatives from Achieve, Inc., ACT, the College Board, the National Association of State Boards of Education, and the State Higher Education Executive Officers provided guidance for the initiative. The CCSS authors report that teachers also had a critical voice in CCSS development, and that organizations such as the National Education Association (NEA), American Federation of Teachers (AFT), National Council of Teachers of Mathematics (NCTM), and National Council of Teachers of English (NCTE) organized groups of teachers to provide feedback.

The CCSS are divided into college and career readiness standards and a list of K-12 educational standards in English Language Arts (ELA) and math. International benchmarking was a significant consideration in CCSS development, as was focusing on ELA and math as subjects that build basic skills and are commonly assessed for reasons of accountability (NGA Center and CCSSO, 2013b). The original draft of the college and career readiness standards was released in September 2009, and the original draft of the K-12 ELA and math standards followed in March 2010. Existing state standards, teachers, content experts, researchers, and feedback from the general public informed the writing and revision process. After receiving nearly 10,000 comments from teachers, parents, administrators, and other citizens, the final standards were released in June of 2010, after two months of revision (NGA Center and CCSSO, 2013a).

One cannot utter the phrase CCSS in circles of educators or politicians without sparking visceral reactions in 2016 and what started as standards for English and math has come to represent a political football that featured prominently in the 2014 election cycle and again in the 2016 presidential campaign. Criticisms of the CCSS take two forms: (1) those who criticize the standards themselves as too rigorous, too weak, too liberal, or too conservative; (2) the writing and adoption process was undemocratic and thus casts a shadow of a doubt on the document and process. For example, the Obama administration’s education policies for RTTT monies and NCLB waivers played a key role. Under Secretary of Education Arne Duncan, the federal government limited eligibility for RTTT awards and NCLB waivers to states that adopted a common set of “college and career ready standards” (Mathis, 2013, p. 2). Many view this as a forced choice of either adopting the CCSS or losing out on millions in federal funds at a time when the country faced its second worst economic crisis.

The rhetoric involved in the political debate has clouded serious conversations regarding CCSS implementation. The adjustment from individual state standards to the CCSS in addition to the ongoing debate regarding interpretation and implementation of CCSS expectations has left educators across the USA in a state of flux. As with NCLB, district and building leaders have assumed the primary responsibility for bridging the gap between government expectations for CCSS implementation and teachers’ classroom instruction.

Several studies have explored aspects of the CCSS, including two interrelated studies conducted by our research team that employed the same instrument with a single state. In “Teachers’ views of the CCSS and its implementation,” Matlock et al. (2015) revealed teachers’ perceptions as they relate to the dependent variables of the standards and implementation were positive but proved less positive for higher grade levels taught, and as thoughts of leaving the profession increased. Endacott, Wright, Goering, Collet, Denny, and Jennings-Davis (2015) employed a mixed mental model of qualitative research, examining the survey responses and follow-up interview transcripts of the teachers who responded negatively to the survey. Teachers in this study, “Robots teaching other little robots: Neoliberalism, CCSS, and teacher professionalism” felt attacked by CCSS implementation and that the standards were a threat to their professionalism. In 2016, many states renamed their standards, dropped them completely, or are operating under a hybrid version as public support for them has waned (McGuinn, 2015).

2.2. Conceptual framework for leadership during significant educational change

Implementation of CCSS began soon after its adoption in 2010. Table 1 illustrates states’ plans for adopting, implementing, and assessing the CCSS standards. In terms of full implementation, Kentucky was the first to utilize CCSS in 2012, while Rhode Island and Nevada will not achieve full implementation until 2016.

CCSS implementation is a complex endeavor that represents a second-order educational change (Hallinger, 2003), which is “drastic and dramatic,” requiring departures from the expected (Marzano, Waters, & McNulty, 2005, p. 6). These deep changes alter system structures and involve new ways of thinking, acting, and interacting. Effectiveness of educational change initiatives is closely linked to leadership at the school and district levels (DuFour, 2004; Eilers & Camacho, 2007; Fullan, 2007), and, since the literature regarding educational change is wide-ranging, sometimes disparate, and replete with a plethora of identified factors contributing to the process (Fullan, 2010), a broader framework

Table 1. States’ plans for CCSS adoption, implementation, and assessment

Number of states	2010	2011	2012	2013	2014	2015	2016
Year adopted CCSS	39	5	1				
Year of full implementation			1	6	19	18	2
Assessment consortium	Smarter balance			PARCC		No affiliation	
States in membership	24			21		3	

is helpful to contextualize research recommendations. For the purposes of this study, we take a sociocultural stance to provide a conceptual lens for connecting the literature on leadership with the second-order educational change CCSS represents, including the transformative shifts required for their implementation.

2.3. Distributed leadership

Distributed leadership provides a structure for considering the complex interactions involved in educational change using activity theory and distributed cognition as theoretical underpinnings (Spillane, Halverson, & Diamond, 2004). Through activity theory, human behavior is understood by examining contexts and motivations as people engage in activities. Activities are viewed as purposeful interaction between actors and their world, where both subject and objects are transformed through the use of material and immaterial tools (Leont'ev, 1978; Rubinshtein, 1986; Vygotsky, 1978). Similarly, the theory of distributed cognition (Cole & Engestrom, 1993; Hutchins, 1995) considers social interactions, but focuses on sense-making within social systems and how cognitive resources are shared to achieve something that an individual agent could not achieve alone. Distributed cognition posits that necessary knowledge for any activity does not exist solely within one's head, but that knowledge is distributed across individuals, artifacts, and tools.

Distributed leadership (Bolden, 2013; Caldwell, 2005; Hargreaves & Fink, 2006; Harris, 2005; Leithwood, Harris, & Strauss, 2010; Senge, 1996; Spillane, Halverson, & Diamond, 2001; Spillane et al., 2004) provides a perspective that focuses on interactions among leaders, followers, and their contexts, considering how they mutually constitute leadership practice. Distributed leadership avoids concerns in the field regarding individually conceived leadership and the dichotomy of leaders-followers (Gronn, 2002; Hunt, 1999). Instead of locating leadership in a hierarchical structure, distributed leadership considers collaborative action and shared interests. Distributed leadership is synergetic, emerging during group interactions; it implies interdependency, with leadership following the contours of expertise in an organization (Gronn, 2002; Harris & Muijs, 2005; Heller & Firestone, 1995; Stewart, 1991). Leadership is viewed as a social contract, with collective responsibility "stretched over the social and situational contexts of the school" (Spillane et al., 2004, p. 6).

2.4. Leadership factors impacting change

A distributed leadership perspective incorporates many of the most frequently cited factors in the school change literature. For example, Marzano et al. (2005), in their review of research, name seven leadership characteristics that correlate with successful second-order change processes; three of these align clearly with descriptions of the distributed leadership framework: knowledge of curriculum, instruction, and assessment; providing intellectual stimulation about the innovation; and providing flexibility. The research of Fullan (2010) describes similar factors aligning with a distributed leadership framework: avoiding judgmentalism in favor of capacity building, learning during the process of implementation, being transparent, building trust, and guiding purposeful collaboration. Hargreaves (2004), in his study of the emotional impact of educational change, highlights the importance of what he calls inclusive change, in which leaders "engage teachers' knowledge and commitments" and make use of their purposes, passions, and professional judgment (p. 306). The knowledge and interactions involved in changes as significant as the CCSS are complex. Our study seeks to uncover common threads among the perceptions of teachers during this complex implementation of new educational standards.

3. Research methods

We employed a descriptive survey research design utilizing an online survey with three main components: (1) demographic data, (2) teachers' views on CCSS and their implementation, and (3) teachers' perceptions of factors that influence job satisfaction. Demographic data were collected to determine respondents' grade level and subject taught, location by state, and length of teaching experience. The remaining survey items consisted of seven-point Likert scale items grouped into

scales for views on CCSS, views on CCSS implementation, school leadership, teacher involvement, and teaching conditions. An optional open-ended question was included for each scale so respondents could provide any specific thoughts they had on each subject.

3.1. Instrument construction

3.1.1. Views of CCSS and implementation

Survey items (see Appendix A) related to teachers' views of CCSS were based on CCSS authors' claims of improvement over existing state standards in terms of depth, rigor, clarity, and achievement. Likert scale choices ranged from *strongly agree* to *strongly disagree* for statements such as "The CCSS are more rigorous than the state frameworks used previously in my state" and "The CCSS have allowed me to teach subjects in greater depth." Teachers' overarching views of implementation were surveyed using similarly worded items regarding the general effects CCSS implementation is having on their school's direction, quality of teaching, clarity of performance evaluation, school leadership, and flexibility.

3.1.2. Perceptions of building and district leadership

Administrative control (Ma & MacMillan, 1999) and recognition received from administrators (Chapman & Lowther, 1982) are powerful influences on teachers' job satisfaction. The survey instrument reflected the aforementioned characteristics of effective school leaders engaged in leading second-order educational change. Respondents were asked to indicate their level of agreement to statements related to teachers' perceptions of district and building leadership in regard to listening to teachers' needs, visiting classrooms to monitor implementation, understanding the needs of special populations, parental involvement, performance evaluation, recognition of accomplishment, and collaboration for school excellence. Likert scale choices ranged from *strongly agree* to *strongly disagree* for statements such as "Our building leadership listens to teachers' needs about CCSS" and "School leadership spends time visiting classrooms to observe implementation of CCSS."

3.1.3. School culture for collaboration

School cultures that are collegial and collaborative generally promote teacher job satisfaction and feelings of professionalism (Leithwood, Leonard, & Sharratt, 1998). When teachers perceive the improvement of instruction as a collective rather than individual endeavor, they are more likely to share expertise, ask for advice, and become better teachers (Fullan, 2007). Survey items related to teacher involvement and school climate asked teachers to compare their current perceptions of cooperation, collegiality, involvement in school governance, stress level, and student enjoyment of learning with their pre-CCSS perceptions. Likert scale options ranged from *much more* to *much less* for each of these aspects.

3.1.4. Comparison of teaching conditions

Research indicates that teacher autonomy and empowerment are closely related to motivation, feelings of professionalism, and job satisfaction (Brunetti, 2001; Kim & Loadman, 1994; Pearson & Moomaw, 2005; Ulriksen, 1996). In turn, when teachers report increases in job satisfaction and professionalism, they also report decreases in job-related stress (Pearson & Moomaw, 2005). Therefore, the survey instrument included specific statements that asked teachers to compare their current perceptions of instructional autonomy and flexibility, job-related stress, job satisfaction, feelings of professionalism, and enjoyment of teaching with their pre-CCSS perceptions. Likert scale options ranged from *much better* to *much worse* for comparison of teaching conditions. Additionally, since CCSS is a significant educational change that is in varying stages of implementation depending on state, the survey asked teachers to indicate how they saw these same aspects of teaching conditions changing in the next five years. As a final question related to job satisfaction, the respondents were asked whether the implementation of CCSS has caused them to think about leaving the profession earlier than they had previously planned.

3.2. Participants and data collection

Participants were randomly sampled from Agile Education Marketing’s comprehensive database of 3,336,570 teacher email addresses from across the USA. The sample of 7,700 teachers was created using the following parameters:

- Non-CCSS states of Alaska, Virginia, Montana, Minnesota, and Texas were excluded from the sample.
- 2,530 teachers were randomly sampled from the elementary database ($n = 1,131,089$).
- 5,170 teachers formed a stratified random sample from the middle school ($n = 60,627$) and high school databases ($n = 102,565$) for science (1,100), math (1,100), social studies (1,100), English/ language arts (1,100), special education (220), art (110), music (110), physical education (110), and foreign language (220).

Surveys were distributed to participants by email and two weekly follow-up email reminders were sent to participants who had not yet completed the survey. The initial email and reminders were sent on different days and at different times in order to maximize exposure. Responses were

Table 2. Respondent demographics

	Respondents	Percentage
Grade level taught		
Grades P-2	114	14
Grades 3-5	119	15
Grades 6-7	158	20
Grades 8-9	83	10
Grades 9-12	322	40
Subject taught		
Self-contained (all subjects)	150	19
Art	19	2
Career or technical education	5	1
English	173	22
Gifted and talented	27	3
Math	213	27
Music	25	3
Literacy or reading	115	14
Physical education	10	1
Science	162	20
Social studies	164	21
Special education	63	8
Other subject not listed	49	6
Years of teaching experience		
1-2	52	7
3-5	82	10
6-10	165	21
11-15	146	18
16-20	130	16
21-25	102	13
26-30	61	8
More than 30	57	7

Table 3. Scale reliability and descriptive statistics

	N	N_{items}	Mean	SD	Min	Max	Alpha*	SEM
Open leadership	648	6	4.65	1.30	1.00	7.00	0.90	0.41
Active leadership	655	6	4.28	1.26	1.00	6.83	0.88	0.44
Views on CCSS and implementation	623	12	4.47	1.27	1.00	7.00	0.94	0.31
Change in Teacher collaboration	638	3	4.25	0.98	1.00	7.00	0.91	0.29
Change in environment conditions	620	5	3.57	1.09	1.00	7.00	0.86	0.41
Change in envt cond—Tchr auto/flex	634	3	3.83	1.30	1.00	7.00	0.94	0.32

*Coefficient alpha reliability

recorded using Qualtrics web-based survey management software over the course of a three-week period in March of 2013. Of the 7,700 teachers in the sample, there were 951 total survey responses resulting in a low response rate of 12.35%, which is typical of an external electronic survey without a response incentive. North Dakota was the only CCSS state not represented in the final pool of respondents. It is important to note that even though 42 of the 43 CCSS states were represented in the sample, we do not make claims about generalizability. We sought a sample of teachers from across the country to provide a broader viewpoint of implementation issues and our findings describe the experiences of this sample population. Table 2 breaks down the respondents according to the demographic data collected in the first section of the survey.

3.3. Data analysis

There were six scales included in the study: Open Leadership, Active Leadership, Views on CCSS and Implementation, Change in Teacher Collaboration, Change in Environment Conditions, and Change in Environment Autonomy and Flexibility. The scale score ranges were from 1.0 to 7.0 (see Table 3). The number of items ranged from 3 to 12. Internal consistency reliability was conducted using coefficient alpha.

The six scales had reliability values ranging from 0.86 to 0.94. A principal components analysis was conducted investigating the item fit of the initial 38 items into a six-factor solution, allowing for correlated factors. Originally, a five-factor solution was fit to the data. However, one scale split into two sections, and thus a six-factor model resulted in a more interpretable set of scales. The first six eigenvalues ranged from 15.89 to 1.09 accounting for 71.4% of the variance. Inter-factor correlations ranged from 0.27 to 0.56. Factor loadings are presented in Table 4. Three items had significant loadings of 0.40 or higher on a secondary factor; however, due to their primary loadings being statistically significant on the hypothesized factor, none of these items were moved or deleted. Three items were removed from their respective scales due to non-significant factor loadings, resulting in 35 items being retained for the six scales.

4. Results

The scales with the highest averages were Open Leadership ($M = 4.65$, $SD = 1.30$) and View of CCSS ($M = 4.47$, and $SD = 1.27$). The Active Leadership scale average was slightly lower at $M = 4.28$ ($SD = 1.26$). Open Leadership items addressed whether teachers felt freedom and flexibility to express concerns and to adapt their lessons and whether leadership listened to teachers' ideas. Active Leadership items were those where teachers rated the extent to which school leaders were evaluating, promoting parent involvement, visiting classrooms, and providing for collaboration in relation to CCSS. The two scales with the lowest averages were Change in Environmental Conditions—Flexibility and Autonomy ($M = 3.83$, $SD = 1.30$) and Change in Environmental Conditions of Enjoyment and Satisfaction ($M = 3.57$, $SD = 1.09$). However, it is important to note that the Change in Environment scales are not directly comparable to the View of CCSS and Leadership style scales, nor are they direct measures of levels of teacher autonomy, flexibility, enjoyment, or satisfaction. The items were worded to obtain a measure of the perceived degree of change that occurred pre-CCSS to post-CCSS. Thus, the average ratings of 3.83 and 3.57 indicate that the teachers, as a whole, did not perceive

Table 4. Factor analysis results

	F1	F2	F3	F4	F5	F6
<i>Open leadership</i>						
My building leaders are open to ideas about how the CCSS should be implemented in our schools	0.76					
My district leaders are open to ideas about how the CCSS should be implemented in schools	0.86					
I feel free to be critical of the aspects of CCSS implementation that I do not agree with		0.82				
I have the flexibility to implement the CCSS in a manner that is in the best interest of my students	0.64					
Our building leadership listens to teachers' needs about CCSS	0.67					
Our district leadership listens to teachers' needs about CCSS	0.75					
<i>Active leadership</i>						
School leadership spends time visiting classrooms to observe implementation of CCSS		0.78				
School leadership understands the needs of special populations under CCSS	0.40	0.54				
School leadership encourages parental involvement with implementation of CCSS			0.76			
School leadership has a clear policy for performance evaluation under CCSS		0.93				
School leadership acknowledges my accomplishments with implementation of CCSS			0.70			
Teachers, staff, and school leadership collaborate for school excellence under CCSS		0.55				
<i>Views on CCSS and its implementation</i>						
The CCSS are an improvement on the state frameworks used previously in my state			0.87			
The CCSS are more rigorous than the state frameworks used previously in my state			0.91			
I have a better idea of what I am supposed to teach because of the CCSS				0.86		
I anticipate significant improvement in student achievement as a result of CCSS			0.77			
The implementation of CCSS has allowed me to teach subjects in greater depth			0.73			
I fully support the implementation of CCSS in my school				0.76		
I support the manner in which CCSS is being implemented in my school district	0.47		0.43			
Implementation of CCSS has clarified how my performance is evaluated		0.42	0.56			
Implementation of CCSS has improved teaching at my school			0.61			
The pacing of instruction is appropriate under the CCSS				0.41		
I believe that my school will be better off in 10 years due to implementation of CCSS				0.74		
Implementation of the CCSS has improved our district's direction and purpose			0.64			
<i>Change in Collaboration</i>						
Teacher cooperation now compared to pre-CCSS					0.92	

(Continued)

Table 4. (Continued)

	F1	F2	F3	F4	F5	F6
Teacher collaboration now compared to pre-CCSS					0.94	
Teacher involvement in school governance and mission now compared to pre-CCSS					0.76	
<i>Change in environmental conditions—Enjoyment and satisfaction</i>						
Your impression of student stress level now compared to pre-CCSS						0.72
Your impression of students' enjoyment of learning now compared to pre-CCSS						0.48
Your job-related stress level now compared to pre-CCSS						0.94
Your overall job satisfaction now compared to pre-CCSS						0.40
Your enjoyment of teaching now compared to pre-CCSS						0.45
<i>Change in teacher flexibility and autonomy</i>						
Your overall instructional autonomy and flexibility now compared to pre-CCSS				0.89		
Your autonomy and flexibility in selecting instructional materials now compared to pre-CCSS				1.00		
Your autonomy and flexibility in selecting teaching methods now compared to pre-CCSS				0.94		

there to be a noticeable change in enjoyment and satisfaction or a change in teacher autonomy and flexibility after CCSS implementation (as compared to pre-CCSS conditions).

The relationship among the six scales ranged from 0.37 to 0.71 (see Table 5). The strongest relationships were between Change in Environmental Conditions of Enjoyment and Satisfaction and Change in Teacher Flexibility and Autonomy.

4.1. Factors influencing teachers' views on CCSS and implementation

Between-factor regression analyses indicated that teachers' views on CCSS implementation, teaching conditions, job satisfaction, and leaving the profession early were significantly related to open and/or active leadership characteristics of district and building administration. Table 6 illustrates the variance in participants' responses for each output factor as related to the dependent variable of open and active leadership, as well as the standardized regression coefficients of the types of leadership; other variables included in each model were the following: grade level taught, years of experience, and subject taught (i.e. all subjects, English, Math, Reading, Science, and/or Social Studies). Following are summaries of the individual models.

District and building leadership was significantly related to whether teachers viewed CCSS implementation positively or negatively. Forty-two percent of the overall variance in teachers' views of the CCSS and its implementation was accounted for by the openness and activeness of building and

Table 5. Relationships among CCSS variables

		(1)	(2)	(3)	(4)	(5)	(6)
(1)	Open leadership	1.00					
(2)	Active leadership	0.68	1.00				
(3)	Views on CCSS and implementation	0.49	0.42	1.00			
(4)	Change in teacher collaboration	0.49	0.51	0.58	1.00		
(5)	Change in environment conditions	0.52	0.37	0.61	0.59	1.00	
(6)	Change in teacher autonomy and flexibility	0.49	0.38	0.54	0.53	0.71	1.00

Note: $p < 0.01$ for all correlations.

Table 6. Summary of regression output for leadership factors^a

Outcomes	R ²	Open leadership β^b	Active Leadership β^b
Views on CCSS and implementation	0.46	0.48**	0.16**
Change in involvement and collaboration	0.33	0.26**	0.34**
Change in teaching conditions	0.41	0.53**	0.09*
Leaving profession early	0.20	0.38**	0.03

^aOther variables including grade level taught, subject taught, and years of experience were also included in the model.

^bStandardized coefficients are reported.

*Level of significance at $p < 0.05$.

**Level of significance at $p < 0.01$.

district leadership. Open leadership had the strongest relationship with teachers' views of CCSS and its implementation, followed by the impacts of active leadership. For every one standard deviation increase in open or active leadership types, views of CCSS and its implementation increased by 0.48 or 0.16 standard deviations, respectively.

4.2. Factors influencing perceptions of involvement and collaboration

Regression analyses of collaboration and collegiality indicated that leadership was significantly correlated with teachers' perceived involvement and collaboration. Openness and activeness of building and district leadership accounted for 30% of the variance of teachers' perceptions of collaboration and involvement during implementation of the CCSS. In this case, however, the activeness of leadership had a stronger influence on involvement and collaboration than did open leadership ($\beta_{\text{active}} = 0.32$, $p < 0.01$; $\beta_{\text{open}} = 0.26$, $p < 0.01$). Other variables of subject, grade level, and years of teaching were not significantly related to collaboration. Of the eight-factor outcome correlations, the relationship between active leadership and collaboration/involvement was the fourth strongest.

4.3. Factors influencing teaching conditions

4.3.1. Enjoyment and satisfaction

Openness of building and district leadership was the strongest significant predictor of teachers' perceptions of change in environmental conditions of satisfaction and enjoyment ($\beta_{\text{open}} = 0.48$, $p < 0.01$), while activeness of leadership was not a significant predictor ($\beta_{\text{active}} = 0.01$, $p = 0.83$). An increased duration of teaching experience decreased views on teaching conditions significantly ($\beta_{\text{years}} = -0.09$, $p < 0.05$). Teachers who taught all subjects were more likely to have positive views ($\beta_{\text{all}} = 0.13$, $p < 0.05$), while the influence of teaching other subjects did not have a significant impact on teaching conditions, nor did the grade level taught.

4.3.2. Flexibility and autonomy

Openness of building and district leadership was the strongest significant predictor of teachers' perceptions of change in teaching conditions ($\beta_{\text{open}} = 0.43$, $p < 0.01$), while activeness of leadership was not a significant predictor ($\beta_{\text{active}} = 0.06$, $p < 0.22$). Teachers who taught all subjects were slightly more likely to have positive views ($\beta_{\text{all}} = 0.11$, $p < 0.05$), while teaching other subjects and grade level taught did not have a significant relationship with teaching conditions. When viewed within the context of the full model, the relationship between openness of leadership and change in teaching conditions (regarding satisfaction and enjoyment) is the strongest.

4.4. Effect of participant knowledge regarding CCSS

When administering the survey, participants were asked about their views on CCSS with an option of "I don't know" provided to them if they did not know about that characteristic of CCSS. Thus, we considered it important to investigate differences in scale scores for those reporting to be familiar with the Common Core standards vs. those who were not (Table 7).

Table 7. Scale reliability and descriptive statistics

	N	Mean	SD	Min	Max
<i>High</i>					
Open leadership	617	4.67	1.31	1.00	7.00
Active leadership	623	4.30	1.27	1.67	7.00
Views on CCSS and implementation	592	4.43	1.28	1.00	7.00
Change in teacher collaboration	608	4.26	1.01	1.00	7.00
Change in envt cond—Satisf/enjoy	593	3.49	1.10	1.00	7.00
Change in envt cond—Tchr auto/flex	606	3.83	1.33	1.00	7.00
<i>Moderate</i>					
Open leadership	20	4.38	0.78	1.67	5.50
Active leadership	21	4.14	0.86	2.00	6.00
Views on CCSS and implementation	–	–	–	–	–
Change in teacher collaboration	20	4.07	0.23	4.00	5.00
Change in envt cond—Satisf/enjoy	18	3.80	0.38	3.00	4.20
Change in envt cond—Tchr auto/flex	18	3.85	0.77	1.00	5.00
<i>Low</i>					
Open leadership	11	3.77	1.67	1.67	5.67
Active leadership	11	3.56	1.33	1.33	4.83
Views on CCSS and implementation	–	–	–	–	–
Change in teacher collaboration	10	4.07	0.34	3.67	5.00
Change in envt cond—Satisf/enjoy	10	3.84	0.25	3.40	4.00
Change in envt cond—Tchr auto/flex	10	4.00	0.16	3.67	4.33

Participants were classified into three categories: low knowledge of CCSS (where they responded “I don’t know” on five–seven items), moderate CCSS knowledge (responding “I don’t know” to three or four questions), and high level of CCSS knowledge (responding to two or fewer items with an “I don’t know” response). There were 683 of the 951 participants classified into the high perceived knowledge of CCSS category, and only 25 and 13 participants in the moderate and low knowledge categories, respectively. Twenty-four percent of the respondents ($N = 230$) had a missing value for at least one of the items on the scale. The means for the low and moderate CCSS knowledge groups were lower than the high CCSS knowledge group for the Open Leadership and Active Leadership scales, indicating that teachers who perceived their leaders to be more actively involved, collaborative, and open to feedback had more knowledge of the CCSS.

The means for the Change in Environmental Conditions in regard to satisfaction and enjoyment were higher for the low and moderate CCSS knowledge groups than the high CCSS knowledge group ($M = 3.84, 3.80, \text{ and } 3.49$, respectively). The higher and moderate CCSS knowledge groups felt that there was less of a change in environmental conditions post-CCSS implementation than the lower CCSS knowledge group. The Change in Environmental Conditions in regard to teacher flexibility and autonomy was reportedly higher for the low CCSS knowledge group ($M = 4.00$) than the moderate and high CCSS knowledge groups. The low CCSS knowledge group reported higher perceived levels of change in teacher autonomy and flexibility under CCSS implementation than the other groups. Due to the small number of respondents reporting low and moderate levels of perceived CCSS knowledge, the remaining analyses will not be divided by CCSS knowledge subgroups.

4.5. Effect of experience, grade level, and subject taught

When predicting views of CCSS using Years Teaching, Grade Level Taught, Subject Taught (Core Areas), Active Leadership, and Open Leadership styles, significant predictors included Open

Leadership, Active Leadership, Grade Level Taught, Years Teaching, and if one taught Reading/Literacy or Social Studies (see Table 8). The amount of variance in CCSS Views accounted for by these variables was 0.47 (adjusted R^2) with Open Leadership accounting for the largest proportion of unique variation ($sr^2 = 0.14$) and Grade Level Taught being a distant next best predictor ($sr^2 = 0.01$).

When predicting Teacher Involvement and Collaboration using Years Teaching, Grade Level Taught, Subject Taught (Core Areas), Active Leadership, and Open Leadership styles, significant predictors included Open Leadership and Active Leadership (see Table 9). The amount of variance in perceived Teacher Involvement and Collaboration accounted for by these variables was 0.30 (adjusted R^2) with Active Leadership accounting the largest amount of unique variation ($sr^2 = 0.05$).

4.6. Effect of leadership on change in environmental conditions

When predicting Change in Environmental Conditions (in regard to satisfaction and enjoyment) using Years Teaching, Grade Level Taught, Subject Taught (Core Areas), Active Leadership, and Open Leadership styles, significant predictors included Open Leadership, Years Teaching, and if a teacher taught All Subjects (see Table 10). The amount of variance in perceived Change in Environmental Conditions (enjoyment and satisfaction) accounted for by these variables was 0.25 (adjusted R^2) with Open Leadership accounting for the largest proportion of unique variance ($sr^2 = 0.12$).

Table 8. Regression output for predicting CCSS views and implementation

	β	B	SE (B)	t	Semi-partial r^2
Intercept	-	2.21	0.27	8.25*	
Open leadership	0.52	0.49	0.04	11.97*	0.140
Active leadership	0.13	0.13	0.04	3.00*	0.009
Grade level taught	-0.14	-0.12	0.04	-3.04*	0.009
Years teaching	-0.08	-0.06	0.02	-2.55*	0.006
Teach all subjects	0.05	0.17	0.15	1.10	0.001
Teach English	0.00	<0.01	0.11	0.02	<0.001
Teach math	0.01	0.01	0.10	0.15	<0.001
Teach literacy/reading	0.10	0.33	0.13	2.50*	0.006
Teach science	-0.05	-0.18	0.11	-1.62	0.003
Teach social studies	-0.07	-0.23	0.10	-2.18*	0.005

* $p < 0.05$; model $F(10, 535) = 49.10$, $p < 0.01$; $R^2 = 0.48$.

Table 9. Regression output for predicting teacher involvement and collaboration

	β	B	SE (B)	t	Semi-partial r^2
Intercept	-	2.41	0.22	10.79*	
Open leadership	0.26	0.19	0.04	5.55*	0.048
Active leadership	0.32	0.25	0.04	6.80*	0.071
Grade level taught	-0.02	-0.01	0.03	-0.39	<0.001
Years teaching	-0.05	-0.03	0.02	-1.60	0.004
Teach all subjects	0.08	0.19	0.13	1.51	0.004
Teach English	0.02	0.04	0.09	0.50	<0.001
Teach math	0.04	0.09	0.08	1.15	0.002
Teach literacy/reading	-0.01	-0.03	0.11	-0.23	<0.001
Teach science	-0.03	-0.08	0.09	-0.90	0.001
Teach social studies	-0.02	-0.05	0.09	-0.58	<0.001

* $p < 0.05$; model $F(10, 605) = 26.88$, $p < 0.01$; $R^2 = 0.31$.

Table 10. Regression output for predicting change in environmental conditions (satisfaction and enjoyment)

	β	B	SE (B)	t	Semi-partial r^2
Intercept	-	1.64	0.26	6.42*	
Open leadership	0.48	0.39	0.04	9.82*	0.141
Active leadership	0.01	0.01	0.04	0.22	<0.001
Grade level taught	0.05	0.04	0.04	1.04	0.002
Years teaching	-0.09	-0.05	0.02	-2.52*	0.011
Teach all subjects	0.13	0.36	0.14	2.48*	0.010
Teach English	-0.04	-0.11	0.10	-1.11	0.002
Teach math	0.03	0.06	0.09	0.66	<0.001
Teach literacy/reading	0.03	0.10	0.13	0.72	<0.001
Teach science	0.03	0.09	0.10	0.87	0.001
Teach social studies	0.02	0.05	0.10	0.52	<0.001

* $p < 0.05$; model $F(10, 588) = 20.59, p < 0.01; R^2 = 0.26$.

Table 11. Regression output for predicting change in environmental conditions (teacher flexibility and autonomy)

	β	B	SE (B)	t	Semi-partial r^2
Intercept	-	1.75	0.30	5.75*	
Open leadership	0.43	0.43	0.05	8.90*	0.117
Active leadership	0.06	0.06	0.05	1.22	0.003
Grade level taught	-0.02	-0.02	0.04	-0.46	<0.001
Years teaching	-0.05	-0.04	0.02	-1.54	0.003
Teach all subjects	0.11	0.35	0.17	2.05*	0.007
Teach English	-0.03	-0.10	0.12	-0.84	0.001
Teach math	0.04	0.13	0.11	1.14	0.002
Teach literacy/reading	0.07	0.26	0.16	1.69	0.005
Teach science	0.01	0.03	0.12	0.25	<0.001
Teach social studies	-0.05	-0.15	0.12	-1.23	0.003

* $p < 0.05$; model $F(10, 598) = 21.68, p < 0.01; R^2 = 0.27$.

When predicting Change in Environmental Conditions (in regard to teacher flexibility and autonomy) using Years Teaching, Grade Level Taught, Subject Taught (Core Areas), Active Leadership, and Open Leadership styles, significant predictors included Open Leadership and if a teacher taught All Subjects being marginally significant (see Table 11). The amount of variance in perceived Change in Environmental Conditions (teacher autonomy and flexibility) accounted for by these variables was 0.25 (adjusted R^2) with Open Leadership accounting for the largest proportion of unique variance ($sr^2 = 0.10$).

4.7. CCSS implementation and thoughts about leaving the profession

Less than one-quarter of the respondents indicated that they frequently consider leaving the teaching profession due to CCSS implementation ($N = 130$ out of 560 respondents; 23%). Thirty-nine percent of teachers ($N = 221$) indicated that they occasionally consider leaving the teaching profession, but CCSS has not impacted them anymore than any other daily issues they face. A similar proportion of teachers ($N = 209$; 37%) indicated that they never think about leaving teaching due to CCSS. In relation to years of teaching experience (see Table 12), as teaching experience increases, thoughts of leaving the teaching profession due to CCSS implementation also generally increases.

Table 12. Respondents' intention to leave the teaching profession after CCSS implementation

	Intention to leave the teaching profession after CCSS implementation		
	Yes, all the time	Sometimes, but no more than any other issue	No, never
<i>Open leadership</i>			
Low	30 (51.7%)	21 (36.2%)	7 (12.1%)
Moderate	76 (26.8%)	134 (47.2%)	74 (26.1%)
High	27 (11.8%)	72 (31.4%)	130 (56.8%)
<i>Years of teaching experience</i>			
1-2	1 (3.0%)	11 (33.3%)	21 (63.6%)
3-5	5 (8.6%)	30 (51.7%)	23 (39.7%)
6-10	23 (19.7%)	49 (41.9%)	45 (38.5%)
11-15	30 (27.8%)	43 (39.8%)	35 (32.4%)
16-20	26 (26.0%)	31 (31.0%)	43 (43.0%)
21-25	22 (29.3%)	29 (39.7%)	24 (32.0%)
26-30	15 (31.3%)	19 (39.6%)	14 (29.2%)
30 or more	16 (38.1%)	18 (42.9%)	8 (19.1%)
<i>Grade level taught</i>			
Pre-school-2nd	10 (12.2%)	34 (41.5%)	38 (46.3%)
3rd-5th	19 (24.4%)	30 (38.5%)	29 (37.2%)
6th-8th	32 (25.4%)	47 (37.3%)	47 (37.3%)
7th-9th	19 (30.2%)	27 (42.9%)	17 (27.0%)
9th-12th	58 (25.0%)	92 (39.7%)	82 (35.3%)

Table 13. Logistic regression output for predicting intention to leave the teaching profession after CCSS implementation

	B	SE (B)	Wald χ^2	β	OR	95%	CI (OR)
Intercept 1	0.821	0.363	5.104				
Intercept 2	2.861	0.383	55.753				
Open leadership	-0.654	0.068	92.419	-0.476	0.520	0.455	0.594
Years teaching	0.186	0.044	18.044	0.193	1.204	1.105	1.312

Notes: $R^2 = 0.191$; Max-rescaled $R^2 = 0.217$.

Only 3% of new teachers are constantly considering leaving the profession due to CCSS implementation, whereas over 38% of teachers with 30 or more years of experience constantly consider leaving. Knowing that teachers with 30 or more years of experience are also probably considering leaving due to general retirement considerations, it is important to notice that all teacher categories with 11 or more years of experience have more than 25% of respondents indicating they consider leaving all the time. Grade level appears to have a smaller relationship with intention to leave with the exception of preschool to grade 2 teachers having a very low proportion considering leaving the profession due to CCSS implementation. All other grade levels include approximately one-quarter of their teachers who are constantly considering leaving the profession due to CCSS implementation. Open leadership style was categorized into three levels of very open leadership (high), moderately open leadership, and a leadership style that is not "open" (low). Teachers with administrators that have a very open leadership style have a much lower self-reported intention to leave the profession due to CCSS implementation (11.8%) than teachers with a low level of "open leadership" (51.7%).

When investigating factors that were the strongest predictors of "Intention to Leave the Teaching Profession after CCSS Implementation," the only significant predictors were Open Leadership (=

Table 14. Predicted probabilities of intention to leave the teaching profession after CCSS implementation based on open leadership characteristic and years teaching

Open leadership	Years teaching category	Intention to leave the teaching profession after CCSS implementation		
		Yes, all the time	Sometimes, but no more than any other issue	No, never
1.000	6-10 years	0.674	0.267	0.059
1.500	21-25 years	0.722	0.230	0.048
1.833	6-10 years	0.545	0.357	0.098
2.167	30+ years	0.709	0.240	0.051
2.333	11-15 years	0.510	0.379	0.111
2.833	1-2 years	0.300	0.467	0.232
2.833	3-5 years			
2.833	11-15 years	0.429	0.424	0.148
2.833	30+ years	0.612	0.312	0.076
3.000	5	0.448	0.414	0.138
3.333	6-10 years	0.310	0.465	0.224
3.500	5	0.369	0.449	0.182
3.500	21-25 years	0.413	0.431	0.156
3.667	1-2 years	0.199	0.458	0.343
3.667	6-10 years	0.265	0.470	0.265
3.667	26-30 years	0.432	0.422	0.146
3.833	3-5 years	0.212	0.462	0.326
3.833	5	0.320	0.464	0.217
4.000	1-2 years	0.167	0.440	0.393
4.000	3-5 years	0.194	0.456	0.350
4.000	16-20 years	0.300	0.464	0.236
4.333	21-25 years	0.290	0.469	0.241
4.500	1-2 years	0.126	0.400	0.473
4.667	11-15 years	0.185	0.451	0.365
4.667	30+ years	0.323	0.463	0.214
5.000	11-15 years	0.154	0.430	0.416
5.167	1-2 years	0.086	0.333	0.582
5.167	6-10 years	0.119	0.391	0.489
5.167	30+ years	0.256	0.470	0.274
5.333	6-10 years	0.108	0.375	0.517
5.333	26-30 years	0.058	0.262	0.680
5.667	11-15 years	0.105	0.370	0.525
5.667	30+ years	0.199	0.457	0.344
5.833	1-2 years	0.057	0.261	0.683
6.000	3	0.073	0.304	0.623
6.000	4	0.087	0.335	0.578
6.167	3-5 years	0.055	0.255	0.689
6.167	5	0.093	0.348	0.560
6.167	26-30 years	0.129	0.404	0.467
6.333	6-10 years	0.060	0.267	0.673

(Continued)

Table 14. (Continued)

Open leadership	Years teaching category	Intention to leave the teaching profession after CCSS implementation		
6.500	3–5 years	0.045	0.221	0.734
6.500	6	0.090	0.343	0.567
6.667	6–10 years	0.048	0.233	0.719
6.667	6	0.082	0.324	0.594
6.833	6–10 years	0.044	0.216	0.740
6.833	26–30 years	0.088	0.337	0.575
7.000	16–20 years	0.056	0.257	0.687

–0.476; OR = 0.520; see Table 13) and Years of Teaching Experience (= 0.193; OR = 1.204). These two factors resulted in a pseudo- $R^2 = 0.191$ (max rescaled $R^2 = 0.217$), indicating modest predictive power.

Table 14 provides the probability of a teacher indicating that they think about leaving the teaching profession all the time, some of the time (but not necessarily due to CCSS implementation), or none of the time using Open Leadership and Years Teaching as predictors. Select combinations are listed with Open Leadership ranging from 1 (leadership that is not considered open) to 7 (an extremely open leadership style) and four categories of Years Teaching Experience.

When Open Leadership is very high (7.0), teachers’ intention to leave the profession due to CCSS implementation is very low (fewer than 8%), regardless of the number of years taught. In addition, the majority of the teachers with highly open leadership indicate they never think about leaving the teaching profession due to CCSS implementation (60–82%). Conversely, when Open Leadership is very low (1.0), the majority of teachers (59–81%) are considering leaving the teaching profession due to CCSS implementation, regardless of the number of years taught. Very few of the teachers with very low Open Leadership scores indicate that they never think about leaving the teaching profession (3–19%).

It is in the area of moderate to relatively low levels of Open Leadership where we see some of the largest impacts from Years Teaching. For teachers with moderate levels of Open Leadership (score = 4.0), years teaching has a large impact on intention to leave the teaching profession due to CCSS implementation. New teachers with one–two years of experience are typically not thinking of leaving teaching at all (39%) or only sometimes considering it due to CCSS implementation (44%). Only 17% think about leaving all the time. However, the teachers with moderate Open Leadership who are highly experienced (taught 26–29 years) primarily are either thinking about leaving all the time (38%) or sometimes considering it (44.5%). Few are never considering leaving teaching due to CCSS (17.5%).

5. Discussion

This study investigated teachers’ views of CCSS implementation and factors contributing to those views. Similar to results of prior research indicating that distributed leadership correlates positively with organizational change (Harris, 2009), our results indicate that teachers’ perceptions of implementation were influenced by the distribution of leadership practices.

Our study revealed that teacher participants’ views on CCSS implementation, teaching conditions, job satisfaction, and leaving the profession early were significantly related to leadership characteristics of district and building administration. These characteristics were represented by two factors in our analysis: Open Leadership and Active Leadership. Survey items that loaded on the factor Open Leadership addressed whether teachers felt freedom and flexibility to express concerns and to

adapt their lessons and whether leadership listened to teachers' ideas. Survey items that loaded on the factor Active Leadership described the extent to which school leaders were evaluating, promoting parent involvement, visiting classrooms, and providing for collaboration in relation to CCSS.

Of the two factors, openness of leadership played a more significant role in teachers' perceptions of change in teaching enjoyment and satisfaction as well as teacher autonomy and flexibility. Activeness of leadership, on the other hand, had a stronger influence on perceptions of teacher involvement and collaboration. Reported knowledge of CCSS also correlated with teachers' perceptions of implementation; the high CCSS knowledge group perceived their leaders to be more actively involved, collaborative, and open to feedback. The higher and moderate CCSS knowledge groups also felt that there was less of a change in teaching autonomy and flexibility post-CCSS implementation than the lower CCSS knowledge group, indicating that responsibility for instructional decision-making continued to be distributed across the school organization in groups with higher CCSS knowledge. These teachers appeared to be empowered with both knowledge and decision-making ability in implementing the standards.

Openness of leadership was also an important factor in teachers' thoughts about leaving the profession. Teachers with administrators that had a very Open Leadership style reported a much lower intention to leave the profession due to CCSS implementation, regardless of the number of years taught. In addition, the majority of the teachers with highly Open Leadership indicate they never think about leaving the teaching profession due to CCSS implementation. This stands in stark contrast to teachers who report very low levels of Open Leadership. When Open Leadership is very low, the majority of teachers are considering leaving the teaching profession due to CCSS implementation, regardless of the number of years taught. Few of the teachers with very low Open Leadership scores indicate that they never think about leaving the teaching profession.

5.1. The importance of open and active leadership

From a distributed leadership perspective, our findings related to Open Leadership are consistent with previous research about school change and delineate characteristics relevant to the process. The factor Open Leadership describes leadership practices that are characterized by unguarded mutual communication about implementation and opportunity for teachers' decision-making in enacting the standards instructionally. Teachers' responses indicated that leadership practice with these characteristics was associated with positive perceptions of implementation. Teachers' comments on the open-ended survey items were instructive of the type of leadership practices that led to positive perceptions of the CCSS and its implementation. A few teachers commented positively about leadership practices that allowed them to provide input, and these teachers had positive perceptions of the CCSS and their implementation. Representative comments included, "District leadership is listening and wants us to move forward," and, "They are willing to listen and provide training where necessary."

Conversely, our findings suggest that the failure to practice Open Leadership policies may be detrimental to teachers' perceptions of CCSS implementation, a problematic possibility given the relationship between teachers' perceptions and implementation of innovation (Ashton & Webb, 1986; Smylie, 1988). From a distributed leadership perspective, teachers' emphasis on a need for input and flexibility is consistent with previous findings about school change. Marzano et al. (2005) concluded that providing flexibility was a characteristic that correlates with successful second-order change processes. Similarly, Hargreaves (2004), in his study of the emotional impact of educational change, highlights the importance of what he calls inclusive change, in which leaders "engage teachers' knowledge and commitments" and make use of their purposes, passions, and professional judgment (p. 306). Our study supports these recommendations and frames them within the context of distributed leadership by emphasizing characteristics and outcomes of Open Leadership.

Considering the characteristic of Active Leadership from a distributed perspective, our results suggest that reform initiatives can be viewed as a tool around which routines and structures can be

designed to build interdependence. The factor of Active Leadership includes practices tied with implementation such as observing in classrooms, evaluating and affirming teachers, providing for collaboration, understanding the needs of special populations, and involving parents. The fact that these wide-ranging characteristics load together as a factor highlights the importance of leadership practices that are dynamic, acknowledging, and involving multiple stakeholders. This factor describes not only active practices on the part of the leader, but also interactive practices that the leader facilitates. Active Leadership describes the use of tools and routines to encourage positive interdependencies, considering how individual actions fit within a larger system of action with leaders and followers supplementing and extending one another's actions (Spillane, 2006). These interdependencies allow for sharing of cognitive resources, creating systems where knowledge is distributed across individuals (Gronn, 2002; Harris & Muijs, 2005; Heller & Firestone, 1995; Stewart, 1991). Interdependent systems that include collaborative distribution foster positive school change (Spillane, 2006). Results of this survey suggest that the use of Active Leadership practices may be a vital contributor in achieving educational improvement.

5.2. Involvement, collaboration, and views of CCSS implementation

Literature on distributed leadership provides a framework for thinking about collaboration as it relates to our findings about implementation of the Common Core. The practice of distributed leadership is expressed through the interactions of leaders, followers, and their situation (Spillane, 2006). Collaboration and teacher involvement were important concepts in this study's findings, with Active Leadership enhancing teachers' perceptions of collaboration during implementation of CCSS. Teachers who rated implementation of CCSS more positively indicated that they were involved in school governance and school mission and that there was cooperation and collegiality. School reform literature emphasizes the importance of collaboration as a means for improving education (City, Elmore, Fiarman, & Teitel, 2009; Fullan, 2010; Goddard et al., 2004). The factor of Active Leadership, as identified in this study, illustrates that routines for CCSS implementation may be considered as a mediating tool within leadership interactions. Successful routines include opportunities for professional communities to work together to develop practices and curriculum and problem-solve with colleagues (Bryk, Sebring, Kerbow, Rollow, & Easton, 1998; Hargreaves, 1994; Senge, 1996). Our findings suggest that deprivatization of practice enhances teachers' perceptions of change. By creating multiple opportunities for heedful faculty interaction, leaders create a coherent system that deprivatizes practice and contributes to the distribution of responsibility. (Fullan, 2010; Halverson, 2007; Spillane, 2006).

5.3. Views on teaching conditions during CCSS implementation

One of the clearest and most significant findings of this study was the obvious impact that openness of school leadership has on teachers' perceptions of their job satisfaction and teaching conditions. Openness was the most powerful factor within the model, and we see striking differences in teachers' experiences when we consider the survey items that loaded into the openness factor individually. Teachers who reported that school leadership failed to practice Open Leadership policies also indicated that they had less autonomy with curricular materials and less autonomy with selection of teaching methods. When compared to teachers who reported Open Leadership practices, those who viewed their leadership as "closed" also reported feeling less professional, less overall job satisfaction, and less satisfaction with teaching; this group was also more likely to be thinking about leaving the profession, regardless of the number of years of experience.

Teachers' perceptions of teaching conditions under implementation of the Common Core provide important insights for leadership practice. The distributed leadership model stresses the importance of attention to situation, focusing on the routines and tools in place, and the interactions of leaders and followers that make up leadership practice. It is in these interactions that teaching conditions are shaped. Building formal routines that are linked to student learning makes the conditions of teachers' work more supportive of teacher learning (Spillane, 2006). Our findings suggest that

leaders at all levels should give attention to the design and redesign (Cope & Kalantzis, 2000; Perkins, 1986; Spillane, 2006) of routines and tools so that they constitute leadership practices that are open and active.

6. Limitations

This study provides insights that begin to answer the call of Spillane and Diamond (2007) of providing descriptions of the concepts and ideas of distributed leadership. In-depth qualitative data could provide more complete descriptions of the practices of leaders and followers in open/closed and active/static leadership contexts, however. Although surveys provide an opportunity to gauge the perceptions of individuals across a wide distribution of contexts, the survey tool is unable to capture the nuances of practice. An additional limitation of survey research is the inconsistency between what happens in observed educational settings and what is reported. These differences may reflect the disparities between the lived vs. the designed organization (Fullan, 2010; Spillane, 2006). Complicating the process of gathering national data about the CCSS is the reality that implementation is at different stages across the country, with states taking up this initiative with different schedules for implementation. Our findings cannot adequately depict these differences. Further, it is expected that as implementation progresses in individual states, teachers' experiences will also shift, giving rise to a continuing need to monitor teachers' perceptions regarding implementation of CCSS.

7. Conclusion

The findings of this study extend the understanding of distributed leadership by considering specific leadership roles associated with teachers' perception during widespread educational reform. Consistent with previous research on distributed leadership in education, results emphasize teachers' need for input and flexibility and active involvement of those in formal leadership roles. Our study frames these needs within the practices of open and active leadership.

In our study, the factor Open Leadership, which emphasized teachers' freedom to express concerns and make instructional decisions, had the strongest influence on teachers' views of CCSS and its implementation, highlighting these aspects of mutually constituted leadership that is distributed across the organization. As suggested by the label, Open Leadership describes receptivity to the ideas and agency of stakeholders, which in this study was a characteristic of leaders during positively perceived reform effort. The leadership attributes of inviting, listening, and enabling are implicated and call for further study to elucidate their enactment by those in designated leadership roles within a distributed leadership framework.

The attribute of Active Leadership also offers insight regarding distributed leadership. In descriptions of distributed leadership, the role of positional leaders is sometimes minimized. However, our findings suggest that reform efforts benefit when positional leaders are dynamically involved in implementation processes rather than taking a *laissez-faire* approach that simply affords others opportunities for involvement. Our study highlights exerted involvement of educational leaders in evaluation, reaching out to other stakeholders, arranging schedules and resources to support teacher collaboration, and simply visiting classrooms to become informed about the actuation of the reform. The interconnectedness of active involvement of positional leaders and their facilitation of others' active involvement requires further study and could elucidate models of distributed leadership.

The distribution of leadership can emerge through crisis, when a school encounters a challenge, and formal leaders and teachers find themselves working together to address it (Spillane, 2006). Implementation of reforms such as the CCSS can serve as such a "crisis," leading to the development of a paradigm of distributed leadership that supports the shared work that teachers are encouraged to undertake. Conversely, when responses to these crises are not met with flexibility, schools may be more susceptible to threat rigidity (Staw, Sandelands, & Dutton, 1981), a common organizational reaction to increased external pressure resulting in stiffer regulations and hierarchal structures that make activities such as teacher collaboration less open and even perceived as a potential threat to

the organization. Threat rigidity has been shown to affect schools undergoing sanctions or sudden change, such as being placed on improvement under NCLB, leading to leadership practices that are antithetical to the established body of literature reviewed here (Daly, Der-Martirosian, Ong-Dean, Park, & Wishard-Guerra, 2011). The constructs of Open and Active leadership might be used to examine and understand both empowering and restrictive enactments of educational reform within a framework of distributed leadership. Future research should also consider how teachers in various disciplines are affected by systematic change in a limited number of subject areas.

Findings of this study indicate that teachers have an important role to play for successful implementation of the CCSS. From a distributed perspective, teachers may take the roles of both teacher-leaders and followers, with both roles significantly impacting interactions. Successful implementation capitalizes on the distribution of expertise across a school (Coldren, 2007; Harris, 2009; Spillane, 2006). Within a context of open and active leadership practices, teachers have the opportunity and obligation to take active roles in constructing and enacting routines for implementation. When teachers are knowledgeable about the Standards and also about effective instructional practices, they can contribute cogent ideas and criticisms about implementation. The viability of open and active leadership practices depends upon the knowledge base (or the development of the knowledge base) of the teacher practitioners who will enact the standards. The onus is on teachers and teacher educators, therefore, to develop these understandings in order to be prepared for successful implementation of the Common Core and future school improvement initiatives. Teachers and teacher educators have the responsibility for developing professional capacity to create and participate in meaningful interactions such as collaborative curriculum design, formative assessment, and reflective practice. Activities that create professional community build organizational capacity for positive school change (Halverson, 2007).

Implementation of the CCSS can provide an opportunity to reshape leadership practices at the school level. After diagnosing the current school context in which the Standards will take root, principals can consider how established practices might be redesigned, building routines linked to students' mastery of the Standards. Plans that consider how the distributed actions of many give shape to practice create the capacity for successful implementation of the standards and concomitant improvements in student learning. Through a focus on the Standards, principals can develop the leadership practices of both formally designated leaders and informal leaders. They can consider how expert knowledge is distributed among staff members and create routines that capitalize on that expertise. Knowledge and expertise are thus distributed among both formal and informal leaders. In this context, leaders and followers supplement and extend one another's actions (Spillane, 2006). Implementation of CCSS can provide an opportunity to enact open leadership practices that engage teachers in instructional decision-making and develop shared capacity for school improvement.

Regardless of the size of the organization, leadership at the district level has a significant influence on how policies are enacted (Marzano & Waters, 2009). District leaders should consider the many elements of the context that are interacting as initiatives such as the CCSS are put into practice. If multiple initiatives are being forwarded, consideration should be given to how these initiatives could be framed together to create a cohesive system. Results of this study suggest that an emphasis on active leadership, including routines such as classroom observations, positive systems for teacher evaluation, and involving parents and other stakeholders, is associated with positive perceptions of implementation. District-level leaders are in the position to create cohesive systems supporting active leadership practices.

As districts create tools for implementation of the CCSS, they should be heedful of how these tools influence interactions between leaders and followers, between teachers and students. Districts' use of required tools can create useful, uniform systems without sacrificing opportunities for feedback and flexibility. Districts would do well to create implementation protocols that frame interactions between leaders, teachers, and students in open and flexible ways. A district's creation of routines

that draw attention to, support, and monitor implementation of the CCSS ensures that the Standards will not be viewed as just another passing phase on the educational scene. The Standards can provide an opportunity to transform student learning by coupling implementation of CCSS with a focus on evidence-based instructional practices. Districts can use implementation of the CCSS as an opportunity to reframe interactions among leaders and teachers for meaningful school improvement. This reframing may necessitate modification of contracts or compensation policies at the district level.

The results of this study indicate that positive perceptions of the CCSS and its implementation were correlated with open and active leadership practices. These leadership practices were characterized by flexibility, communication, and active involvement with multiple stakeholders. As policy-makers and state education leaders enact directives and regulations for implementation of standards, their requirements should allow for open and active leadership. For example, funding opportunities could be made conditional upon inclusion of open and active practices rather than requiring rigid adherence to specific frameworks, as has sometimes been required in the past (Bean, Draper, Hall, Vanderمولen, & Zigmond, 2010; Gamse et al., 2008; Kersten & Pardo, 2007; Manzo, 2005). By crafting guidelines that support collaboration and open and active leadership, policy-makers can help create organizations where leaders and followers are pulling in the same direction to enact positive school change.

By reporting on the perceptions of teachers early in the implementation process, results of our study provide insight about how the CCSS are being substantiated in practice in schools across the USA. The significant impact of leadership practices noted in our study suggests that it is important for leaders at all levels to remodel school culture through open and active leadership practices if such practices are not already in place. Leaders can enable and enact routines that reshape school culture, giving multiple stakeholders opportunities to interact around the Standards. Leaders at all levels should be cognizant of the ways in which the tools they create for implementation of the CCSS both enable and constrain practice. Tools created by leaders (e.g. programs, professional development, protocols, and policies) and the routines in which these tools are enacted are the primary means of shaping practice (Halverson, 2007).

Our descriptions of the construction of open and active leadership provide some tangible, actionable descriptions of how distributed practice might be constituted in implementation of the CCSS. Open and Active leadership practices take into account how the constellation of formal and informal leaders and their followers work within organizational contexts (Diamond, 2007). These findings may be of particular value to teachers, teacher educators, and leaders with impending implementation of the Next Generation Science Standards and other school reform initiatives.

While it may seem obvious that the working conditions for teachers are also the learning conditions of the students and thus important to teaching and learning, it is necessary to more robustly understand the interplay of working conditions under a system that has experienced an upheaval of change in a short amount of time. Numerous teachers in this study remarked how hopeful and positive they felt about the CCSS, and it seems to us that there is momentum to be captured in this change, momentum that will allow teachers to feel supported in their school context.

The fact that CCSS was handed down from above with only hurried input from teachers remains troubling. We began this article by discussing the importance teachers' perceptions have for the success of educational reform initiatives and student achievement; yet, the CCSS were not brought forth by educators. Rather than building capacity and developing buy-in by having teachers explicitly involved in the development and implementation processes, teachers were relegated to the role of providing online feedback while corporate employees wrote standards they would be beholden to. If local school district leaders follow the lead of the NGA Center, CCSSO, and US Department of Education by excluding teachers from implementation decisions, much as they were largely excluded from the creation process, the long-term effects in our schools could be just as troubling.

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Appendix A

Scaled variables

Open leadership

Q13_7	Views on Implementation of Common Core State Standards—My building leaders are open to ideas about how the CCSS should be implemented in our school
Q13_8	Views on Implementation of Common Core State Standards—My district leaders are open to ideas about how the CCSS should be implemented in schools
Q13_10	Views on Implementation of Common Core State Standards—I feel free to be critical of the aspects of CCSS implementation that I do not agree with
Q13_11	Views on Implementation of Common Core State Standards—I have the flexibility to implement the CCSS in a manner that is in the best interest of my students
Q16_1	School Leadership—Our building leadership listens to teachers' needs about CCSS
Q16_2	School Leadership—Our district leadership listens to teachers' needs about CCSS

Active leadership

Q16_3	School Leadership—School leadership spends time visiting classrooms to observe implementation of CCSS
Q16_4	School Leadership—School leadership understands the needs of special populations under CCSS
Q16_6	School Leadership—School leadership encourages parental involvement with implementation of CCSS
Q16_7	School Leadership—School leadership has a clear policy for performance evaluation under CCSS
Q16_8	School Leadership—School leadership acknowledges my accomplishments with implementation of CCSS
Q16_9	School Leadership—Teachers, staff, and school leadership collaborate for school excellence under CCSS

Views on CCSS and implementation

Q6_1	Views on the Common Core State Standards—The CCSS are an improvement on the state frameworks used previously in my state
Q6_2	Views on the Common Core State Standards—The CCSS are more rigorous than the state frameworks used previously in my state
Q6_3	Views on the Common Core State Standards—I have a better idea of what I am supposed to teach because of the CCSS
Q6_5	Views on the Common Core State Standards—I anticipate significant improvement in student achievement as a result of CCSS
Q6_6	Views on the Common Core State Standards—The implementation of CCSS has allowed me to teach subjects in greater depth
Q6_7	Views on the Common Core State Standards—The CCSS have significantly changed the way that I teach
Q13_1	Views on Implementation of Common Core State Standards—I fully support the implementation of CCSS in my school
Q13_2	Views on Implementation of Common Core State Standards—I support the manner in which CCSS is being implemented in my district
Q13_3	Views on Implementation of Common Core State Standards—Implementation of CCSS has clarified how my performance is evaluated
Q13_4	Views on Implementation of Common Core State Standards—Implementation of CCSS has improved teaching at my school
Q13_5	Views on Implementation of Common Core State Standards—The pacing of instruction is appropriate under the CCSS

Q13_6	Views on Implementation of Common Core State Standards—I believe that my school will be better off in 10 years due to implementation of CCSS
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Change in teacher collaboration

Q18_1	Teacher involvement and School Climate—Teacher cooperation now compared to pre-CCSS
Q18_2	Teacher involvement and School Climate—Teacher collegiality now compared to pre-CCSS
Q18_3	Teacher involvement and School Climate—Teacher involvement in school governance and mission now compared to pre-CCSS

Change in environment conditions

Q18_4	Teacher involvement and School Climate—Your impression of student stress level now compared to pre-CCSS
Q18_5	Teacher involvement and School Climate—Your impression of students' enjoyment of learning now compared to pre-CCSS
Q21_5	Comparison of Teaching Conditions—Your overall job satisfaction now compared to pre-CCSS
Q21_6	Comparison of Teaching Conditions—Your feeling of professionalism now compared to pre-CCSS
Q21_7	Comparison of Teaching Conditions—Your enjoyment of teaching now compared to pre-CCSS

Change in environment conditions—Teacher autonomy and flexibility

Q21_1	Comparison of Teaching Conditions—Your overall instructional autonomy and flexibility now compared to pre-CCSS
Q21_2	Comparison of Teaching Conditions—Your autonomy and flexibility in selecting instructional materials now compared to pre-CCSS
Q21_3	Comparison of Teaching Conditions—Your autonomy and flexibility in selecting teaching methods now compared to pre-CCSS



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