This is the authors' copy of "Activating the Implementers: The Role of Organizational Expectations, Teacher Beliefs, and Motivation in Bringing About Reform"

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Abstract

Internationally the research community has been seeking a deeper understanding about how to shape the work of educators over decades of educational reforms. This study attempts to contribute to this understanding by answering: "What motivates educators to implement the Common Core State Standards (CCSS)?" Using data from all school educators in one highly diverse school district in California and structural equation modeling to investigate the relationships between teachers' CCSS-related action and associated organizational and individual factors, findings suggest both organizational (expectation) and intrinsic (motivations and beliefs) factors are directly and indirectly influencing teachers' action towards CCSS implementation.

Introduction

Researchers across the globe have long been seeking a deeper understanding about the work of educators in terms of implementation in a variety of contexts and over decades of educational reforms (Amador & Lamberg, 2013; Harris, Phillips, & Penuel, 2012; Johnson, 2007). Some attempt to link educators' implementation efforts with student learning outcomes (James, Thomas, Pamela, & Jennifer, 2007; Palardy & Rumberger, 2008; Šapkova, 2014), while others endeavor to characterize the nature of work from instructive cases (Huggins, Scheurich, & Morgan, 2011; Obara & Sloan, 2010). However, while these studies offer important insights into the work of educators, they still fall short of explicating the way in which educators' action in relation to implementing reforms is understood and embedded in their internal self and situated contexts. Examining contextual and individual influences on the extent to which educators take action in implementing large scale reforms, such as the Common Core State Standards (CCSS) in the US, is important for districts and schools to initiate strategic reform efforts around CCSS (Sun, Frank, Penuel, & Kim, 2013) as well as to shape these efforts for sustainable professional development (Giles & Hargreaves, 2006; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006).

This study is situated in a large scale reform context in the US, i.e., CCSS. We foreground the role of several individual and contextual factors in understanding educators' action as related to CCSS reform in an effort to offer practical solutions that may support sustainable reform-related professional development. Currently, the majority of districts and schools across the US are in the midst of CCSS reform implementation. Many states and school districts have reported several challenges in the early implementation phase and one of the major challenges is, according to recent national reports (Center on Education Policy, 2014, 2017), a general lack of preparedness and a reduced sense of efficacy beliefs particularly on the part of school teachers (Gwynne & Cowhy, 2017). In the adopting school districts, about half of the teachers reported they were unprepared for

the implementation of CCSS, and more than two-third of schools reported their schools were not well prepared (EPE Research Center, 2013). Even in the states that are prone to implementing CCSS, such as California, many school districts shared concerns about educators' sense of anxiety and uncertainty due to a lack of high-quality, CCSS-aligned materials supporting effective instructional change (Cristol & Ramsey, 2014). More so, teachers are in the front line directly communicating and interacting with parents and community members, and as such, their beliefs about CCSS may influence to a large extent how parents and communities view the new standards (Cristol & Ramsey, 2014). In other words, whether school districts can effectively communicate and pull together the implementation hinges largely on teachers' beliefs about the CCSS, as individual teachers' beliefs about CCSS may influence how they interpret and go about implementing the new standards (Authors et al., 2016; Smith, 2015). We argue that in order to sustain successful large-scale reform change, it is imperative to examine teachers' beliefs about the reform at the early implementation stage, as the results may inform school districts to make strategic planning.

Yet, as mentioned above, it remains unclear as to how teachers' action related to implementing CCSS can be understood and sustained in the face of reform change and how their actions are embedded in their self and situated context. In this study we attempt to fill a gap in practice by investigating the work of educators as they go about implementing the CCSS. Specifically, we aim to gain a more in-depth understanding of what accounts for teachers' action in relation to the implementation of CCSS in a California school district in its early implementation phase, as we believe that unpacking this understudied phenomenon will enable schools and practitioners to realign their existing practice with some of the evidence provided in this study and sustain reform practice in the long term. We draw from research literature around organizational climate and individual intrinsic factors (e.g., personal beliefs and motivation) to conceptualize the level of work engagement as measured by teachers' CCSS-related action. We use structural equation

modeling to explore the underlying pattern of relationships among our variables in answering the overarching research question:

To what extent are organizational and individual level factors associated with teachers' action regarding implementing CCSS?

Framework

The currently available literature on educators' efforts/action and, values, beliefs, and intention possessed by individual educators is largely atheoretical (Hannula et al., 2016). The atheoretical nature of existing evidence is largely due to the fact that much of the available knowledge is developed for practical purposes (e.g., pedagogical knowledge, or instructional practice) and is intended to inform efforts of educators, thus limiting the generalizability of knowledge. This study, while also seeking to understand the practical side of reform efforts, is grounded in multiple theoretical lenses regarding conceptualizing educators' action toward reform implementation. Based on our literature search, we believe there is a paucity of research evidence that seeks to define educators' action as related to the current large-scale reform in the US (i.e., CCSS) and investigate the related theoretical mechanisms for such action. We draw on value-action gap theory (Blake, 1999) to understand the relationship between educators' beliefs and their corresponding action. In addition, as individuals' propensity or intention toward particular action may be affected by their judgement based on their knowledge of organizational expectation, we further adopt expectancy-value theory (Plante, O'Keefe, & Theórêt, 2012) to assist in theorizing the mechanism as related to one's action.

Influence of Individual Motivation and Personal Beliefs on Action

The notion of "value-action gap" focuses on the manner in which individuals transform their values and beliefs into action, while taking into account personal interest and motives (Blake, 1999; Hertel & Wittchen, 2008) as well as social and institutional constraints (Redclift & Benton,

1994). Simply put, the concept represents the difference between what people say and what people do and as such is sometimes referred to as the attitude-behavior gap, the intention-behavior gap (Godin et al., 2005), or the belief-behavior gap (Kollmuss & Agyeman, 2002). Despite researchers using the term interchangeably, the concept has been widely studied in social (environmental) psychology and is largely based on cognitive theories such as theories of beliefs that posit that individuals act as reasoned agency (Bandura, 2001) in which their attitudes and planned behaviors are largely directed by their belief systems in a rational way (Ajzen & Fishbein, 1980). That is, individuals' action takes place through reasoning (e.g., judgements and evaluation) of the proposed behavior, held attitudes and beliefs that are related to her/his intentions to carry out a specific action (Ajzen & Fishbein, 1980). Central to this notion are intrinsic motivation and personal beliefs that can influence one's action.

The concept of intrinsic motivation stems from one of the widely applied cognitive-motivational theories, namely expectancy-value theory, which posits that "motivated behavior is a result of the expectations and values (positive or negative) held by an individual for attaining a specific goal" (Luscombe, Lewis, & Biggs, 2013, p. 273). Individual motivation is therefore based on three elements: the expected efforts required to perform a given task, the specific consequences individuals believe they will experience as a result of performing the task, and the value individuals ascribe to achieving the goal (Brewer & Skinner, 2003; Hertel & Wittchen, 2008). Motivated individuals are those whose expectations about work are met and who value the characteristics of their work (Taris, Feij, & Capel, 2006), which requires corresponding action to fulfill the work expectations. When expectations are not met, individuals are likely to display unsatisfactory work performance, reduced work engagement, and ultimately withdraw from work (Taris et al., 2006). As such, motivation is reflected in the attitudes, intentions, and actions of individuals.

Studies in organizational psychology suggest that intrinsic factors of individuals, e.g., motivations and personal beliefs, exert influence on individual behaviors (Stephan & Uhlaner, 2010; Verheul, Wennekers, Audretsch, & Thurik, 2002). Motivation and positive beliefs affect one's decisions/actions in terms of goal setting and associated effort, as these factors enable individuals to reduce the gap between the desired goal and their performance (i.e., goal-outcome discrepancies) (Bandura,1991). The process of reducing discrepancies between goals and outcome may directly affect the level of work engagement due to motivation and beliefs about whether individuals can accomplish a given task (Bandura & Cervone, 1986). Organizations that are able to boost individual motivation and engender positive beliefs toward the set goals have been shown to outperform organizations with less motivated and efficacious members (Du, Shin, & Choi, 2015; Fox, 2006). In education, little research has documented in-service educators' motivation toward implementing CCSS and their action in support of sustained CCSS-focused efforts. Given the influence of intrinsic motivation on individuals' action (see also the review study by Thurlings, Evers, and Vermeulen [2015] on self-initiated innovative behavior), it is reasonable to assume the same important role for educators as they go about implementing reform efforts. We therefore hypothesize that *teachers' intrinsic motivation to implement CCSS will have a direct effect on their action regarding CCSS implementation* (referred to as CCSS Action) (H1).

The second component that has to do with one's action is personal beliefs. The research community widely accepts the notion that individual beliefs are the fundamental mechanism for the decisions that individuals make for their reasoned action (Bandura, 1986). That is, individual beliefs mostly drive the way in which individuals make decisions on taking corresponding action to purposive goals (Bandura, 1997). The assumption, according to Bandura (1997), is based on the notion that people are likely to act if they believe they can or will accomplish a given task. This notion is concerned with individuals' judgments based on the value of and their ability to

successfully carry out a task, rather than being concerned with the quantity of skills one possesses. In education, educators develop their beliefs system through the interaction between themselves, others, and the context, which serves as a cognitive lens through which they make sense of their context and devote their efforts to achieving a goal such as successfully carrying out reform practices (Bandura, 1993; Authors et al., 2015). Research studies on teacher beliefs suggest that teacher beliefs are key determinants of the degree to which teachers engage in educational change efforts (Authors et al., 2015). Others report that teachers' beliefs influence their teaching behaviors (Bates, Latham, & Kim, 2011). As such, teachers' collective efforts acted based on their beliefs system may shape the perceived norms of their social groups and overall climate of their organization, which ultimately may influence the action they decide to take. In this regard, we argue that teachers' beliefs about their ability (self-efficacy), about the interplay of self and context (surrounding resources), and about the value and consequences of that interplay (impact) may influence how teachers take reasoned action (Authors et al., 2015). As there is a limited knowledge base, in the current reform context, on the relationship between teachers' beliefs with regard to reform efforts such as CCSS implementation, this study aims to address this gap by testing the second hypothesis that *teachers' beliefs about implementing CCSS will have a direct effect on their action regarding CCSS implementation* (referred to as CCSS Action) (H2).

The above mentioned form of value-action gap approach to understanding individuals' action is commonly used in exploring the complex human behaviors and their causes. However, much less is known as to the intermediary mechanism that has to do with individual beliefs and their reasoned action (Thurlings et al., 2015). Research suggests looking into the role of social and institutional factors that may mediate (enable or constrain) the relationship between individual beliefs and action in that people's beliefs are not fixed, they can be created, activated by a particular call to action (Guerrier, Alexander, Chase, & O'Brien, 1995) and as such beliefs can be intentionally

shaped. But what are these social and institutional factors? Some suggest that individuals' reasoned action is based on the assumption that, "human beings are usually quite rational and make systemic use of the *information* available to them" (Ajzen & Fishbein, 1980, p. 5). Others build on the concept of "use of information" in individuals' action and further propose that the information one obtains from their social context coupled with institutional barriers (e.g., lack of information, facilities, and encouragement) may influence the reasoning process of beliefs and resulting behavior/action (Blake, 1999). We argue that for organizations to initiate and sustain large-scale change, efforts must be made to activate individuals' beliefs about particular action such that individuals' perceptions of such planned action is clear. Therefore, information needs to be provided in a clear manner. One way to do so is to communicate clear organizational expectations toward such action (Tung, Walls, & Frese, 2007) and provide conditions that allow for innovation (Salim & Sulaiman, 2013). We discuss organizational level factors in the following section.

Influence of Organizational Climates on Action

Organizational level factors such as climates are widely studied in business organizations and education (James & Jones, 1974; Patterson et al., 2005; Reichers & Schneider, 1990). Climates can be broadly defined as a group's particular way of perceiving its organizational environment (Deal & Peterson, 2010; Schneider, Ehrhart, & Macey, 2013). The perception of climates generally stems from how individuals react to organizational values, goals and experience their interaction with others. As such, climates are generally conceptualized as the norms of interactions related to values, beliefs, and behaviors (North, 2005). A number of organizational studies suggest climate is directly linked to behaviors of organizational members (Sanders, Dorenbosch, & De Reuver, 2008; Stephan & Uhlaner, 2010). For instance, individuals are more likely to act in accordance with social norms that are prevalent in their organization even though they are not necessarily aware of the influence on their behavior (Cialdini, 2005). In addition, when organizations are in a new phase of change,

(e.g., implementing a new initiative such as CCSS at the early stage), there may be high levels of uncertainty as to how to accomplish specific tasks and goals. Therefore, in an effort to minimize uncertainty, organizations may become highly outcome-oriented and goal focused in order to drive individual behaviors toward a stated outcome (Reynolds & Curtin, 2009). Further, as climates embedded in schools may be more proximal to influencing teacher decisions and behavior, they may be more consequential for teachers' action (Garcíía-Cabrera & Garcia-Soto, 2009; Tung, 2008). As such, we focus on school climate and its influence on educators around implementing the CCSS. Specifically, we propose in the following, two constructs measuring school climate that have been suggested as critical to individual and organizational behaviors (Author et al., 2016; Moolenaar, 2010): perceived organizational expectation, particularly around CCSS, and innovative climate.

CCSS expectation. Organizations wanting to change and innovate require a strong alignment between goal-oriented organizational expectations perceived by their members and actions taken by these members to achieve the expected goals (Tung et al., 2007). Individuals who conform to these expectations are more likely to successfully accomplish assigned tasks and set goals (Townsend, Busenitz, & Arthurs, 2010). This line of studies suggest that such performance-based behaviors assume that organizational expectations are well aligned with individuals' performance in achieving desired outcomes (Townsend et al., 2010). Conversely, individuals' behaviors that are less aligned with the organizational expectations are more likely to withdraw from tasks (Townsend et al., 2010) and as such do not engage with these expectations (Hopp & Stephan, 2012). Such alignment between individuals' perceived expectations and resulting action stems from the concept of outcome expectations (Bandura, 1977) which refers to individuals' beliefs about the estimated consequences of engaging in the specified behavior (Bandura, 1977). Therefore, one's perceived expectations of certain outcomes may intervene in the reasoning process in which individuals form their beliefs about the expected goals and decide on taking particular action to obtain the desired

outcome. We therefore hypothesize that *teachers' perception of organizational expectations around CCSS will have a mediating effect on the relationship between their beliefs and action regarding CCSS implementation* (H3).

Innovative climate. Innovative climate has been widely studied in organizational research (Salim & Sulaiman, 2011). The concept of innovative climate can be generally defined as the shared perceptions of organizational members concerning the practices, beliefs, and behaviors that promote risk taking and the generation of new knowledge and routines (Authors et al., 2014). Central to this definition is the development and transformation of new practices (including personal beliefs and resulting organizational routines) through collective social processes as a means to organizational change (Damanpour & Evan, 1984; Nonaka & Takeuchi, 1995; Van der Vegt, Van de Vliert, & Huang, 2005). In this regard, individual beliefs that drive action around the work of their organization are likely to be influenced and reinforced by social norms and the resulting climate. Organizations with a strong climate oriented to innovation are characterized by creativity, risk-taking, openness to change, and proactivity (Dundon, 2005). Innovative climate is also positively related to organizational performance and productivity (Bates & Khasawneh, 2005; Salim & Sulaiman, 2013). Studies inside and outside education indicate a positive relationship between individual perceptions of innovative climate and their behaviors such as teachers' work engagement (Song, Kim, Chai, & Bae, 2014) and employees' innovative behaviors (Ren & Zhang, 2015). Further, innovative climate also involves social learning processes that emphasize collective norms of ongoing social interaction and exchanging new ideas/practices that allow for the refinement of existing knowledge/skills necessary for improvement (Frank, Zhao, & Borman, 2004).

Studies suggest that educators who perceive the climate to be risk averse are less likely to support the norm of risk taking and interactions with others, which in turn may reduce individual capacity to move toward change (Author et al., 2016). This line of research emphasizes the fact that the perceived climate may be shaped by collective beliefs and social norms, which may further

influence the intention of the individual and the collective to take corresponding action (Pentland & Hærem, 2015). Given that organizational climate around innovation may shape individual beliefs and organizational routines, we hypothesize that *teachers' perception of innovative climate will have a mediating effect on the relationship between their beliefs and action regarding CCSS implementation* (H4).

In sum, research on organizational change indicates that individuals' internal motivation and beliefs are stronger determinants of the success of organizational change in the initial stages of change process (e.g., implementing reforms) than the external characteristics such as leadership or managerial experience (Rauch & Frese, 2007; Unger, Rauch, Frese, & Rosenbusch, 2011). In education, as districts are in the implementation phase of CCSS, as is the case in this study, they are more likely to face multiple, challenging tasks fraught with uncertainty and setbacks. The districts may need to exert additional efforts of boosting educators' intrinsic motivation such that educators would be more willing to expend extra effort and persist toward goals (Reynolds & Curtin, 2009). Individuals' intrinsic motivation and personal beliefs are argued to have a direct influence on the level of work engagement (Cross, Gray, Gerbasi, & Assimakopoulos, 2012) and to be more likely to perform goal-related tasks (Bandura & Locke, 2003; Locke & Latham, 1991), and thus are likely to affect one's perception of the work environment as a whole (Cross, Linder, & Parker, 2007). Successful change may require resources, tools necessary for equipping educators to perform tasks that are aligned with organizational expectations and desired goals (Bandura & Locke, 2003). Research that investigates the direct and indirect influence of intrinsic and organizational factors on individuals' action toward organizational reform is conspicuously limited. The current study attempts to fill this gap in the research by testing a hypothesized model for individual action. Our framework foregrounds the intrinsic and organizational elements in reform supported by change theory and practices in education suggesting that sustainable change is not mainly about linear time variant and external mandated reform; rather it is about the movement of reform state and most

importantly the internal, self-initiated innovation (Hargreaves, 2004; Hargreaves & Goodson, 2006).

As such, understanding internal and contextual factors relevant to reform-related practice/action

and how these factors are related is critical and can add to the existing research literature on

sustainable change.

Figure 1 presents the study's conceptual framework.

Insert Figure 1 about Here

Methods

Sample and Data Collection

This exploratory study was conducted in one urban fringe school district comprised of 30

schools serving diverse student populations in socioeconomic background, race/ethnicity, and

English language learners in southern California. The district provides a representative case for the

state as it reflects the general demographic composition of typical school districts in California.

Over the past five years, the district has been undergoing a transformation in its leadership,

missions, values, and goals with a strong focus on building collaborative relationships among and

between schools and community members in an effort to support student learning. In 2013, the

district adopted and fully implemented the CCSS standards. Since then the district has endeavored

to align its reform efforts with its goal of collaboration. As a large number of school districts across

the US reported being less prepared for implementing the new standards, we feel this timely

research study may provide schools and their district with evidence that is transferrable to other

settings. Specifically, we are interested in investigating teachers' professional practices as related to

implementing the CCSS, as we believe the districtwide reform initiatives may have direct impact on

the ways in which teachers go about their work in relation to CCSS implementation. Further,

understanding the factors influencing teachers' reform practices may assist in decision making at the

school and district levels. We focus our work on all the certificated educators across the district primarily comprising classroom teachers.

We administered a survey to all 930 teachers from 30 schools across the district in 2013-2014 school year. The data were collected during the time when CCSS was in the beginning stages of implementation making the district similar to other places in the US. We invited the teacher respondents to answer a series of survey questions, reflecting different aspects of their work, on a six-point Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). The perceptual scales include organizational climate about innovation, expectations on implementing CCSS, teacher beliefs about CCSS, teachers' motivation to implement CCSS, and the extent to which teachers have taken action to implement CCSS. In addition, we also collected teachers' basic demographical information, e.g., gender, race and ethnicity, grade level, and years of experience working as an educator and at the district. In order to ensure the most complete dataset, we removed participants whose responses left one or more scales completely unanswered as well as those with high percentage of missing data (i.e., 54% missing data) from the dataset. This gave us a final sample of 684 teachers reflecting a 74% response rate. Of the sample, about 77% are female with a majority reporting being white. More than half of the teachers have a master's degree. Approximately half of the teachers work at the elementary school level. On average, these teachers have been working as an educator for about 17 years (SD = 9.00) and worked in their current position at the district for approximate 14 years (SD = 8.65). Additional sample demographics are presented in Table 1.

Insert Table 1 about Here

We acknowledge that such cross-sectional study may limit the study to examine longitudinal change, but our intention in this study was to establish a baseline understanding of how we may conceptualize teachers' action toward reform efforts in the early implementation phase of CCSS. We argue that such baseline understanding of teachers' reform efforts is imperative as it may further

influence the ways in which the district takes shape of initiatives in support of CCSS-related efforts in the consecutive years.

Instrumentation

CCSS action. The CCSS action was developed based on previous studies in organization and psychology (Blake, 1999; Plante et al., 2012; Wigfield & Eccles, 2000) and was further modified to suit the study sample and context. The scale was also published in previous research with a sample of educational leaders (Authors, 2018). The instrument consists of five items on a six-point Likert-type scale measuring the extent to which teachers take corresponding action to implement CCSS such as attending workshops, trainings, modifying instructional strategies, and collaborating with colleagues to tailor instructional plans with the new standards. We conducted confirmatory factor analysis (CFA) to examine its latent structure which will be presented in the results section. The internal reliability Cronbach's alpha (α) of the scale is .87 with factor loadings ranging from .64 to .87. A sample item is "I have adjusted my teaching and curriculum according to the Common Core Standards."

CCSS motivation. The CCSS motivation was developed based on the literature on motivation in psychology, organization studies, and environmental field (e.g., Blake, 1999; Plante et al., 2012; Sahin, 2008; Wigfield & Eccles, 2000). We also modified the instrument to better fit the study sample and context. The instrument consists of five items on a six-point Likert-type scale measuring the extent to which teachers are motivated and willing to go about instructional change in response to CCSS. We conducted CFA to assure its latent structure. The internal reliability (α) of the scale is .91 with factor loadings in between .74 to .88. A sample item is "I am willing to devote extra time to learn about the Common Core Standards."

CCSS beliefs. The CCSS beliefs instrument was developed based on previous research literature on educator beliefs (see Five & Buehl, 2012) and further validated in earlier work (Authors

et al., 2015). Based on the validated instrument, the CCSS beliefs scale is composed of three subscales that are also rated on a six-point Likert-type scale: (1) beliefs about one's ability to implement CCSS (CCSS Beliefs—self-efficacy), (2) beliefs about relevant resources for CCSS implementation (CCSS Beliefs—resources), and (3) beliefs about the impact of CCSS (CCSS Beliefs—impact). The current study conducted principal component analysis (PCA) and reliability analysis as well as CFA to confirm the internal consistency of the CCSS beliefs. The first component, CCSS Beliefs—self-efficacy, includes three items with Cronbach's alpha of .87 and factor loadings ranging from .76 to .94. A sample item is, "I am able to implement the Common Core Standards." The second component, CCSS Beliefs—resources, contains six items with Cronbach's alpha of .89 and factor loadings between .68 and .81. A sample item is, "I have the resources and materials I need to implement the Common Core Standards." The third component, CCSS Beliefs—impact, consists of five items with Cronbach's alpha of .94 and factor loadings between .64 and .95. A sample item is, "I believe there is value in the Common Core Standards."

CCSS expectation. The CCSS expectation instrument was developed based on previous studies in business and psychology (e.g., Irving & Montes, 2009; King, 1974; Korte, Brunhaver, & Sheppard, 2015) and further modified to fit the study sample and context. The instrument contains five items on a six-point Likert-type scale measuring individuals' perception of their school's expectations of the type of professional activities that is supportive of CCSS implementation such as relevant professional trainings, opportunities of skill development, and collective involvement. CFA was applied to confirm its latent structure. The internal reliability (α) of this scale is .87 with factor loadings ranging between .73 and .87. A sample item is "The school expects us to adjust our teaching and curriculum in line with the Common Core Standards."

Innovative climate. The innovative climate scale was composed of items targeted at the educational professionals, based on a modified version of a well validated scale (Bryk, Camburn, &

Louis, 1999; Consortium on Chicago School Research, 2004). These items are rated on a six-point Likert-type scale and reflect the extent to which the educators perceive their school and colleagues to be open to innovation and are willing to take risks to support the growth of their school. The internal consistency of the scale was high at Cronbach's alpha of .94 with factor loadings between .61 and .86. A sample item is, "In this school, the teachers are continuously learning and seeking new ideas." All the items analyzed in this study can be found in the Appendix.

Control variables. We controlled for teachers' demographical variables, including gender, school level, and years of working as an educator, on their CCSS action.

Analysis

Our analytic strategy is threefold. First, we provided descriptive and correlation statistics to obtain an initial sense of the relationships between study variables. Second, as we are interested in the proposed theoretical mechanism for teachers' action toward CCSS implementation, we conducted structural equation modeling (SEM) to explore the latent structural relations of the study variables. The confirmatory factor analysis to examine the psychometric scales, as mentioned above, were simultaneously performed. The statistical software MPlus 8.0 was used to test the hypothesized relations among the study constructs. As this program is sensitive to missing data, another 74 cases were excluded from these analyses due to missing descriptive data (e.g., no information on gender or experience). We used multiple goodness-of-fit indices in determining the fit of the proposed research model (Jöreskog & Sörbom, 1993; Kline, 1998). These fit indices include the Chi-square statistic divided by the degrees of freedom ($\chi2/df$); Comparative Fit Index (CFI), Tucker–Lewis coefficient (TLI), Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). As suggested in the literature (Jöreskog & Sörbom, 1993; Kline, 1998), the following criteria of goodness-of-fit indices were recommended to assess the model-fit: $\chi2/df$ ratio is recommended to be less than 3; the values of CFI, and TLI are

recommended to be greater than .90; RMSEA and SRMR are recommended to be below .08, with values below .05 indicating a strong fit and values between .05 and .08 a reasonable fit.

Results

Descriptives and Correlations

Table 2 presents the descriptive statistics and correlations of the study variables. The results indicate that on average, individual teachers perceive higher levels of all the study variables (mean scores ranging from 4.79 to 5.20, SD ranging between 0.72 and 0.91) except the relatively lower level of CCSS beliefs—resources (Mean = 3.74, SD = 1.10). This suggests that teachers across the district in general reported that they have taken action to implement CCSS, their school climate is oriented toward innovation, their school also expects them to engage in certain CCSS-related activities, they believe they are able to implement CCSS, there is great value in implementing CCSS, and they are willing and motivated to implement CCSS. However, teachers reported that there may or may not be sufficient and relevant resources provided to support the implementation of CCSS.

In terms of correlations, the results indicate that the extent to which teachers go about implementing the CCSS is statistically significantly and positively related to both individual- and organizational-level factors. This suggests that individual personal beliefs about CCSS, the degree of intrinsic motivation toward CCSS implementation, perceived organizational climates of innovation, as well as CCSS expectations may influence the extent to which teachers would make an effort to take CCSS-related action. Specifically, the correlation between CCSS action and CCSS self-efficacy is relatively stronger at the medium level ($r = .66$, $p < .01$) than the correlation between CCSS action and other variables. On the other end of the spectrum, the correlation between CCSS action and innovative climate is the weakest amongst all correlations ($r = .27$, $p < .01$). The correlation results yield the potential of gaining a more in-depth insight into the relationship between teacher behaviors and the associated factors.

Insert Table 2 about Here

Preliminary Examination

As presented in the Instrumentation section, we conducted a CFA to assess whether each of the measurement items would load significantly onto the scales with which they are associated. The result of the overall CFA indicates that the relationship between each measurement item and its respective construct is statistically significant (p < .01), which confirms the proposed relationships among the indicating items and its corresponding latent constructs, and thus convergent validity is obtained. Table 3 shows the standardized factor loadings of all the corresponding items (see Appendix for a full description of the items).

Insert Table 3 about Here

Hypothesis Test

The overall model fit is good for Model 1 with indices: $\chi^2(717, 610) = 2{,}922.60$, $p < .001$, CFI = .88, TLI = .87, RMSEA = .07, SRMR = .08. Model 1 contains seven latent variables: 1) CCSS Action, 2) CCSS Motivation, 3) CCSS Beliefs—self-efficacy, 4) CCSS Beliefs—resources, 5) CCSS Beliefs—impact, 6) CCSS Expectation and 7) Innovative Climate. Table 4 presents the direct, indirect and total standardized coefficients and their significance levels of independent variables linked with corresponding dependent variables from the model. The path diagram with statistically significant standardized coefficients is shown in Figure 2.

Insert Table 4 and Figure 2 about Here

The results indicate that the intrinsic factors (i.e., motivation and beliefs related to CCSS) are statistically significantly and positively associated with teachers' CCSS Action around implementation suggesting hypothesis 1 and 2 have been proven. Teachers' perceived CCSS Expectation is significantly and positively related to CCSS Action regarding implementation ($\beta = .10, p < .01$) supporting our hypothesis 3. However, teachers' perception of Innovative Climate

does not associate with their action regarding CCSS implementation, which rejects our hypothesis 4. In addition, beliefs about resources for CCSS implementation have a statistically significant effect on Innovative Climate and CCSS Expectation ($\beta = .38$ and $\beta = .39$ respectively, both $p < .001$). Similarly, CCSS Motivation has a statistically significant effect on Innovative Climate and CCSS Expectation ($\beta = .12$, $p < .05$ and $\beta = .37$, $p < .001$ respectively), whereas beliefs about the impact of CCSS, or one's ability to implement CCSS did not.

However, the role of Innovative Climate and CCSS Expectation varies in the relationships between CCSS Beliefs and CCSS Motivation and CCSS Action. Innovative Climate is not statistically significantly associated with CCSS Action, thus making Innovative Climate a non-significant mediator in the relationship between CCSS Beliefs and CCSS Action. On the other hand, both beliefs about sufficient resources for CCSS implementation and CCSS Motivation have statistically significant indirect effects on CCSS Action through the mediator of CCSS Expectation, suggesting that organizational expectation plays a critical role in affecting the degree of relationships between teachers' beliefs and reform-related action. Overall findings suggest that both organizational (particularly organizational expectation) and intrinsic (motivations and beliefs) factors are important in directly and indirectly influencing the extent to which teachers take action to implement the CCSS.

Model Comparisons

To ensure we obtain a better fitting model for CCSS Action, we also compared Model 1 with an alternative model (Model 2 in Figure 3). Model 2 includes the same variables as Model 1, yet in a different order. In this model, CCSS Expectation and Innovative Climate serve as non-mediating factors but have a direct effect on CCSS Action which is then mediated by CCSS Willingness and CCSS Beliefs. The rationale of Model 2 is based on the notion that organizational expectations may shape individual understanding of the norms of their organization and as such may in turn influence

individuals' perceived beliefs and reasoned action. Additionally, when considering self-initiated innovative behavior, individual factors appear to be more closely related to behavior compared to contextual factors (Thurlings, et al., 2015). In this regard, both CCSS Expectation and Innovative Climate may have a direct effect on CCSS Action and such direct relationship may be influenced by personal beliefs. The results from Model 2 show that the overall fit of Model 2 is poorer than Model 1, as indicated by the Chi-square of 3,306.62 with 722 degrees of freedom and the other fit-indices (CFI = .86; TLI = .85; RMSEA = .08; SRMR = .13). This indicates that organizational-level factors, particularly CCSS Expectation, are better served as mediating factors in boosting the effect of intrinsic factors (i.e., motivation and beliefs) on one's action than that of intrinsic factors. We therefore accepted Model 1 as our theoretical model, which is shown in Figure 2, as the most parsimonious (Anderson & Gerbing, 1988).

Summary of Hypotheses and Findings

Table 5 presents a summary of study hypotheses and findings. Our findings fully supported three of the four hypotheses regarding the direct and indirect effect of personal beliefs and motivation on action as well as the mediating role of expectation in the relationship between personal beliefs and motivation and action. Hypothesis four regarding the effect of innovative climate is not supported.

Insert Table 5 About Here

Discussion

Building on existing literature on the value-action gap, this study sheds new light on conceptualization of individual action and further adds to the organizational change literature on the part of internal capacity of individuals as opposed to external mandated initiatives during reform process. Specifically, our work centers on the role of teachers' intrinsic motivation and beliefs as well as organizational level factors in explaining teachers' action in relation to CCSS implementation

in a diverse school district currently implementing the CCSS. Adopting CCSS implies adopting standards developed to ensure that all students, regardless of where they live, are sufficiently prepared to go to college or for their careers in the long run and in meeting this goal the implementation of standards must be sustained.

The Role of CCSS Motivation and Beliefs in Predicting CCSS Action

Our findings confirm our first and second hypotheses that intrinsic motivation and personal beliefs both contribute significantly and positively to the extent to which teachers take action to implement the CCSS. This may not be surprising given that individuals' held beliefs and values are associated with their attitudes and intentions based on which they make judgement for certain reasoned action (Ajzen & Fishgein, 1980; Bandura, 1977). Intrinsic motivation involves an individual's desire to seek out new things and challenges, to assess their capacity to accomplish the expected/desired goals, and develop new knowledge based on the learned experience (Ryan & Deci, 2000). A self-motivated person tends to be self-determinant. Individuals first assess the efforts expected to perform a set task, potential consequences as results of completing the task, and then determine the value they may obtain from achieving the set goal before undertaking action. This evaluative, cognitive reasoning process may help individuals discern the nature and content of the expected task as well as their capacity to carry out the task before they decide to act. This motivation exists within individuals and is not reliant on external incentives (Ryan & Deci, 2000).

It may be the case that teachers in this study perceived the new standards as a new opportunity rather than a threat to existing curricular design and instructional practice, and as such they may be more willing to implement CCSS and adjust attitudes and intentions toward the new standards accordingly. As they treat the new standards as something new and challenging in a positive manner, they are more likely to assess greater value. This assessment corresponds to a large body of research literature on intrinsic motivation that suggests that individuals possess an inner

reward system that drives action, as opposed to being motivated by externally directed goals (Wilkesmann & Schmid, 2014; White, 1959). In the long term, teachers with positive motivation toward reform policy may be less likely to display negative emotions (e.g., retreatism, resignation, insecurity) as a result of policy demands which are often found to be inhibitors of large-scale reforms (Hargreaves, 2004).

As intrinsic motivation is reflected in one's attitudes and intentions that lead to behaviors (Godin, Conner, & Sheeran, 2005; Luscombe et al., 2013), we may speculate that the teachers in this study hold generally favorable attitudes toward CCSS which makes them feel inclined to carry out a specific action, which reflects a reasoned assessment of positive potential consequences. It appears that not much of a gap between value and action is observed, as a result of the positive association between teachers' intrinsic motivation and actions regarding CCSS implementation. However, it is noteworthy that intrinsic motivation may also be influenced by other factors such as financial benefits (Sinclair, 2008), physical working environment, leadership, and institutional support (Kızıltepe, 2008; Mani, 2002) as well as a sense of professional autonomy (Kaiser, 1981), the need for intellectual stimulation (Sinclair, 2008), and/or professional ties (Carson & Chase, 2009). Although we did not measure these factors in this study, it must be noted that they may also be at work in (in)directly shaping behavior. For schools and districts to promote or sustain teachers' intrinsic motivation in support of CCSS implementation, attending to teacher attitude, beliefs, and perceptions of reform efforts may be important to attend to throughout the process. Taking the pulse of educators throughout the process and providing opportunity for teachers' voices to be heard during and throughout implementation may well lead to more sustained effort.

In terms of educator beliefs about CCSS implementation, our findings corroborate a number of previous studies (e.g., Authors et al., 2016; Bandura, 1997; Bates et al., 2011) that suggest that individual beliefs significantly drive one's behavior (i.e., action for CCSS implementation). Our

work further suggests that in order to enact teachers' action, specifically toward CCSS implementation, schools and school leaders need to pay attention to understanding teachers' beliefs about whether they think they are able to do so, whether they perceive sufficient resources that support them in this endeavor, and the degree to which they believe doing so would make a positive impact on their teaching and student learning. Particularly, teachers' self-efficacy beliefs are the most influential among all beliefs constructs on their action. This suggests that in the early implementation phase it is imperative that schools and school districts provide resources to develop or improve teachers' confidence of CCSS implementation such as CCSS-focused trainings and time that allows teachers to engage in authentic collaboration and mastery experiences. Previous research on sustainable (or enduring) implementation of reform programs suggests the importance of ongoing opportunities for formal and informal trainings in the development of internal expertise (Elias, Zins, Graczyk, & Weissberg, 2003). In so doing, teachers' beliefs about CCSS and associated reform efforts may become more aligned with "planned" action (Montano & Kasprzyk, 2015). As teachers' intrinsic motivation and beliefs act as fundamental driving forces that can ultimately shape individual behaviors as related to reform, in order to ensure the large-scale reform change can be sustainable, it is critical to attend to these driving forces which may lead to planned action. Our work suggests that it is these driving forces that are determinants of the success of sustainable reform change.

The Role of CCSS Expectation in Mediating Intrinsic Traits and External Behavior

Another main finding of this study indicates that both teachers' motivation and beliefs have an indirect effect on CCSS action due to the significant mediating role of CCSS expectation. The total effect for CCSS motivation on CCSS action is larger when taking into account the effect of CCSS expectation. Similarly, the total effect for beliefs, only on the part of CCSS resources, on CCSS action is larger when CCSS expectation is taken into account. This suggests that teachers'

perceived organizational expectation of CCSS implementation play a critical role in boosting the effects of intrinsic motivation and personal beliefs on individuals' action. This finding supports previous organizational research that offers that a clear and strong organizational expectation can promote better aligned behaviors of employees (Cialdini, 2005). This is especially significant for organizations that are undergoing change and innovation (such as implementing new standards as in this study) in that goal-oriented expectation can drive individual behaviors toward desired outcomes and performance (Reynolds & Curtin, 2009). Such expectation may in turn enhance individuals' intrinsic motivation through self-evaluation of existing capacity and resources, leading to greater aligned action. Prior research suggests that highly (intrinsically) motivated employees are more likely to generate and transfer tacit knowledge, overcome complex problems, and enhance creativity (Osterloh & Frey, 2000). As the new standards (CCSS) have brought up an array of challenges for schools, teachers may need to not only exploit their existing knowledge but also explore new ideas and practices with one another in meeting reform demands.

In addition, goal-oriented expectation may also facilitate the shaping of personal beliefs particularly about individuals' estimate on a specific behavior, its consequences, and desired outcomes before putting them into action (Bandura, 1977). One can imagine that if expectation were clearly conveyed to organizational members, it may be more likely to see the development and maintained of collective beliefs and social norms (Van Uden, Ritzen, & Pieters, 2014). The more prevalent the social norms, the greater the potential alignment between one's beliefs and action. It may be due to the district's intentional efforts around its core value of collaboration (such as structured time and resources available for educators to work as a team), which conveyed a clear message about what to expect before the district went full implementation of CCSS in 2013. The district arranged several opportunities for educators to meet, be it informal (e.g., social outings, social happy hours) or formal (districtwide leadership team meetings, monthly principal meetings

and networking, focus group meetings), providing opportunities to align everyone's understanding of reform initiatives with the district's goals and expectations. These efforts (e.g., linkages to stated goals of schools and school districts) appear critical to lead successful, sustained implementation of reform programs (Elias et al., 2003), that also support self-initiated reform efforts (Thurlings et al., 2015).

The way in which goals are set and communicated is critical. Goals must be challenging but "attainable" (Brewer & Skinner, 2003). If goals are perceived as too difficult to achieve, employees will likely experience self-doubt and a lack of confidence in their ability, which may result in a lack of commitment to outcomes and reduced motivation (Author et al., 2012). In a similar vein, if employees perceive that the tasks are too "easy", meaning skills are being underutilized, employees may become less motivated and perhaps direct their attention and energy toward other non-work related activities (Luscombe et al., 2013). If weak goals become the norm, employees may become less engaged and subsequently their skills and performance will suffer. This vicious circle is detrimental to organizational performance. District and school leaders may need to examine existing outcomes to make sure they are challenging but achievable and those goals may need to be dynamic and change over time as skill sets and demands increase. Districts must be able to establish a set of achievable goal-oriented expectation that is based on feedback from an array of key stakeholders, which may help align teachers' work motivation and beliefs that ultimately drive action. Goal setting with a clear expectation can be one of the most critical steps during early implementation processes in order to promote high motivation and engagement that leads to sustained implementation. Efforts need to be made to create conditions for a satisfactory and supportive working environment with clear organizational expectation opportunities for professional growth and collaboration, which in turn may facilitate teachers' action necessary for carrying out the reform efforts.

Limitations, Implications, and Conclusion

As with many other studies, while our work addresses a current practical and research gap, we are cautious of interpreting and generalizing the findings. First, as our data includes primarily classroom teachers. Future research could expand the scope of study sample to include a wider range of school community members who also play a critical role in supporting the reform implementation process such as instructional support staff, district wide resource personnel, and school- and district-level administrators who also have direct and indirect influence on shaping the routines of district/school organizations.

Second, we acknowledge that this study presents quantitative survey perceptional data to reflect a slice of our understanding of CCSS implementation with less attention to the importance of qualitative aspect in the reform phenomenon. Future studies could bring mixed methods to the phenomena to help illustrate the full picture of districtwide reform in relation to CCSS.

Finally, the present study is cross-sectional, which only allows us to interpret the results from a single time point, with less analytical power to make causal inferences. We encourage future researchers interested in these types of large scale reforms to conduct longitudinal studies so as to predict to what extent educators' reform-related action/behaviors are influenced by key factors and what this may mean for reform implementation.

Despite these limitations, there are a number of implications for practice from this study. While our work focuses on the reform practice of teachers, the study findings may yield further implications for educational leaders at all levels. One of our findings indicate that organizational climates such as expectation of CCSS implementation has a direct relation to teachers' CCSS action as well as a significant contributor to the relationship between teachers' beliefs and their action. This suggests that educational leaders may offer more direct expectations of the work such that teachers would have a much clearer sense of purpose in times of change and uncertainty. Further,

we found that teachers' intrinsic factors also have direct effects on their CCSS action. This implies that school leaders may need to attend to creating conditions/environments that motivate the work of teachers, support professional activities, create opportunities for mastery experiences, opportunity for voice, and provide the necessary resources for implementation to occur.

Our findings indicate that teacher beliefs about sufficient resources for CCSS implementation and CCSS motivation both have direct effects on CCSS expectation and innovative climate. This suggests that educational leaders may create supportive conditions that may help enhance the level of motivation and personal beliefs so as to cultivate collective perceptions of school's climate as well as expectation on approaches to taking action on instructional reform. Efforts of cultivating an innovative school climate may include: assess existing climate; create a clear, shared vision of innovation (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013); encourage collaboration to carry out the shared version in which new ideas and approaches are welcome; support risk taking (Author et al., 2011); and recognize the work of employees all of which may further reinforce individual beliefs and norms, and enhance intrinsic motivation (Aldridge & Fraser, 2016).

Call for Action

Typically, when educators think about large-scale reform change, the first thing that comes to their mind is external rather than internal/intrinsic change (Hargreaves, 2004). Organizational change literature suggests that individuals' internal change is highly consequential to the success of overall organizational change especially in the early stage of change processes (Unger et al., 2011). More so, most reform-related literature and practices focus on either organizational climates or intrinsic factors of individuals to shape the desired outcomes, but our work suggests that bringing both of these lenses to bear is critical to ensure sustainable educational change. Our work contributes to the existing knowledge base on the work of teachers that highlights the important role

of intrinsic motivation and personal beliefs in individuals' action as an effort to provide evidence-informed practice in the area of teacher and educational leadership in general. Our findings suggest the promising agentic role of educational leaders in both directly and indirectly influencing the action and practice of teachers. Understanding factors that may significantly contribute to teachers' action as they go about implementing the CCSS supports leaders to tailor improvement plans to the needs of teachers and broader school/district organizations. In proactively doing so, schools may be armed with greater adaptability in preparing their teachers to meet the demanding reform challenges regarding sustainable education and as we enter the next era of reform efforts.

Reference

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Aldridge, J. M., & Fraser, B. J. (2016). Teachers' views of their school climate and its relationship with teacher self-efficacy and job satisfaction. *Learning Environments Research*, *19*(2), 291-307.

Amador, J., & Lamberg, T. (2013). Learning trajectories, lesson planning, affordances, and constraints in the design and enactment of mathematics teaching. *Mathematical Thinking and Learning: An International Journal*, *15*(2), 146-170.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, *50*(2), 248-287.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*, 117-148.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, *52*(1), 1-26.

Bandura, A., & Cervone, D. (1986). Differential engagement of self-reactive influences in cognitive motivation. *Organizational Behavior and Human Decision Processes*, *38*(1), 92-113.

Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology*, *88*(1), 87–99.

Bates, A. B., Latham, N., & Kim, J. A. (2011). Linking preservice teachers' mathematics self-efficacy

  and mathematics teaching efficacy to their mathematical performance. *School Science &*

  Mathematics, *111*(7), 325-333.

Bates, R., & Khasawneh, S. (2005). Organizational learning culture, learning transfer climate and

  perceived innovation in Jordanian organizations. *International Journal of Training and*

  Development, *9*(2), 96-109.

Blake, J. (1999). Overcoming the 'value-action gap' in environmental policy: Tensions between

  national policy and local experience. *Local Environment*, *4*(3), 257-278.

Brewer, N. & Skinner, N. (2003). Work motivation. In M. O'Driscoll, P. Taylor, & T. Kalliath,

  (Eds.), *Organisational psychology in Australia and New Zealand* (pp. 279-301). South Melbourne,

  Vic: Oxford University Press

Bryk, A. S., Camburn, E., & Louis, K. S. (1999). Professional community in Chicago elementary

  schools: Facilitating factors and organizational consequences. *Educational Administration*

  Quarterly, *35*, 751-781.

Carson, R. L., & Chase, M. A. (2009). An examination of physical education teacher motivation

  from a self-determination theoretical framework. *Physical Education and Sport Pedagogy*, *14*(4),

  335-353.

Center on Education Policy (2014). *Common Core State Standards in 2014: Districts' perceptions, progress,*

  and challenges. Washington, D.C.: Center on Education Policy.

Center on Education Policy (2017). *District leadership in the new era of assessment*. Washington, D.C.:

  Center on Education Policy.

Cialdini, R. B. (2005). Basic social influence is underestimated. *Psychological Inquiry, 16*(4), 158-161.

Cristol, K., & Ramsey, B. S. (2014). *Common Core in the districts: An early look at early implementers*.

  Washington, DC: Thomas B. Fordham Institute.

Cross, R., Linder, J., & Parker, A. (2007). Charged up: Managing the energy that drives innovation. *Management Quarterly*, *48*(2), 14.

Cross, R., Gray, P., Gerbasi, A., & Assimakopoulos, D. (2012). Building engagement from the ground up: How top organizations leverage networks to drive employee engagement. *Organizational Dynamics*, *41*(3), 202-211.

Damanpour, F., & Evan, W. M. (1984). Organizational innovation and performance: The problem of organizational lag. *Administrative Science Quarterly, 29*, 392-409.

Deal, T. E., & Peterson, K. D. (2010). *Shaping school culture: Pitfalls, paradoxes, and promises*. San Francisco, CA: Jossey-Bass.

Du, J., Shin, Y., & Choi, J. N. (2015). Convergent perceptions of organizational efficacy among team members and positive work outcomes in organizational teams. *Journal of Occupational & Organizational Psychology*, *88*(1), 178-202.

Dundon, E. (2005). Innovation triangle. *Leadership Excellence*, *22*(3), 1-16.

Elias, M. J., Zins, J. E., Graczyk, P. A., & Weissberg, R. P. (2003). Implementation, sustainability, and scaling up of social-emotional and academic innovations in public schools. *School Psychology Review*, *32*(3), 303-319.

EPE Research Center (2013). *Findings from national survey of teacher perspectives on the Common Core*. Bethesda, MD: Editorial Projects in Education, Inc.

Fives, H., & Buehl, M. M. (2012). Spring cleaning for the "messy" construct of teachers' beliefs: What are they? Which have been examined? What can they tell us? In: K. R., Harris, Graham, & T., Urdan, (Eds.), *Educational psychology handbook: Vol 2. Individual differences and cultural and contextual factors* (pp.471-499). New York: American Psychological Association.

Fox, C. (2006). Performance art: Why we're running so hard. *AFR Boss*, October, 56-63.

Frank, K., Zhao, Y., & Borman, K. (2004). Social capital and the diffusion of innovations within

    organizations: The case of computer technology in schools. *Sociology of Education*, *77*(2), 148-

    171.

Garcı́a-Cabrera, A. M., & Garcia-Soto, M. G. (2009). Cultural differences and entrepreneurial

    behaviour: An intra-country cross-cultural analysis in Cape Verde. *Entrepreneurship & Regional*

    Development, *20*(5), 451-483.

Giles, C., & Hargreaves, A. (2006). The sustainability of innovative schools as learning organizations

    and professional learning communities during standardized reform. *Educational Administration*

    Quarterly, *42*(1), 124-156.

Godin, G., Conner, M., & Sheeran, P. (2005). Bridging the intention–behaviour gap: The role of

    moral norm. *British Journal of Social Psychology*, *44*(4), 497-512.

Guerrier, Y., Alexander, N., Chase, J., & O'Brien, M. (Eds) (1995). *Values and the environment: A social*

    science perspective. New York, NY: Wiley.

Gwynne, J. A., & Cowhy, J. R. (2017). *Getting ready for the Common Core State Standards: Experiences of*

    CPS Teachers and administrators preparing for the new standards. Chicago, Illinois: UChicago

    Consortium on School Research.

Hannula, M. S., Di Martino, P., Pantziara, M., Zhang, Q., Morselli, F., Heyd-Metzuyanim, E., ... &

    Goldin, G. A. (2016). *Attitudes, beliefs, motivation and identity in mathematics education*. London,

    UK: Springer Open.

Hargreaves*, A. (2004). Inclusive and exclusive educational change: Emotional responses of teachers

    and implications for leadership. *School Leadership & Management*, *24*(3), 287-309.

Hargreaves, A., & Goodson, I. (2006). Educational change over time? The sustainability and

    nonsustainability of three decades of secondary school change and continuity. *Educational*

    Administration Quarterly, *42*(1), 3-41.

Harris, C. J., Phillips, R. S., & Penuel, W. R. (2012). Examining teachers' instructional moves aimed at developing students' ideas and questions in learner-centered science classrooms. *Journal of Science Teacher Education, 23*(7), 769-788.

Hertel, G., & Wittchen, M. (2008). Work motivation. In N. Chmiel (Ed.), *An introduction to work and organizational psychology. A European perspective* (pp. 29-55). Oxford: Blackwell.

Hopp, C., & Stephan, U. (2012). The influence of socio-cultural environments on the performance of nascent entrepreneurs: Community culture, motivation, self-efficacy and start-up success. *Entrepreneurship & Regional Development, 24*(9/10), 917-945.

Huggins, K. S., Scheurich, J. J., & Morgan, J. R. (2011). Professional learning communities as a leadership strategy to drive math success in an urban high school serving diverse, low-income students: A case study. *Journal of Education for Students Placed at Risk, 16*(2), 67-88.

Irving, P. G., & Montes, S. D. (2009). Met expectations: The effects of expected and delivered inducements on employee satisfaction. *Journal of Occupational and Organizational Psychology, 82*(2), 431-451.

James, L. R., & Jones, A. P. (1974). Organizational climate: A review of theory and research. *Psychological Bulletin, 81*(12), 1096.

James, S., Thomas, W., Pamela, T., & Jennifer, H. (2007). What is the relationship between teacher quality and student achievement? An exploratory study. *Journal of Personnel Evaluation in Education, 20*(3/4), 165-184.

Johnson, C. C. (2007). Effective science teaching, professional development and No Child Left Behind: Barriers, dilemmas, and reality. *Journal of Science Teacher Education, 18*(2), 133-136.

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language.* Skokie, IL: Scientific Software International.

Kaiser, J. S. (1981). Motivation deprivation: No reason to stay. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 55*, 35-38.

King, A. S. (1974). Expectation effects in organizational change. *Administrative Science Quarterly*, *19*(2), 221-230.

Kızıltepe, Z. (2008). Motivation and demotivation of university teachers. *Teachers and Teaching, 14*(5-6), 515-530.

Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: The Guilford Press.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, *8*(3), 239-260.

Korte, R., Brunhaver, S., & Sheppard, S. (2015). (Mis)Interpretations of organizational socialization: The expectations and experiences of newcomers and managers. *Human Resource Development Quarterly*, *26*(2), 185-208.

Locke, E. A., & Latham, G. P. (1991). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.

Luscombe, J., Lewis, I., & Biggs, H. C. (2013). Essential elements for recruitment and retention: Generation Y. *Education+ Training, 55*(3), 272-290.

Mani, B. G. (2002). Performance appraisal systems, productivity, and motivation: A case study. *Public Personnel Management*, *31*(2), 141-159.

Montano, D. E., & Kasprzyk, D. (2015). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), H*ealth behavior: Theory, research and practice* (5th ed.) (pp. 95-124). San Francisco, CA: Jossey-Bass.

Moolenaar, N. M. (2010). *Ties with potential. Nature, antecedents, and consequences of social networks in school teams*. Unpublished doctoral dissertation. University of Amsterdam, the Netherlands.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. New York, NY: Oxford University Press.

North, D. C. (2005). *Understanding the process of economic change*. Princeton, NJ: Princeton University Press.

Obara, S., & Sloan, M. (2010). Classroom experiences with new curriculum materials during the implementation of performance standards in mathematics: A case study of teachers coping with change. *International Journal of Science and Mathematics Education*, *8*(2), 349-372.

Osterloh, M., & Frey, B. S. (2000). Motivation, knowledge transfer, and organizational forms. *Organization Science*, *11*(5), 538-550.

Palardy, G. J., & Rumberger, R. W. (2008). Teacher effectiveness in first grade: The importance of background qualifications, attitudes, and instructional practices for student learning. *Educational Evaluation & Policy Analysis*, *30*(2), 111-140.

Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., ... & Wallace, A. M. (2005). Validating the organizational climate measure: links to managerial practices, productivity and innovation. *Journal of Organizational Behavior*, *26*(4), 379-408.

Pentland, B. T., & Hærem, T. (2015). Organizational routines as patterns of action: Implications for organizational behavior. *Annual Review of Organizational Psychology and Organizational Behavior*, *2*(1), 465-487.

Plante, I., O'Keefe, P. A., & Theórêt, M. (2012). The relation between achievement goal and expectancy-value theories in predicting achievement-related outcomes: A test of four theoretical conceptions. *Motivation and Emotion, 37*(1), 65-78.

Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, *16*(4), 353-385.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Newbury Park, CA: Sage.

Redclift, M., & Benton, T. (Eds.) (1994). *Social theory and the global environment*. London: Routledge.

Ren, F., & Zhang, J. (2015). Job stressors, organizational innovation climate, and employees' innovative behavior. *Creativity Research Journal*, *27*(1), 16-23.

Reynolds, P., & Curtin, R. (2009). *Business creation in the United States: Initial explorations with the PSED II Data Set*. New York, NY: Springer.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54-67.

Sahin, I. (2008). From the social-cognitive career theory perspective: A college of education faculty model for explaining their intention to use educational technology. *Journal of Educational Computing Research, 38*(1), 51-66.

Salim, I. M., & Sulaiman, M. (2011). Organizational learning, innovation and performance: A study of Malaysian small and medium sized enterprises. *International Journal of Business and Management*, *6*(12), 118.

Salim, I. M., & Sulaiman, M. (2013). Examination of the relationship between organisational learning and firm's product innovation. *International Journal of Innovation & Learning, 13*(3), 254-267.

Sanders, K., Dorenbosch, L., & De Reuver, R. (2008). The impact of individual and shared employee perceptions of HRM on affective commitment: Considering climate strength. *Personnel Review, 37*(4), 412-425.

Šapkova, A. (2014). The relationships between the traditional beliefs and practice of mathematics teachers and their students' achievements in doing mathematics tasks. *Problems of Education In The 21St Century*, *58*, 127-143.

Schneider, B., Ehrhart, M. G., & Macey, W. H. (2013). Organizational climate and culture. *Annual Review of Psychology, 64*(1), 361-388.

Sinclair, C. (2008). Initial and changing student teacher motivation and commitment to teaching. *Asia-Pacific Journal of Teacher Education, 36*(2), 79-104.

Smith, E. M. (2015). *Teacher beliefs and the Common Core State Standards for mathematics.* Unpublished doctoral dissertation. Hamline University, USA.

Song, J. H., Kim, W., Chai, D. S., & Bae, S. H. (2014). The impact of an innovative school climate on teachers' knowledge creation activities in Korean schools: The mediating role of teachers' knowledge sharing and work engagement. *KEDI Journal of Educational Policy, 11*(2), 179-203.

Stephan, U., & Uhlaner, L. M. (2010). Performance-based vs socially supportive culture: A cross-national study of descriptive norms and entrepreneurship. *Journal of International Business Studies, 41*(8), 1347-1364.

Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change, 7*(4), 221-258.

Sun, M., Frank, K. A., Penuel, W. R., & Kim, C. M. (2013). How external institutions penetrate schools through formal and informal leaders. *Educational Administration Quarterly, 49*(4), 610-644.

Taris, T. W., Feij, J. A., & Capel, S. (2006). Great expectations–and what comes of it: The effects of unmet expectations on work motivation and outcomes among newcomers. *International Journal of Selection and Assessment, 14*(3), 256-268.

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research, 83*(3), 357-385.

Thurlings, M., Evers, A. T., & Vermeulen, M. (2015). Toward a model of explaining teachers' innovative behavior: A literature review. *Review of Educational Research, 85*(3), 430-471.

Townsend, D. M., Busenitz, L. W., & Arthurs, J. D. (2010). To start or not to start: Outcome and ability expectations in the decision to start a new venture. *Journal of Business Venturing, 25*(2), 192-202.

Tung, R. L. (2008). The cross-cultural research imperative: The need to balance cross-national and intra-national diversity. *Journal of International Business Studies, 39*(1), 41-46.

Tung, R. L., J. Walls, & M. Frese. (2007). Cross-cultural entrepreneurship: The case of China. In J. R. Baum, M. Frese, & R. Baron (Eds), *The psychology of entrepreneurship* (pp. 265-286). Mahwah, NJ: Lawrence Erlbaum Associates.

Unger, J. M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing, 26*(3), 341-358.

United Nations (2007). *Indicators of sustainable development: Guidelines and Methodologies.* New York: United Nations.

Van der Vegt, G. S., Van de Vliert, E., & Huang, X. (2005). Location-level links between diversity and innovative climate depend on national power distance. *Academy of Management Journal, 48,* 1171-1182.

Van Uden, J. M., Ritzen, H., & Pieters, J. M. (2014). Engaging students: The role of teacher beliefs and interpersonal teacher behavior in fostering student engagement in vocational education. *Teaching and Teacher Education, 37,* 21-32.

Verheul, I., Wennekers, S., Audretsch, D., & Thurik, R. (2002). An eclectic theory of entrepreneurship: Policies, institutions and culture. In D. B. Audretsch, A. R. Thurik, I. Verheul, & S. Wennekers (Eds), *Entrepreneurship: Determinants and policy in a European-US comparison* (pp. 1-71). Boston/Dordrecht: Kluwer.

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*(5), 297.

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation.

       Contemporary Educational Psychology, 25(1), 68-81.

Wilkesmann, U., & J. Schmid, C. (2014, May). Intrinsic and internalized modes of teaching

       motivation. In *Evidence-based HRM: A global forum for empirical scholarship* (Vol. 2, No. 1, pp. 6-

       27). Bingley, UK: Emerald Group Publishing Limited.

Appendix: Items and Corresponding Study Variables

CCSS action (α = .87)
1. I have adjusted my teaching and curriculum according to the Common Core Standards.
2. I have taken extra time to learn about the Common Core Standards.
3. I have collaborated with my colleagues about the Standards (e.g., sharing and exchanging resources, materials, and ideas).
4. I have attended workshops or meetings that helped me implement the Common Core Standards.
5. I have used existing student data in certain way to help me design strategies for student learning.

CCSS motivation (α = .91)
1. I am willing to adjust my teaching and curriculum according to the Common Core Standards.
2. I am willing to attend useful workshops and meetings I need to help me implement the Common Core Standards.
3. I am willing to collaborate with my colleagues about the Standards (e.g., sharing and exchanging resources, materials, and ideas).
4. I am willing to use existing student data in a way to help me design strategies for student learning.
5. I am willing to devote extra time to learn about the Common Core Standards.

CCSS beliefs—self-efficacy (α = .87)
1. I have a working understanding of the Common Core Standards.
2. I am familiar with the Common Core Standards.
3. I am able to implement the Common Core Standards.

CCSS beliefs—resources (α = .89)
1. My school is well prepared for the Common Core Standards.
2. I have been given extra time to learn about the Common Core Standards.
3. Most teachers know what they need to do to implement the Common Core Standards.
4. There is alignment between the Common Core Standards, assessments, and professional development.
5. I have access to staff or consultants for mentoring, advice, and ongoing support around the Common Core Standards.
6. I have the resources and materials I need to implement the Common Core Standards.

CCSS beliefs—impact (α = .94)
1. The Common Core Standards will have a positive impact on my teaching.
2. The Common Core Standards are a promising reform effort.
3. The Common Core Standards will have a positive impact on my students.
4. I believe there is value in the Common Core Standards.
5. Most of the teachers in the school believe there is value in the Common Core Standards.

CCSS expectation (α = .87)
1. The school expects us to collaborate with each other in implementing the Common Core Standards (e.g., sharing and exchanging resources, materials, and ideas).
2. The school expects us to go the extra mile to try new ideas in implementing the Common Core Standards.
3. The school expects us to adjust our teaching and curriculum in line with the Common Core Standards.

4. The school expects us to attend workshop and meetings that may help us implement the Common Core Standards.
5. The school expects us to use existing student data in a way to help us design strategies for student learning.

Innovative climate (α = .94)
1. In this school, the teachers are continuously learning and seeking new ideas.
2. In this school, the teachers are willing to take risks to make the school better.
3. In this school, the teachers are generally willing to try new ideas.
4. In this school, the teachers have a positive 'can-do' attitude.
5. In this school, the teachers are continuously developing new approaches to support instruction.
6. In this school, the teachers are constantly trying to improve their leadership.
7. Most teachers in this school are really trying to improve their teaching.
8. In this school, the teachers are encouraged to 'stretch and grow.'