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A Structural Equation Model of Teachers' Attitudes Towards Constructivist Curriculum Change[2]

Sibel Akin-Sabuncu, TED University &, Columbia University, sa3169@tc.columbia.edu, 0000-0002-4081-1233

Basak Calik, Istanbul Medeniyet University, basak.calik@medeniyet.edu.tr, 0000-0001-8581-0501

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Abstract

This study explores the relationships between teachers' beliefs about teaching, self-efficacy beliefs for teaching and their attitude towards the implementation of curriculum change through the mediating role of their readiness for change. In so doing, the study seeks to suggest an advanced approach to manifest the complex relations among the investigated variables. Designed as correlational research, the study included 422 teachers selected through cluster random sampling from elementary, middle, and high schools. The data were collected through four scales and a demographic information form. Structural equation modeling was performed to investigate the relationships between latent variables. The findings indicated that teachers' beliefs about teaching, self-efficacy beliefs, and readiness for change are significant predictors of teachers' attitudes towards the constructivist curriculum change. However, the contribution of each component differed on the two sub-dimensions: getting information about and implementation of constructivist curriculum. In addition, a mediation effect of teachers' emotional and intentional readiness was found for constructivist teaching beliefs. The findings imply that teachers' self-efficacy and general beliefs about teaching are critical in acknowledging the curriculum reform and thereby, teachers should be given a voice in curriculum development. This might encourage them to be the agents of change rather than the deliverers of the curriculum, which, in turn, might strengthen their beliefs and attitudes regarding the curriculum change. Given the significant role of teachers' emotional and intentional readiness for change, the findings further offer insights to policymakers to provide teachers with professional development opportunities for the success and sustainability of curriculum reforms.

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Introduction

As education systems worldwide have been subjected to constant pressures with the rise of global developments and the advancement of technology, educational change has become an inevitable reality for teachers, especially within the past 25 years, which has been characterized as an epidemic of change by Levin (1998). Specifically, curriculum change has been seen as a key instrument of educational change; and therefore, school curricula are continuously subject to change to meet today's competitive needs and develop multi-skilled workforce for globalizing markets, largely fueled by neoliberal policies (İnal et al., 2016). As a result, this has placed significant demands on teachers as any curriculum change is expected to be reflected in their work (Ha et al., 2004; Liu & Wang, 2020; Mellegård & Pettersen, 2016). That is, the success of the changed curriculum depends primarily on how teachers enact it as they have a central role in curriculum implementation and therefore, might facilitate or hinder the intended curriculum changes.

While the concerns to be addressed by teachers in curriculum and pedagogy have gained urgency (Olibie, 2013), the role of teachers in curriculum reform has been a complex issue to establish an integration of top-down and bottom-up strategies for reform (Kirk & Macdonald, 2001). As educational practices mostly remain persistent in the face of such pressures to innovate, teachers feel professionally neglected and disempowered (Priestley, 2011). Thus, they are systematically positioned as barriers to change (Ball, 1990; Simmons & MacLean, 2018). Particularly, there has been a growing tension between discourses empowering teachers as agents of change for bottom-up curricular development versus centrally driven mandated curriculum reforms where teachers are seen as technicians, inhibitors of the change, and recipients and deliverers of a prescribed curriculum, which eventually leads to a culture of compliance and damages the professional autonomy of the profession (Carse, 2015; Clasquin-Johnson, 2011; Hargreaves & Goodson, 2006; Harris, 2011; Priestley, 2011; Simmons & MacLean, 2018).

Research has shown that when curriculum changes are introduced, teachers often experience negative emotions of fear, anxiety (Clasquin-Johnson, 2011), uncertainty, inadequacy, stress, burnout, and loss of motivation (Hargreaves & Evans, 1998) since they are usually only involved in the implementation of the curriculum change, rather than in the design process, and have very limited control over the actual implementation process (Bailey, 2000; Troudi & Alwan, 2010). Thus, it is the structural and contextual factors that mostly drive change (Harris & Graham, 2019), whereas such mandated change dynamics of school and curriculum reforms inevitably make a strong impact on the heart of the teaching profession: the personal dimension, including teachers' response to and attitudes towards curriculum change (Mellegård & Pettersen, 2016).

As a significant element of change, Goodson (2000) highlights the role of teachers' personal involvement and commitment in achieving change sustainability as it is likely that externally initiated changes will not be successful without some room for teachers' personal agency, who can become catalysts for progressive change. Based on this perspective, teachers' voice and responses lie at the heart of the curriculum change grounded in the belief that curriculum development is a process where teachers play an autonomous active role (Elliott, 1994; Lieberman, 1997; Webb, 2002). Thus, the ignorance of teachers' personal involvement and

responses to curriculum change may inhibit development and take the change process in a different direction from the intended. However, most curriculum change plans treat teachers as passive consumers within their organizational structure and are implemented through an authoritative, top-down approach (Troudi & Alwan, 2010).

Considering the context of Türkiye, the studies that investigated teachers' attitudes towards the major curriculum change in 2005 - the constructivist curriculum reform - mostly focused on the problems and the reasons for teachers' inability to implement the curriculum change, such as teacher-related (e.g., Altun & Şahin, 2009; Eraslan, 2013; Kosar Altinyelken, 2011; Yaşar & Sözbilir, 2019), parent-related (e.g., Kosar Altinyelken, 2011), curriculum and instruction related (e.g., Altun & Şahin, 2009; Bulut, 2007; Yapıcı & Demirdelen, 2007; Ersen Yanık, 2008; Yaşar & Sözbilir, 2019), and assessment-related factors (e.g., Eraslan, 2013). While those studies employed qualitative or quantitative research methodologies, it was seen that the quantitative studies largely explored the direct relationships between teachers' attitude towards the constructivist curriculum and its predictors. Thus, none of these studies considered the relationship between and among sources or the indirect effects of sources on teachers' attitude towards the constructivist curriculum and its predictors. This signifies the need for further research on more complex relationship patterns that explain teachers' attitudes towards constructivist curriculum change. Accordingly, this study aimed at testing a model to investigate if teachers' attitude towards the implementation of constructivist curriculum is associated with their beliefs about teaching and self-efficacy beliefs for teaching through the mediating role of readiness for change. To that end, the present study sought to answer the following research question: How do teachers' self-efficacy beliefs for teaching, beliefs about teaching, and readiness for change relate to their attitudes towards the implementation of the constructivist curriculum change?

Context of the Present Study

Türkiye, as in many countries, has been involved in several curriculum reforms in the past few decades. However, curriculum change and innovation have been much debated for almost two decades as it usually tends to be authoritative, taking a top-down approach. The education system is highly bureaucratic and driven by policy mandates, rules, and regulations, consisting of several hierarchical levels. The macro planner of policy is the Ministry of National Education (MoNE) and situated at the micro-level of the schools are the principals and the teachers. Within this context, as a candidate for EU membership, Türkiye has been undertaking reforms for harmonisation with the EU countries, and the Turkish education system has undergone a progressive paradigm shift from the behavioral to constructivist approach in 2005, which was a top-down and mandated curriculum reform (Yıldırım & Kasapoğlu, 2015) that was introduced gradually by the MoNE across K-12 schooling and has still been undergirding the pedagogical reform. The constructivist curriculum has required teachers to change their instructional practices, shifting from teacher-centered traditional approaches towards more student-centered approaches. However, it is largely reported that the implementation of the constructivist reform has resulted in less than desirable outcomes, and the gap between the renewed school curricula and teachers' classroom practices has been persisting in many fields (e.g., Altun & Şahin, 2009; Ekiz, 2004; Hazır-Bıkmaz, 2006; Kosar Altinyelken, 2013, 2015; Nohl & Somel, 2016; Yıldırım & Kasapoğlu, 2015). This is partly because its success not only depends on the substantive content of the reform or the technical equipment alone, but it is also highly

related to the teachers' perceptions of the reform and their attitudes towards it as the most essential factors in the effectiveness of a curriculum change (Bümen et al., 2014; Chi-Kin Lee, 2000; Kyriakides, 1997). Thus, this study has the potential to provide new insights into the existing research on teachers' attitudes towards the implementation of constructivist curriculum change as it explores the complex relations between *teachers' attitudes towards the implementation of curriculum change* and its potential predictors, namely *teachers' beliefs about teaching*, *self-efficacy beliefs for teaching*, and *readiness for change* within the context of the constructivist curriculum change.

Attitudes towards Constructivist Curriculum

Remillard (2005) highlighted the participatory relationship between teacher and curriculum in which both sides influence and are influenced by each other. Thus, how teachers interpret, interact with, and reflect on the curriculum in teaching practices is essential to reduce the gap between intended and implemented curricula. That is also closely related to teachers' attitudes towards any change in curriculum. As Jenkins (2020) argues, teachers either embrace the change by controlling its effects and adapting their practices accordingly, or they disengage with it and maintain the existing approaches. From this perspective, while thinking about the huge transition towards student-centered pedagogy worldwide (e.g., Carney, 2008; Kosar Altinyelken, 2010; Utomo, 2005), exploring teachers' attitude towards the constructivist curriculum would be crucial for understanding the potential differences between teachers' perceptions of the curricula and their implementations.

To illustrate, Tafrova-Grigorova et al. (2012) discussed Bulgarian science teachers' attitudes towards the constructivist approach in their classrooms. The teachers were ranked somewhat in the middle, displaying change in their teaching practices; however, despite their willingness to learn about the constructivist approach, they criticized that no space was given for them in the regulatory documents to implement the constructivist approach. Similarly, Dharmadasa (2000) noticed that teachers described the constructivist approach as a challenge that cannot be comprehended within a short period, and the implementation of the constructivist curriculum might bring an additional burden for them.

In Türkiye, although teachers perceived the constructivist curriculum positively (Evrekli et al., 2009; Korkmaz, 2008; Ocak, 2010), they also expressed their inability to implement it successfully due to their inadequate knowledge and the provided support by MoNE (Akdeniz & Paniç, 2012; Altun & Şahin, 2009; Bulut, 2007; Eraslan, 2013; Korkmaz, 2008; Kosar Altinyelken, 2011; Yaşar & Sözbilir, 2019). A wide range of research also displayed teachers' concerns about the large class sizes and the lack of resources (Altun & Şahin, 2009; Bulut, 2007; Korkmaz, 2008; Kosar Altinyelken, 2011; Yapıcı & Demirdelen, 2007; Ersen Yanık, 2008; Yaşar & Sözbilir, 2019). In many studies, teachers complained about parents as they were neither knowledgeable nor interested in the new constructivist curriculum (Eraslan, 2013; Korkmaz, 2008; Kosar Altinyelken, 2011). Additionally, teachers criticized the contradictions between what constructivist curriculum suggests versus the prevalent assessment practices in the presence of nationwide exams (Eraslan, 2013; Kosar Altinyelken, 2011; Yaşar & Sözbilir, 2019). Moreover, many scholars argued on the effectiveness of the in-service trainings which were deemed to be unsatisfactory to address the demands of the teachers towards the constructivist curriculum (Altun & Şahin, 2009; Bulut, 2007; Eraslan, 2013; Korkmaz, 2008; Yaşar & Sözbilir, 2019).

As seen, there is a plethora of research pointing out several factors that are related to teachers' attitudes towards the constructivist curriculum change. However, the existing literature commonly tends to neglect the human element of change by over focusing on the structural, material, and contextual factors. To address this gap, this study focuses on the human side of the curriculum change by examining teachers' beliefs about teaching, self-efficacy beliefs about teaching, and readiness for change as the potential factors that might be associated with teachers' attitudes towards the constructivist curriculum change, as presented below.

Teacher Beliefs (Beliefs about Teaching and Self-Efficacy Beliefs)

The existing literature has put forth that *teacher beliefs*, including *beliefs about teaching* and *self-efficacy beliefs for teaching*, are also considered to influence teachers' attitudes towards the implementation of the constructivist curriculum, grounded in the argument that teachers' mental constructs underlie and shape their behaviors (Fang, 1996; Kagan, 1992). First, teacher beliefs pertain to teachers' attitudes, knowledge about teaching, learning, and students (Pajares, 1992). In general, teachers might hold beliefs about their teaching that comprise their perspectives on knowledge and reality, affecting their teaching and learning perceptions (Duru, 2006). In this study, those perceptions address teacher-centered/traditional and learner-centered/constructivist teaching beliefs. While teacher-centered beliefs utilize behaviorist approaches in teaching and learning process with a high focus on subject-matter knowledge, learner-centered beliefs acknowledge task-based approaches by addressing students' needs and interests (von Oppell & Aldridge, 2020; Zhang & Liu, 2014).

Another element in teacher beliefs is teacher self-efficacy beliefs for teaching, which consider teachers' capability judgments to reach intended teaching and learning outcomes (Tschannen-Moran & Woolfolk Hoy, 2001). Those beliefs are also related to their perceptions of control in their teaching settings (Flethcher, 1990). Therefore, teachers with firmer self-efficacy beliefs might readily welcome changes and adopt new methods and strategies (Allinder, 1994; Evers et al., 2002; Guskey, 1988). On the other hand, although teachers consider the educational change effective, they might experience difficulties implementing it in their classrooms if they question their capabilities in the implementation (De Mesquita & Drake, 1994).

Teachers' beliefs are seen as a screen through which behavior is enacted, and it is argued that teachers tend to struggle with reforms that do not comply with their belief systems (Harris & Graham, 2019). Hence, teachers' beliefs play a substantial role in teachers' decision-making processes about curriculum and instructional tasks (Fullan, 1993, 2001, 2007), and curriculum changes are unlikely to achieve their goals unless they are first translated into teachers' existing belief systems (Fullan, 1991). Since teachers' experiences, education, and background influence the formation of their beliefs (Murphy et al., 2004; van Driel et al., 2001), changing teachers' belief systems might be challenging (Prawat, 1992) and a long-term process (Kagan, 1992). As teachers' beliefs, for example, beliefs about teaching generally, can also become an integral part of their professional identity (Pajares, 1992), changes that conflict with a teacher's core values and sense of self can be seen as alarming (Harris & Graham, 2019).

Readiness for Change

Since the effectiveness of a curriculum change mostly depends on teachers' perceptions and attitudes towards it (Chi-Kin Lee, 2000; Kyriakides, 1997), one of the most critical factors for curriculum change effectiveness is the human side of change, including *teachers' readiness for change.* Armenakis et al. (1993) define readiness for change as "organizational members' beliefs, attitudes, and intentions regarding to extent to which changes are needed and the organization's capacity to successfully make those changes." (p. 681). Based on the definition, the literature foregrounds the close relationship between readiness for change and the individuals' attitudes towards implementing the change (Weiner, 2009). Yet, this element has largely been overlooked in educational reforms, including curriculum reforms. As a result, scholars have generally raised serious concerns about change effectiveness, given the imbalance between system-wide change and individual change (Kondakci et al., 2017), which might result in teacher reluctance and resistance to bringing the curricular change into practice, as well (Irez & Han, 2011; Janik et al., 2018).

Walsh and Gardner (2006), for example, indicated the constraining role of government-imposed changes on teachers' readiness to embrace the new early-year programs and reflect it in their classroom practices. Recently, Du and Chaaban's (2020) research on teachers' readiness to implement project-based learning as a top-down pedagogical change supports the idea that the lack of understanding of the change would result in low confidence in teachers to implement it. Differently, in Ittner et al.'s study (2019), school principals were more open to implementing the curriculum if perceived positively.

In Türkiye, Irez and Han (2011) and Han (2013) underlined the difficulty experienced by teachers in interpreting the theoretical framework of the educational reforms as a reason for the resistance to changes. That might be related to how teachers perceive the changes because, as argued by İnandı and Gılıç (2016), teachers' readiness for change would be higher if they were given a voice in decision-making processes. Yet, although there is still a hot debate on teachers' attitudes towards the constructivist curriculum change (e.g., Evrekli et al., 2009; Kaya, 2013; Ocak, 2010), there is no great deal of research seeking out the role of teachers' readiness for this change on their attitudes.

Beliefs about Teaching and its Relationship with Readiness for Change and Attitudes towards Constructivist Curriculum

As Pajares (1992) described, teachers' pedagogical beliefs considerably impact their actions regarding their instructional practices and behaviors. Besides, teachers' existing beliefs about teaching might be crucial to their readiness for curricula changes. Therefore, teachers might develop negative attitudes unless changes correspond to their belief systems and values (Carless, 2013; Park & Sung, 2013). The successful implementation of the constructivist curriculum change would depend on three types of readiness which are societal, curricular, and teachers' readiness (Elkind, 2004). Thus, teachers' proper understanding of theoretical and practical aspects of learner-centered education, which are directly related to their beliefs about teaching, contributes to their readiness. Yet, there has been scarce research considering the interplay between beliefs and teachers' readiness for change. Since Armenikas et al. (1993) state that individuals' beliefs, attitudes, and intentions add to their readiness for change, beliefs

might have been denoted as already established constituents of readiness for change as in several studies (i.e., Petko et al., 2018).

Several scholars also studied how teaching beliefs are reflected in teachers' attitudes and behaviors in practicing the changes related to student-centered approaches (e.g., Beck et al., 2000; Handal & Herrington, 2003; Muofhe, 2008). The findings implied that teachers would be reluctant to employ the proposed changes in the new curricula if the change did not address their deep-rooted beliefs. In addition, many researchers affirmed the restrictive nature of teaching beliefs on successfully implementing a reform-based curriculum. Accordingly, teachers who hold student-centered beliefs would easily change their teaching practices, which would not be possible for those possessing traditional beliefs (Czerniak & Lumpe, 1996; Roehrig & Kruse, 2005; Roehrig et al., 2007; Yates, 2006). Another line of research also posited the predictor role of teachers' attitudes towards implementing the curricular changes on their beliefs and intentions (Crawley, 1990; Haney et al., 1996).

Contrary to these studies, the relationship between teachers' beliefs and instructional behaviors was not in the expected direction (e.g., Anagün et al., 2012; Ersel Kaymakamoğlu, 2018; Fleurette Nelson, 2017; Ogan-Bekiroglu & Akkoc, 2009; Şeker, 2010; Uzuntiryaki et al., 2010) or even absent (e.g., Fang, 1996). As argued by Anagün et al. (2012), teachers might not apply constructivist teaching practices in their classrooms due to several factors, although they believe in the effectiveness of this approach. Parallel to Anagün et al.'s (2012) study, Şeker (2010) reported that teachers had tailored their classrooms in line with the behaviorist approach despite their clinging to student-centered beliefs. The authors also noted the discrepancy between what teachers said about their actions in their classrooms and what the researchers inspected. That might be because teachers are not cognizant of the given inconsistency or do not put sufficient effort to remove it concerning their habitual preferences on instruction (Raymond, 1997). Furthermore, teachers may hold conflicting beliefs in different parts of the curriculum, including objectives, content, instructional strategies, and assessment (Isikoglu et al., 2009; Ogan-Bekiroglu & Akkoc, 2009). Accordingly, teachers might hold certain beliefs pertaining to different components of the curriculum, but the incongruence among those beliefs may lead to controversial outcomes between their beliefs and behaviors. That confirms the idea of the complexity of belief systems which paper-pencil measurements cannot completely reveal. Therefore, the complex nature of beliefs might reveal contrasting findings because there might be some other factors influencing teachers' belief systems (Duru, 2006). Overall, the controversial findings in the literature yield inconclusive results on the relationship between teachers' beliefs and attitudes towards the curriculum change, which requires exploring the given association thoroughly.

Self-efficacy Beliefs about Teaching and its Relationship with Readiness for Change and Attitudes towards Constructivist Curriculum

Bandura (1977) states that people's beliefs about the action and the outcome association might be insufficient to explain their behaviors, which foregrounds teachers' self-efficacy beliefs about teaching as an essential component of teacher effectiveness (Bray-Clark & Bates, 2003). As teachers' self-efficacy beliefs are critical in understanding their willingness to implement the changes (e.g., Allinder, 1994; De Mesquita & Drake, 1994; Hsiao et al., 2011; Evers et al., 2002, Guskey, 1988), their self-efficacy beliefs about teaching might also account

for their readiness for change, and their attitudes toward educational changes, especially curricular changes.

In general, the literature pointed out the explanatory role of self-efficacy beliefs on people's readiness for change (Emsza et al., 2016; Oreg et al., 2011). People with high self-efficacy beliefs would display more positive behaviors and be more open to the changes (Bozbayındır & Alev, 2018; Herold et al., 2007). Similarly, Çelik and Atik (2020) stressed that the improvement of teachers' autonomy and self-efficacy beliefs contribute to their readiness for change. In line with this argument, in Tuğtekin et al's (2018) research, for example, information technology (IT) teachers' teaching self-efficacy beliefs were positively related to their readiness for the planned changes in the IT curriculum. Uslu and Çakar Özkan (2018) also supported the idea that teachers' self-efficacy beliefs contribute to their perceptions regarding the value of the change and make them less likely to resist it. On the other hand, Stokes (2018) indicated the importance of collective self-efficacy to implement the reforms successfully, as there was a weak relationship between teachers' self-efficacy beliefs and their reform readiness.

Several researchers also depicted the substantial role of teacher self-efficacy beliefs in their attitudes towards educational changes (De Mesquita & Drake, 1994; Ghaith & Yaghi, 1997; Gouëdard et al., 2020; Nie et al., 2013; Pan et al., 2013). The common point revealed in those studies is that teachers who believe in their capabilities to obtain desirable student outcomes are more likely to implement educational changes or curricular innovations in their classrooms. Similarly, a small number of studies indicated the positive relationship between teachers' self-efficacy beliefs and their attitudes towards constructivist curriculum as a curricular change in Türkiye (Çayak, 2014; Eskici & Özen, 2018; Kasapoğlu & Duban, 2012). Parallel to these studies, Çolak and Yabaş (2017) and Koç (2013) confirmed that teachers with firmer self-efficacy beliefs were more inclined to apply constructivist practices to prepare their lessons. That foregrounds the attention to how teachers' self-efficacy beliefs are related to implementing educational changes in their classrooms (Isler & Cakiroglu, 2010). Yet, some other studies displayed no relationship between teachers' self-efficacy beliefs regarding specific domains (i.e., self-efficacy for classroom management) and their willingness and commitment to implementing the constructivist curriculum (Cerit, 2013; Cobanoglu & Capa Aydin, 2015).

Given the aforementioned arguments, calls for a larger analysis of what predicts teachers' attitudes towards the implementation of curriculum change have increased. Specifically, many studies both globally and also in Türkiye demonstrate incongruence between the intended curriculum and enacted (implemented) curriculum. Accordingly, to shed light on what may lead to such a gap, this study aims to suggest a more advanced approach to manifest complex relations among the predictors and outcomes simultaneously rather than focusing only on the direct relations. From this perspective, in this study, a model was tested to clarify the hypothesized direct and indirect relationships among beliefs about teaching, self-efficacy beliefs for teaching, readiness for change, and teachers' attitudes towards the implementation of curriculum change as presented in Figure 1. More specifically, the study sought to answer the following sub-research questions (R.Q.):

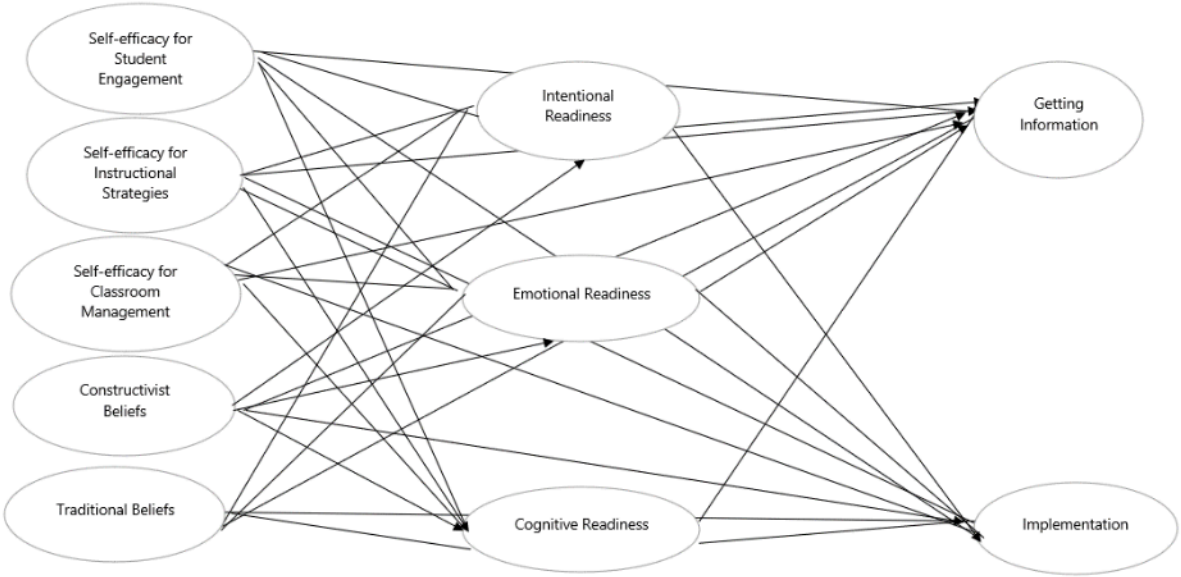
R.Q. 1. How do teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their readiness for change relate to their attitudes towards the implementation of the constructivist curriculum change?

R.Q. 2. How do teachers' self-efficacy beliefs for teaching and beliefs about teaching relate to their readiness for change?

R.Q. 3. What is the mediator role of teachers' readiness for change on the relationship between teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their attitudes towards the implementation of the constructivist curriculum change?

Figure 1

The Hypothesized Structural Model



Note. Getting Information = Attitudes towards constructivist curriculum concerning getting information, Implementation = Attitudes towards constructivist curriculum concerning implementation.

Method

Research Design

The study was designed as correlational research as it aims to yield relationships among the investigated variables and make predictions without manipulating them (Fraenkel & Wallen, 2009; Gay et al., 2012). To that end, the present study particularly focused on determining the relationship patterns among teachers' attitudes towards the implementation of constructivist approach, teachers' beliefs about teaching, self-efficacy beliefs for teaching, and readiness for change.

Participants

The study included 422 teachers selected through cluster random sampling from elementary, middle, and high schools in two large cities in Türkiye (Fraenkel & Wallen, 2009). Of the participants, 73.4% (n=303) were female and 26.6% (n=110) were male with ages from 23 to 63. The majority of the participants (66.6%) graduated from faculties of education, while the remaining graduated from other faculties (33.4%). Particularly, 61.4% completed their undergraduate education before 2005, when the constructivist curricula started to be implemented. Among the participants, 82.8% held a bachelor's degree, 16% held a master's degree, and only 1.2% held a Ph.D. degree. Of them, 29.9% had teaching experience of up to

10 years, 23.6% had taught for 11 to 20 years, 36% had taught for 21 to 30 years, and 10.5% had teaching experience of 31 to 37 years. Additionally, 47.7% were from public middle schools, 21.3% were from public primary schools, and 31% were from public high schools. Lastly, 72.2% reported that they had participated in in-service trainings related to constructivism, whereas 27.8% had not.

Data Collection Tools

The data collection instrument consisted of a demographic information form and four subscales:

The Teacher Beliefs Scale (TBS)

The TBS, originally developed by Woolley et al. (2004), was adapted into Turkish by Duru (2006) to gauge teachers' beliefs about teaching in relation to two dimensions: *constructivist beliefs (CB)* (sample item: Involving students in evaluating their own work and setting their own goals) and *traditional beliefs (TB)* (sample item: Teaching subjects separately, although aware of the overlap of content and skills). The adapted version of the scale consists of 12 items and uses a 6-point rating scale ranging from 1 (strongly disagree) to 6 (strongly agree). Based on Exploratory Factor Analysis (EFA), Duru (2006) provided evidence for the construct validity and reliability of this two-factor structure of the scale. It was reported that the results of the EFA indicated the two-factor structure of the scale explaining a total of 37.16% of the variance. In addition, the reliability score computed for the CB subscale was found to be .65 and that of the TB subscale was found to be .61, which were within the acceptable limits with the proposed critical value of .60 (Hair et al., 2010).

In this study, confirmatory factor analysis (CFA) was conducted to test the factorial structure of TBS. The initial run of CFA revealed an inadmissible model fit ($\chi 2$ (118) = 460.40, RMSEA = .08, CFI = .64, NNFI = .59, and SRMR = .09). According to Bandalos and Finney (2001), item parceling might be used when the normality, sample size to variable ratio, and the parameter estimates were problematic in the hypothesized model. Therefore, item parcels were created for TBS, including at least three items per parcel based on Bandalos's (2002) suggestion. The second run of CFA yielded a good model fit ($\chi 2$ (4) = 8.605, RMSEA = .05, CFI = .99, NNFI = .97, and SRMR = .02). The Cronbach's alpha value was .70 for constructivist beliefs and .67 for traditional teaching.

The Teachers' Sense of Efficacy Scale (TTSES)

The TTSES was originally developed by Tschannen-Moran and Woolfolk-Hoy (2001) and it is designed to measure the efficacy beliefs of teachers. While the short version of the original scale involved 12 items and the long version involved 24 items, it is suggested that either long or short version could be accepted as a reliable and valid instrument (Tschannen-Moran & Woolfolk-Hoy, 2001). In this study, the 24-item instrument, designed on a 9-point rating scale ranging from 1 (nothing) to 9 (a great deal), was used. The scale was adapted to Turkish by Çapa et al. (2005) and it consisted of three dimensions: *student engagement (SE)* (sample item: How much can you do to get students to believe they can do well in schoolwork?), *instructional strategies (IS)* (sample item: To what extent can you use a variety of assessment strategies?), and *classroom management (CM)* (sample item: How much can you do to control disruptive behavior in the classroom?). Based on the results of the CFA, Çapa et al. (2005) provided evidence for the construct validity of this three-factor scale in their study (RMSEA = .065, CFI

= .99 and NNFI = .99). They also found that the coefficient alpha value was .82 for SE, .86 for IS, and .84 for CM as evidence for reliability.

In the current study, CFA results confirmed the three-dimensional structure of TTSES with a mediocre model fit ($\chi 2$ (249) = 673.06, RMSEA = .06, CFI = .90, NNFI = .89, and SRMR = .05). The Cronbach's alpha value was .88 for SE, .90 for IS, and .90 for CM.

The Readiness for Change-Cognitive Emotional Intentional Scale (RFOC-CEI)

The RFOC-CEI was developed by Kondakçı et al. (2013) to gauge readiness for change levels of school organizational members (e.g., teachers, administrators). The scale consisted of 12 items and was designed as a 5-point scale ranging from strongly disagree (1) to strongly agree (5). Based on the results of the CFA, Kondakçı et al. (2013) confirmed the three-dimensional factor structure of the scale ($\chi 2$ (49) = 206.403, RMSEA = .073, CFI = .966, NNFI = .954). They reported that 12 items loaded on three dimensions: *intentional readiness* (sample item: I would like to devote myself to the process of change), *emotional readiness* (sample item: I usually do not like to change), and *cognitive readiness* (sample item: I would like to see change activities in my school). The researchers reported the reliability scores as .90, .75, and .87 for the intentional, emotional, and cognitive readiness for change dimensions, respectively.

In this study, CFA was conducted to validate the factorial structure of RFOC-CEI. CFA yielded an acceptable model fit to the data ($\chi 2$ (51) = 153.68, RMSEA = .07, CFI = .94, NNFI = .92, and SRMR = .05). The Cronbach's alpha value was .86, .80, and .80 for intentional, emotional, and cognitive readiness for change dimensions.

The Attitude towards Constructivist Approach Scale for Teachers

The Attitude towards Constructivist Approach Scale for Teachers" was adapted by Eskici (2013) from the "Attitude towards Constructivist Approach Scale for Pre-service Science Teachers" developed by Evrekli et al. (2009). The adapted version of the scale was designed as a 5-point rating scale ranging from 1 (strongly disagree) to 5 (strongly agree). It involves 16 items and consists of two-dimensional structure: *getting information* (sample item: I do not like to learn more about constructivist approach) and *implementation* (sample item: I like to implement curricula that are developed based on constructivist approach). Considering the results of the CFA, Eskici (2013) confirmed the two-factor structure of the scale (RMSEA = .069, CFI = .94, NNFI = .93). In addition, the reliability score calculated for getting information dimension was .89, and for implementation dimension was .80.

In this study, the validation of the scale was conducted with the use CFA, revealed a good model fit ($\chi 2$ (103) = 179.49, RMSEA = .04, CFI = .96, NNFI = .96, and SRMR = .04). For internal consistency estimates, Cronbach alpha coefficients were .87 for getting information and .89 for implementation dimensions.

Data Collection

The ethical committee approval was obtained for this research from TED University Human Subjects Ethics Committee with the decision numbered 2020/05, dated July 29, 2020. The researchers also obtained the necessary permission from the MoNE to collect data from teachers working at public primary, secondary, and high schools. The data collection took approximately seven months. Participation in the study was on a voluntary basis and the

informed consent of the participants was obtained in the study. Completing surveys required participants to take 15 to 20 minutes.

Data Analysis

Structural equation modeling (SEM) was performed to investigate the relationships between latent variables, including the dimensions of teacher beliefs, teachers' sense of efficacy, readiness for change, and attitudes towards the constructivist approach. Before testing the structural model, CFAs were performed through Mplus 6 (Muthen & Muthen, 2010) to validate the factorial structure of the scales and examine the measurement model. Root Mean Square Error of Estimation (RMSEA), Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), and Standardized Root Mean Square Residual (SRMR) fit indices were used for the model evaluation. The Satorra-Bentler correction, known as MLM estimator, was utilized in Mplus to estimate model parameters. Since Cheung and Lau (2008) pointed out the possibility of Type I error rate inflation with small sample sizes for the bootstrapping method, the Delta method was preferred to explain the indirect or mediation effects (MacKinnon, 2008). Assumption checks and descriptive and reliability analyses were conducted through IBM SPSS 22 (IBM SPSS Corp., 2013).

Results

Assumptions of SEM

The number of participants was above the sample size criterion of 200 to perform the SEM (Kline, 2016). Afterward, the absence of outliers, univariate and multivariate normality, linearity, homoscedasticity, and multicollinearity assumptions were examined (Tabachnick & Fidell, 2019). Accordingly, eight cases were removed based on the inspection of univariate and multivariate outliers. As displayed in Table 1, no variable in this study correlated with the other variable with a value of .90 or above, so there was no multicollinearity issue among the variables (Field, 2018). Lastly, Satorra-Bentler correction was employed in Mplus using an MLM estimator, which was robust to non-normality (Muthen & Muthen, 2010) regarding Mardia's test statistics. The Delta method was employed in Mplus to explain the indirect effects on the model (MacKinnon, 2008).

Descriptive Analyses

As presented in Table 1, teachers' self-efficacy for classroom management (M=7.18, SD=.88) and instructional strategies (M=7.07, SD=.89) were higher than their self-efficacy for student engagement (M=6.62, SD=.95). Teachers' beliefs about constructivist teaching (M=4.60, SD=.54) were also firmer than their beliefs about traditional teaching (M=4.31, SD=.67). Besides, teachers' cognitive readiness had the highest mean (M=4.11, SD=.56), followed by their intentional readiness (M=4.01, SD=.53) and emotional readiness (M=3.97, SD=.69). The dimensions of teachers' attitudes towards the constructivist curriculum concerning implementation (M=3.79, SD=.54) and getting information (M=3.78, SD=.60) were nearly similar. Most of the correlations were also significant.

Table 1

Descriptive Statistics Results and Intercorrelations between Variables

Variable	1	2	3	4	5	6	7	8	9	10
1.Efficacy for Student Engagement[a]	-									
2.Efficacy for Instructional Strategies[a]	.78*	-								
3.Efficacy for Classroom Management[a]	.71*	.80*	-							
4.Beliefs for Constructivist Teaching[b]	.28*	.23*	.23*	-						
5.Beliefs for Traditional Teaching[b]	.21*	.24*	.21*	.39*	-					
6.Intentional Readiness[c]	.22*	.21*	.16*	.38*	.20*	-				
7.Emotional Readiness[c]	.14*	.17*	.17*	.20*	.01	.51*	-			
8.Cognitive Readiness[c]	.24*	.29*	.22*	.38*	.21*	.74*	.51*	-		
9.Getting Information[c]	.17*	.23*	.18*	.28*	.02	.42*	.38*	.35*	-	
10.Implementation[c]	.24*	.24*	.18*	.36*	.19*	.55*	.32*	.47*	.65*	-
M	6.62	7.07	7.18	4.60	4.31	4.01	3.97	4.11	3.78	3.79
SD	.95	.89	.88	.54	.67	.53	.69	.56	.60	.54

**p<.001 [a]9-point scale, ,[b] 6-point scale, [c]5-point scale*

The Measurement Model

The relationships between items/item parcels of beliefs about teaching, efficacy beliefs for teaching, readiness for change and attitudes towards constructivist curriculum dimensions were examined by a ten-factor measurement model. The CFA with Satorra-Bentler correction revealed a reasonable fit: $\chi 2$ (1494) = 2626.19, $p < .001$, RMSEA = .043 (90% CI = .040-.045), CFI = .90, NNFI = .89, and SRMR = .049 (Browne & Cudeck, 1993; Hu & Bentler, 1999). The standardized estimates ranged from .40 to .85, which were all above the cut-off point of .30 (Brown, 2006), and significantly contributed to the proposed dimensions.

The Structural Model

The SEM model yielded an acceptable fit: $\chi 2$ (1494) = 2626.19, $p < .001$, RMSEA = .043 (90% *CI* = .040-.045), CFI = .90, NNFI = .89, and SRMR = .049 (Browne & Cudeck, 1993; Hu & Bentler, 1999). Table 2 presents direct, total indirect and total effects.

Table 2

Standardized Direct, Total Indirect, and Total Effects

		Self-efficacy for Student Engagement	*Self-efficacy for Instructional Strategies*	*Self-efficacy for Classroom Management*	*Beliefs about Constructivist Teaching*	*Beliefs about Traditional Teaching*	*Intentional Readiness*	*Emotional Readiness*	*Cognitive Readiness*
Intentional Readiness	Direct Effect	-.02	.26	-.15	.48***	-.06	-	-	-
	Total Indirect	-	-	-	-	-	-	-	-
	Total	-.02	.26	-.15	.48***	-.06	-	-	-
Emotional Readiness	Direct Effect	-.15	.25	.04	.36***	-.22**	-	-	-
	Total Indirect	-	-	-	-	-	-	-	-
	Total	-.15	.25	.04	.36***	-.22**	-	-	-
Cognitive Readiness	Direct Effect	-.27*	.63***	-.22*	.50***	-.06	-	-	-
	Total Indirect	-	-	-	-	-	-	-	-
	Total	-.27*	.63***	-.22*	.50***	-.06	-	-	-
Getting Information	Direct Effect	-.36*	.68*	-.23*	.31***	-.22***	.46***	.24**	-.29**
	Total Indirect	.03	-.003	.003	.16***	-.06	-	-	-
	Total	-.33*	.67	-.23*	.48***	-.28***	.46***	.24**	-.29**
Implementation	Direct Effect	-.03	.20	-.10	.20**	-.01	.56***	-.009	-.06
	Total Indirect	.005	.10	-.07	.24***	-.03	-	-	-
	Total	-.02	.30	-.17	.44***	-.04	.56***	-.009	-.06

$^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

R.Q.1. How do teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their readiness for change relate to their attitudes towards the implementation of the constructivist curriculum change? The tested structural model is displayed in Figure 2. Accordingly, teachers' self-efficacy for instructional strategies (γ=.68, p<.05), beliefs about constructivist teaching (γ=.31, p<.001), intentional readiness (β=.46, p<.001), and emotional readiness (β=.24, p<.01) were positively related to teachers' attitudes towards the constructivist curriculum concerning getting information. As teachers' self-efficacy for instructional strategies, beliefs about constructivist teaching, intentional and emotional readiness increased, they had higher attitudes towards the constructivist curriculum for getting information. On the other hand, teachers' self-efficacy for student engagement (γ=-.36, p<.05), self-efficacy for classroom management (γ=-.23, p<.05), beliefs about traditional teaching (γ=-.22, p<.001), and cognitive readiness (β=-.29, p<.001) were negatively associated with getting information. Increased self-efficacy for student engagement and classroom management, traditional teaching beliefs, and cognitive readiness were associated with a decline in attitudes towards the constructivist curriculum for getting information.

In addition, teachers' beliefs about constructivist teaching (r=.20, p<.01) and intentional readiness (β=.56, p<.001) were positively related to their attitudes towards the constructivist curriculum for implementation. Teachers with firmer constructivist teaching beliefs and higher intentional readiness had higher attitudes towards implementing the constructivist curriculum. However, the relationships between the implementation dimension and self-efficacy for student engagement (r=-.03, p>.05), instructional strategies (r=.20, p>.05), classroom management (r=-.10, p>.05); beliefs about traditional teaching (r=-.01, p>.05); emotional readiness (β=-.009, p>.05) and cognitive readiness (β=-.06, p>.06) were non-significant.

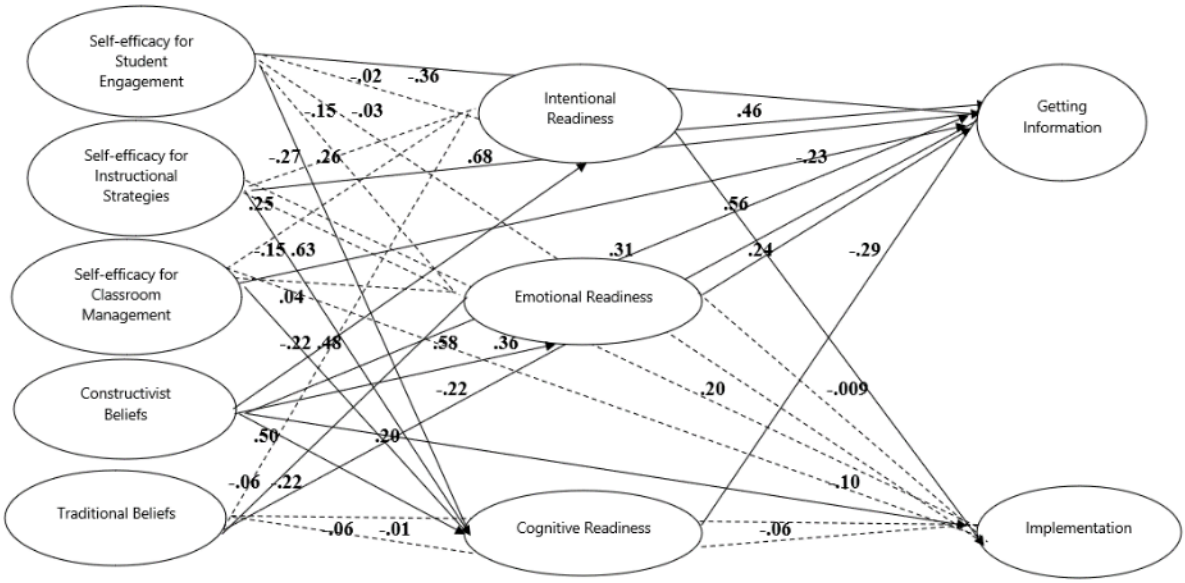
R.Q.2. How do teachers' self-efficacy beliefs for teaching and beliefs about teaching relate to their readiness for change? Teachers' cognitive readiness was negatively associated with their self-efficacy for student engagement (r=-.27, p<.05) and self-efficacy for classroom management (r=-.22, p<.05) but positively linked to their self-efficacy for instructional strategies (r=.63, p<.001) and beliefs about constructivist teaching (r=.50, p<.001). Teachers with an increased self-efficacy for student engagement and classroom management experienced less cognitive readiness. However, when teachers' self-efficacy for instructional strategies and constructivist teaching beliefs increased, they reported higher cognitive readiness. Besides, teachers' emotional readiness was positively related to their constructivist teaching beliefs (r=.36, p<.001) but negatively linked to beliefs about traditional teaching (r=-.22, p<.01). Teachers' intentional readiness was also positively associated with constructivist teaching beliefs (r=.48, p<.001). When teachers had firmer beliefs about constructivist teaching, their emotional and intentional readiness rose.

R.Q.3. What is the mediator role of teachers' readiness for change on the relationship between teachers' self-efficacy beliefs for teaching, beliefs about teaching, and their attitudes towards the implementation of the constructivist curriculum change? Teachers' beliefs about constructivist teaching had positive significant indirect effects on teachers' attitudes towards the constructivist curriculum for getting information (.16, p<.001) and implementation (.24, p<.001) through readiness for change variables. When total indirect effects were brought down, the effects of constructivist teaching beliefs were mediated through intentional readiness (.22, p<.01) and emotional readiness (.09, p<.01) but not cognitive readiness (-.14, p>.05) for getting information. For the implementation, the effects of constructivist teaching beliefs were mediated through intentional readiness (.27, p<.01) but not cognitive (-.028, p>.05) and emotional readiness (-.003, p>.05). Accordingly, an increase in constructivist teaching beliefs was associated with higher attitudes towards the constructivist curriculum for getting information through intentional and emotional readiness and higher attitudes for implementation through intentional readiness. On the other hand, teachers' beliefs about traditional teaching had non-significant indirect effects on teachers' attitudes towards the constructivist curriculum for getting information (-.06, p>.05) and implementation (-.03, p>.05). Teachers' self-efficacy for student engagement (.03, p> .05), instructional strategies (-.003, p>.05), and classroom management (.003, p>.05) had also a non-significant indirect effect on teachers' attitudes towards the constructivist curriculum for getting information. Besides, it was found that teachers' self-efficacy for student engagement (.005, p>.05), instructional strategies (.10, p>.05), and classroom management (-.07, p>.05) had a non-significant indirect effect on teachers' attitudes towards the constructivist curriculum for implementation. Overall, the structural model explained 25%, 13%, and 32% of the variance in intentional, emotional, and

cognitive readiness, 38% and 42% of the variance in teachers' attitudes towards the constructivist curriculum for getting information and implementation.

Figure 2

The Structural Model with Direct Effects



Note. Getting Information= Attitudes towards constructivist curriculum concerning getting information, Implementation= Attitudes towards constructivist curriculum concerning implementation. Only latent variables are described for clarity. Full lines referred to significant paths, dashed lines implied non-significant paths.

Discussion, Conclusion and Implications

This study provided evidence for the relationship among teachers' beliefs about teaching, self-efficacy beliefs for teaching, and attitudes towards the implementation of the constructivist curriculum through the mediating role of readiness for change. To start with teachers' beliefs about teaching, constructivist teaching beliefs were positively related to teachers' attitudes towards the constructivist curriculum on *getting information* about and *implementing* the curriculum. Accordingly, the present study underlined the substantial role of constructivist teaching beliefs in embracing the requirements of the constructivist curriculum, displaying a willingness to learn about and implement the curriculum rather than resisting or ignoring the change. Previous research has also shown that teachers reflect their teaching beliefs into their attitudes in identifying their roles and teaching approaches (Chen, 2015; Czerniak & Lumpe, 1996; Roehrig & Kruse, 2005; Roehrig et al., 2007; Yates, 2006). On the other hand, the relationship between traditional teaching beliefs and teachers' attitudes towards the constructivist curriculum was negative particularly on *getting information about the curriculum*. In this respect, teachers who were on the traditional side resisted learning more about the new curriculum. This finding sounds reasonable because teachers who espouse traditional or teacher-centered beliefs foreground attention on subject-matter knowledge, which might contradict the principles of constructivist curriculum. Thus, they might refuse to learn about how to center the teaching learning process on tailoring students' needs and interests. Moreover, no relationship was found between traditional teaching beliefs and

teachers' attitudes towards *implementing* the constructivist curriculum. That is, although teachers on the constructivist side responded with a high commitment to implementing the new curriculum, teachers who hold traditional teaching beliefs displayed either positive or negative attitudes towards implementing it, which is consistent with the findings of Cobanoğlu and Capa Aydin (2015). Jenkins (2020) described that teachers might accept the changes and adapt them into their practices in curricular changes, or they might not accept them and pursue their existing approaches. In the present study, teachers in the traditional camp seemed to prefer staying in their zones by maintaining their current practices rather than making any changes and adaptations. Fang (1996) also found non-significant relationships between beliefs and behaviors, while there are also contrasting findings (e.g., Anagün et al., 2012; Cronin-Jones, 1991; Uzuntiryaki et al., 2010; Yaşar & Sözbilir, 2019). Although teachers' pedagogical beliefs influence their instructional behaviors (Pajares, 1992), the discrepancy between adopted teaching beliefs and instructional practices might stem from the complex nature of belief systems.

Second, as for teachers' self-efficacy beliefs for teaching, Bandura (1977) defines the concept of self-efficacy as people's beliefs about their capabilities to complete a designated task. Accordingly, teachers' self-efficacy beliefs for teaching might also be important in explaining the association between beliefs and attitudes thoroughly. In line with the findings of Cerit (2013), Cobanoglu and Capa-Aydin (2015), and Kasapoğlu and Duban (2012), when teachers in the present study felt capable of employing different instructional strategies, they tended to learn more about *(getting information)* the constructivist curriculum. In several research, teachers with firmer self-efficacy beliefs were found to be more interested in discovering innovative teaching methods as well (Evers et al., 2002; Guskey, 1988). Interestingly, the higher self-efficacy for student engagement and classroom management teachers experienced in the present study in the present study, the less desire they demonstrated to learn about the constructivist curriculum. Before the progressive paradigm shift in Türkiye, the behavioral approach had been in practice for a long period. Therefore, teachers might have been more accustomed to applying teacher-centered methods (Cerit, 2013) and more competent in their capabilities in preserving classroom dynamics. As a result, they might display apathy towards seeking unique ideas about the constructivist curriculum.

On the other hand, the non-significant relationship between teachers' self-efficacy for teaching dimensions and their attitudes towards *implementing* the constructivist curriculum might be due to the mismatch between teachers' beliefs and actions. Although teachers might feel more capable of the constructivist curriculum over the years, they still might be reluctant to implement the curricular change in their classrooms due to their firmly established instructional habits. In addition, social desirability might be another important reason explaining the non-significant relationship between teachers' self-efficacy and their attitudes towards *implementing* the constructivist curriculum. That is, as Yıldırım & Kasapoğlu (2015) argue, *constructivism* and *student-centered teaching* are fancy terms in education that teachers may easily overestimate their capability judgments and hide their feelings on self-report instruments. Similarly, those findings might indicate a calibration problem as the difference between people's judgments and actual performances (Pajares & Kranzler, 1995). Therefore, teachers might have overestimated their beliefs about their capabilities in *implementing* the constructivist curriculum, although they had difficulties understanding the general principles and the essential aspects of the new curriculum. Consequently, poor

calibration might have revealed inconsistency between teachers' self-efficacy beliefs and their attitudes towards implementing the constructivist curriculum.

Concerning teachers' readiness for change, our findings indicated that the increase in constructivist teaching beliefs also led teachers to accept the constructivist curriculum intentionally, emotionally, and cognitively. However, there was a negative relationship between teachers with traditional beliefs and particularly their emotional readiness for change. Teachers' belief systems may influence their readiness for large-scale changes in education. Remarkably, the curriculum reform brings a new theoretical framework to teaching-learning processes, so teachers might have difficulties putting those changes into practice with their existing knowledge, beliefs, and experiences (Davis, 2002; Elmas et al., 2014). Therefore, teachers might resist especially top-down changes in education (e.g., Du & Chaaban, 2020; Kondakci et al., 2017; van Driel et al., 2001). However, no relationship was found between beliefs about traditional teaching and teachers' intentional and cognitive readiness, which might stem from their strong adherence to traditional teaching as an instructional habit regardless of the necessity of the change or teachers' willingness to invest energy in it.

Teachers' readiness for the curriculum change might also be triggered by their self-efficacy beliefs for teaching. Similar to Cerit's (2013) discussion, teachers' self-efficacy in employing different instructional strategies might have contributed to their beliefs about the positive and negative aspects of the change in terms of cognitive readiness. However, teachers' self-efficacy beliefs for student engagement and classroom management did not support their cognitive readiness. Teachers might rely highly on their capabilities to manage a classroom and rather increase student engagement by utilizing teacher-centered approaches, weakening their beliefs in the necessity of curriculum change cognitively. On the other hand, teacher self-efficacy did not account for teachers' intentional and emotional readiness for change, contrary to Tuğtekin et al. (2018). This finding might be due to lower intentional and emotional readiness average scores, so the relatively stronger relationship between cognitive readiness and teacher self-efficacy might have statistically suppressed their effects in this study.

Furthermore, a positive relationship was found between teachers' intentional and emotional readiness and their attitudes towards the constructivist curriculum on *getting information* about the curriculum. This finding might be significant as teachers' feelings and willingness to learn about the curriculum might increase in time, which might lead them to learn more about the constructivist curriculum (Elmas et al., 2014). However, there was a negative relationship between teachers' cognitive readiness and their attitudes towards getting information about the constructivist curriculum. Unsurprisingly, teachers might have participated in numerous in-service professional development activities about the curriculum reform within the past sixteen years. Thus, their perceived competence with the knowledge and skills that they possess about the constructivist curriculum might distract them from learning more about it.

Moreover, as for the *implementation* of the curriculum, any increase in teachers' intentional readiness raised their attitudes towards implementing the constructivist curriculum. Aligned with the literature (Altun & Şahin, 2009; Yıldırım & Kasapoğlu, 2015), teachers' inability to apply constructivist practices might arise due to their lack of competence about putting the theory into practice. In this regard, teachers' desire to display change practices played a critical role in remedying their difficulties in curriculum implementation. However, teachers' emotional and cognitive readiness did not explain their attitudes towards implementing the constructivist

curriculum. One possible explanation is that teachers' might expect to observe the actual consequences of the curriculum implementation on students' learning outcomes (Guskey, 2002). For those teachers, behavior change would precede changes in cognition and emotion (Fullan, 1985).

Lastly, there was a partial mediation for the relationship between teachers' constructivist teaching beliefs and their attitudes towards *getting information* about the constructivist curriculum through their intentional and emotional readiness. When teachers adopt stronger constructivist teaching beliefs, they would like to invest more energy and effort in constructivist curriculum change intentionally, and also emotionally feel more positive. As a result, they would like to get more information about the constructivist curriculum. Similarly, for *implementing* the constructivist curriculum, constructivist teaching beliefs were mediated through intentional readiness. That is, as teachers' beliefs about constructivist teaching increased, they had higher intentions to implement the constructivist curriculum practices. Consequently, they had higher attitudes towards implementing the constructivist curriculum. Although previous literature indicated the relationship between teaching beliefs and attitudes (e.g., Roehrig & Kruse, 2005; Roehrig et al., 2007), there is a scarcity of research examining the mediation among those variables. Finally, no mediation was inspected for teachers' traditional teaching beliefs and their self-efficacy for student engagement, instructional strategies, and classroom management.

To conclude, while previous research widely reported the role of several external factors in curriculum change, this study found the human side of change as another significant factor for successful and sustainable change outcomes. There are several pedagogical implications of this research for successful curriculum change practices. First, as teachers' beliefs are critical in acknowledging the curriculum reform, teachers might be given a voice in curriculum development and reflect on their former experiences (Fang & Garland, 2014; Shin, 2020). In so doing, they would be the agents of change rather than the deliverers of the curriculum, which might, in turn, foster their beliefs and attitudes regarding the curriculum change (Troudi & Alwan, 2010). Second, as teachers' professional development is crucial for the success of curriculum changes (So & Kang, 2014; Wang, 2022), teachers should be provided with sufficient professional development opportunities where their readiness for change would potentially increase with less ambiguity about the given curriculum. In addition, these professional development activities should not only focus on developing teachers' knowledge and skills, but they should also aim at developing new insights into and positive attitudes towards the new curriculum (Park & Sung, 2013). Accordingly, the MoNE should aim at helping teachers both acquire knowledge and skills and also develop positive attitudes towards the curriculum change through professional development activities. To this end, the partnership and collaboration between the MoNE and universities should be strengthened to develop systematic, sustainable (Park & Sung, 2013) and more practice oriented (e.g., Altun & Şahin, 2009; Hazır-Bıkmaz, 2006; Yaşar & Sözbilir, 2019) in-service trainings for successful curriculum change outcomes.

As in any research, this study also has its limitations. First, the cause-and-effect relationships cannot be exerted from correlational research. Therefore, further studies might be designed as experimental research to test causality. Second, the cross-sectional self-report data provide a snapshot of the responses. Thus, there is a likelihood that teachers might have suppressed

their feelings at a particular point in time. Accordingly, longitudinal research might be adopted to put time lags between assessing predictor and criterion variables. Third, this study focuses only on teachers' beliefs and readiness for change, so alternative statistical models with different variables might be utilized to explain the remaining variance in identifying what predicts teachers' attitudes towards constructivist curriculum change. Lastly, future research might also incorporate qualitative measures to shed light on the possible factors influencing teachers' attitudes towards the curriculum change. Similarly, further research should focus on an in-depth investigation of the factors underlying teachers' beliefs about teaching, self-efficacy beliefs for teaching, and readiness for change through qualitative or mixed research methodologies.

Author Contributions

- The first author has made substantial contributions to the conceptualization, the research design, data collection, analysis and interpretation of the data, reporting the findings, and writing/editing/revising the manuscript.
- The second author has made substantial contributions to the conceptualization, the research design, data collection, analysis and interpretation of the data, reporting the findings, and writing/editing/revising the manuscript.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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TÜRKÇE GENİŞ ÖZET

Öğretmenlerin Yapılandırmacı Program Değişikliğine Yönelik Tutumlarının İncelenmesi: Bir Yapısal Eşitlik Modeli

Giriş

Öğretim programlarında sıkça meydana gelen değişiklikler özellikle öğretmenlere önemli bir sorumluluk yüklemektedir. Programların başarılı sonuçlar vermesi öğretmenler tarafından nasıl ve ne ölçüde uygulandığına bağlı olduğundan, öğretmenlerin hedeflenen değişime aracı olma ya da değişimi zorlaştırma yönünden kilit bir rolü vardır (Ha ve diğ., 2004; Liu & Wang, 2020; Mellegård & Pettersen, 2016). Öte yandan, öğretmenlerin öğretim programı değişim süreçlerinde çoğu zaman duygu ve düşüncelerinin göz ardı edilmesi ve değişen programı yalnızca harfiyen uygulayacak bir teknisyen olarak görülmeleri nedeniyle mevcut uygulamalar çoğu zaman aynı şekilde süregelmekte ve beklenen değişim gerçekleşememektedir (Ball, 1990; Carse, 2015; Clasquin-Johnson, 2011; Hargreaves & Goodson, 2006; Harris, 2011; Priestley, 2011; Simmons & MacLean, 2018). Değişim sürecinde genellikle yapısal ve çevresel faktörlere odaklanıldığından (Harris & Graham, 2019) öğretmenlik mesleğinin kişisel boyutu çoğu zaman ihmal edilmektedir (Mellegård & Pettersen, 2016). Bu araştırmanın amacı, öğretmenlerin değişime hazır olma tutumlarının dolaylı etkisi yoluyla öğretmenlerin özyeterlik inançları ve öğrenme-öğretme ile ilgili inançlarının, yapılandırmacı yaklaşımı uygulamaya yönelik tutumlarını ne ölçüde yordadığını araştıran bir modeli test etmektir. Bu amaçla, şu araştırma sorusuna yanıt aranmıştır: Öğretmenlerin özyeterlik inançları, öğrenme-öğretme ile ilgili inançları ve değişime hazır olma tutumları ile yapılandırmacı yaklaşımı uygulamaya yönelik tutumları arasında nasıl bir ilişki vardır?

Yöntem

İlişkisel araştırma deseninde tasarlanan bu araştırmanın örneklemini küme örnekleme yoluyla ilkokul, ortaokul ve liselerden seçilen 422 öğretmen oluşturmuştur. Bu araştırma, TED Üniversitesi İnsan Araştırmaları Etik Kurulunun 29.07.2020 tarihli 2020/05 sayılı kararı ile alınan izinle yürütülmüştür. Veriler kişisel bilgi formu ve Değişime Hazır Olma Ölçeği, Öğretmen Özyeterlik Ölçeği, Öğretmen İnançları Ölçeği ve Öğretmenlerin Yapılandırmacı Yaklaşımı Uygulamaya Yönelik Tutum Ölçeği olmak üzere dört ölçek aracılığıyla toplanmıştır. Araştırmada önerilen modeli test etmek üzere yapısal eşitlik modellemesi (YEM) kullanılmıştır.

Bulgular

Araştırma sorusu kapsamında önerilen YEM uyum iyiliği indeksi değerleri kabul edilebilir düzeyde bulunmuştur (RMSEA = .043, CFI = .90, NNFI = .89, SRMR = .049). Buna göre:

- Yordayıcı değişkenler ve öğretmenlerin yapılandırmacı programa yönelik tutumları arasındaki doğrudan ilişki açısından; öğretmenlerin
    - öğretim stratejilerine yönelik özyeterlikleri, yapılandırmacı öğretim inançları ve kararlılık boyutu ve duygusal boyutta değişime hazır olmaları yapılandırmacı program hakkında *bilgi edinmeye* yönelik tutumlarını pozitif olarak yordamaktadır.
    - öğrenci katılımı ve sınıf yönetimine yönelik özyeterlikleri, geleneksel öğretim inançları ve bilişsel boyutta değişime hazır olmaları yapılandırmacı program hakkında *bilgi edinmeye* yönelik tutumlarını negatif olarak yordamaktadır.
    - yapılandırmacı öğretim inançları ve kararlılık boyutunda değişime hazır olmaları yapılandırmacı programı *uygulamaya* yönelik tutumlarını pozitif olarak yordamaktadır.
    - özyeterlik boyutları, geleneksel öğretim inançları, duygusal ve bilişsel boyutlarda değişime hazır olmaları ve yapılandırmacı programı *uygulamaya* yönelik tutumları arasında anlamlı bir ilişki bulunamamıştır.
- Yordayıcı ve yordanan değişkenler arasındaki ilişkide değişime hazır oluşun aracı rolü açısından; öğretmenlerin
    - yapılandırmacı öğretim inançları, yapılandırmacı program hakkında *bilgi edinmeye* dönük tutumlarını kararlılık boyutu ve duygusal boyutta değişime hazır olma ile dolaylı olarak yordamaktadır.
    - yapılandırmacı öğretim inançları, yapılandırmacı programı *uygulamaya* dönük tutumlarını kararlılık boyutunda değişime hazır olma ile dolaylı olarak yordamaktadır.

Tartışma, Sonuç ve Öneriler

Bu araştırmada değişime hazır olmanın aracı rolü ile öğretmenlerin öğrenme-öğretme inançları, özyeterlik inançları ve yapılandırmacı programı uygulamaya yönelik tutumları arasındaki ilişki incelenmiştir. Elde edilen bulgular, öğretmenlerin *yapılandırmacı öğretim inançlarının*, yapılandırmacı programı *öğrenme* ve *uygulamada* istekli olmaları üzerindeki önemine dikkat çekmektedir. Mevcut araştırmalar da bu durumu desteklemektedir (örn., Roehrig ve diğ., 2007). Öte yandan, öğretmenlerin *geleneksel öğretim inançları* ve yapılandırmacı program hakkında *bilgi edinmeye* yönelik tutumları arasında negatif bir ilişki bulunmuştur. Geleneksel öğretim inançlarına sahip öğretmenler konu bilgisine ağırlık verdiklerinden öğrenme-öğretim sürecini öğrencilerin ilgi ve ihtiyaçlarına göre uyarlama konusunda ilgili olmayabilirler. Ayrıca, bu öğretmenlerin programı *uygulamaya* yönelik tutumları arasında ise anlamlı olmayan bir ilişki bulunmuştur.

Öğretmen özyeterlikleri açısından, alanyazına paralel olarak (örn, Cobanoglu & Capa-Aydin, 2015; Kasapoğlu & Duban, 2012) farklı *öğretim stratejilerini kullanmaya* yönelik kendilerini yeterli hisseden öğretmenler yapılandırmacı program hakkında daha fazla *bilgi edinme*

eğilimindedirler. *Öğrenci katılımı* ve *sınıf yönetimine* dair özyeterlikleri yüksek olan öğretmenlerin ise *bilgi edinmeye* daha az istekli oldukları görülmüştür. Bu bakımdan, Türkiye'de uzun yıllar uygulamada olan davranışçı yaklaşımın etkisiyle öğretmenler öğretmen merkezli uygulamalara daha alışkın (Cerit, 2013) ve sınıf yönetiminde kendilerini daha yetkin hissediyor olabilirler.

Öğretmenlerin özyeterlikleri ve programı *uygulamaya* dönük tutumları arasında anlamlı bir ilişkinin olmaması ise öğretmenlerin inançları ve davranışları arasındaki uyumsuzluklardan kaynaklanabilir. Çünkü yapılandırmacı program hakkında zaman içinde kendilerini yeterli hissetseler de yerleşik öğretim alışkanlıkları sebebiyle programla ilgili değişikleri uygulama konusunda isteksiz olabilirler. Benzer şekilde, bu bulgular bireylerin değerlendirmeleri ve gerçek performansları arasındaki fark olarak da bilinen kalibrasyon sorununa da işaret etmektedir (Pajares & Kranzler, 1995).

Değişime hazır oluş açısından, öğretmenlerin program hakkında *bilgi edinmeye* dönük tutumları ile kararlılık boyutu ve duygusal boyutta değişime hazır oluşları arasında pozitif; bilişsel boyutta değişime hazır oluşları arasında negatif bir ilişki bulunmaktadır. Öğretmenler zaman içinde programı öğrenmeye dönük daha yoğun duygu ve istek sahibi olabileceklerinden program hakkında daha fazla bilgi edinmek isteyebilirler (Elmas ve diğ., 2014). Ancak, şu ana kadar katılmış oldukları hizmet içi mesleki gelişim faaliyetleri ve bilgi ve becerilerine dönük algılanan yeterlikleri, onları program hakkında daha fazla öğrenmekten alıkoyabilir.

Ayrıca, öğretmenlerin kararlılık boyutunda değişime hazır oluşlarındaki artış, yapılandırmacı programı *uygulamaya* dönük tutumlarını artırmaktadır. Öğretmenlerin program değişimini uygulamaya dönük isteklerinin programı uygulama ile ilgili zorlukların giderilmesinde kritik bir rol oynayacağı düşünülmektedir. Ancak, duygusal ve bilişsel boyutta değişime hazır oluş programı uygulamaya dönük tutumu açıklamamaktadır. Bu durum, öğretmenlerin programla ilgili değişiklikleri öğrenme çıktıları üzerinde görmek istemelerinden kaynaklanabilir (Guskey, 2002).

Son olarak, öğretmenlerin yapılandırmacı öğretim inançları ile yapılandırmacı program hakkında *bilgi edinmeye* dönük tutumları arasındaki ilişkide kararlılık ve duygusal boyutlarda değişime hazır oluş değişkenlerinin kısmi aracılık rollerinin olduğu görülmektedir. Öğretmenlerin yapılandırmacı öğretim inançlarının artması ile program hakkında bilgi edinmeye dönük tutumları kararlılık ve duygusal boyutlarda değişime daha hazır hissetmelerinin dolaylı etkisiyle daha yüksek olacaktır. Benzer şekilde, yapılandırmacı öğretim inançları ile yapılandırmacı programı *uygulamaya* dönük tutumları arasında kararlılık boyutunda değişime hazır oluşun aracı değişken olduğu görülmektedir. Özetle, öğretmenlerin yapılandırmacı öğretim inançları arttıkça programı uygulamaya dönük tutumları kararlılık boyutunda değişime hazır oluşlarının dolaylı etkisiyle daha yüksek olacaktır.

Araştırma bulguları kapsamında öğretmen inançları program değişimini kabul etmede önemli bir rol oynamaktadır. Dolayısıyla, öğretmenlere program geliştirme sürecinde daha fazla söz hakkı verilebilir. Öğretmenlerin program uygulayıcıları olmaktan öte değişimin bir aracı olmaları onların program değişikliğine yönelik inanç ve tutumlarını besleyecektir (Troudi & Alwan, 2010). Program değişikliklerinin etkililiği ve sürdürülebilirliği için öğretmenlere programla ilgili daha az belirsizlik yaşayacakları ve değişime hazır olmalarının potansiyel olarak artacağı mesleki gelişim olanakları sağlanabilir. Ayrıca, MEB tarafından öğretmenlere sunulacak

mesleki gelişim faaliyetlerinin sadece bilgi ve beceri gelişimine odaklanmaması, aynı zamanda yeni programa yönelik olumlu tutum geliştirmeyi de amaçlaması önerilebilir. Bu bağlamda, MEB ve üniversiteler arasındaki iş birliğinin güçlendirilmesiyle sistemli, sürdürülebilir (Park & Sung, 2013) ve uygulamaya yönelik (örn., Yaşar & Sözbilir, 2019) hizmet içi mesleki gelişim faaliyetleri düzenlenebilir.