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Antecedents of continuous change in educational organizations

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Abstract

Purpose – Drawing on and theorizing continuous change, the purpose of this paper is to investigate the antecedents of continuous change behavior in schools. Relying on conceptual discussions about organizational change (OC), three sets of variables including context (workload, participatory management, trust), process (knowledge sharing, social interaction) and outcome (job satisfaction) were identified as antecedents of continuous change.

Design/methodology/approach – To test the predictive value of the antecedents for continuous change, a correlational study was design and structural equation modeling was used to test the direct and indirect relationships among study variables. The data were collected from a sample of 648 primary and secondary public school teachers.

Findings – The results showed that context, outcome, and process factors function through direct and indirect paths to contribute to the prediction of continuous change behavior. Moreover, knowledge sharing either directly or indirectly played a central role in the prediction of continuous change behavior.

Research limitations/implications – These results suggested that a widened knowledge base provides the basis for ongoing experimentation with, alteration, and modification of work categories in schools. Providing such factors in schools seems to facilitate the ongoing improvement of work practices in schools, even in the absence of a planned change intervention.

Originality/value – This study is one of the first empirical studies tested the predictive value of antecedents of continuous change in school organizational context, where OC is the norm and change failures are very common.

Keywords Educational change, Structural equation modelling, Continuous change, Public school teachers

Paper type Research paper

Introduction

Despite conceptual richness, theoretical plurality, the question of how to bring successful change to schools is a top concern among scholars and practitioners, as most interventions either have failed to achieve their targets or have not been implemented at all (Cheng and Walker, 2008; Payne, 2008; Meaney and Pung, 2008). Several scholars warned about both the financial and human losses caused by frequent but failing change interventions (e.g. Clegg and Walsh, 2004; Beer and Nohria, 2000). Employee dissatisfaction and low morale, commitment problems, cynicism, high turnover and increased stress are some of the other negative outcomes of failed change related to the human capacity of an organization (Jansson, 2013; Mohrman *et al.*, 2003; Reichers *et al.*, 1997). These problems are recorded into the personal and organizational histories of individuals as negative experiences, and cause a negative impression about possible future change interventions (Author 2).

Several educational change scholars have detailed problems pertaining to the planned change approach (e.g. Fullan, 2001; Payne, 2008; Hargreaves, 2005). These scholars highlighted the financial and human loses resulting from inexpediency of reform efforts in educational organizations. Different scholars have specified several different reasons for

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the high failure rate in planned change interventions. Failing to ensure sustainability (Hargreaves, 2002), lack of collaborative learning culture, limited ownership of the agenda to be learnt, and a failure to create a system of continuous change focus with top-down, bottom-up, and horizontal improvement and innovations (Fullan, 2016), passive role defined for the operative core in education (the teachers) (Frost and Durrant, 2002) and lack of space, time and setting given to teachers to adjust and alter governmental policies for students' benefits (Shirley and MacDonald, 2016), and the stable vision of the future in planned change are some of the most common problems in planned change effort. Particularly in public organizations, change agents develop plans with limited information and material resources, resulting in poor design and goals that are unclear or unrealistic (Hargreaves, 2002).

These problems suggest that there exists an important gap in the current conceptualization and practice of planned change. Several scholars have developed insights about the sources of failure in planned change interventions. Some of these sources of failure include fragmenting change and the tendency to see changes independently of a total organization (Clegg and Walsh, 2004): conceptualizing organizations as static entities (Tsoukas and Chia, 2002); overemphasis on stability and ignoring the ongoing nature of organizational change (Orlikowski, 1996); focusing on formal and planned interventions while ignoring the informal and emergent nature of change (Brown and Eisenhardt, 1997; Weick, 2000); concentrating on dramatic changes at the macro level and overlooking micro-level changes (Barnes *et al.*, 2010; March, 1981), and failing to meet local contextual conditions and ignoring the needs of employees in contexts of change (Hargreaves, 2005). Tsoukas and Chia (2002) argued that criticisms directed toward the dominant understanding of organization, and as a result toward the dominant understanding of change, suggest a shift in the ontology of organization in that the organization is not the sum of discrete management events such as planned change interventions. Rather it is an unfolding process which is made and remade in a constant flow of events.

Parallel to the discussions for other country contexts, in Turkish education system the source, implementation and outcomes of change interventions form a growing scholarly concern (Toprak, 2018). In relation to this unavoidable change-loop in Turkey, stressing the disharmony between the changes needed by teachers and the changes in practice, Toprak (2018) reported the prevalence of top-down and rapid implementation of educational change attempts and subsequent occurrence of resentment among stakeholders. Regarding the manners employed during change attempts, one prominent criticism comes out as focusing on macro-level aspects rather than being aware of the complex nature of change and scrutinizing micro-level dynamics ERG (Eğitim Reformu Girişimi), 2016. Likewise, being as the core implementers/recipients of changes at schools, Turkish school administrators criticize the current educational change interventions for being much top-down and demand more authority in change process (Hoşgörür, 2016). The demand of Turkish practitioners for a better implementation of changes at school settings supports with the assumptions of continuous change in which the ongoing improvement of work practices at school settings rather than prescribed recipes (Kondakci *et al.*, 2016).

Considering these arguments, the current study aims to discuss the theoretical basis of continuous change and to investigate the role of contextual factors in predicting continuous change behaviors in school context. Since continuous change is a constantly unfolding organizational phenomenon which permeate every structure and function in organizations, the study did not investigate a specific planned change intervention. Contemplating on the framework of Armenakis and Bedeian (1999), this study focused on contextual factors of continuous change in schools. Based on the basic premises of continuous change and the related literature, a model designed was tested through structural equation modeling (SEM) to identify the antecedents of continuous change among teachers.

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Theoretical framework

Scholarly interest in continuous change has emerged relatively recently. However, largely because of high failure rates, there has been growing interest in discussions about continuous change, which, in turn, has resulted in an increase in the attention of educational scholars (Kondakci *et al.*, 2016). Scholars working on continuous change have demonstrated a tendency to borrow different concepts from related fields of organizational science to explain the conceptual bases of continuous change. In their seminal work, Weick and Quinn (1999) utilized learning, improvisation and sensemaking as frameworks for explaining the conceptual bases of continuous change. Recently, Kondakci *et al.* (2016) added self-organization as another concept within this explanatory framework. These concepts work together to explain the operating the dynamics of continuous change.

Sensemaking attests that members of an organization interpret, reinterpret, and reframe organizational processes and practices, which results in the modification and/or extension of existing process and practice (Weick, 1995). Sensemaking prepares the cognitive basis for the micro-level alteration of organizational categories, processes, and practices to fit the changing contextual reality. Sensemaking is a useful tool for explaining the cognitive basis for the planned modification or alteration, while improvisation is a useful tool for explaining the micro-level implementation process of a particular cognitive modification. In improvisation, planning and implementation are spontaneous, and they work simultaneously through experimentation and trial-and-error (Orlikowski, 1996).

These concepts suggest several insights on the origin, scale, and pace of continuous change. First, concerning the origin of change, these concepts suggest that change is not an extraordinary practice of the elites in an organization (Tsoukas and Chia, 2002). Rather, ordinary members are constantly involved in the modification, alteration or extension of existing work categories. In this regard, change is not always a product of planned interventions. The second point on the origin of change is related to the collective construction of work categories. As implied in the concept of learning, organizational members constantly exchange their knowledge of work practices with others in the same context, which results in collective construction categories. Third, in continuous change, each modification almost functions as an invisible form of accommodation and adaptation of the existing work categories to a new dynamic context. Fourth, as in improvisation, continuous change proposes a revised understanding of planning. In continuous change, planning and implementation work together (Tsoukas and Chia, 2002). In that sense, every organizational practice, process and work category – even the planned change itself – is subject to continuous modification and alteration. Performative actions (Feldman, 2000) and ongoing experimentation characterize the flowing nature of event succession in continuous change. Each reactivation of work categories may result in unexpected developments or deviations from the formal definition of the work category (Tsoukas and Chia, 2002). These deviations are interpreted as opportunities to improve organizational categories, rather than as pathologies. These arguments suggest that certain contextual conditions promote the continuous change behaviors of individuals. Continuous change behaviors can be observed in the forms of experimentation, improvisation, or trial-and-error practice on work categories, which result in the micro-level alteration, modification, and extension of the existing work categories.

Factor contributing to continuous change behavior

In specifying the antecedents of continuous change two orientations were followed. First, the constructivist approach in social science, which is reflected into the theoretical framework in different forms played a broad role in specifying the antecedents of continuous change. As stated above, the constructivist approach to knowledge and learning asserts that knowledge cannot be isolated from practice. Social construction view of

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knowledge and learning puts knowledge back into the context in which it gains a unique context specific meaning (Wenger, 1998). Organizational members construct their own meaning out of interaction with the physical and social world. As a result, learning is a contextual issue and it is connected to the conditions in which it is learned (Brown and Duguid, 1991). Hence, process variables such as networking, social interaction, communication are key to experience knowledge and draw a unique meaning which guide and/or shape their practice. The second orientation followed in specifying the variables is related to the framework of Armenakis and Bedeian (1999). According to Armenakis and Bedeian (1999) organizational processes are shaped by content, context, process and outcome factors. Following the basic premises of continuous change, a set of factors was identified to provide the contextual pre-conditions for continuous change behavior: job satisfaction, perceived workload, trust, participatory management, social interaction and knowledge sharing. These factors have been commonly associated with productivity in the workplace. However, since this is one of the first studies on continuous change behavior, the literature provides limited analyses on the relationship between contextual factors facilitating continuous change behavior. On the other hand, it does provide arguments, analyses, and findings that have been instrumental in developing the SEM model for this study.

In the relevant literature, knowledge sharing is emphasized as an important contextual factor for organizational practices and processes. Knowledge sharing is defined as the behavior by which an individual voluntarily opens up his/her knowledge base for the benefit of other social actors inside and outside of an organization (Hansen and Avital, 2005). A number of studies have reported a positive correlation between knowledge sharing and desirable organizational outcomes such as organizational performance (Yang, 2007) and organizational learning (Du *et al.*, 2007).

Process factors such as social interaction and participation are essential for distributing available knowledge into the hands of individuals and/or units. Different scholars have argued that satisfactory work experiences appear to play an outstanding role in knowledge sharing. For example, Renzl (2008) concluded that individuals worrying about losing their unique value or cooperative relationship in an organization would be less likely to share their knowledge within and between teams. Wah *et al.* (2005) found that knowledge sharing is unlikely to happen when individuals think that their contribution is not valued or recognized.

Some other studies expanded on the relationship between knowledge sharing and positive work behaviors by adding the performance dimension to the analysis. De Vries *et al.* (2006) reported that eagerness and willingness to share knowledge are positively correlated with job satisfaction and performance beliefs. Similarly, the willingness of employees to share knowledge with colleagues positively influences organizational innovation (Lin, 2007) because generating new ideas within the organization facilitates innovation in activities and among employees (Jantunen, 2005).

Trust has also been reported as a key factor in the organizational process (Armenakis *et al.*, 1993; Tschannen-Moran and Hoy, 1998). According to the extant literature, there is a close relationship between trust, knowledge sharing and job satisfaction. For example, different studies reported the close relationship between trust and knowledge sharing (Renzl, 2008; Wang *et al.*, 2007). Some other studies noted that the supportive attitudes of supervisors for an atmosphere of mutual trust and the free exchange of ideas are likely to increase employee satisfaction on the job (Vakola and Bouradas, 2005). A climate of trust in the organization promotes positive attitudes and productive work behavior (Jamali *et al.*, 2006), and motivates members to become involved in change (Butler *et al.*, 2015).

Social interaction has been identified as another key factor for continuous change behavior. As implied by Mohrman *et al.* (2003) social interaction in formal and informal

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networks extends/enriches the knowledge base available to organizational members. The interaction patterns enable individuals cultivate social and intellectual capital that tend to play a vital role in the success of a change process. In a comparative study on the enactment of a mathematics reform, Coburn and Russell (2008) noted that teachers who interacted more with their colleagues, and who worked with a coach, tended to change much more. The continuous change perspective is identified with improvisation, meaning the simultaneous act of modifications in time. This continuous change imports extensive communication as the facilitator of improvisation within structures (Brown and Eisenhardt, 1997).

The final contextual characteristic facilitating continuous change is the manageable level of workload. Promoting new modes of continuous change is only feasible with bottom-up or micro-level processes, which are largely dependent on the informal and volunteer actions of the organizational members (Giebels *et al.*, 2016). To this end, an employee's personal initiative by way of adaptive behaviors toward the changing context, and anticipation of potential challenges, are becoming of increasing importance (Ghitulescu, 2013). Therefore, a manageable workload positively contributes to positive psychology and the successful implementation of change initiatives.

This brief literature review suggests that job satisfaction, perceived workload, trust in colleagues, trust in top management, participatory management, social interaction and knowledge sharing exist in a complex relationship with each other and relate to continuous change behavior in the organization. It is hypothesized that teachers' continuous change behavior is likely to flourish in a climate of trust, constant exchange of knowledge among organizational members, manageable workload, job satisfaction, and wide and positive social interaction either in direct or indirect ways. As a result, the following model was developed to be tested in this study (Figure 1).

Methods

In this study, the purpose was to reveal the relationships among the antecedents and outcome variables demanded a correlational research design. The cluster sampling method was used in collecting the data. For the schools which are located in and around the residential provinces of the researchers, the data collected by the researchers. The scales were administered in the teachers' lounge of the schools. A smaller proportion of the data were collected by e-mailing the scales to the principals and head teachers and asking these constituencies to distribute the scales through e-mails. The teachers independently filled the questionnaires and returned them to the researchers. As a result of utilizing these two methods, data from 648 teachers working in 28 different cities were collected. The majority of participants were female (62.2 percent), and the mean age was 37.17 (SD = 8.36). Of the

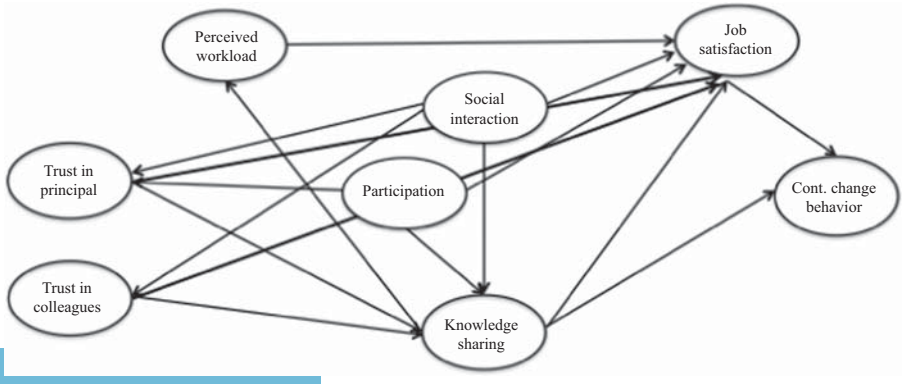

Figure 1.
Hypothesized SEM model

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participants 1.7, 62.2, and 35.8 percent were, respectively, working in pre-primary, primary and secondary schools. Participants' teaching experience ranged from 1 year to 43 years, and only a small portion of them held any administrative experience (17.9 percent) as school principal or vice-principal. When it comes to change-related in-service trainings received, 89.4 percent of the participants responded positively.

Instruments

As part of this study, eight measures were utilized to ask teachers' level of agreement, using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Unless otherwise specified, the scales are uni-dimensional and have been previously developed in or adapted into Turkish. In this study, confirmatory factor analysis (CFA) was conducted to ensure the measurement model fit and provide evidence for the collective construct validity of the instruments utilized (Byrne, 2010), which is reported in the results section.

Job satisfaction scale. This scale was developed by Hulpia and Devos (2009) to assess individuals' level of satisfaction with their jobs. The Turkish adaptation of the scale was performed by Haser and Kondakci (2011). The adapted scale consists of six items. Reliability in terms of Cronbach's α was reported to be 0.86. All scale items were worded positively; that is, the higher scores received from the scale suggested higher job satisfaction. A sample item from the scale is as follows: "My work inspires me." The reliability score computed within the scope of the study is 0.86.

Perceived workload scale. This scale was developed with the purpose of gauging teachers' perceptions of their workload at their schools (Haser and Kondakci, 2011). CFA results reached by the developers provided evidence of the one-dimensional structure with the loading of the 6 original items. The reported reliability score for the initial scale development study was 0.63. After three of the items were reverse coded, the higher score received meant more workload perceived by organizational members. A sample item from the scale is "my workload is too much in this school." The reliability score computed in this study is 0.52.

Omnibus-T scale. The original scale was developed by Hoy and Tschannen-Moran (2003) to measure teachers' perceptions of organizational trust in their colleagues, principal, and clients (i.e. students and parents). The scale was adapted to Turkish by Özer *et al.* (2006). The adapted scale contains 20 items loaded on the same three factors, which were verified by the use of exploratory factor analysis. In the present study, the dimensions of trust in colleagues and trust in principal were utilized with seven items and five items, respectively. All items in each dimension were positively worded so that low scores implied low organizational trust perceived in each reference group and vice versa. Reliabilities reported for the initial Turkish adaptation were 0.86 for trust in principal and 0.82 for trust in colleagues' dimensions. A sample item for the trust in principal dimension is "teachers in this school trust the principal"; for the trust in colleagues dimension is "teachers in this school trust each other." In this study the reliability scores computed for trust in principal dimension is 0.93 and for trust in colleagues dimension affect dimension is 0.93.

Participatory management scale. The scale was constructed to gauge teachers' own perceptions of the degree of participatory management conduct in school organizations (Haser and Kondakci, 2011). The initially designed five-item and uni-dimensional form of the scale was retained with promising CFA results reported by the authors. In the scale development study the Cronbach's α value reported was 0.89. A sample item from the scale is as follows: "Feedback is given to my ideas and practices in my school." In this study the reliability score in this study is 0.91.

Social interaction scale. The scale was constructed by Haser and Kondakci (2011) to assess school organizational members' own experiences with the nature and quality of social interaction at school. Initial validity evidence on the scale dimensionality was

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provided with CFA, and eight items loading on one dimension were verified by the authors. The scores that can be received from the scale ranged from 8 to 40, where a higher score meant more positive experiences with social interaction at school. The internal consistency score for the scale in the scale development study was reported to be 0.90. A sample item from the scale is as follows: "there is an atmosphere in my school in which I can express my worries and concerns." The reliability score computed within the scope of this study is 0.88.

Knowledge sharing scale. The scale was developed by Haser and Kondakci (2011) and designed to measure the level of knowledge sharing experienced by the teachers in their schools. The one-dimensional factor structure was verified with satisfactory CFA results provided by the authors. Since the five items designed for the scale were worded positively, the higher scores meant more knowledge sharing experienced by the participants and vice versa. The internal consistency score in terms of Cronbach's α was reported to be 0.83. A sample item from the scale is as follows: "in my school I really know where to get the information I need." In the current study, the reliability computed in terms of Cronbach's α in this study is 0.88.

Continuous change behavior scale. The scale was developed by Kondakci *et al.* (2016) to assess teachers' self-perceptions of their continuous change behavior in pursuing daily routines at school. The 18-item scale was developed with the support of the latest literature, and field experts were consulted to ensure content validity. The scale was designed as a uni-dimensional one, and all items have positive meanings; therefore, the higher scores received from the scale suggests higher continuous change behavior among participants. A sample item from the scale is as follows: "I find creative solutions to the problems about my job." The reliability score computed in this study is 0.96.

Demographic form. Participants were asked to report their personal and work-related characteristics, as well as the characteristics of the school at which they work in this demographic form attached to other scales.

Data analysis

Since this study was designed as a correlational one and aimed to model multivariate relations (Byrne, 2010), SEM was used as the major data analysis procedure. In the test of measurement and structural models, bootstrapping was preferred to compensate for the effect of non-normality and to yield confidence intervals (Kline, 2011). Before moving on to the main analysis, assumption checks and preliminary analysis were conducted through IBM SPSS Statistics 21 software and measurement and structural models were tested with the use of AMOS 21 software.

Results

Descriptive statistics and intercorrelations

The correlations revealed that the ultimate outcome variable of continuous change behavior was significantly correlated with all variables of the study with varying directions and strengths (Table I).

Structural equation modeling results

Results for the measurement model. An eight-factor measurement model with the latent variables of the study was tested with CFA as a prior step of SEM within the scope of the current study. The initial results yielded a significant χ^2 (χ^2 (1,678) = 4,713.064, $p < 0.05$); however, the χ^2/df value was 2.81, which was lower than the cut-off 3 and indicated a good fit (Kline, 2011). Other fit indices of SRMR to be 0.05, lower than 0.08 and RMSEA to be 0.053 (90% CI = 0.051 – 0.055, $p_{\text{close}} = 0.00$) showed a well-fitting model (Hu and Bentler, 1999). On the other hand, the CFI and TLI values yielded were 0.89 and 0.88, respectively, which suggested the model needed to be improved. The initial attempt was checking the

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standardized regression weights. They were all significant except for the third item of the perceived workload scale. After the elimination of this item, the CFA results showed slight improvement (χ^2 (1,620) = 4,610.83, $p < 0.05$; SRMR = 0.05; CFI = 0.89, TLI = 0.88; RMSEA = 0.053 (0.052 – 0.055, $p_{close} = 0.00$)), but needed to be improved more. As a second attempt, the modification indices were checked and error covariances were included between the highly correlated errors of three scales (items 2–3, 3–4, 4–5, 6–7, 9–10, 13–14 on the continuous change behavior scale; items 1–2 on the participative management scale; items 2–3 in the trust in colleagues dimension of Omnibus-T scale) following the recommendations of Arbuckle (1999). The final model showed improved fit (χ^2 (1,612) = 4,111.17, $p < 0.05$, χ^2/df value = 2.49). Other fit indices of SRMR to be 0.05 and RMSEA to be 0.048 (90% CI = 0.046 – 0.050, $p_{close} = 0.97$) also suggested a good fit (Hu and Bentler, 1999). Although the yielded CFI and TLI values of 0.91 were slightly lower than the cut-off proposed by Hu and Bentler (1999), they exceeded 0.90, which was suggested as an acceptable cut-off by Schumacker and Lomax (2010). Standardized regression weights were all significant, and ranged between 0.36 and 0.91.

Results for the structural model. The proposed model was tested with 2,000 bootstrapped samples and a 95% confidence interval. Results yielded an acceptable model fit (χ^2 (1,622) = 4,053.79, $p < 0.05$, χ^2/ df value = 2.50, CFI = 0.91, TLI = 0.91, RMSEA = 0.048 (90% CI = 0.046 – 0.050, $p_{close} = 0.95$), and SRMR = 0.06). Direct, indirect and total effects were shown in Table II. Although the majority of the direct and indirect paths hypothesized were found to be significant, some non-significant paths were also acquired. To yield a better covariance structure with the data in use, non-significant paths were trimmed sequentially (Kline, 2011). After the elimination of non-significant paths, the trimmed model showed an acceptable fit with slight improvement (χ^2 (1,628) = 4,058.51, $p < 0.05$, χ^2/df value = 2.49, CFI = 0.91, TLI = 0.91, RMSEA = 0.048 (90% CI = 0.046 – 0.050, $p_{close} = 0.96$), and SRMR = 0.06). The nested model acquired by the elimination of non-significant paths was compared to the proposed model through a χ^2 difference test (Kline, 2011). The test produced non-significant results ($\Delta\chi^2$ (6) = 4.72, $p = 0.58$), which meant that the trimmed model is not an oversimplified version of the proposed model. Considering the parsimony as well, the trimmed model was accepted as the final model. The path coefficients of the trimmed model were shown in Table III.

The trimmed model with standardized estimates was depicted in Figure 2. As can be seen, in the final model, social interaction significantly and positively predicted teacher trust in colleagues ($\gamma = 0.78$), and participatory managerial practices also positively predicted teacher trust in their principal ($\gamma = 0.62$). These findings suggested that higher social interaction at schools and greater participatory managerial acts were associated with higher teacher trust in other teachers and in their school principal, respectively. Social interaction

Variables	1	2	3	4	5	6	7	8	*M*	SD
1. Job satisfaction	–	−0.31**	0.29**	0.26**	0.32**	0.36**	0.41**	0.54**	4.19	0.71
2. Perceived workload		–	−0.23**	−0.20**	−0.24**	−0.26**	−0.27**	−0.17**	2.73	0.68
3. Trust in principal			–	0.47**	0.41**	0.57**	0.49**	0.18**	3.80	1.01
4. Trust in colleagues				–	0.67**	0.61**	0.57**	0.21**	3.66	0.85
5. Social interaction					–	0.66**	0.65**	0.32**	3.50	0.80
6. Participation						–	0.69**	0.36**	3.42	0.94
7. Knowledge sharing							–	0.46**	3.58	0.84
8. Continuous change behavior								–	3.87	0.67

Note: $^{**}p < 0.01$

Table I. Zero-order correlations, means and standard deviations for study variables

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	Participation	Social interaction	Trust in colleagues	Trust in principal	Knowledge sharing	Perceived workload	Job satisfaction	Continuous change behavior
Trust in colleagues								
Direct	–	0.78**	–	–	–	–	–	–
Total indirect	–	–	–	–	–	–	–	–
Total	–	0.78**	–	–	–	–	–	–
Trust in principal								
Direct	0.65**	−0.05	–	–	–	–	–	–
Total indirect	–	–	–	–	–	–	–	–
Total	0.65**	−0.05	–	–	–	–	–	–
Knowledge sharing								
Direct	0.31**	0.44**	0.06	0.12**	–	–	–	–
Total indirect	0.08**	0.04	–	–	–	–	–	–
Total	0.39**	0.47**	0.06	0.12**	–	–	–	–
Perceived workload								
Direct	–	–	–	–	−0.33**	–	–	–
Total indirect	−0.13**	−0.16**	−0.02	−0.04**	–	–	–	–
Total	−0.13**	−0.16**	−0.02	−0.04**	−0.33**	–	–	–
Job satisfaction								
Direct	0.06	0.06	−0.06	0.05	0.28**	−0.23**	–	–
Total indirect	0.17**	0.12	0.02	0.04**	0.08***	–	–	–
Total	0.23**	0.18*	−0.04	0.09	0.36**	−0.23**	–	–
Continuous change behavior								
Direct	–	–	–	–	0.27**	0.07	0.48**	–
Total indirect	0.20**	0.21**	−0.01	0.07*	0.15**	−0.11**	–	–
Total	0.20**	0.20**	−0.01	0.07*	0.42**	−0.05	0.48**	–

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table II. Standardized direct, indirect and total effects for the proposed model

($\gamma = 0.48$), participatory management ($\gamma = 0.30$), and trust in principal ($\beta = 0.13$) were also significantly and positively associated with knowledge sharing at school. Higher knowledge sharing, on the other hand, was related to lower workload perceptions on the part of teachers ($\beta = -0.33$). Similarly, higher knowledge sharing ($\beta = 0.37$) and lower workload perceptions ($\beta = -0.24$) were linked with higher job satisfaction among teachers. When it comes to the ultimate outcome variable, higher knowledge sharing ($\beta = 0.26$) and job satisfaction ($\beta = 0.47$) were related to higher continuous change behaviors among teachers.

When the indirect effects were checked in the trimmed model, some variables were concluded to play partial and full mediating roles in the hypothesized relationships. That is, although participation directly and positively predicted knowledge sharing, the relationship between them was also mediated by the variable of trust in principal ($\gamma = 0.08$). Similarly, knowledge sharing fully mediated the relationships between perceived workload and either social interaction ($\gamma = -0.16$) or participation ($\gamma = -0.13$). Although neither participation nor social interaction directly predicted job satisfaction and the continuous change behaviors, knowledge sharing played a full mediating role in these relationships ($\gamma = 0.17$ for

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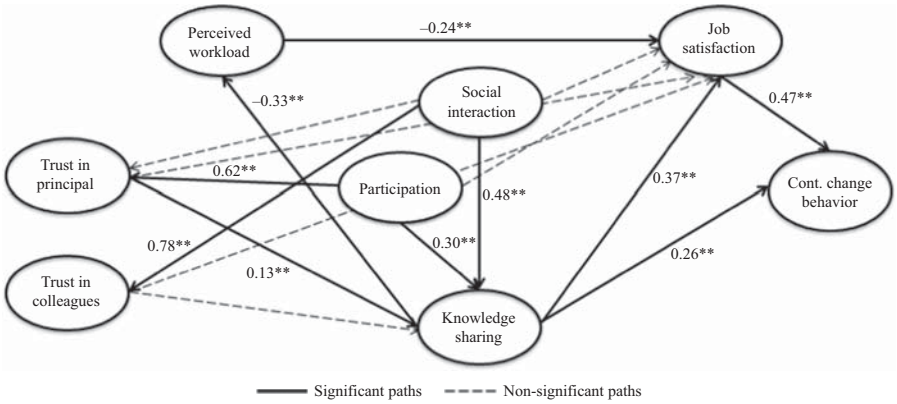
	Participation	Social interaction	Trust in colleagues	Trust in principal	Knowledge sharing	Perceived workload	Job satisfaction	Continuous change behavior
Trust in colleagues								
Direct	–	0.78**	–	–	–	–	–	–
Total indirect	–	–	–	–	–	–	–	–
Total	–	0.78**	–	–	–	–	–	–
Trust in principal								
Direct	0.62**	–	–	–	–	–	–	–
Total indirect	–	–	–	–	–	–	–	–
Total	0.62**	–	–	–	–	–	–	–
Knowledge sharing								
Direct	0.30**	0.48**	–	0.13**	–	–	–	–
Total indirect	0.08**	–	–	–	–	–	–	–
Total	0.38**	0.48**	–	0.13**	–	–	–	–
Perceived workload								
Direct	–	–	–	–	−0.33**	–	–	–
Total indirect	−0.13**	−0.16**	–	−0.04**	–	–	–	–
Total	−0.13**	−0.16**	–	−0.04**	−0.33**	–	–	–
Job satisfaction								
Direct	–	–	–	–	0.37**	−0.24**	–	–
Total indirect	0.17**	0.21**	–	0.06**	0.08***	–	–	—
Total	0.17**	0.21**	–	0.06**	0.45**	−0.24**	–	–
Continuous change behavior								
Direct	–	–	–	–	0.26**	–	0.47**	–
Total indirect	0.18**	0.22**	–	0.06**	0.20**	−0.11**	–	–
Total	0.18**	0.22**	–	0.06**	0.46**	−0.11**	0.47**	–

Notes: $^{**}p < 0.01$; $^{***}p < 0.001$

Table III.
Standardized direct, indirect and total effects for the trimmed model



Note: $^{**}p < 0.01$

Figure 2.
Standardized estimates of the trimmed model

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participation and $\gamma = 0.21$ for social interaction in prediction of job satisfaction; $\gamma = 0.18$ for participation and $\gamma = 0.22$ for social interaction in prediction of continuous change behavior). Knowledge sharing, similarly, fully mediated the relationship between trust in principal and the variables of perceived workload ($\gamma = -0.04$), job satisfaction ($\gamma = 0.06$) and continuous change behavior ($\gamma = 0.06$). Perceived workload, in addition, partially mediated the relationships between knowledge sharing and job satisfaction ($\gamma = 0.08$). On the other hand, the indirect effect between perceived workload and continuous change behavior was significant through job satisfaction ($\gamma = -0.11$). Finally, in addition to significant direct association, significant indirect paths were concluded for the relationship between knowledge sharing and continuous change behavior through two pathways ($\gamma = 0.20$). The first path was through job satisfaction and the other path was through perceived workload and job satisfaction.

Table IV shows R^2 values for the latent variables of the proposed and trimmed models. As can be seen for the trimmed model, knowledge sharing was accounted for by 11 percent of variance in perceived workload. Social interaction, similarly, explained 60 percent of variance in trust in colleagues, and participation explained 38 percent of variance in the trust in principal variable. Social interaction, participation and trust in principal accounted for 67 percent of variance in knowledge sharing. Perceived workload and knowledge sharing explained 25 percent of variance in job satisfaction while job satisfaction and knowledge sharing explained 38 percent of variance in continuous change behavior.

Discussion and conclusions

In this study, the results of the SEM model provide import insights toward fostering an environment conducive to ongoing change and organizational development. The results of this study have highlighted three basic paths toward continuous change. Considering Armenakis and Bedeian's (1999) framework, context (workload, participatory management, trust), outcome (job satisfaction) and process factors (knowledge sharing, social interaction) function through direct and indirect paths to contribute in the prediction of continuous change behavior. However, in the model as a whole, knowledge sharing played a pivotal role in promoting continuous change behavior in schools. Knowledge sharing, together with job satisfaction, directly contributes to teachers' continuous change behavior. Nevertheless, the central role of knowledge sharing does not diminish the role of other contextual and process factors of change. Overall, the SEM model indicated that social interaction, trust and participatory management act to circulate the knowledge available in the organization. As indicated by several continuous change scholars (e.g. Brown and Eisenhardt, 1997; Feldman, 2000; Tsoukas and Chia, 2002), a widened knowledge base provides the basis for ongoing experimentation, alteration and modification of work categories in schools. In addition to the relationships between process factors and continuous change behavior, the results indicated that outcome factor contributed significantly in the prediction of teachers' continuous change behavior by both direct and indirect means. That is, we concluded that higher job satisfaction is related with higher continuous change behavior while playing a

Table IV. Squared multiple correlations for the proposed and trimmed models

	Perceived workload	Trust in colleagues	Trust in principal	Knowledge sharing	Job satisfaction	Continuous change behavior
Proposed model						
R^2	0.11	0.60	0.38	0.66	0.25	0.38
Trimmed model						
R^2	0.11	0.61	0.38	0.67	0.25	0.38

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mediating role in the prediction of continuing change behavior through perceived workload and knowledge sharing. The paths from process and outcome factors suggest that, first, investing in open and wide communication and broad social interaction contributes to knowledge sharing, and second, teachers' decreasing workload and increasing job satisfaction are two essential management practices for realizing continuous change in organizations. Finally, context factors such as trust and participatory management are mediated by process factors, primarily knowledge sharing, in their contribution to continuous change behavior.

The basic argument of continuous change is that planned changes cannot be implemented without ongoing modification and alteration. However, continuous change should not be perceived as an alternative to planned change. Rather, it is a tool for revising, altering, or modifying aspects of planned change which may improve its chances for success. The outcomes of traditional perspectives employed in planned change attempts in education, so far, have not fully satisfied the policy-makers, scholars, and practitioners, leading them to offer repeating similar change initiatives over the years either in Turkey (Kondakci *et al.*, 2016) or across the world (Cuban, 1990; Hess, 2010). Considering the bulk of literature documenting the sources of failures in change attempts, the ignorance of micro-level aspects is overemphasized. In that sense, the assumptions of continuous change prioritizing micro-level dynamics and constant/ongoing supervision at the bottom during change process may contribute to conventional change practices. Therefore, in line with the discussion of Fullan (2016), continuous change is one of key approaches for the whole system improvement. Based on the findings of this study, knowledge sharing among Turkish school organizational members should be strengthen through creating formal and informal interaction opportunities at school level which have the potential not only to promote further communication and knowledge and experience sharing between teachers but also to have a symbolic meaning that individual or group of teachers act like an informal mentor or a support mechanism to deal with the changes and perceive their workload more manageable. This synergy, in turn, is expected to cascade down the school organization also to effect principal, students, and parents to create a whole community of support where governmental policies can be modified, adjusted, and broadened, and new practices can be created. At this point, empowering teacher trust in principal and greater participation of teachers in the decisions may also play as contributing factors for greater knowledge sharing and job satisfaction in return, which call for more distributed forms of leadership displayed by the school principals. At system level, additionally, the findings of the study also echoed the need of greater autonomy granted to schools in Turkey given the excessive regional disparities observed in socioeconomic factors and educational opportunities along with the parental socioeconomic status, which have very likely effect on academic achievement of students (Ataç, 2017). Thus, through coalescence of top-down and bottom-up change approaches, schools have the potential to end up end up with creative school level implementations based on their contextual realities and conditions to deal with the large-scale changes even though stronger governmental policies are needed to tackle with this inequality issue across Turkey.

As stated above, continuous change is a relatively new change perspective. Therefore, a wide array of factors needs to be tested both as outcomes and antecedents. However, two points seem to be specifically important in thinking about future research on continuous change. First of all, since continuous change works on an informal basis, without an informed leadership, micro-level changes may not culminate in a significant effect and change the existing work categories (Kondakci *et al.*, 2016). Therefore, the type of leadership effective in realizing micro-level changes and incorporating these changes into formal processes must be studied. Second, continuous change must be analyzed in the context/time of planned change as well to manifest its potential complementary role in this process. In addition to the new

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perspective utilized, this study is also one of the first attempts in exploring this bottom-up change perspective empirically in a centralized school system though it has certain limitations stemming from the design choice and the nature of the data collected.

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