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Factors affecting the sustainability of educational changes: A mixed method research

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Abstract: The aim of this study is to determine factors affecting the sustainability of educational changes. With this purpose in mind, exploratory sequential mixed methods design was used. During the first phase of the study, 18 teachers and school administrators were interviewed. In the second phase, a questionnaire was administered to 398 teachers and school administrators and collected data were analysed by Ordinal Logistic Regression Analysis. Results of the study revealed that the sustainability of educational changes that occurred in the Turkish educational system was generally poor. Research results also indicated that the four factors identified had statistically significant effect on the sustainability of educational changes.

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

Keywords: educational change; sustainability; exploratory sequential mixed research; Ordinal Logistic Regression

1. Introduction

In recent years, education systems around the world have responded to changing community expectations due to both current socio-economic conditions and increased government programme initiatives. Major change initiatives have been launched to support the academic and social development of students at various educational institutions (Louis & Miles, 1990). However, it can be stated that these initiatives have rarely been successful and prevailing (Hargreaves & Goodson, 2006). Although many of these changes and innovations have been launched together with the components of effective leadership, adequate budgets, strong internal and external

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PUBLIC INTEREST STATEMENT

In order to cope with rapid change in the word, educational institutions launch some change initiatives. Some factors affect success/failure and sustainability of these efforts. This study aims to determine these factors with statistical methods. The authors interviewed and surveyed with school principals and teachers in Turkey. After analysing the collected data, there are four factors determined: (i) initiating the change from the bottom up, (ii) taking into account of culture and norm, (iii) being consistent and compatible of the all changes with each other and (iv) better planning.

support (Gross, Giacquinta, & Bernstein, 1971), very few are said to be routine and painless for teachers and have become an institutionalized part of the system (Anderson & Stiegelbauer, 1994; Moffett, 2000). In the last 25 years, although the vast majority of educational change initiatives launched and supported willingly, most of them could not have been implemented or sustained (Fullan, 2007a, p. 58). Datnow and Stringfield (2000) examined the change initiatives launched in three schools covering a four-year period and ascertained that only one of the change initiatives was in effect during the third year of the project. It was confirmed that change initiatives completely disappeared in six of the schools within the scope of the study.

1.1. Educational change and its sustainability

Educational change is defined as a three-stage developmental process: initiation, implementation and institutionalization. In this process, the first step is to initiate changes which are primarily intended and desired to be carried out. If the initiative is approved, then the next step is to have individuals put the initiative into practice. Finally, if the change initiative is adopted and admitted by most of the employees, it becomes institutionalized (Fullan, 1982).

Institutionalization is an implementation becoming settled, continuous and permanent. The concepts of institutionalization and sustainability are often used interchangeably in literature. Thus, sustainability needs to be ensured for the institutionalization of an implementation. When an implementation is institutionalized, it will be sustainable over time (Datnow, 2001). Sustainability is ability to progress of a specific change initiative in today and in the future without being influenced by other initiatives beyond the meaning of whether it will be ceased sooner (Hargreaves, 2002). According to Hargreaves (2002), sustainability in educational change is expressed as an advancement which is

(i) Not only related to a specific change in school but also enables continuous learning,
(ii) Permanent and ongoing over time,
(iii) Supportable by means of current resources or the ones that can be obtained in the future,
(iv) Does not affect nearby educational institutions in a negative way,
(v) Increases the capacity of educational and social environment.

As a result, sustainability is an important element for all kinds of change initiatives (Fullan, 2007a, p. 58). Obtaining expected results from change initiatives depends on time, particularly in the field of education. Therefore, the success of educational change depends on its sustainability. In order to observe the effects of educational change initiatives on student achievement and on other school outcomes, it requires a period of 3–5 years (Bodilly, 1998; Slavin & Madden, 2000). However, relevant literature indicates that institutionalization and sustainability have been achieved only in a small portion of revolutionary changes (Berends, Kirby, Naftel, & McKelvey, 2001; Datnow, 2001; Tyack & Cuban, 1995).

1.2. Review of related literature

Fullan (2007b) listed three factors which influence the success and sustainability of a change in education: (i) the relevance; (ii) readiness and (iii) availability of the resources. Furthermore, Erdoğan (2012) and Taylor (2006) listed some key variables and the priciples that should be followed in order to achieve the succes and sustainability of change initiatives. These can be summarized under five major variables:

- Commitment and motivation of the employees,
- Supportive political environment and leadership,
- Adequate infrastructure and resources,
- Continuous professional development,
- Considering organization's previous experiences and values.

Yonezawa and Stringfield (2000) indicated that the maintenance of change initiatives are ensured when political support is provided, "cultural logic" compliance is supplied between those who plan and implement the initiatives and the initiatives are structured in accordance with the daily practices of the school. Ucelli (1999) stated that the important factors in terms of sustainability are executives leading to the initiatives and providing a supportive environment, the creation of an infrastructure allowing an effective flow of information among stakeholders, the development of a shared vision for the initiative, the provision of human resources, the establishment of a local capacity for the adaptation of the initiatives to the local needs, making action researches, monitoring and evaluation activities.

Özdemir and Cemaloğlu (2000) emphasized the necessity of being aware of teachers' knowledge, skills and attitudes about change initiatives in the process of educational changes. They also stressed the creation of a democratic environment which included employees' participation through the decision-making process in order for the initiative to be successful.

Some researchers explain the success or failure of a reform through culture. Angus (1998) and ten Brummelhuis (1995) underlined the importance of taking into account the current culture for a successful and sustainable implementation of educational changes. Bamford and Forrester (2003) also expressed that the existing structure, attitudes, processes and cultures must be taken into consideration when adopting a new approach to education.

Therefore, the basic strategic shortcomings that prevent most change implementations from succeeding are focused on those who manage or develop the process of their deeds and the initiative itself instead of how the culture, structure and norms of the organization will react to the change (Fullan, 2007a; Senge, Kleiner, Roberts, Ross, & Roth, 1999). In other words, the ignorance of cultural beliefs and shared values in the process of change emerges as one of the major causes of failure (Datnow, Hubbard, & Mehan, 2002).

The most important reasons for failure in sustaining change are "practical conditions" that limit the educators. Educational changes cannot be applied exactly as planned because teachers adapt to the instructions of the existing norms, routines and procedures. The changes are absorbed by the organizational culture and become harmonized with the current routine and procedures (Mehan, Hertweck, & Meihls, 1986). Many policy-makers and experts are not aware of the existing educational culture during the process of educational change. Their primary focus is on actualizing the new change initiatives. Local authorities and organization managers are considerably effective in the implementation of change. If these people follow their superiors and ignore local realities, it will be quite difficult to ensure sustainability by obtaining the expected outputs from the change (Wedell, 2009).

Educational changes can be launched in two different directions. First are the top-down initiatives led by policy-makers. Second are the bottom-up initiatives implemented by teachers (Fullan, 1994; Wideen, 1994). For decades, the working environment and conditions of employees had not been taken into account in top-down education initiatives and do not work in the real sense (Sakui, 2004). Todnem (2005) asserted that the direction of change initiatives should be "bottom-up", "ground-up" or "voluntary change" for the educational changes to be successful. According to Fullan (1993, p. 37), it is known that most top-down changes do not work. Nevertheless, education leaders continue to use this approach because of their impatience in seeing results. He also pointed out that decentralized change initiatives are not much different from top-down ones. Schools have high administrative workloads and cannot cope with them when left on their own. He concluded that the educational change is a bidirectional process. The centre and local units need each other and should work collaboratively to have succesful changes. Similarly, Hopkins (2005) indicated that pressure, support and continuous negotiations should be in the process bidirectionally for the effective maintenance of change in school. It is emphasized that the other change initiatives cannot be sustained without continuous communication with their environment even if they become successful for a short time.

"Incremental change" is defined as every individual part of an organization dealing increasingly and separately with a single problem and one objective at a time (Burnes, 2004). "Discontinuous change" is described as comprehensive, sudden, rapid and disconnected shifts in one or all of the organization's strategy, structure or culture (Luecke, 2003). Burnes (2004) pointed out that it is necessary to take complementary, successive, limited and pre-agreed on steps for the successful implementation of the changes.

Most change initiatives result in failure due to the planning and design limitations. Some difficulties arise during the planning and coordination of multi-staged social process which involves thousands of people rather than negative attitudes and bad intentions. Therefore, a better plan is needed in order to successfully implement the maintenance of change programme (Fullan (2007a, p. 62; Hargreaves, 2002; Wise, 1988).

To summarize the literature mentioned above, we can list main factors related to sustainablity of educational change:

- Compatibility with the educational institution's daily practice,
- Sharing information with all stakeholders,
- Developing a shared vision,
- Making some action research,
- Employee's knowledge, skill and attitude,
- Employee participation in decision-making process,
- Taking into account culture and norm of the organization,
- Planning and coordinating,
- Commitment and motivation of the employees,
- Supportive political environment and leadership,
- Adequate infrastructure and resources,
- Continuous professional development,
- Considering organization's previous experiences and values.

1.3. Change initiatives in the Turkish education system in last two decades

The Turkish education system (TES) has been the scene of major change initiatives in the last 20 years. The Basic Education Reform, which was an important development for the national system, was put into effect in 1997 and compulsory education was extended from 5 to 8 years uninterruptedly within the scope of the reform. As a result, vocational educational institutions in the level of secondary school were closed and these schools began to provide training at the high school level (Bulut, 2007; Şimşek & Yıldırım, 2010).

In 2005, a significant change initiative for curriculum reform was launched and aimed to enrich educational content and improve the quality of the system. With this reform, primary and secondary education curriculum was renovated in line with the ideas of student-centeredness, constructivism and multiple intelligence theory. Reform began with primary education in 2005 and secondary education in 2006; in years that followed, it was implemented at the high school level (Şimşek & Yıldırım, 2010; Yapıcı & Leblebicier, 2007; Zeybekoğlu Çalışkan & Tabancalı, 2007).

One of the most important changes within educational technology interventions is the FATIH (Increasing Opportunities and Improvement of Technology) Project. The project was prepared in accordance with the objectives of Information Society Strategy Document, Development Plans, Strategic Plan of the Ministry of Education and IT Technologies Policy Report located in Vision 2023

and e-Transformation Turkey Project and put into practice with a protocol signed between the Ministry of Education and the Ministry of Transportation in 2010.

The main objective of the project was to enhance the school's technological infrastructures and increase equality, opportunity and quality of education, ensuring the effective use of information technology during lessons. Within the scope of the project, it aimed at building smart classrooms equipped with educational technologies such as computers, projectors, copiers and interactive whiteboards. In addition, the programme developed education content compatible with this kind of technology and provided seminars for stakeholders (Karakaya Polat, 2012; Kayaduman, Sirakaya, & Seferoglu, 2011).

The TES experienced another important change in 2012. The change initiative was called "the system of triple 4 (4 + 4 + 4)"; 12 years of compulsory education were held intermittently in three stages (four-year elementary, secondary and high schools each), the beginning age for school was also lowered and elective courses were added to the curriculum of secondary schools (Gür, Özoğlu, Coşkun, & Görmez, 2012).

1.4. Research problem

This study aims to determine the factors affecting sustainability of educational change. To achieve this aim, there are three research questions;

(1) What is the sustainability level of the recent changes in the TES according to educators?
(2) Which factors are considered to be related to the sustainability of educational changes by educators?
(3) Which of these factors has statistically significant effect on the sustainability of educational change?

1.5. Significance of the study

It has been observed that in almost all of the studies relevant to educational change theories and practices, political, historical and longitudinal aspects of educational changes have been neglected and do not go beyond the description of current situation rather than monitoring the sustainability of the changes (Hargreaves & Goodson, 2006). However, sustainability is important for the emergence of the effects of educational changes because it takes time to obtain results (Bodilly, 1998; Slavin & Madden, 2000). In today's society, sustainability of change has been a thematic area which has attracted the attention of researchers while the past studies aimed at evaluating these changes have focused only on the initiation process of the change (Hernandez & Goodson, 2004).

The TES has been the scene of many recent changes. These change initiatives have been implemented consecutively in the TES with high costs in terms of financial and human resources and are considered to be worthy of examination in terms of stability and the sustainability of their impacts and to what extent they have reached their goals. This study is important in terms of presenting data to stakeholders of educational changes such as policy-makers, education authorities and schools. These kinds of studies are also critical in terms of evaluating educational reforms and understanding the reasons for the unsustainability of these changes (Taylor, 2006).

2. Research methodology

In this study, Exploratory Sequential Mixed Methods Design within the mixed research methods was used. This research design composed of qualitative and quantitative research approaches was used together in a study or a series of studies (Creswell & Plano Clark, 2011). According to the basic assumption of this design, using a combination of qualitative and quantitative approaches is thought to provide more contribution than the use of each approach alone for a better understanding of the research question. In this research design, qualitative and quantitative data are collected consecutively. The basic rationale of this design is that the results obtained from the qualitative data offer a

Table 1. Characteristics of the working group of qualitative phase

Demographics	N	%
Gender		
Female	6	33
Male	12	67
Role		
Teacher	10	56
Administrator	8	44
Seniority		
Between 1 and 10 years	7	39
Between 11 and 20 years	8	44
Over 21 years	3	17
Total	18	100

general framework for research questions and there is a requirement to collect quantitative data for a broader and in-depth analyses within this framework (Creswell, 2011, p. 535).

2.1. Sample of the study

There are two different samples for this study. The participants of the qualitative phase are 18 educators, 8 school administrators and 10 teachers, working in the primary and the secondary schools in Gaziantep province of Turkey during the 2012–2013 school term. The maximum sampling method was used to determine the participants by considering the demographic variables such as gender, role and seniority. Table 1 shows the distribution of the participants in terms of these variables.

The second sample of the study was from 398 teachers and school administrators working in primary and the secondary schools in the same region. The study collected quantitative data by means of the survey method of the sample. Table 2 provides characteristics of the participants in the quantitative phase of the study.

2.2. Data collection tools

In this study, within the scope of Exploratory Sequential Mixed Methods Design, data were collected in two phases: During the first phase, data was collected through interviews and analysed through

Table 2. Participant profile of the quantitative phase

Demographics	N	%
Gender		
Female	189	47.5
Male	209	52.5
Role		
Teacher	351	88.2
Administrator	47	11.8
Seniority		
Between 1 and 5 years	133	33.4
Between 6 and 10 years	82	20.6
Between 11 and 15 years	92	23.1
Between 16 and 20 years	56	14.1
Over 21 years	35	8.8
Total	398	100

qualitative approach. The researchers prepared the interview questions in the light of related literature. Participants were asked about the factors that are considered to affect the sustainability of educational changes.

During the second phase, the quantitative research data was collected through a survey created from data obtained in the qualitative phase. Each code obtained from qualitative analysis was accepted as a survey item. In addition to specific demographic variables, participants were asked two questions. In the first question, the participants were asked to rate how much the aforementioned factors are taken into account in the change initiatives being carried out in the TES (1: never taken into account, 5: definitely taken into account). In the second question, they were asked to rate the level of sustainability/continuity of these change initiatives (1: very low, 5: very high).

2.3. Data collection procedures

The qualitative data were collected by a semi-structured interview form developed by the researchers based on a literature review and views of field specialists. The main aim of this interview was that to determine participants' opinion on which factors effect on sustainability of educational change. The interviews were recorded by voice recorder with the permission of participants. These records were transcribed and analysed.

The quantitative research data was collected through a paper-based survey created from data obtained in the qualitative phase. Each code obtained from qualitative analysis was accepted as a survey item. The questionnaires were delivered to totally 510 teachers and school administrators. The return rate of survey was 81.4% (N = 415). During quantitative analysis, 17 of returned questionnaires were considered invalid. All quantitative analyses were performed with 398 valid questionnaire. The reliability coefficient of the survey was quite high (Cronbach's alpha = 0.91).

2.4. Data analysis

In qualitative phase, the recorded interviews were transcribed into computer software (Ex; Word and Excel). The transcribed data was analysed based on Qualitative Content Analysis approach (Mayring, 2014). The researchers coded all transcribed phrases. Then they grouped similar phrases under the same code. The last, the researchers calculated frequency of each code (shown in Table 3). In terms of coders' agreement on coding of the contents (Miles & Huberman, 1994), the intercoder reliability was calculated as 83.3%.

In the analysis of quantitative data, logistic regression analysis method was used. Each of the scale items were accepted as independent variables and regression analysis was conducted on the basis of items. In the analysis, the degree of the factors to be taken into account in educational change initiatives was accepted as an independent variable while the level of sustainability of the change initiatives was accepted as a dependent variable. As the variables of the study were obtained by a ranking scale, Ordinal Logistic Regression Analysis (OLRA) method was used (Çokluk, Şekercioğlu, & Büyüköztürk, 2012). The variable of sustainability level which may have values among 1–5 was made into a four-categorized variable by considering the frequencies in the categories.

3. Findings and interpretation

In this section of the study, the obtained results are given in tables and interpreted. At first, results obtained from the quantitative phase of the study are presented and then the results of the quantitative data analysis are given.

In the qualitative phase of the study, the participants were asked the question "What should be done/what should be taken into consideration to have a lasting and sustainable change in education?" As a result of the content analysis, 18 codes were obtained. Codes and frequency values are seen in Table 3.

Table 3. Codes derived from the qualitative data

	Codes	*N*
1	Stakeholders' participating in decision-making	7
2	Needs-based change	7
3	Be consistent and compatible	5
4	Good planning	5
5	Clear and explicit purposes	5
6	A proper analysis	4
7	Preparation of infrastructure	4
8	Initiating the change from the bottom up	4
9	Consideration of culture and norms	4
10	Adequate informing	3
11	Doing a pilot implementation	2
12	Getting expert opinion	2
13	Consideration of readiness	2
14	Being carried out gradually	2
15	The efforts of stakeholders	2
16	Giving value to stakeholders	1
17	Making use of the technology	1
18	Clarity in the roles of stakeholders	1

A significant number of the participants (*N* = 7) stated that *stakeholders' participating in the decision making* during the change process and *the needs-based change* are important factors for the sustainability of change initiatives. Furthermore, it has been emphasized that *being consistent and compatible with other changes, having a good plan* and *clear and explicit purposes* are also related factors to the sustainability of educational changes (*N* = 5).

During the quantitative analysis phase, participants were asked to mark on a 5-point Likert scale to what extent they find change initiatives that have been carried out in the TES are sustainable/continuous, according to their past experiences. The distribution of the participants' views into the categories is presented in the following Table 4. Since the number of the cases in the "very high" category is insufficient for carrying out statistical analysis, this category is combined with "higher" category.

According to the findings, the vast majority of the participants (*N* = 261, 66%) considered the sustainability of the change initiatives low. Only a small portion of the participants (*N* = 56, 14.1%) found that the sustainability of educational change initiatives high or very high.

In the second part of the questionnaire, the participants were asked about their views on the degree to which the 18 factors obtained from the qualitative process should be taken into account

Table 4. Participants' views on the sustainability of changes

Category	*N*	%
1.00 (Very Low)	102	25.6
2.00 (Low)	159	39.9
3.00 (Neutral)	81	20.4
4.00 (High & Very High)	56	14.1
Total	398	100.0

in educational change initiatives. OLRA method was used in order to examine the relationship between the degrees of these factors to be taken into account and the level of sustainability of the change initiatives. For this purpose, it is necessary to test the assumptions and model compliance of OLRA at the first stage. In general, Pearson and Deviance tests are used in assessing the goodness of the model fit. However, it is pointed out in the literature that if there are large numbers of sequential and categorical independent variables, the performance of the tests will be reduced and will not produce significant results. Therefore, these tests should be handled carefully (Fagerland & Hosmer, 2013; Norušis, 2012, pp. 79–80). In this study, Pearson and Deviance values were taken into account as all of the 18 independent variables are categorical in nature. −2 Log probability values were calculated in order to determine the level of model compliance of the data and it was determined that the final model (−2 log probability = 819.762; $\chi^2(20) = 227.308$; $p < 0.05$) exhibited a better fit (−2 log probability = 1047.070) than the first model (Norušis, 2012, pp. 79–80).

It should be noted that testing the validity of the parallelism assumption is another parameter which shows the model fit of the data. This assumption means going through the same cut-off points of the estimated value of the parameters for all categories of the dependent variables (Akın & Şentürk, 2012). After performing the parallel lines test, the result was not statistically significant ($\chi^2(40) = 35.474$; $p > 0.05$). This result also showed that the model had a good fit.

Another way to evaluate the goodness of model fit is by examining the value of pseudo-R^2. This value also shows how much the independent variables explain the variance of the dependent one. Accordingly, it has been observed that independent variables which are significant in the model explain the 46.9% of the sustainability of educational changes (Nagelkerke = 0.469).

As a result of the model compliance and assumptions tests, obtained data were considered to be appropriate for the OLRA and the calculated parameter estimates are given in Table 5.

The table of parameter estimates only demonstrates the values of the factors which have significant difference. According to Table 5, it is confirmed that significant difference occurs in the 6^{th}, 12^{th}, 15^{th} and 17^{th} items. In other words, these four variables have significant influence on the dependent variable ($p < 0.05$).

Table 5. Parameter estimates

	Estimate	SH	Wald	SD	*p*	Probability
Dependent variable						
[Sustainability = 1.00]	3.956	0.473	69.837	1	0.000	52.25
[Sustainability = 2.00]	6.50	0.539	145.675	1	0.000	665.229
[Sustainability = 3.00]	8.219	0.600	187.492	1	0.000	3710.837
[Sustainability = 4.00]	10.904	0.761	205.11	1	0.000	54,382.93
Independent variable						
M6. Initiating the change from the bottom up	0.250	0.108	5.338	1	0.021	1.284
M12.The culture and norms to be taken into account	0.421	0.130	10.543	1	0.001	1.524
M15. Initiatives being consistent and compatible with each other	0.502	0.147	11.636	1	0.001	1.653
M17 Better planning for the changes	0.410	0.155	7.020	1	0.008	1.507

First of all, *change initiatives which are consistent and compatible with each other* are the most powerful and most significant predictors of their sustainability (Wald $\chi^2(1) = 11.636$; $p < 0.05$). Accordingly, a one-unit increase in the belief that the changes are consistent and compatible increases the likelihood of sustainability of changes 1.653 times (95% confidence interval; in the range of 1.238–1.206). One of the participants expressed his opinion as follows:

> A number of changes and innovations have permanently been made in our education system. However, these are not consistent with each other. They are as if planned by different institutions. Therefore there are several controversies in practice.

Another variable affecting the sustainability of educational changes is *taking into account the culture and norms* which are unique to the TES (Wald $\chi^2(1) = 10.543$; $p < 0.05$). This means that a one-unit increase in the belief that the culture and norms of the TES are taken into account when carrying out an educational change increases the likelihood of sustainability of changes 1524 times (95% confidence interval; in the range of 1.182–1.966). In the process of educational changes, one of the participants expressed the importance of culture and the norms as follows:

> Change just for the sake of change by means of taking the exact practices abroad and implementing them without the necessary preparations brings negative consequences and failures instead of positive ones and success. A change initiative should be put into action by taking into account the characteristics of Turkey and its geographical regions, its economic and socio-economic structure.

Better planning for the changes is another variable predicting the sustainability of educational changes (Wald $\chi^2(1) = 7.020$; $p < 0.05$). In other words, a one-unit increase in the belief that the educational changes are well planned increases the likelihood of sustainability of changes 1.507 times (95% confidence interval; in the range of 1113–2040). One of the participants expressed his opinion in terms of the relationship between the success of the change process and planning as follows:

> Reforms to be carried out should be planned well before the implementation and positive and negative aspects should be considered. The most important factor for the failure is the sudden realization of the desired reforms without the necessary planning and preparations.

Finally, the variable of *initiating the change from the bottom up* predicts the sustainability of educational changes (Wald $\chi^2(1) = 5.338$; $p < 0.05$). Therefore, a one-unit increase in the belief that initiating the change from the bottom up increases the likelihood of sustainability of changes 1.284 times (95% Confidence Interval; in the range of 1.039–1.584). One of the participants expressed his opinion as follows:

> The educators' not taking place in planning of reforms brings the mentality of the one who have the authority are wiser and this led to the emergence of some kind of problematic situations in education since the practitioners are the primary actors in the field. Students, parents and the other stakeholders of educational community should be asked for their opinions for consultation and it should be the first step of the reform.

4. Conclusion, discussion and recommendations

The main aim of this study is to determine the factors that affect the sustainability of educational changes in the TES. In this study, Exploratory Sequential Mixed Methods Design was used in the qualitative phase of the research, and 18 factors were determined relating to the sustainability of the changes. The first result emerging from the quantitative phase of the research was that the sustainability of implemented changes was low. Another result revealed by the quantitative phase was that 4 of 18 factors had a significant effect on the sustainability of educational changes which are initiating the change from the bottom up, the culture and norms to be taken into account, their being consistent and compatible with each other and better planning for the changes.

According to research findings, the participants believe that there are several factors relating to the sustainability of changes. Most of the factors, such as *stakeholders' participating, good planning, clear purposes and consideration of the organization culture*, are consistent with the related literature (Datnow, 2001; Erdoğan, 2012; Fullan, 2007b; Taylor, 2006; Ucelli, 1999). These findings show that most of the sustainability-related factors in the TES are very similar with literature written in the last decade. Besides, the research revealed a few factors which are pilot implementation, and need-based changes are different from the literature. The small number factors which are different might have resulted from subject of the changes and the political structure of the education systems.

Another result of study showed that the sustainability of changes in TES are low. Similar research results in literature have suggested that the sustainability of education changes initiatives is quite low (Berends et al., 2001; Datnow, 2001; Taylor, 2006; Tyack & Cuban, 1995). Getting expected results from the educational change initiatives depends on time. However, educational leaders and decision-makers are frequently impatient because of political pressures and do not give the initiatives the adequate amount of time to determine if they are successful. As a result, the causes usually do not account for the factors which may affect educational change (Bodilly, 1998; Fullan, 2007a; Slavin & Madden, 2000).

According to another result of the study, *the culture and norms* of the education system have emerged as factors affecting the sustainability of educational changes. Culture is the most important factor explaining the success or failure of a reform (Angus, 1998). In this respect, the existing structure, attitudes, processes and culture should be taken into account for the success and sustainability of educational changes (Bamford & Forrester, 2003; ten Brummelhuis, 1995). The most important reason for the failure of most educational changes is that those who manage the change process focus on their deeds and the initiative itself, but ignore how the culture, structure and norms of the organization will react to change (Datnow et al., 2002; Fullan, 2007a; Senge et al., 1999).

Educational administrators and planners at national level usually believe that there is no need to take into account how people will be affected by the change initiative, react to change or how the implementation process affects existing in-class conditions (Wedell, 2009). However, no change initiatives can be implemented exactly as planned since the teachers harmonize the instructions with the current routine and procedures (Mehan et al., 1986). Local education authorities or school administrators are closer to the implementation process of changes. The emergence of possible undesired results will become inevitable if these executives only adhere to the top managers and do not take into account local realities (Wedell, 2009).

Another research result is that *initiating educational changes from the bottom up* affects the sustainability of the changes. It has been stated that the educational changes should not be top-down (Erdoğan, 2012) and it has been emphasized by several researchers (Todnem By, Todnem, 2005; Wideen, 1994) that the direction of change initiatives should be "bottom-up", "ground-up" or "voluntary change" for the educational changes to be successful. According to Fullan (1993, p. 37), the failing change initiatives are top-down in nature and ignore the bottom. Sakui (2004) stated that the most important reason for failure is that the changes do not take into account the conditions of employees and their work environment.

It is pointed out in the literature that it is important to support the initiative bidirectional both top-down and bottom-up in order to maintain the change process effectively. A change initiative might fail because of problems connected to engaging with administrative works permanently, especially with those caused by the school-based management in top-down change initiatives. Although it seems successful in the short term, it will not be a sustainable change (Fullan, 1993, p. 37; Hopkins, 2005).

Another factor that affects the sustainability of educational changes is change initiatives *being consistent and integrated*. In other words, complementary changes which are consistent and in harmony become more sustainable. The incremental changes which are successive, complementary, limited and pre-agreed in nature can best be implemented. However, the sustainability of change initiatives are low and occur independent of one another in the organization, in the form of sudden and rapid shifts, isolated and consisting of a one-time action and followed by long-term silence (Luecke, 2003, p. 102). According to Erdoğan (2012), the experiences gained from previous change initiatives should be taken into account and new changes should be implemented gradually. Taylor (2006) stated that living with numerous and conflicting reforms can adversely affect the sustainability.

According to the research results, *a good plan* also affects the sustainability of educational changes. Therefore, a good plan is needed in order to implement and maintain a change programme successfully. In this regard, the main reason for the failure of change initiatives is the difficulty of planning and coordination of the multi-staged social process affecting many individuals (Fullan, 2007a, p. 62). In the literature, planning is accepted as a factor that increases continuity and effectiveness of educational changes (Datnow, 2001; David & Paul, 2003).

Most change initiatives become unsuccessful due to limitations in planning and design (Hargreaves, 2002). It is emphasized that the change initiative fails by means of making plans which are extremely rational/logical and appear to be quite attractive on paper, but ignore local context and culture in the planning of educational changes (Pfeffer & Sutton, 2006; Wise, 1988).

In conclusion, considering the results, the sustainability level of changes in the TES is low. This situation might result from some factors which are related to and can affect the sustainability of educational changes in the TES. There are also four critical factors which directly affect sustainability and must be taken into account in educational changes.

In line with the research results, the following recommendations were made for senior education managers, decision-makers and policy-makers who are especially involved in the process of design, planning and implementation of the educational changes.

In order to ensure the sustainability and permanence of educational changes;

- The cultural features such as current conditions, norms, and procedures of the schools and educators should be taken into consideration during the process of designing change initiatives.
- The change should be initiated from the bottom up and the demands, expectations and thoughts of teachers and schools should be taken into account during the change process.
- The changes should be complementary, supportive, consistent and in harmony with each other.
- The process of change should be well planned. The elements of time, budget and human resources should be managed in a careful and coordinated manner.

The following recommendations were made for researchers:

- Similar studies can be repeated with different sample groups and different research methods.
- Researches might be conducted regarding the sustainability of specific change initiatives.
- This study revealed that there are 18 factors related to and only 4 of them affect the sustainability of educational change. Other researchers may perform similar studies to determine other possible effective factors within the 18.

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References

Akın, B., & Şentürk, E. (2012). Bireylerin Mutluluk Düzeylerinin Ordinal Lojistik Regresyon Analizi İle İncelenmesi. *Öneri*, *10*(37), 183–193.
Anderson, S. E., & Stiegelbauer, S. (1994). Institutionalization and renewal in a restructured secondary school. *School Organization*, *14*, 279–293. doi:10.1080/0260136940140305
Angus, M. (1998). *The rules of school reform*. London: RoutledgeFalmer Press.
Bamford, D. R., & Forrester, P. L. (2003). Managing planned and emergent change within an operations management environment. *International Journal of Operations & Production Management*, *23*(5), 546–564. doi:10.1108/01443570310471857
Berends, M., Kirby, S. N., Naftel, S., & McKelvey, C. (2001). *Implementation and performance in New American schools: Three years into scale-up*. Santa Monica, CA: RAND.
Bodilly, S. J. (1998). *Lessons from new American Schools' scale-up phase*. Santa Monica, CA: RAND.
Bulut, M. (2007). Curriculum reform in Turkey: A case of primary school mathematics curriculum. *Eurasia Journal of Mathematics, Science and Technology Education*, *3*(3), 203–212. doi:10.12973/ejmste/75399
Burnes, B. (2004). *Managing change: A strategic approach to organisational dynamics* (4th ed.). Harlow: Prentice Hall.
Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2012). *Sosyal bilimler İçin çok değişkenli istatistik- SPPS ve Lisrel Uygulamaları (2. Baskı)*. Ankara: Pegem Akademi.
Creswell, J. W. (2011). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (*4th* ed.). Boston, MA: Pearson.
Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage.
Datnow, A. (2001). *The sustainability of comprehensive school reform in changing district and state contexts*. Paper presented at the American Educational Research Association, Seattle, WA.
Datnow, A., Hubbard, L., & Mehan, H. (2002). *Extending educational reform: From one school to many*. New York: RoutledgeFalmer.
Datnow, A., & Stringfield, S. (2000). Working together for reliable school reform. *Journal of Education for Students Placed at Risk*, *5*(1–2), 183–204.
David, R. B., & Paul, L. F. (2003). Managing planned and emergent change within an operations management environment. *International Journal of Operations & Production Management*, *23*(5), 546–564. doi:10.1108/01443570310471857
Erdoğan, İ. (2012). *Eğitimde Değişim Yönetimi*. Ankara: Pegem Akademi.
Fagerland, M. W., & Hosmer, D. W. (2013). A goodness-of-fit test for the proportional odds regression model. *Statistics in Medicine*, *32*(13), 2235–2249. doi:10.1002/sim.5645
Fullan, M. G. (1982). *The new meaning of educational change*. New York: Teachers College.
Fullan, M. G. (1993). *Change forces: Probing the depths of educational reform*. London: Falmer Press.
Fullan, M. G. (1994). Teachers as critical consumers of research. In T. M. T. A. C. T. (Ed.), *Education research and reform: An international perspective* (pp. 99–115). Paris: OECD.
Fullan, M. G. (2007a). *The New meaning of educational change* (3rd ed.). New York: Teachers College Press.
Fullan, M. G. (2007b). *The New meanining of educational change* (4th ed.). New York: Teachers Colllege Press.
Gross, N. C., Giacquinta, J. B., & Bernstein, M. (1971). *Implementation organiz innovation*. Lakewood, WA: Hippo Books.
Gür, B. S., Özoğlu, M., Coşkun, İ., & Görmez, M. (2012). 2012'de Eğitim (Education in 2012). Seta Analiz. (No. 58) (Retrieved April 26, 2014)from: http://file.setav.org/Files/Pdf/20130104114533_seta_analiz_2012egitim.pdf
Hargreaves, A. (2002). Sustainability of educational change: The role of social geographies. *Journal of Educational Change*, *3*(3–4), 189–214. doi:10.1023/A:1021218711015
Hargreaves, A., & Goodson, I. (2006). Educational change over time? The sustainability and nonsustainability of three decades of secondary school change and continuity. *Educational Administration Quarterly*, *42*(1), 3–41. doi:10.1177/0013161X05277975
Hernandez, F., & Goodson, I. F. (Eds.). (2004). *Social geographies of educational change*. Dordrecht: Kluwer Academic Publishers.
Hopkins, D. (2005). *The practice and theory of school improvement: International handbook of educational change*. Dordrecht: Springer.
Karakaya Polat, R. (2012). Digital exclusion in Turkey: A policy perspective. *Government Information Quarterly*, *29*, 589–596. doi:10.1016/j.giq.2012.03.002
Kayaduman, H., Sirakaya, M., & Seferoglu, S. (2011). *Investigation of "Increasing opportunities and improvement of technology" Project in terms of teacher competencies*. Paper presented at the Academic Informatics Conference, University of İnönü, Malatya/Turkey.
Louis, K., & Miles, M. B. (1990). *Improving the urban high school: What works and why*. New York: Teachers College.
Luecke, R. (2003). *Managing Change and Transition*. Boston: Harvard Business School Press.
Mayring, P. (2014). *Qualitative content analysis: Theoretical foundation, basic procedures and software solution*. Klagenfurt. http://nbn-resolving.de/urn:nbn:de:0168-ssoar-395173
Mehan, H. A., Hertweck, A., & Meihls, J. L. (1986). *Handicapping the handicapped: Decision making in students' educational careers*. Stanford: Stanford University.
Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage Publications.
Moffett, C. (2000). Sustaining change: The answers are blowing in the wind. *Educational Leadership*, *57*(7), 35–38.
Norušis, M. J. (2012). *IBM SPSS statistics 19 advanced statistical procedures companion*. Upper Saddle River: Prentice Hall.
Özdemir, S., & Cemaloğlu, N. (2000). Eğitimde örgütsel yenileşme ve karara katılma. *Milli Eğitim Dergisi*. Sayı, 146.
Pfeffer, J., & Sutton, R. I. (2006). *Hard facts, dangerous half-truths, and total nonsense: Profiting from*

evidence-based management. Boston: Harvard Business School Press.
Sakui, K. (2004). Wearing two pairs of shoes: Language teaching in Japan. *English Language Teaching Journal*, *58*(2), 155–163. doi:10.1093/elt/58.2.155
Senge, P., Kleiner, A., Roberts, C., Ross, R., & Roth, G. (1999). The dance of change: The challenges to sustaining momentum in learning organisations. In A. K. P. Senge, C. Roberts, R. Ross, G. Roth, & B. Smith (Eds.), *Learning organizations*. New York: Doubleday.
Şimşek, H., & Yıldırım, A. (2010). Turkey: Innovation and tradition. In I. C. E. Rotberg (Ed.), *Balancing change and tradition in global education reform* (2nd ed., pp. 149–180). Lanham, Maryland: Rowman and Littlefield Education.
Slavin, R. E., & Madden, N. A. (2000). Research on achievement outcomes of success for all: A summary and response to critics. *Phi Delta Kappan*, *82*(1), 38–40, 59–66. doi:10.1177/003172170008200112
Taylor, J. E. (2006). The Struggle to Survive: Examining the sustainability of schools' comprehensive school reform efforts. *Journal of Education for Students Placed at Risk (JESPAR)*, *11*(3–4), 331–352. doi:10.1207/s10824669espr110304_7
ten Brummelhuis, A. C. A. (1995). *Models of educational change:The introduction of computers in dutch secondary education*. Enschede: Universiteit Twente.
Todnem, B. R. (2005). Organisational change management: A critical review. *Journal of Change Management*, *5*(4), 369–380. doi:10.1080/14697010500359250
Tyack, D. B., & Cuban, L. (1995). *Tinkering toward utopia: Reflections on a century of public school reform*. Cambridge, MA: Harvard University Press.
Ucelli, M. (1999). *What key reformers have learned about reform*. Paper presented at the National Staff Development Council, Dallas, TX.
Wedell, M. (2009). *Planning for educational change: Putting people and their contexts first*. London: Bloomsbury Publishing.
Wideen, M. (1994). *The struggle for change: The story of one school*. London: Falmer.
Wise, A. (1988). The two conflicting trends in school reform: Legislative learning revisited. *Phi Delta Kappan*, *69*(5), 328–333.
Yapıcı, M., & Leblebicier, N. H. (2007). Teachers' views with regard to new primary school curriculum. *Elementary Education Online*, *6*(3), 480–490.
Yonezawa, S., & Stringfield, S. (2000). *Special strategies for educating disadvantaged students followup study: Examining the sustainability of research based school reforms*. Baltimore: Johns Hopkins University CRESPAR.
Zeybekoğlu Çalışkan, Z., & Tabancalı, E. (2007). *New curriculum and new challenges: What do school administrators really do?* Paper presented at the WCCES XIII World Congress Comparative Education Societies, Sarajevo, 3–7 September.

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