M.S. GENÇER

EDUCATIONAL LEADERSHIP AND CHANGE MANAGEMENT: A CASE STUDY ON ONE TO ONE LAPTOP PROGRAM IMPLEMENTATION

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BAU 2016

APRIL 2016

EDUCATIONAL LEADERSHIP AND CHANGE MANAGEMENT: A CASE STUDY ON ONE TO ONE LAPTOP PROGRAM IMPLEMENTATION

A THESIS SUBMITTED TO THE
GRADUATE SCHOOL OF EDUCATIONAL SCIENCES
OF
BAHÇEŞEHİR UNIVERSITY

BY

Mehmet Salih GENÇER

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARTS
IN THE DEPARTMENT OF
HIGHER EDUCATION ADMINISTRATION AND LEADERSHIP

APRIL 2016

Approval of the Graduate School of Educational Sciences

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ABSTRACT

EDUCATIONAL LEADERSHIP AND CHANGE MANAGEMENT:
A CASE STUDY ON ONE TO ONE LAPTOP PROGRAM IMPLEMENTATION

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Master's Thesis, Master's Program in Higher Education

Administration and Leadership

Supervisor: Assist. Prof. Yavuz Samur

April 2016, 63 pages

This study explores change management practices of the 1:1 laptop program implementation at a private school. Based on four change management practice subscales (Hechanova & Cementina-Olpoc, 2013), interview data from eight teachers or technology leaders and survey data from 32 teachers were collected to investigate what practices work in terms of (a) Leadership Support, (b) Change Team, (c) Communication and (d) Management of Change. The results show that the key executives supported the change process via distributing the leadership among teachers and empowering technology leaders. Efforts to involve more teachers in the change process by the change teams were hindered due to unclear goals and ineffective communication between leaders and teachers. Lack of clear expectations of technology competency level from teachers due to subjective measures of program efficiency created imbalanced use of technology among teachers. The findings propose that natural leaders should be given responsibility to actively take part in the change process and work environment should foster teachers to take initiative for their own professional growth and also to share their knowledge. The paper concludes by suggesting strategies to implement the 1:1 laptop program effectively by educational leaders and areas of research for the academicians.

Keywords: Change Management, Educational Leadership, ICT Implementation, 1:1 Laptop Program

ÖZ

EĞİTİM LİDERLİĞİ AND DEĞİŞİM YÖNETİMİ:
HER ÖĞRENCİYE BİR LAPTOP PROGRAMININ UYGULANMASI ÜZERİNE
BİR DURUM ÇALIŞMASI

Gençer, Mehmet Salih
Yüksek Lisans, Yükseköğretim Yönetimi ve Liderliği Yüksek Lisans Programı
Tez Yöneticisi: Yrd. Doç. Dr. Yavuz Samur

Nisan 2016, 63 sayfa

Bu çalışma özel bir okuldaki bire bir dizüstü bilgisayar programının, uygulama sürecindeki değişim yönetimi uygulamalarını araştırmaktadır. Değişim yönetimi uygulamaları alt ölçekleri (Hechanova & Cementina-Olpoc, 2013) esas alınarak, sekiz öğretmen veya teknoloji liderinden mülakat yolu ile ve 32 öğretmenden anket yolu ile bilgi toplanmış ve bu bilgilerle hangi uygulamaların (a) Lider Desteği, (b) Değişim Takımı, (c) İletişim ve (d) Değişim Yönetimi alt başlıklarında çalıştığı araştırılmıştır. Sonuçlar yönetimdekilerin değişim sürecini, liderlik rollerini öğretmenler arasında dağıtarak ve teknoloji liderlerini güçlendirerek desteklediğini göstermektedir. Değişim sürecine öğretmen katılımını arttırmaya yönelik çabalar, belirsiz amaçlar ve liderler ile öğretmenler arasındaki etkisiz iletişimden dolayı gecikmiştir. Program etkinliğini ölçmede kullanılan öznel ölçeklerden dolayı oluşan öğretmenlerin teknoloji yeterlik düzeyleri konusundaki beklenti yokluğu, öğretmenler arasında teknoloji kullanımında dengesizlik oluşturmuştur. Sonuçlar, liderlik yeteneğine sahip kişilere daha fazla sorumluluk verilerek süreç içerisinde daha fazla etkin rol almalarının sağlanmasını ve çalışma ortamının öğretmenlere kendi kariyer gelişimleri için inisiyatif almaya teşvik edici olmasını önermektedir. Bu çalışma eğitim liderlerine bire bir laptop programını etkili bir şekilde uygulamaları için stratejiler ve akademisyenler için çalışma konuları tavsiye ederek sonlanmaktadır.

Anahtar Kelimeler: Değişim Yönetimi, Eğitim Liderliği, BT Uygulaması, Her Öğrenciye Bir Laptop Programı

To Bosphorus

ACKNOWLEDGEMENTS

I would like to state my sincere thanks to my supervisor Dr. Yavuz for his belief in my abilities and his dedication to his work; to my department chair Dr. Oğuz for supporting me to pursue opportunities for an educational funding; to every teacher and leader who devoted his/her time for the interviews and surveys; and to my legal advisor who supported me in defending my rights to access post-graduate education.

My endless appreciation goes to my family, Şeyma & Hamit and my twin brothers Ali & Ali for their unconditional love and support.

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LIST OF ABBREVIATIONS

A	Agree
AD	Academic Dean
ACOT	Apple Classroom of Tomorrow
DA	Disagree
IPLP	Implementation Process of 1:1 Laptop Program
ISTE	International Society for Technology in Education
M	Mean
NETS	National Educational Technology Standards
NAND	Neither agree nor disagree
N/A	Not Answered
SA	Strongly Agree
SDA	Strongly Disagree
STT	Student Technology Team
TT	Teachers Team

Chapter 1
Introduction

In the last decade, the number of individuals possessing a portable computer has increased gradually and steadily. People interact more with screens than pen or paper, toddlers start using touch screens before even they hold a pen or paper. The means of communication shifts from paper to screens. Since 1980, when the first 1:1 laptop initiatives started with the Apple Classroom of Tomorrow (ACOT), it is estimated that around 8.5 million devices have been delivered to students for the 1:1 laptop initiatives around the world (Richardson et al., 2013). The change in classroom environment and learning methodologies is becoming more evident with the new advances and initiatives in technology such as 1:1 laptop initiatives.

Researchers have investigated 1:1 laptop programs based on different success criteria such as students' achievement in standardized test (Crook, Sharma and Wilson, 2015), motivation, engagement and technology use (Bebell, 2010), acquisition of 21st Century Skills (Grimes and Warschauer, 2008), satisfaction with education (Wurst, Smarkola, & Gaffney, 2008) and so on. Literature reveals the ambiguity of expected outcomes of 1:1 laptop programs in addition to the lack of convincing educational benefits of laptop initiatives. On the other hand, schools have been pressured to adapt one to one laptop or handheld computer programs in a meaningful way due to widespread use of laptop/handheld computers in the society (Leithwood et al., 1999).

Aiming to provide equal opportunities in education to students from different backgrounds, a pilot 1:1 laptop initiative named "FATIH project" has been initiated by the Ministry of National Education in Turkey. Akgün-Özbek and Özkul's (2015) content analysis of studies conducted on the FATIH project, reveals that studies mostly focused on effective use of ICT, particularly regarding quantitative studies with teachers since 2010, when the initiative was first implemented in the Kocaeli region. The study conducted by Aktas et al. (2013) involving 1201 teachers from different departments from all over Turkey, reveals that a model to manage the implementation process of technology is required.

The rapid advance in ICT during the last decade brought great opportunities as well as challenges to tackle for public and private organizations, including schools and universities. One of the key driving forces for major changes in companies are indeed the technological developments enabling faster communication, transportation and better information networks (Kotter, 2007). The need to effectively manage and lead the change in business institutions guided academicians in business management to develop related guidelines. Change management literature goes back to 1947, when Lewin, a physicist, suggested three essential steps to manage change, namely, unfreezing, movement and freezing for the components of a change process. Succeeding Lewin's (1947) model, General Electric (GE) used a seven step acceleration process, which became the "GE's change model" (as cited in Mento, Jones and Dirndorfer, 2010).

Further to the changes brought by technological devices such as television, overhead projectors, video players, smart-boards and most recently portable computers, it is predictable that emerging technologies will continue to influence and change learning environments in the future. However, we do not know what the future will bring and how to integrate emerging technologies and tools such as Twitter, makerspaces, voice-activated computer for an effective instruction, communication and administration (Schrum and Levin, 2015). Therefore, there may be a need to develop guidelines tailored for educational leaders to gradually improve teaching and learning methodologies at educational institutions in a cost effective manner in view of new technology developments.

In this context, this study applies guidelines and practices of change management to the implementation process of 1:1 laptop program in a learning environment. This cross sectional study focuses on the change process from teachers' perspective on the actions taken by leaders of educational institutions to implement 1:1 laptop program in a private school in Turkey. Teachers play a crucial role in the implementation process since they are the ones directly applying the changes in the classrooms. The school subject of the study has envisioned modeling citizenship, leadership, critical thinking, creativity, global awareness, communication and collaboration enhanced by current and emerging technologies in the beginning of the implementation process in 2011. Four years after implementing the 1:1 laptop

program with students, the school's goals include integrating technology into curriculum to enhance creativity in students' learning.

Therefore this study reflects on what has been achieved so far in the process of implementation 1:1 laptop program and suggests possible actions to be taken to improve implementation processes as well as a roadmap for further research.

1.1 Statement of the Problem

The educational leaders in 21st century have to make challenging decisions to guide the rapidly evolving changes introduced by advances in technology (Ertmer, 1999). As a paradigm shift is happening towards a knowledge economy, educational institutions must take responsibility to build the capacity of new generations on how to adapt to the new working environments throughout all educational stages (Fullan, Rolheiser, Mascall, and Edge, 2005). As a result, change in all areas of education is predictable and inevitable. Therefore, more research studies on how to manage change specifically tailored to the requirements of educational institutions need to be conducted to provide adequate guidance to educational leaders (Newton, 2002).

1.2 Purpose

The purpose of this study is to evaluate change management practices applied by a school during the implementation process of 1:1 laptop program (is refereed as IPLP) in five years. Teachers and leaders' feedback is reported, based on Hechanova and Cementina-Olpoc's (2013) four dimensions of change management practices methodology. In addition, the study aims at identifying possible ways of improving implementation processes by outlining specific requirements for educational change. Within this purpose, research questions are presented in the next section.

1.3 Research Questions

RQ1. What change management practices work according to teachers and leaders in terms of **(RQ1.A)** leadership support, **(RQ1.B)** change team, **(RQ1.C)** management of change and **(RQ1.D)** communication of change in the change process of 1:1 laptop program?

RQ2. Are leadership support, change team, management of change and communication of change sufficient for the perceived change in technology integration of 1:1 laptop program? If not, what are the additional requirements or needs for the better implementation of 1:1 laptop program based on teachers' and leaders' suggestions?

1.4 Significance of the Study

According to the European Commission's report on 1:1 learning initiatives in Europe, more qualitative analysis needs to be conducted in order to reach in-depth knowledge of the 1:1 laptop programs, such as evidence of effective implementation strategies (Balanskat, Bannister, Hertz, Sigillò and Vuorikari, 2013). Despite numerous studies on 1:1 laptop initiatives, there are no clear guidelines on how to implement laptop programs at education facilities in an effective manner (Howard & Rennie, 2013).

Therefore this study adopts a different approach that focuses on change process of 1:1 laptop implementation based on change management practices applied in business organizations. Thus, the results of the study may guide educational leaders on good practices regarding the establishment of 1:1 laptop programs, for the benefit of schools' management and other personnel. In this context, the analysis' particular focus is on leadership support, change team, participation, communication and management of change throughout the program implementation.

While previous comparative studies of schools with and without 1:1 laptop computers programs did not consider if the programs were implemented effectively, this study focuses on effectiveness of program implementation based on change management practices. The lack of a theoretical framework on the implementation of ICT in educational organizations, as indicated in Tearle's study (2004), can be addressed by conducting focused studies on the implementation process of technology integration.

1.5 Operational Definitions

1:1 laptop program refers to a program that each student is issued a laptop to access the Internet, digital course materials and digital textbooks

1:1 laptop initiatives are initiatives that implements 1:1 laptop programs at a larger scale such as all schools in a district or country.

Leader is a person who leads group of people, organization or a program.

Change Team is a group of people or employees appointed by the executive managers to implement a change process.

Chapter 2
Literature Review

In this chapter literature on 1:1 laptop initiatives, change management and educational change will be presented.

2.1 Studies on 1:1 Laptop Initiatives

Existing research studies on the success criteria of 1:1 laptop programs focus on specific outcomes, such as academic achievement (Crook et al., 2015) and motivation based on subjective measures (Donovan, Green and Hartley, 2010). International standards for technology use known as "ISTE standards" have been accepted widely by educators as skills to be gained by the use of technology. Therefore, according to Grimes and Warschauer (2008), researchers need to assess skills such as critical thinking, problem solving, creativity, communication and collaboration skills. Even though Bebell's et al. (2010) synthesis of studies across 1:1 laptop initiatives show evidence of increased student and teacher technology use, student engagement and interest level, and modest increase in student achievement, Aviram and Talmi (2002), claims that ICT has proven to be ineffective whatever the criteria are used to judge its effectiveness. According to Aviram and Talmi (2002, p.123), "*The educational system can swallow ICT without having to go through a meaningful change.*" Due to the lack of evaluation of technology integration, strategy of implementation and meaningful discussion, educators are locked in a cycle that does not take the education a step further (Aviram & Deborah, 2002).

The definition of "1:1 computing" in Bebell's (2010) study, covering schools that have different expectations, outcomes and practices of 1:1 laptop programs and applying different research methodologies, clearly states that the level of access to technology by students and teachers could not be interpreted in any ways to influence educational practices. While the study concludes that the effective use of technology is a must to achieve a positive outcome, it does not reveal any effective use of 1:1 laptop program beyond the frequent use of technology by students and teachers (Bebell, 2010). It is also important to note that nearly all studies emphasize

the importance of teacher training for the successful implementation of 1:1 laptop initiatives and lack of professional development is found to be an obstacle of an effective implementation (Bebell, 2010).

In a recent research by Crook, Sharma and Wilson (2015), it has been found that 1:1 laptop program enhance students' science scores in statewide exam statistically. The study analyses the socio-demographic and technological profiles of two groups of students (967 in total) from 12 schools: 7 schools with 1:1 laptop programs and 5 without laptops. An important feature of this study is the fact that the Australian government introduced 1:1 laptop program in half of the schools in the country, in addition to having all students given the same statewide test. Therefore it created a natural experiment that reduces the Hawthorne effect. The study found statistically significant positive impact on students' test scores with positive standardized regression coefficients of 0.38 in physics, 0.26 in biology and 0.23 in chemistry. Based on teacher and student questionnaires, the medium effect size in physics compared to small effect size of chemistry and biology, is predicted due to the use of simulations and spreadsheets in physics, which in result triggers higher level of thinking skills. On the other hand, the study argues that curriculum and assessment should be aligned to reflect the use of technology. While the study does not conclude that the increase in science scores is due to 1:1 laptop program, it suggests that laptops provide more student-centered and individualized learning opportunities (Crook et al., 2015).

On the other hand, research on relationship between laptop use and student learning reveals negative consequences of laptop use (Fried, 2008). Fried surveyed 137 students undertaking the General Psychology course with the same instructor weekly during 10 weeks, to measure how students use laptops in class and whether students were distracted by laptops or distracted by the behavior of the fellow students. Student learning was measured by the grade earned in the course. Linear regression analysis of the effect of laptop use on student learning considering American College Test scores, high school rank and self-reported attendance, as a predictor variables, shows that the level of laptop use was significantly and negatively related (standardized beta=-.179, p=.024) to student learning (Fried, 2008).

Demb, Erickson and Hawkins-Wilding (2004) investigated students' perception on the value of campus-wide laptop initiative with respect to academic success, study habits, faculty utilization, the development of a learning community, personal use, future plans and cost, at a liberal art institution. A survey was developed based on seven focus group interviews comments involving 25 students, and was responded by 73 students out of 537 students. According to the results of the study, only a few students think that computers are useful for personal or social purposes. A slight majority of students think that computers are necessary for their academic success, which was perceived valuable depending on students' perception of quality use of technology for teaching by the faculty (Demb, Erickson and Hawkins-Wilding, 2004).

Technological, pedagogical and content knowledge (TPACK) framework was developed to investigate ways of exploration and description on implementation of technology related professional knowledge (Mishra & Koehler, 2006). Blau, Peled and Nusan (2014) used the TPACK framework in a qualitative study which investigates one to one laptop program in a junior high school in Israel with all 7th graders and their 15 teachers. The study revealed that one to one laptop program enhance interpersonal dialogs between student and teachers and differentiation in learning process concerning technology and pedagogy based on TPACK. On the other hand, the researchers did not observe any evidence of improvement in the learning and teaching process by the use of digital content and technology tools during a year of study. It has been found that one to one laptop program has a significant contribution in teachers' technology knowledge and contributes positively in shifting the role of the teacher as a facilitator (Blau et al., 2014).

Thus, the literature on 1:1 initiatives reveals wide range of research studies with different methodologies, aiming to assess effectiveness of 1:1 laptop program. Researchers also make suggestions to improve the effectiveness of 1:1 laptop programs tailored to different contexts.

2.1.1 Studies in Turkey on 1:1 laptop initiatives. Attempts to integrate technology in education by The Ministry of National Education (MoNE) in Turkey go back to 1984. In 2000's there have been few initiatives to enhance the use of and develop software for educational purposes (Gök & Yıldırım, 2015). Most recently, in

2010, the MoNE launched the "Movement of Enhancing Opportunities and Improving Technology" project (named as "FATIH project" according to its Turkish acronym) that was implemented in 52 schools, including 17 provinces throughout Turkey as a pilot project (FATIH Project, 2012). The project aims to provide equal opportunities in education and improving technology at schools with the efficient usage of ICT tools in the learning-teaching process.

Literature includes research studies on the FATIH project investigating teachers, students and educational leaders' perceptions on the effectiveness of the project (Pamuk, Çakir, Ergun, Yilmaz and Ayas, 2013); teachers' thoughts about the project based on awareness, foresight and expectations (Aktas, Gökoğlu, Karal, & Hasan, 2013); students' views about the use of tablet computers in science courses (Bozdogan, Küçükaydın and Öztürk, 2014); teachers, school administrators and project coordinators' perception on the successful usage and effective technology integration (Gök & Yıldırım, 2015).

The latter study (Gök and Yıldırım, 2015) included a qualitative, multiple case study in two schools covering 32 teachers, 3 administrators and 6 project coordinators. The results of the study reflect essential findings, such as teachers' frustration with the intense curriculum and expectation of a revision in the curriculum by the MoNE after installation of the technologies. Teachers also pointed out the fact that extra time must be allocated in their schedule to create e-content about the subject matters. Even though, the administrators claimed that supplementary e-content was available for teachers' use, teachers think that the amount was not sufficient in both quality and quantity. Project coordinators stated that in-service trainings built the capacity of r teachers provided skills and knowledge to integrate technology in the classroom. However, teachers were not satisfied with the quality and amount of trainings given and demanded more qualified and frequent trainings to be able to integrate technology within their subject areas. Half of the teachers in the study did not consider themselves as part of the process since their views and suggestions were not taken into account at any stage by the project coordinators. Therefore, teachers refused to use the technologies due to lack of communication between project coordinators and teachers. Administrators of two schools stated different opinions on the involvement of teachers in the implementation process of the FATİH project. A significant number of teachers (14)

also mentioned the positive impact of role model teachers in the integration process of technology. The study concludes that a resourceful database providing e-content for teachers; the allocation of adequate time for preparing e-content; dissatisfaction with status quo; addressing teacher training needs; rewards; participation of teachers at all stages of technology implementation through effective communication; the role of administrators as well as the role of some teachers as change leaders; are important factors for the successful technology integration in the FATİH project (Gök and Yıldırım, 2015).

Akgün-Özbek and Özkul's (2015) content analysis on the FATIH project also reveals that the effective use of ICT is the most studied subject among master and doctorate thesis studies, the vast majority of which are quantitative studies that are cross-sectional analysis of attitudes and practices. Among the twenty-five research studies investigated in the study, only three studies included administrators along with teachers (Akgün-Özbek and Özkul, 2015). In addition, Uysal and Madeoğlu's (2015) content analysis of scientific research studies on technology leadership, concluded that there have been only 23 research studies published related to technology leadership in Turkey between 2007 and 2012.

One of the recent studies focus on pre-service teachers' technological, pedagogical and content knowledge (TPACK) development level based on gender, age, educational program, year of study and field experience using a survey (Cetin-Berber and Erdem, 2015). The study found that content and pedagogical knowledge had a significant affect on TPACK development in contrast technology knowledge was not a significant predictor of TPACK.

Even though, there is an increased number of research studies on educational technology and 1:1 laptop initiatives recommending further studies on the management of technology integration and the role of leaders as change agents in educational institutions, literature offers limited number of studies to guide educational leaders in the ever-changing world of technology (Akgün-Özbek and Özkul, 2015). Therefore strategic approaches need to be developed to address the needs of educational leaders to implement technology related changes. In this respect change management literature may provide guidance on educational leadership and educational change management.

2.2 Change Management

The rapid change in the global economy created a need to develop strategies to implement change as effective as possible. As a result, Change Management as a use of methodology has increased from 34% in 2003 to 72% in 2011, with 320 consulting firms offering Change Management services (What is Change Management, 2015). Structured approach in smooth and thorough implementation of successful changes is emphasized in the definition of Change Management which in result direct impacts on people as individuals or in teams and targets leadership at all levels including executives, senior leaders, middle managers, supervisors and staff (Bourda, 2013).

Numerous change management guidelines can be found in the literature. This research study focuses on some of the most well-known change management guidelines (Mento et al., 2010) and also looks into more specific guidelines for schools implementing ICT related projects. One of the most well-known change framework was published in Harvard Business Review by Kotter (1996), who suggested 8 common mistakes in transformation efforts, which he then used as the following 8-step process for transforming organizations:

1.Establishing a sense of urgency
- Examining market and competitive realities
- Identifying and discussing crises, potential crises and major opportunities

2. Forming a powerful guiding coalition
- Assembling a group with enough power to lead the change effort
- Encouraging the group to work together as a team

3. Creating a vision
- Creating a vision to help direct the change effort
- Developing strategies for achieving that vision

4. Communicating the vision
- Using every vehicle possible to communicate the new vision and strategies
- Teaching new behaviors by the examples of the guiding coalition

5.Empowering others to act on the vision
- Getting rid of obstacles to change
- Changing systems or structures that seriously undermine the vision

- Encouraging risk taking and non traditional ideas, activities and actions

6. Planning for and creating short-term wins
   - Planning for visible performance improvements
   - Creating those improvements
   - Recognizing and rewarding and employees involved in the improvements
7. Consolidating improvements and producing still more change
   - Using increased credibility to change system, structures and policies that do not fit the vision
   - Hiring, promoting and developing employees who can implement the vision
   - Reinvigorating the process with new projects, themes, change agents
8. Institutionalizing new approach
   - Articulating the connections between the new behavior and compare success
   - Developing the means to ensure leadership development and succession

Lewin (1947), a physicist, describes organizational change using the analogy of changing the shape of an ice block by unfreezing, changing the shape and refreezing the ice block (Bourda, 2013).

Lewin's 3-stage model of change:

Stage 1: Unfreeze

- Prepare the organization to accept that change is necessary
- Break down existing status quo to build up a new way of operating
- Develop compelling messages for why the existing way of doing things cannot continue
- Challenge the organizational beliefs, values, attitudes, and behaviors
- Expect uncertainty

Stage 2: Change

- People begin to resolve their uncertainty and look for new ways to do things
- People start to believe and act in ways that support the new direction
- They take time to embrace the new direction and participate proactively in the change
- They need to understand the benefits of the change

- Realize that not everyone will fall in line just to support the change and its benefit

Stage 3: Refreeze

- Changes begin to take shape and people embrace the new ways of working
- Outward signs include a stable organization chart, consistent job descriptions, and so on
- Changes are internalized or institutionalized through incorporation into everyday business
- Acknowledgement of people's efforts reinforces their belief in future changes
- Celebration of the success of the change helps people find closure

Lewin's (1947) cornerstone 3 stage model of change is widely accepted and used as a basis for General Electric's (GE) seven step change acceleration process (Mento et al., 2010). In GE's model, unlike Kotter's (1996) guiding coalition, the leader takes the responsibility of leading change in an organization. His role includes communicating the vision by all means, reaching all stakeholders and mobilizing change agents in the organization to build support (Metre, 2009).

GE's 7-step change acceleration process:

1. Leader Behavior: owns, champions, role models, commits resources
2. Creating a shared need: ensures everyone understands the need for change
3. Shaping a Vision: ensure employees see desired outcomes in concrete behavioral terms
4. Mobilizing Commitment: build support, understand interests of diverse stakeholders
5. Making change last: start it, concrete actions, develop long term lasting plans
6. Monitoring Progress: creating and installing metrics, milestones and benchmarks
7. Changing systems & structures: staffing, training, appraisals, communications, roles and reporting relationships, rewards

While suggesting discrete steps to implement change, Jick (1991) stressed change process as a continuous one. He acknowledges in particular the importance of

the discovery nature of process and the need to involve the organizations' stakeholders (Mento et al., 2010).

Jick's 10 step for implementing change:

1. Analyze the organization and its need for change
2. Create a shared vision and common direction
3. Separate from the past
4. Create a sense of urgency
5. Support a strong leader role
6. Line up political sponsorship
7. Craft an implementation plan
8. Develop enabling structures
9. Communicate, involve people and be honest
10. Reinforce and institutionalize the change

Mento et.al also introduced a framework for change, which is drawn from Kotter, Jick and GE's theoretical models as well as grounded in the practice of the change process of defence industry firms. (Mento et al., 2010)

Mento's model includes 12 steps:

1. Identify the idea and its context
2. Define the change initiative
3. Evaluate the climate for change
4. Develop a change plan
5. Find and cultivate a sponsor
6. Prepare your target audience, the recipients of change
7. Create the cultural fit — Making the change last
8. Develop and choose a change leader team
9. Create small wins for motivation
10. Constantly and strategically communicate the change
11. Measure progress of the change effort
12. Integrate lessons learned

While according to GE's model, the leader owns the entire process, supports and role models the change, and establish transparent communication with

employees (Metre, 2009), Kotter's model includes a strong guiding coalition with enough powers to lead the change process. Mento et al. (2010) also believes that a change team may provide better leadership role than a single individual, as well as Jick's (1991) 5th step change model suggesting a team to support the change leader in order to achieve the change vision. In steps six of the model, Jick (1991) emphasizes the support of senior management and key influencers that assist the change process move forward.

As to the change management guidelines, existing literature reveals that there are two common themes for all guidelines: (1) effective communication of change; and (2) well-planned step-by-step change process. Communication of change has layers, such as rationale of changing the current status-quo (Kotter's, Lewin's, Jick's and Mento's 1st step); communicating the vision (Kotter's 4th step); comprehension of change by all stakeholders (Lewin's 2nd stage); and consultation to employees during the process, including publishing success. As indicated in Table 1, step by step change guidelines mainly include the following; clear vision which communicates the goals and benefits of the change process (2nd step in Lewin's and Jick's, 3rd step in Kotters' and GE's, 4th step in Mento's); implementation plan (Mento's 4th step, GE's 5th step, Kotter's 6th step, Jick's 7th step); monitoring and measuring the progress (GE's and Kotter's 6th step, Lewin's 3rd stage, Mento's 11th step); and rewarding change efforts (Kotter's and GE's 7th step, Lewin's 3rd stage, Monte's 9th step)

On the other hand, in a recent article in Harvard Business Review, Ashkenas (2015) argues that "*transformation unlike change management does not focus on few discrete, well defined shifts but rather on a portfolio of initiatives which are interdependent or intersecting*" The 30% success rate of major corporate change programs also shows that transformation process is unpredictable and culture dependent (Fullan, 2006). Therefore, the transformation process requires to be iterative and experimental to reach the vision of change (Ashkenas, 2015).

Hechanova and Cementina-Olpoc (2013) compares the change management practices of academic and business organizations by a survey that is designed based on interviews with the leaders of eight organizations to reveal change management process and practices. The survey focuses on the whole process of change in terms of

effective planning, execution and monitoring, rather than the discrete steps taken by the leadership of the organization. Furthermore, the survey includes items that are common in the guidelines as stated in Table 1. The survey includes four subscales, which can be used as an umbrella framework for all the aforementioned change management guidelines: (a) Leadership Support, (b) Change Team, (c) Participation/communication, and (d) Management of Change.

Table 1

Steps of Change Management Guidelines

Item in the steps of guidelines	Kotter (1996)	Lewin (1947)	Jick (1991)	Mento (2010)	GE
Rationale of changing the current status-quo	1	1	1	1	
Clear vision	3	2	2	4	3
Consultation to employees during the process				3	4
Publishing success	6			9	6
Implementation plan	6		7	4	5
Monitoring and measuring the progress	6	3		11	6
Rewarding change efforts	7	3		9	7

a) Leadership Support subscale refers to the extent to which leadership supported and role modeled the change, were transparent about the changes and sensitive to employee reactions and had the trust of employees.

b) Change Team subscale refers to the extent to which there was a dedicated change team, whether it represented different units and whether it was perceived as credible.

c) Participation/communication subscale refers to the extent to which people were consulted on the change, the change was explained and whether progress toward goals were publicized.

d) Management of Change subscale refers to the extent to which the goals of change were clear, the change was well planned and organized, the change was adequately funded, progress toward goals was monitored, and change efforts were rewarded. (Hechanova & Cementina-Olpoc, 2013)

Thus, literature reflects a broad range of change management steps with similar guidelines following different sequences. These guidelines are mostly encompassed in Hechanova and Cementina-Olpoc's study which is followed in this research paper.

2.2.1 Educational change. According to Fullan (2006, p.30) "There are at least three components or dimensions at stake in implementing any new program or policy: (a) the possible use of new or revised materials (instructional resources such as curriculum materials or technologies), (b) the possible use of new teaching approaches (i.e., new teaching strategies or activities), and (c) the possible alteration of beliefs (e.g., pedagogical assumptions and theories underlying particular new policies or programs)."

Fullan (2006) argues that in order to evaluate the success of a change, the change has to *occur in practice* along these three dimensions. Similar to Lewin's (1947) model of change, Fullan's (2006) educational change process also includes three phases: (a) initiation, mobilization, or adoption; (b) implementation or initial use; and (c) continuation, incorporation, routinization, or institutionalization (Fullan, 2006).

Based on his insight and extensive experience in this field, he suggests the following 10 strategies to be implemented fully in order to achieve success in the change process.

1. Define “closing the gap” (the gap between high and low performers—boys, girls; ethnic groups; poor, rich; special education) as the overarching goal
2. Attend initially to the three basics (literacy, numeracy and well-being of students)
3. Be driven by tapping into people’s dignity and sense of respect
4. Ensure that the best people are working on the problem
5. Recognize that all successful strategies are socially based, and action oriented—change by doing (collaboration and effective communication) rather than change by elaborate planning
6. Assume that lack of capacity is the initial problem and then work on it continuously
7. Stay the course through continuity of good direction by leveraging leadership
8. Build internal accountability linked to external accountability
9. Establish conditions for the evolution of positive pressure
   In other words, removing all possible obstacles to perform better, which in result motivate people to improve
10. Use the previous nine strategies to build public confidence

2.2.2 Educational change regarding implementation of ICT. Implementation of ICT projects in schools requires teachers to gain the skills needed to use and apply new technologies as well as re-conceptualizing learning in order to work with technology (Tearle, 2004). Most of the time teachers are not consulted on change (Donovan, Hartley and Strudler, 2007) which is one of the requirements for a successful communication of change (Hechanova and Cementina-Olpoc, 2013).

Existing research studies show that implementation of effective 1:1 laptop programs in schools depends on a number of specific factors such as availability of technology (Huffman, Laney and Member, 2013); professional training and support (Montrieux, Vanderlinde, Courtois, Schellens and De Marez, 2014); time (Holcomb, 2009); strong commitment to the integration of technology by all levels of administration (Topper and Lancaster, 2013), culture of the school and its mission and vision (Yuen, Law and Wong, 2003) as well as individuals’ attitude, belief and motivation (Salinas, 2008) which plays a crucial role in the implementation process.

Huffman et al. (2013) aimed to identify the relationship between the NETS essential conditions and the level of technology usage and level of teaching innovation at four high schools in Texas, US using a mixed-methods case study. The participants of the study include 156 teachers, four principals, four superintendents and four technology directors at four schools. The interview results show that schools neither have clear goals nor ways to measure goals as opposed to what is required to be included in the Technology Plan. In addition, some of the teachers considers professional development as the biggest incentive, schools consider doing what is best for students as an incentive and technology leaders focuses on the nature of the trend. In conclusion, it was revealed that there was an evident disconnect between policy and practice. The findings suggests that the underlying reason behind the disconnect could be due to leadership's lack of communication of the policy.

Montrieux et al. aimed to reveal students' and teachers' perception on teachers' role in the implementation process of tablet computers, the consequences of these perceptions on teachers' practices and inferences for teachers' professional, developmental activities. The researchers interviewed with 36 students and 20 teachers in in one of the first schools, which implemented tablet computer into classrooms in Flanders, Belgium. According to results of the study, it is crucial to have a clear and practical vision on using innovative technology in the classrooms along with well-trained and experienced teachers in order to have success in implementation process technology integration into classrooms. In addition, the researchers recommends that the role of the innovative teachers has to be promoted so that conservative practices could be provoked among some teachers (Montrieux et al., 2014).

According to a collective review of 1:1 computer initiatives by Holcomb (2009), five to eight years is required to implement an innovation fully, therefore minimum of five year time is needed to measure the true impact of the program. Holcomb (2009) also suggests that the method of implementation may have a direct influence on the success and outcomes of the program.

Topper et al. (2013) aimed to explore evaluation process of 1:1 laptop initiatives; the reasons behind choosing to implement 1:1 laptop program; how they implement and the expectations, which drive to motivate adoption of 1:1 laptop

program. A mixture of qualitative data from K-12 decision makers and quantitative data from online surveys of some stakeholders was collected in five school districts of Michigan, US. According to the results of the study, researchers conclude that evaluation of success of 1:1 laptop initiatives would be meaningless without the leadership's commitment to the integration of technology that is communicated, understood and promoted. Topper et al. (2013) specifically emphasize the importance of involvement and commitment of all administrative staff in the technology implementation process. In addition, intense, sustained, teacher-focused professional development is found to be crucial in the implementation process, unlike traditional professional development methods where tool specific trainings are provided to teachers. Since standardized tests are unlikely to improve in the short term due to the implementation of laptop program, school should integrate other measuring tools to identify acquisition of 21st century literacy skills into their assessment.

Yuen's et al. (2003) research findings from multiple case studies to identify models of good practice and pathways to change in the use of technology in seven primary and eleven secondary schools in Hong Kong, China, reveals three clusters of characteristics related to implementation of ICT at schools. Yuen et al. suggests three models depending on characteristics of schools, such as school leaders' vision and understanding of the role and impact of ICT in the curriculum, their goals and objectives for ICT integration, in addition to school's culture, history, background and its general vision and mission. The *technological adoption model* predicts a leadership strategy that adopts a top-down management style, enforcing all teachers to reach minimum level of ICT competence with clear goals at a given timetable given that a school does not have strong tradition and cultures. The *catalytic integration model* predicts a leadership strategy that has the principal as the key change agent with a visionary leadership style. In this model teachers take part in the top-down management practices. Characteristics of these schools have a record of successful, continuous process of reform through teacher engagement in the process of change. *The cultural innovation model* predicts a leadership that is distributed among leaders and teachers where teachers are free to implement new ideas in a supportive culture. Characteristics of these schools include strong cultural and

historical foundations. In these schools students and teachers are empowered by ICT as a tool to flourish students' potential and to develop self-actualization.

Salinas (2008) proposes and exemplifies a model to integrate educational principles with instructional technologies in higher education where the instruction is learner- centered and collaborative. The study used an action research base study where the researcher first examined the nature of the problem; second formulated an appropriate product based intervention, third tried the model intervention and finally evaluated the impact. According to Salinas, the nature of the resistance in embracing new technologies by the faculty stems from lack of evidence and poor comprehension of the benefits of technology, which may be due to educators' lack of knowledge on pedagogical principles that would disclose the educational value of the technology. Therefore most of the change efforts are limited to replacement of old fashioned tools with the fancy technologies without meaningful change in the instruction. For example, Internet is used as an expansion of school library, or computers as substitute of overhead projectors.

Mooij and Smeets (2001) suggest five successive phases in the ICT implementation process and its potential improvements based on the research conducted at 10 Dutch secondary schools. The phases includes:

1. Incidental and isolated use of ICT by one or more teacher
2. Awareness of the relevance of ICT for the school and subject related programs
3. ICT co-ordination and hardware facilities in the entire school
4. Didactic innovation and ICT education support and
5. Integrated ICT support for learning process

For each phase, specific actions are suggested based on dissatisfaction with status quo, knowledge, resources, time, rewards, participation, commitment, and leadership. The suggestions made for each phase are consistent with the items of the change management practices developed by Hechanova and Cementina-Olpoc (2013).

Chapter 3
Methodology

In this section, detailed information on the methodology of the study including the design of the experiment, participants, settings, step-by-step data collection procedures, data analysis procedures and finally limitations and delimitations of the study will be presented.

3.1 Research Design

Stake's (1995) definition of case is a specific, a complex, functioning thing, and a purposive integrated system. According to Merriam (2009), a case study is an intensive holistic description and analysis of a phenomenon such as a program. Every educational institution is a complex functioning, integrated system that implementation of any program may depend on numerous variables. Therefore case study is used to give a holistic description of the complex and integrated system of 1:1 laptop program and the implementation process is analysed at a complex system such as the school where the study takes place.

In the qualitative part of the process interviews and internal documents have been used as a method of data collection (Leedy, 1993). The researcher aimed to collect information on the whole process of the implementation process of laptop program (IPLP) and to develop reliable interview questions to address research questions for the second phase of interviews therefore with these aims in mind the initial phase of interviews are held with the headmaster, the IT director and two senior teachers. The researcher also interviewed with two technology leaders and six teachers from different departments with varying backgrounds and roles in the second phase of the semi-structured interviews which aimed at obtaining detailed information on the IPLP and reveal differentiation between perception of teachers.

Content analysis is defined as a research technique for making replicable and valid inferences from texts to the context of their use (Krippendorff, 2004). In this study, the content analysis method was applied to interview results.

According to Creswell's (2014) model of combined designs, dominant-less dominant design is used by researchers with a dominant paradigm (qualitative in this study) with one small component of the study drawn from the alternative paradigm. First of all, qualitative data has been collected from internal documents and interviews and second quantitative data is collected from teachers using the survey. When analyzing data results from quantitative study is used to support and compare the findings of qualitative study. In addition in case of controversy, qualitative data is used to reveal different layers of the IPLP or to reveal new perceptions based on the survey results. Therefore, in this study, a mixed design is used for three reasons; (a) triangulation purpose to seek convergence of results, (b) initiation purpose, in case a contradiction or a new perspective may emerge and (c) complimentary purpose to observe different facets of IPLP as Creswell suggested.

3.2 Participants

3.2.1 School. This study was conducted during the fifth year of implementing 1:1 laptop program, at a private college in a metropolitan city of Turkey operating under Turkish Ministry of National Education. Students were admitted to the college by a nation-wide high school entrance test therefore the student body comprised entirely of Turkish nationals. The school accepts day and boarding students with a yearly educational fee ranging between $15,000 and $25,000. The school has a low turnover amongst the faculty who represents few nationalities. New faculty is hired by the headmaster in the international job fairs or through individual application to the school.

3.2.2 1:1 Laptop program at the school. The school has started the laptop program in phases. First, all teachers were provided with a laptop and for seven years and they used computers to take attendance, develop curriculum plans using Word documents, create PowerPoint presentations, send/receive e-mails, filing progress reports, scheduling exam dates and to reach online resources. The school has allocated budget for consultancy, IT infrastructure and professional development of teachers. The college has invested on the IT infrastructure and network long before teachers received laptops and now wireless internet connection is available in all school buildings and some open areas in campus. The process of implementation

continued with a committee (named as central team[1]) consisting of 12 members and chaired by a trustee who is responsible for technology. The central team consisted of the headmaster, academic dean, finance manager, educational technology coordinator, IT technician, prep year (1st year) coordinator, 3 teachers, an alumni and a parent-teacher association member. The decision to introduce the 1:1 laptop/tablet program was made by the Administrative Team (admin), advised by the central team and an expert from Educational Collaborators reviewed it at the end of first year of implementation. The central team created a roadmap for the program in consultation with an international school which had 10 years of experience in implementing 1:1 laptop program in the meantime based on the feedback of the experts in the field of educational technology and leadership, the committee passed the responsibility of leading the program to a new team (named as teachers team) which was lead by the academic dean in the first two years of implementation of the 1:1 laptop program.

Second, all first year students and first year students' teachers have started to use laptops in the classroom in 2011. Meanwhile, numerous workshops, trainings and professional development days have been held in-house and off-site to improve teachers' and leaders' competency in using laptops in class. A number of teachers and IT department members have been trained to become competent in educational technologies and leadership by the professional development opportunities provided at international conferences and workshops such as International Society for Technology and Education (ISTE) workshops and Google Summits. The information and technology (IT) department with its seven technicians offered trainings and provided ongoing software and hardware support to teachers, staff and students at the beginning of the school year, during lunchtimes and after school. The school became a Google Apps for EDU School in 2012. All personnel have been trained on Google Drive applications, which enable faculty and staff to share documents and work collaboratively. The Student Technology Team (STT) provides another aspect of IT Support, who helps fellow students and teachers understand how to use technology effectively.

[1] Pseudo names are used for the team names

In two years time of implementing 1:1 laptop program, teachers team has created a vision statement for integration of technology that underlines promoting the use of technology in all academic content areas to help students consolidate 21st century learning skills, such as creativity, critical thinking, collaboration and a global outlook. The teachers team has also worked on creating documents on responsible use policy for students and teacher.

In the third year of implementation of 1:1 laptop program, a teacher who was a member of the team, started to lead the teachers team. The team started to work in three sub-groups focusing on teachers, students and parents.

As a result of implementation of 1:1 laptop program new changes have been introduced that includes the move to a 10-day block schedule and some updating of classroom furniture, a new position of 21st Century Learning Coach, and an expansion in the number of IT supports staff. The rapid increase in the use of IT within the educational program includes the use of a Learning Management System (LMS) in all courses; the use of the Pearson Education Mastering online homework system for all science courses and some mathematics courses; the use of computer-based laboratory equipment and video analysis in science courses; becoming a Google platform school in 2012, with the consequent use of Google Docs etc.; and the increased use of the flipped classroom model. There has also been an expansion in the use of IT for purposes of administration and support of the academic program. This includes the Rubicon Atlas Curriculum Planning Program; the Student Information System (for grades, progress reports, the testing calendar and student information); improved and expanded use of the Intranet, including the Enterprise Resource Plan Management system (for information, schedules and reservation systems); an online attendance system; and the introduction of digital screens in the corridors to communicate announcements to students. Due to bi-lingual nature of the school departments such as Social Sciences considers language as a barrier in technology integration, since many educational technology tools are in English, and not all teachers are confident in English.

Based on the external accreditation body's recommendations the school should work with faculty members to establish clear expectations on the necessary level of technological ability.

In summary, the change process of implementing 1:1 laptop program includes the following:

1. Setting up the required infrastructure and providing laptops to every teacher.

2. Research conducted by the team including all stakeholders except students on how to implement the program.

3. The school has hired consultancy from an international school, which has extensive experience with 1:1 laptop program.

4. Following the suggestions made by the consultants, a new team has been formed in the first year of implementation in classrooms which consists of academic director, IT director and teachers representing most departments on a voluntary basis.

5. Workshops and trainings held on how to use laptops in class for teachers

6. First year students are started with the 1:1 laptop program and every other year the program is implemented in the upper year.

7. In the fourth year of implementation 1:1 laptop program, the school co-operated with an international research group to assess the program. Surveys have been conducted to all faculty and students. Results have not been published yet.

This study was conducted during the fifth year of implementing 1:1 laptop program when all students and teachers were part of the 1:1 laptop program.

3.2.3 Teachers. All courses except Turkish, Foreign Languages and Social Sciences are taught in English, by foreign teachers and Turkish national teachers. Five teachers from English, Foreign Languages, Turkish Language, Social Sciences and Natural Sciences departments have been interviewed. All teachers had five year or more years of teaching experience at the school. In addition 32 teachers out of 78 teachers have also been surveyed for the quantitative part of the study. Table 2 includes information on participants' age, gender, subject area, years or teaching experience, years of teaching experience at the school and years of experience with 1:1 laptop program. 65% of teachers who conducted the survey aged between 30 and

Table 2

Demographic Information of Survey Participants

Variable	Frequency	Percentage
Age		
20-29	1	3%
30-39	10	31%
40-49	**11**	**34%**
50-59	7	22%
60-69	1	3%
do not want to state	2	6%
Gender		
Female	**16**	**50%**
Male	15	47%
do not want to state	1	3%
Subject Area		
English	**14**	**44%**
Turkish	3	9%
Foreign Languages	2	6%
Science	7	22%
Mathematics	4	13%
Social Sciences	2	6%
Years of teaching experience		
0-5	1	3%
6-10	3	9%
11-15	**10**	**31%**
16-20	6	19%
21-25	5	16%
26+	7	22%
Years of experience at the current school		
10+	**15**	**47%**
9	0	0%
8	2	6%
7	0	0%
6	2	6%
5	5	16%
4	2	6%
3	2	6%
2	3	9%
1	1	3%

Table 2 (cont.d)

Years of experience with 1:1 laptop program		
7	2	6%
6	0	0%
5	**11**	**34%**
4	10	31%
3	4	13%
2	4	13%
1	1	3%

49. There is a balance between male and female teachers who are surveyed or interviewed. English department is the most represented department in the survey results due to its large size among other departments. 47% of teachers have been teaching at the school for more than 10 years and 71% of teachers have more than 4 years of teaching experience with the 1:1 laptop program.

3.2.4 Leaders Leader is a person who leads or commands a group, organization or country. In this study leader is referred to a person who have taken the position of leading a team or teachers in the school to better implement the 1:1 middle level management positions in the administration and 7 department heads. A number of teachers and students have taken different leadership positions for the IPLP.One leader from the middle level management position and two teacher-leaders have been interviewed in addition having interviewed with the ex-headmaster in the pilot interview process.

3.2.5 The researcher. I, as a researcher, have worked as a teacher who implemented the 1:1 laptop program in the setting for two years before the research study. I was also part of the program during the study and therefore I had the ease of access to the setting and the documents. I have received permission from the headmaster to conduct the research and kept all informants name anonymous and used pseudo names for the name of the teams to protect team leaders' anonymity. I

aimed to reveal teachers and leaders' perception via interviews and surveys in the study, which was not disruptive for the laptop program.

3.3 Procedures

3.3.1 Sampling. Purposeful and convenient sampling strategies are used to determine the school in the study. According to Rogers' (1995) innovation diffusion theory, the college can be considered as an early adopters of 1:1 laptop program since they are the first private school initiating the 1:1 laptop program simultaneously with the country-wide pilot 1:1 laptop initiative named as FATIH project in Turkey. The school has a culture of leadership integrated into its mission along with its ambition to become a pioneer in education in Turkey which in result makes the school different with its curriculum, approach to implement the 1:1 laptop program and students' educational experience. Therefore the researcher purposefully includes a single case due to the college's unique position in Turkey. Meanwhile, it was also convenient to access information and the site since I, as a researcher, was also a participant as indicated in Section 3.2.5.

Purposeful sampling strategy is used when selecting interviewee's. Two leaders who have taken significant roles in leading and guiding the IPLP and six teachers were selected based on their background and different roles taken during the process (See Table 3). All teachers have experienced the whole IPLP except one teacher joining the school at the first year of implementation with the students. Researcher has spent two years as a participant in the field of study where he made informal observations. In order to prevent a biased selection of participants, a list of names created based on the participants' availability, background and the roles taken during the IPLP. The names then selected with consultation to the advisor who does not know the participants.

In order to protect participants' confidentiality and privacy, school name, participants' name and detailed information related to school has not been revealed in any part of the study. In addition pseudo names have been used for the teams, which took place at the school during the IPLP.

3.3.2 Instruments. In the qualitative part of the process, face-to-face semi-structured interview questions and internal documents are used to collect data.

Table 3

Characteristics of Interviewees

Variable	Characteristics of interviewees
Gender	4 females and 4 males
Language	4 native Turkish speakers, 4 non-native Turkish speakers
Department	6 different departments represented
Roles	1 central team member - teacher 2 teacher team members - teachers 2 IT team members 1 head of department - teacher 2 teachers
Experience	2 with 5 years of experience at the school 5 with more than 10 years of experience at the school

In the quantitative part of the process, 17 items developed by Hechanova and Cementina-Olpoc (2013) was used to assess change management practices using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). In addition to 17 survey items, an open-ended question was asked to collect opinions of teachers about the IPLP.

3.3.2.1 Qualitative part of the process. Semi-structured interviewed questions, internal documents and an open ended question was used in this process.

3.3.2.1.1 Semi-structured interview questions. First a pool of questions has been drafted for the semi-structure interview. Before the pilot interviews process, the researcher consulted with two experts; one in the field of change management and one in the educational technology field. Pilot face-to-face interviews were held with the headmaster, the IT director and two senior teachers. The interviews are recorded and transcribed. Based on the transcriptions, questions, which do not address the

research questions, are eliminated. Finally 30 questions (See Appendix A) were included for the semi-structured interview in consultation with the subject matter expert in the field of educational leadership and educational technology. As in the nature of the semi structure interview the researcher is not supposed to ask each question one by one therefore during the interview the questions are asked around four research questions given above. Some of the questions from the interviews are given as examples below.

1. Please tell me the overview of the process of implementing 1:1 laptop program?
2. Considering life with and without 1:1 laptop program, what has changed with 1:1 laptop program?
3. Do you think what we talked so far in terms of **(a)** leaders/**(b)** change team/**(c)** communication of change/**(d)** management of change is sufficient to implement this change?
4. Is there anything else you would like to add considering only **(a)** leaders/**(b)** change team/**(c)** communication of change/**(d)** management of change?

3.3.2.1.2 Internal documents. Documents created by the teachers team, accreditation self study report, accreditation team's report and meeting minutes were analysed to provide detailed information on the 1:1 laptop program at the school.

3.3.2.1.3 *Perceptions of the IPLP.* An open-ended questions that is "What do you think about the implementation process of laptop program (IPLP)?" The reason why we asked this question is to reveal any information that participants may not have said during the interviews.

3.3.2.2 Quantitative data collection. *The quantitative data were collected through the survey (see Appendix B).* The online survey consisting 6 pages is used to collect teachers' perception on change management practices during the IPLP. The survey was prepared online and the link is delivered to the teachers through email. First 4 pages of the survey included change management scale.

3.3.2.2.1 Demographics survey. Demographic questions such as age, department, total years of teaching experience, total years of teaching experience with the laptop

program and total years of teaching experience at their current school are asked in this survey.

3.3.2.2.2 Change management scale. Change management scale (Hechanova & Cementina-Olpoc, 2013) is used to measure participants' perception of the nature of the change practices. The scale items are developed after interviews with 8 change leaders of organizations to measure the extent to which changes were planned, executed and monitored. The scale items then converted to 5 point Likert Scale (1:Strongly Disagree, 5: Strongly Agree) questionnaire items. Total of 17 items (Appendix B) measures change practices in four subscales; six items such as *"Leaders were sensitive to the employees' reactions"* measure Leadership Support subscale with internal consistency reliability of α=.84, three items such as *"There was a dedicated change team"* measure Change Team subscale with internal consistency reliability of α=.89, five items such as *"Change efforts were rewarded"* measure Management of Change subscale with internal consistency reliability of α =.90, three items such as *"The goals of the change were clear"* measure Communication of Change subscale with internal consistency reliability of α=.88.

3.3.3 Data collection procedures. Firstly the researcher as a participant of the process made informal observations for two years in the field of study. Secondly, initial phase of interviews were conducted for two reasons; (a) to collect information on the whole process of the implementation of 1:1 laptop program, (b) to develop reliable interview questions to address research questions for the second phase of interviews. Six teachers from different departments and with varying backgrounds (See Table 3) were interviewed in the second phase of the semi-structured interviews which aimed at obtaining detailed information on the IPLP and reveal differentiation between perception of teachers.

Initial interviews were held after seeking permission from the headmaster of the school to conduct a study on change management of laptop program and leadership. The headmaster was also interviewed during the pilot face-to-face interviews along with the IT director and two senior teachers. The interviews were recorded with the interviewees' permission and the transcripts are analyzed to finalize semi-structure interview questions.

Semi-structure interviews were held with the selected participants during the fall semester. Interviews were held in a quiet room arranged by interviewees and arranged via emails after first informal one to one verbal request. In order to gain participants' trust and enhance the reliability of answers, at the beginning of every interview, interviewees are informed that the study will be used for a thesis study at Bahçeşehir University and their identity and the school's identity will be kept confidential. Having asked permission to record interviews, the audio recorded interviews lasted between 30 to 45 minutes. Same questions were asked to all participants and depending on the answers of the participants, semi structured questions that were prepared to reveal the perception of teachers better were asked in the interview. All interview recordings were transcribed simultaneously during the data collection process.

Having completed all the interviews, researcher approached department heads that are the first contact people in the hierarchy of the school above teachers, to request sharing the link to the online survey page. The online survey link has been sent via department heads to English, Turkish, Foreign Languages, Sciences, Social Sciences and Mathematics teachers. 32 teachers among 78 teachers have completed the survey. The reason behind contacting all teachers via department heads instead of sending mass email via administration is to eliminate the perception that the survey is reachable by the leadership of the school. It is also aimed that teachers feel safe to answer openly questions, which are related to leadership of the school. In addition, the online survey does not request any personal information such as name and contact details from the participants. Furthermore, participants had an option not to state their gender and age in the demographic question page so that some teachers may be assured of anonymity of the survey. All the department heads were very co-operative and accepted to share the link to survey and afterwards an email (Appendix C) including the link to survey were sent to department heads to be forwarded to all teachers in the department. The online survey's welcome page (see Appendix A) also informs participants about the content of the survey, operational definitions and states that the survey is anonymous and their answers will be kept confidential. All items had to be filled to proceed to next page in the online survey to collect answers for all items.

Additionally, videos published online by the school to communicate the vision of 1:1 laptop program and student surveys conducted by the school are also analysed yet was not reported due to privacy procedures and to maintain anonymity of the school.

3.3.4 Data analysis procedures. The qualitative data including one open-ended question in the survey were analysed in six steps as suggested by Tesch (1990). After all interviews are transcribed, all transcriptions are read to get the whole picture. Second, one of the interview transcription was read in detail to comprehend underlying meaning. Third, a list of topics is drafted after having read some other interview transcription. Fourth, topics are abbreviated as codes and the text have been coded using the comment function of Word processing software. Fifth, relevant topics are grouped together and categorized under themes (Tesch, 1990). Categories used in the content analysis are determined by the researcher based on the literature and researches on management of technology integration.

In the quantitative data analysis part, mean, percentage, frequency and standard deviation of 17 Likert scale items were retrieved using report function of the online survey tool and Microsoft Excel software.

In the qualitative data analysis part, role based matrix have been created to reveal differences among the perceptions' of the participants about the change team, the role of the team, professional development and the why of change. The matrix compares the variances of perceptions based on the role of the interview participants.

The researcher reduced the amount of data among the documents using search tools and selecting a focus group of consisting teachers and leaders. Based on interpretations of data, I have drawn general patterns and themes.

3.3.5 Reliability and Validity. In ensuring internal validity, the following strategies were employed as suggested by Gay and Airasian (2000):

- Triangulation of data:
    a. Data were collected through multiple sources such as interviews, questionnaire, meeting minutes, internal documents and survey results.

b. Interviewees are selected based on their backgrounds (See Table 3) and emphases were given on selecting people from different subject areas as well as roles that they have taken in the process. Therefore it is aimed to confirm the data from different data sources

- The researcher extended the data collection process via interviews between June 2015 and November 2015, in order to obtain additional data and to compare participant's consistency of data.
- The survey included a questionnaire with high Cronbach alpha (α) values in the qualitative part of the study. The change management practice questionnaire with Leadership Support subscale with internal consistency reliability of α =.84, Change Team subscale with internal consistency reliability of α =.89, Management of Change subscale with internal consistency reliability of α=.90, Communication of Change subscale with internal consistency reliability of α=.88
- The questionnaire is not given to leaders to avoid biased opinion from leaders about the leadership.
- The interviews included people from different levels such as teachers, teacher-leaders and leaders.
- Interviewees were selected based on their experience of the IPLP at the school. All interviewees had minimum of five years of experience at the current school that is the time of the IPLP with students.
- Interviews lasted between 30 to 45 minutes to get detailed information from the participants.
- Pilot interviews were held with four participants to revise interview questions.
- Interviewees are selected from a list of possible interviewees based on their experience at the school and background.
- The researcher held long term and repeated informal observations at the research site for more than two years.

3.4 Limitations and Delimitations:

This study is a mixed-methods case study that examines the change management practices of 1:1 laptop program at a private college in a metropolitan city of Turkey. This study does not consider effectiveness of 1:1 laptop program.

The population does not involve students and parents mainly due to time constraints. In addition, the management of the change process of 1:1 laptop program may not necessarily involve students and parents at all stages of the process.

The interview results are limited to the opinions of leaders and teachers who were interviewed. The survey results are only reflects the perception of 32 teachers who have completed the survey.

It is assumed that the answers to interview questions and survey were honest opinions of the participants. Having taken precautions such as informing the participants about the confidentiality measures and anonymity of the interviews and surveys, they may still have not given honest answers due to fear of retaliation by employers.

Another limitation of the research is the sole researcher in the field as a participant in the setting due to lack of availability of researchers. Another researcher would have coded the interviews separately to reduce biased interpretation of results. In order to reduce bias, the researcher have recorded and transcribed all interviews without omitting any parts. The researcher has coded all frequent topics appeared in the transcriptions and categorized under themes based on the subscale items.

Having considered all the limitations, we can not generalize the results yet this study will reveal in-depth knowledge on the implementation process of 1:1 laptop program and may reveal some effective implementation strategies and guidance on good practices regarding the establishment of 1:1 laptop programs for educational leaders.

Chapter 4
Results

In this chapter, findings of the interviews and the survey will be presented according to research questions.

4.1 Leadership Support

RQ1.A **What change management practices work according to teachers and leaders in terms of** leadership support**?**

This question aims to reveal teachers' and leaders' perception on who supported the change, how they supported the change, whether leaders role modelled the change, leaders' reactions towards employees and employees' attitudes towards leaders using interview questions from 1 to 12 (See Appendix A) and results of the survey for teachers (See Table 5).

80% of the respondents either agree or strongly agree that key executives supported the change. When asked who supported the change in the interviews out of 8 participants, one participant said no one supported the change, one participant mentions head of departments, one participant mentions teacher-leaders, and one participant mentions people who were open to change. Two of the respondents mention administrative team (admin); three participants said academic dean who is a member of admin and four participants said IT team supported the change (See Table 4).

When asked, "how did the admin or academic dean supported the change?" they stated that they encouraged teachers, IT department and some teachers to become natural leaders.

Participants mention two type of support, as one being moral support by the admin and the other is the technical and educational support by the IT department.

One of the teacher-leader said:

> I think that person (referring to academic dean) supported it mainly with sort of moral support and emotional support… so it is about saying to that group (IT team) don't give up, whatever you need we'll give you whatever time you need we give you.

One of the participants said: referring to support by admin "…when they (admin) visit the course or in a talking they can give positive feedback about the changing. It is also a support."

Another participant saying: "When you talk about technology their eyes were shining."

Leader of the IT team agrees that they were given time during the school year to organize and take part in the professional development days to train teachers as well as being given financial support in terms of infrastructure and employing staff to support teachers for technical matters. The admin has given responsibility to the IT team to support teachers in terms of technical problems and they have mainly reinforced the people via verbal communication.

Referring to support by the IT department one participant said:

The IT department was one of the most pro-active support teams I have ever seen. They were there to give, there are some successful ways and perhaps less successful ways. Successful ways were the technical support. The ability to there to fix technical problems. Whether it was with the tech boxes, whether it was with the computers. On a less successful level, I would say that, there were some professional development sessions that happened.

The participants acknowledged the fact that few people have taken leadership roles during the IPLP in addition to the people in the managerial positions at the college. Only one participant mentioned one of the headmasters among the three headmasters during the course of implementation. She said "…Mr. Bird (headmaster at the time) was here and did not actually attend but he facilitated sometimes at the beginning of meetings."

Three participants mentioned only one of the administrative team members, academic dean, among the six people in the middle level managerial positions, as the person taking active part in the IPLP. She has taken the role of keeping the topic alive as one participant said, "Academic director was the person who was I think largely the flag waver for the whole thing. Like a cheerleader" and another participant said "Academic Dean also kept this topic on the headlines"

The survey results show a mean value of 3.22 for the items that asks whether employers trusted leaders (See Table 5). One participant gives underlying reasons why employees may not trust the leaders as to their low visibility on the field. She said:

> They are of course not aware of everything the needs and the problems and good and bad things. At the very beginning of the process, they look like they are aware of and control and see everything. But again gradually we lost them, we could not see them around any more. Maybe at the very first week of school and the last week.

According to survey results 44% of teachers strongly agrees or agrees and 22% strongly disagrees or disagrees that leaders were sensitive to the employee' reactions. In the interview, some of the participants used "patient", "supportive" and "helpful" to define attitude of leaders towards people who resisted the change.

On the other hand, one of the teacher-leader said:

> From what I understand, they (referring to teacher-leaders) became very frustrated. Some people have lost their energy and did something else. And they are still effective leaders, they help one or two teachers but they are not involved in the whole process.

One participant also believes that teachers team is formed to address issues of resistant teachers. She said:

> Some teacher didn't want to change the way they were teaching.… that's one of the reasons why they had TT to try to get at least one person from each department who is little more literate in computer so they can help other people and show them actual things they can do in their subject area and also they would keep on inviting those people who seem to little resistant. They knew which people were resistant. So they were encouraging them to come.

According to the survey results, 37% of teachers agree or disagree, 38% of teachers neither agree nor disagree and 25% of teacher disagree that leaders role modelled the change. One of the participants in the interview stated that they can not role model "because they are not teaching, there is no chance to go and see their application in the lesson."

Table 4

Matrix Based on Roles: Teachers' and Leaders' Opinions Based on Interview Result

Roles	support	team	role of the team	Professional Development	why change
teacher-leader	AD, IT	central team, TT	central team: to get things start, to put broad parameters, the framework. TT: to create an IT vision and mission, was supposed to act as motivators and as implementers of technology within each department	IT department organized pd sessions on a less successful level in comparison to technical support they provided, did not take part and not aware of what they did.	21st century skills, project management, effective teaching
teacher-leader	IT, AD, HOD, STT	TT	talking about every issue about the technology in the school	teachers teaching teachers sessions	21st century skills
teacher	teacher-leaders, IT	IT team as a change team	support us to provide educational opportunities, help us with trouble shooting.	lots of different trainings. how to use computer, integrating programs, online apps and how to adapt your lessons. Part of it was to share the concerns of teachers and discuss on how to deal with the concerns	computer literacy skills, availability of resources
teacher-head of department	Admin, IT	TT (not effective)	To implement the change in a long term. They were working well by themselves but the school community was not informed enough what they do.	Focused on the use of tool. subject based trainings needed. It stopped after two years, needs to continue	makes students' and teachers' job easier and faster

Table 4 (Cont.d)

Roles	support	team	role of the team	Professional Development	why change
teacher-leader	teachers who are open to change, IT, AD	TT, central team as a change team	central team: create a road map. TT: to find the things (that are not necessarily associated with technology) that need to change for the 1:1 laptop program to be successful and facilitate the discussions around that change so that it happens	focused pd approach is needed. PD can be used as an incentive	to provide better modelling for digital citizenship, for collaborating. to promote 21st century skills more, to support educational program
tech-leaders	all stakeholders, admin who distributed the responsibility to TT and STT	Central team and TT	Central team overseas the whole project. It includes the academic part, the technical part the financial part everything. TT: running the program for the first two years, focusing on integrating technology innovation part. Listening to teachers voice	changed over time from focusing on tools to subject specific content. Need more time to organize PD	vision: 21st century skills. technology helps to achive vision. technology helps the process to make it faster
teacher	no support. IT was ready to a certain extent only if you seek support	don't know	don’t know	for teachers to improve skills in using computer	leaders believe that in order for our school to catch up with changes in technology there should be 1:1 laptop program

Note: AD: academic dean, TT: teachers team, IT: Information Technology, HOD: Head of departments, STT: Student technology team, PD: professional development

Another participant expects leaders to be more involved in implementing the change. He said:

> One of the thing is the idea of modelling. I really think that the administration should've actually been sort of going along with us in implementing, doing this and maybe even making mistakes, using technology, being part of the process and being seen as the part of the process being seen with the computer. I think leadership with modelling was lacking.

Table 5

Teachers' Perception on the Leadership Support Items (N=32)

Items	SDA	DA	NA ND	A	SA	Mean	SD
1. Key executives clearly supported the change.	0%	6%	13%	41%	41%	4.16	0.88
2. Leaders had political will to implement the change	0%	6%	19%	47%	28%	3.97	0.86
3. Leaders were transparent about the change/s	3%	19%	22%	44%	13%	3.44	1.05
4.Leaders were sensitive to the employees' reactions	3%	19%	34%	41%	3%	3.22	0.91
5.Employees trusted the leaders who drove the change	0%	19%	41%	41%	0%	3.22	0.75
6.Leaders role modelled the change/s.	6%	19%	38%	34%	3%	3.09	0.96

Note: SDA: Strongly disagree, DA: Disagree, NAND: Neither Agree Nor Disagree, A: Agree, SA: Strongly Agree. 5: Strongly Agree, 0: Strongly Disagree

On the other hand, one of the leaders thinks that "leaders have role modelled with attending external workshops, constant invitations to lunch time sessions, after school sessions. Creating the responsible use policy for students."

The results show that the headmaster and the administrative team who made the decision to implement the 1:1 laptop program, have distributed the leadership among teachers and the IT team. According to teachers, leaders had political will to implement the change and the admin have shown moral support to natural leaders to promote the change. Some of the participants think that leaders were sensitive to teachers' reactions and have shown support and assistance to their difficulties but

some of the participants on the contrary, think that some leaders felt frustrated due to constant resistance from teachers. Teachers do not think that the admin could role model the change and was not part of the process yet according to one of the leader attending workshops and constant invitations to trainings is part of role modelling.

4.2 Change Team

RQ1.B What change management practices work according to teachers and leaders in terms of **change team**?

This question aims to reveal teachers' and leaders' perception on whether there was a dedicated change team, if yes how effective was the team and composition of the team using interview questions from 13 to 15 (See Appendix A) and results of the survey for teachers (See Table 6).

Table 6

Teachers' Perception on the Change Team Items (N=32)

Items	SDA	DA	NA ND	A	SA	Mean	SD
7. There was a dedicated change team	3%	6%	9%	66%	16%	3.84	0.9
8.The change team was capable	0%	22%	19%	53%	6%	3.44	0.9
9. The change team represented different units	6%	28%	16%	44%	6%	3.16	1.1

Note: SDA: Strongly disagree, DA: Disagree, NAND: Neither Agree Nor Disagree, A: Agree, SA: Strongly Agree. 5: Strongly Agree, 0: Strongly Disagree

As indicated in Table 4, it is found that four teams namely; the central team, the IT team, the teachers team and the student technology team have been involved in the IPLP. According to interview results, 5 participants mentioned the teachers team, 3 participants mentioned the central team and 1 participant mentioned the IT team as the change team. 2 participants mentioned the student technology team as part of the process and 6 participants mentioned IT team, which provided support and professional development sessions.

Central Team consisted of key executives, leaders and three teachers at the leadership positions. A member of the central team defined their role as:

> To get things start. The role of the team was to put broad parameters, the framework. Yes, I think it was effective because it was short term. And it had a limited lifespan on purpose. The idea being that we would pass it on.

In the meantime the central team has researched and seek consultancy on how to implement the laptop program as efficient as possible. The consultants suggested making a transition from top-down leadership approach to ground-up leadership by having a transition with a new team consisting of members from all departments. The member of the central team express the practice as:

> Process of doing that it was agreed as a central team that we would give the responsibility off to a new team what we call the teachers team which was supposed to be from the ground up this was supposed to be people who were implementing in the classroom thus leadership would come from below not from above.

At the end of completion of its mission some of the central team members continued taking part in the TT and the IT team.

Teachers Team (TT) was formed in the first year of implementation of laptop program in the classroom. All members were taken on a voluntary basis at the beginning of every school year. It was encouraged to have at least one teacher from every department. Over the five years time, the team has worked on several topics such as responsible use policy, professional development, digital citizenship, integrating technology skills, ISTE standards and so on. The size of the team changed between 10 to 15 members every year and in total 26 people has taken various roles within the team in the five-year period. When asked what was the aim of the team, a TT member said, “We could not find some concrete goals. There are a lot of things to do, like digital citizenship or social media but on the table changing this into a project was so abstract.” As he continues explaining the role of the team he said:

> We could not understand this very well or it was not explained to us very well. The role of the team in my opinion, talking about every issue about the technology in the school. Not for example, which kind of hardware we will buy, not the technical part, but educational part. If the system is going well, what is the problem of the system, in the classroom and out of the classroom. For instance what can we do more about technology for our students.

The role of the team is expressed as discussing every issue related to technology in the school, which is consistent with how the head of the TT defines his role as:

> I would prefer to see myself as a facilitator and coordinator of discussion. There are many things that need to change for the 1:1 laptop program to be successful. They are not only associated with technology. I try to find the things that need to change and facilitate the discussions around that change so that it happens.

A member of the central team thinks that TT was supposed to take more leadership however he expresses TT's lack of authority saying:

> For the leaders, I think they (admin) should have given real, meaningful authority to the TT. Meaningful authority, specific tasks, and say we don't care how you go about it but within the next year you guys are going to come up with some ideas that you were gonna implement. But real authority.

Another participant points out that one person from each department has taken a role in the TT to provide subject specific support and to increase participation from different departments. She said:

> I think they wanted to have more buy-in from each department so they picked a person from each department to make sure that they could provide more support within the department and within the subject areas. Because how I use the computer for languages and programs I need and apps I need would be very different from science. So the idea was to get people from each department and that way there is more support throughout the school.

When asked if the team was effective, one of the participants who is also a TT member said:

> No**.** And again I think its because there is very few other schools to base our research on, to base our progress on. Lets take as an example faculty and staff responsible use policy; there are a lot of school that have social media use policy. There are very few schools that actually have as part of their contract something about technology that is what we are creating. I feel like we are the only school that are creating but if you look out there are tons of schools that have it, it's just not being shared yet. It is not part of the common discussion.

IT Team members have also taken various roles in the IPLP. One of the participants considers the entire IT team as the mere team during the change process

of the laptop program. She defined team's role as "to support us, to provide educational opportunities, and help us with trouble shooting" The head of the IT team has taken role both in the central team and the TT. Another participant considers IT team as part of the leadership team and express its connection to TT saying:

> Again leadership includes the IT department. I think the IT department had the incredible impact as did members of TT were at their using. They were sort of leading within. I am very positive about the technology today and we got here somehow. I think we got here somehow by the leadership" In addition, five participants stated IT team when asked "who supported the change?

4.3 Management of Change

RQ1.C What change management practices work according to teachers and leaders in terms of management of change?

This question aims to reveal teachers' and leaders' perception on whether the goals of the program was clear, whether there was a road map, if yes what was the road map, how was it implemented, whether teachers were consulted in the process, if yes how was the data collection and if the results were made public using interview questions from 16 to 22 (See Appendix A) and results of the survey for teachers (See Table 7).

One of the important steps in any change process is the communicating the vision and the goals of the change. As seen in Table 7, only 50% of the teachers agree or strongly agree that the goals of the change were clear.

However interview results reveal differences in participants' understanding of change. Participants have answered differently when asked, "Why do you think we decided to move on with this laptop program?" (See Table 4)

One participant said "Was change necessary? Yes, because it brings us into the **21st century** where these kids will now go out and know how businesses are operating." The same participant also said:

> People didn't understand this wasn't just about the technology. This was about effective teaching. I think that message never really got across to everyone. This was helping us to become more effective teachers so exploring new ways of kids participating with each other and so on.

Table 7

Teachers' Perception on the Management of Change Items (N=32)

Items	SDA	DA	NA ND	A	SA	Mean	SD
10. The goals of the change were clear.	6%	22%	22%	44%	6%	3.22	1.1
11.The change was well planned and organized.	6%	31%	28%	34%	0%	2.91	1.0
12. The change effort was adequately funded.	3%	0%	25%	38%	34%	4.00	1.0
13. Progress toward goals was monitored.	13%	22%	34%	31%	0%	2.84	1.0
14. Change efforts were rewarded.	0%	38%	53%	9%	0%	2.72	0.6

Note: SDA: Strongly disagree, DA: Disagree, NAND: Neither Agree Nor Disagree, A: Agree, SA: Strongly Agree. 5: Strongly Agree, 0: Strongly Disagree

Similar to 21st Century another participant mentions the century saying:

> Because it's **the need of the century**. Technology is everywhere you cannot disregard the fact that laptops computer Internet is everywhere. I personally think that the admin didn't even think deeper. They said ok this is where teaching is going, education is going and we need to be in that boat. We need to catch up. Are there studies showing laptops help teaching any better, no. There are no solid studies it's just a trend. Trend is in that direction.

Another participant thinks that the reason is the computer literacy saying: "Definitely **computer literacy** and then also that's one thing, but then the availability of resources."

One of the participant stated practicality of the program was the reason saying: "It makes it easier. Tools that I use make students and my **job easier and faster**."

According to another participant it was leaders belief, which shaped the goal that the school has to follow the current trend. She said:

> I think the leaders believe that in order for our school **to catch up with changes in technology** there should be 1:1 laptop program. I think that's what they thought. I think the leaders position was or they feel obliged to

implement this program because the school needs the top school catching up with all the IT changes etc. I think that's what they cared about, maybe that's what they should care about.

One of the teacher-leader openly and clearly stated that there was never a clear goal. He said:

> The **message is missing**. What it is right now there is a program but there are very few expectations and there was never a clear, this is what we are doing – this is why we are doing. And that message has to continue every year. It has to be reinforced over year. The people who enforce it there should be clear message from the above there should be a clear expectation from above. And people should be held accountable for the expectations right.

The survey results shows that no one strongly agrees and only 34% of teachers agrees and 38% of teachers disagrees or strongly disagrees that the change was well planned and organized (See Table 7).

According to interview results some teachers consider the change process only took place and completed once computers are being used in the classroom. We understand this from three of the participants' comments on the process.

A conversation takes place as:

- Do you think leaders have 1:1 laptop program in their agenda on a daily basis?

- Yes. On a daily basis? I think it is crossed out already. 1:1 laptop program. Implemented done. What is next? I think.

- When did they tick?

- I don't know. Once we get the laptops.

- Once you got the laptops it is over huh?

- I think so. I don't know. Are they bringing this up? Are we hearing anything about like; ok how is 1:1 laptop program going? Do we hear anything? No.

Another participant considers the implementation process only before the TT was formed. When asked "Do you think that team took part in this implementation process?" He said: "Didn't exist then. TT developed after the initial implementation."

Another participant defines the road map as:

> I would say that the road map was created by the central team but the TT was responsible for creating our IT mission. And they did that. That was sort of our road map. But I don't know what it says. I forgot.

One of the leaders acknowledges the lack of long-term strategic plan saying: "There was a road map for the first year. There has never been an IT strategic plan."

One of the participant thinks that the teacher has to find their way to implement the change as she said:

> They provided us with all this laptops. And the kids fine. And IT is there to support us, if we need their support. At the end of the day it is the teacher who is finding his or her way.

Another participant thinks that this was a learning process and the process was shaped based on experience of schools, which have implemented 1:1 laptop program. She said:

> It is a **learning process**. That is why they had the School A come and the other schools come because they presented to us some of the issues they had at the beginning and ways of troubleshooting those things so that we don't have them. So that was helpful. But all those different things come up. If they knew exactly what would go wrong every step of the way that we could not avoid them.

Survey results shows that 33% of teachers disagree or strongly disagree, 34% neither agree nor disagree and 31% agrees that the change was monitored. The participants in the interview interpret monitoring differently.

One participant thinks that there was no assessment and he said "how do I know whether its working or not, I ask my students. I got a lot of feedback from students."

Student feedback is also mentioned by one of the leaders when asked how did they evaluate student engagement. He said "Anecdotal. You are in the classroom and you feel it, you get good student feedback."

Another participant thinks that it is mostly self-monitored. She said:

> A lot of it was self-monitored. Again I think it depended on the motivation of the teacher. Not every teacher and **I don't know if I did it either** assess, as this is a completely effective lesson etc. A lot of times teachers were using as a substitution where they are doing things in the computer that could have been done without computer more effectively.

On the other hand one of the participants thinks that technology use was one of the important criteria for the teacher evaluations. He said:

> I think, for the assessment of teacher, using technology became one of the important criteria. As a teacher if you are setting a lesson for the assessment, someone told you that they (admin) will come and observe your lesson in your assessment year, you want to give a lot of example from technology usage. You could not say a leader will come and observe your lesson and you did not use any technology.

Same participant also explains how he knows if he is doing OK with technology:

> By feedback, they gave feedback and I mostly understand if my usage of technology is enough or not sufficient maybe. I should use different strategies or different type of software. But my opinion, in this school it happens in a natural way.

None of the participants in the interviews stated any reward given for the change efforts and only 9% of the participants agree that change efforts were rewarded (see Table 7). One teacher-leader participant mentioned that teachers who presented to school community and took leadership roles in the change process were given priority to receive professional development fund.

The results show that the goals of the 1:1 laptop program were not clear to the teachers as the interview participants stated different goals. The 2.91 mean value of the item "The change was well planned and organized" as well as interview results show that the implementation of 1:1 laptop program was not planned according to teachers. Most of the participants stated a road map for the first year of implementation, which was considered as the end of the implementation process by some of the participants. The progress and effectiveness of 1:1 laptop program was self-monitored with subjective measures by both teachers and leaders. Even tough the majority of the participants think that the change was adequately funded, there was not any incentive given to teacher for the use 1:1 laptop program.

4.4 Communication of Change

RQ1.D What change management practices work according to teachers and leaders in terms of **communication of change**?

This question aims to reveal teachers' and leaders' perception on whether teachers were consulted in the process, if yes how was the data collection and whether the results were made public using interview questions from 19 to 24 (See Appendix A) and results of the survey for teachers (See Table 8).

According to survey results, only 28% of the survey participants agree that people were consulted on the change. One participant shares his experience on giving feedback about the change rather than being consulted on the change with these words:

> As I said, I was sort of a canary in the coal mine. If I had one I went. I emailed. I often emailed the head of IT saying hey have you thought of this? Also there were some other people in IT sometimes I would just chat with. But as an individual teacher no one came to me directly. I was not part of the TT, and I was just a teacher.

Table 8

Teachers' Perception on the Communication of Change Items (N=32)

Items	SDA	DA	NAND	A	SA	Mean	SD
15. People wereconsulted on the change.	6%	44%	22%	28%	0%	2.72	1.0
16. The change was explained to everyone.	0%	31%	16%	44%	9%	3.31	1.0
17. Progress toward goals was publicized.	6%	38%	34%	16%	6%	2.78	1.0

Note: SDA: Strongly disagree, DA: Disagree, NAND: Neither Agree Nor Disagree, A: Agree, SA: Strongly Agree. 5: Strongly Agree, 0: Strongly Disagree

Another participant said "I think at the beginning people were thinking ok did we really think through this, how is it going to be implemented etc. It was kind of like pushed on us from top but I think we survived."

On the other hand, one of the participants stated that people were consulted on the change at different platforms. She said "We had several surveys, they send out emails, during the initial year people would talk in the forums, we had opportunity to talk, that was part of the professional development days." When asked what happened with the survey results she said, "I have no idea. There was also student surveys but I don't know what happened to those either" Another participant stated

that she communicated her needs through the department heads however she thinks that the minutes of the meetings are not being read by leaders. “As you’re teacher you are responsible to answer your department head and then your department head communicate your needs to the leaders… I have no idea whether they (admin) even read the minutes.”

When asked, “Did they consult teachers?” one of the leaders said “No. They consult teachers for the feedback at the end of the year as how is it going?”

The internal documents as well as informal interviews with the key executives show that during the initial decision making process on implementation of laptop program, consultation with the teachers was limited to two to three teachers. One of the leaders said that teachers were not consulted at the beginning but “They consult teachers for the feedback at the end of the year as how is it going?” However, later in the process key executives mainly the members of the central team has taken steps to involve wider community and took steps to integrate teachers into the implementation process by the TT which consisted of teachers and some of the member of the central team. One of the members of both central team and TT explains the reasons of including more teachers into the process as to increase the buy-in from teachers. However another teacher thinks that teachers are not included in the process on a voluntary basis so that the TT turns out to be something bureaucratic.

Another participant’s statement supports that TT was not formed on a voluntary basis as opposed to how it is presented. She said:

> I think they (key executives) wanted to have more buy in from each department so they **picked a person** from each department to make sure that they could provide more support within the department and within the subject areas. .... So the idea was to get people from each department and that way there is more support throughout the school.

Interview results and the mean value of 2.72 for the item “People were consulted on the change” show that leaders consulted teachers to a limited extent, which is similar to the results found in the previous section related to goals of the program among the teachers. 53% of the teachers think that the change was explained to everyone (See Table 8). Some of the teacher-leaders and leaders claimed that survey results made public to teachers and some of the participants were neither aware of any monitoring nor results being published related to the program.

Table 9 includes the mean values and standard deviation values of the 32 teachers in the case study based on four subscales; Leadership Support, Change Team, Communication and Management of Change. The findings show that in the case study, the mean value of Leadership Support is above the mean the value of academic organizations and on the other three subscales below the mean value of academic organizations in Hechanova and Cementina-Olpoc's (2013) study.

Table 9

Change Management Practices' Subscales Mean and Standard Deviation Values (N=32)

Subscales	The Case Mean (SD)
Leadership Support	3.52 (.44)
Change Team	3.48 (.35)
Communication	2.94 (.33)
Management of Change	3.14 (.52)

Note: 5: Strongly Agree, 0: Strongly Disagree

4.5 Additional Requirements for the Better Implementation of 1:1 Laptop Program Based on Teachers' and Leaders' Suggestions

RQ2. Are leadership support, change team, management of change and communication of change sufficient for the perceived change in technology integration of 1:1 laptop program? If not, what are the additional requirements or needs **for the better implementation of** 1:1 laptop program based on **teachers' and leaders' suggestions?**

According to interview results five requirements are found to be specific to the implementation of 1:1 laptop program in this study. The results are presented in the following five sections based on the participants answers in the interviews.

4.5.1 Expectations from leaders. Analyses of interviews also show that leaders are expected to be experts in the field of technology to implement the LP. For instance one of the participants said:

> The members of admin team came to all trainings with us but I don't think they would have been good leaders because they were not experts in that

field either… The admin team is not specialized on that so that I don't think they would have been good leaders.

4.5.2 Expectations from teachers. According to the results, admin attempts to create an environment where the change occurs organically therefore leaders expected teachers to be pro-active about their own learning. For instance one of the participants said:

> They (referring to IT team and teacher-leaders) were available, they were always helpful but some people chose not to go to them or didn't go to any of the trainings and then said we had no support. I think it also depend on people.

One of the participants thinks that risk taking is a requirement for both teachers and students. He said:

> A lot of teachers I think we become comfortable, what we can do what we used to, we develop programs such as curriculum activities so on so forth and it is very big risk to implement another tool to implement. It is a big risk, it may fail, you may look like you are not an expert, teachers never or rarely want to feel that way. So it is a lot of risk taking. Teachers and also students have to go out of their comfort zone.

One of the teacher-leaders also supports the idea of risk taking and to be ready to fail and try again saying:

> Learning is a continuous process and you have to be ready to continue learning and fail and re-do and change so on so forth. It was very open initially but over the course of time you either stay open or just pretend to be open and you close up yourself again.

One of the participants also emphasizes the importance of sharing of knowledge between teachers and states that teachers have started to teach themselves. Part of the professional development days are devoted to a session called "teachers teaching teachers" (See Table 4) where teachers share their experience of 1:1 laptop program with their colleagues.

4.5.3 Natural leaders. Analysis of interviews also shows that natural leaders are supported and given leadership roles within the program. One participant says, "I think they encourage some teachers to become natural leaders and make them become an example. So they become a model for teachers" and another participant

said, “Well there are always natural leaders. That people who are in TT already actually doing those things within their department. This was just an official role.”

4.5.4 Professional development. All of the participants stated that the trainings provided assistance related to the use of technological tools and technical issues. However, after being trained in the use of technology, teachers expect specific training where a tool is demonstrated within a subject based project at the current stage. For instance, one of the participants said “But they only demonstrate the tool and the use of it. But we cannot have any educational support like science, art, PE. We can not concentrate on subject based things by using these tools.”

4.5.5 Change team. One of the participants stated that the teachers team should initiate conversations with other schools implementing 1:1 laptop program to model and share good examples. The school already received consultancy services from an experienced school, which is provided at cost.

Chapter 5
Discussion and Conclusions

In this section, the results of this study are evaluated and conclusion remarks are drawn in comparison to the existing literature. The evaluation of results and conclusion remarks are first presented based on research questions and finally suggestions are made for the educational leaders and researchers.

5.1 Discussion of Findings for Research Questions

5.1.1 Leaders and change team. According to the results, the admin who made the decision on implementing the 1:1 laptop program based on the suggestions made by the central team does not take an active role in the implementation process of the 1:1 laptop program (IPLP). The admin has adopted an approach to create a change process, which would occur "*organically*". The admin at the initial stage makes a "*wise"* decision not to implement this change to current students neither involving them to the advisory team in order to eliminate the resistance from students. On the other hand, implementing the program only with the first year students and phasing up every year have not created a sense of urgency among the teachers. By having an advisory team named as central team, admin aimed to form a coalition group by involving all stakeholders (except students) so that the decision on making a change is supported by all stakeholders. However it is found that majority of teachers feel that they have not been involved in the decision-making process even though three teachers took part in the advisory team. This shows that the admin's effort made by forming a coalition group (as in Kotter's second step) such as the central team to reach wider community have not been publicised or communicated effectively with teachers. As a result, some teachers feel that the decision was already made and forming a team was part of the "*bureaucracy*". Furthermore, one participant thinks that 1:1 laptop program would have been implemented even if 90% of teachers votes against it, therefore to avoid more resentment, teachers were not involved in the decision making process. For a successful management of change, Kotter (2007) insists on implementing his change management guidelines in sequence and moving from one to another after successfully implementing a step.

Hence, it is seen that a coalition group is formed at the school before creating a sense of urgency (Kotter's first step), which in result may hindered the efforts of the central team.

Based on the advise from the consultants, the admin took a significant decision on transitioning the central team which has adopted a top-down approach for a year to a bottom-up approached team that is the teachers team (TT) involving mostly the implementers of the change who are teachers. The TT was lead by the academic dean for two years and involved members of the IT department. According to results of the study, teachers did not state the TT as a team, which supported or lead the change process. Furthermore, the team has been found effective neither by teachers nor by the members of the team. The team has produced policy documents such as responsible use policy for students and teachers, however the practicality of the documents is questionable. Similar to Huffman et al.'s (2013) findings, leadership's lack of communication of the policy may cause the disconnect between the TT's efforts and teacher's perception. According to a member of the teachers team, the role of the team was not explained clearly either which may be due to lack of clear goals and ineffective communication of the leaders.

It is found that the highest mean value (4.16) among all items indicates that the key executives clearly supported the change. Interview results show that teachers consider IT team leader as a key executive and the IT team is the most commonly stated team in the interviews. IT team members in return, acknowledge the support given by the admin to enable them to implement changes at the school. Therefore, first survey item results may be interpreted in two ways, (a) IT team supported the change and (b) admin supported the change by giving responsibility of managing the change process to the IT team. Therefore it is concluded that admin has distributed the leadership among different stakeholders mainly to IT department as well as teachers via TT and students via student technology team (STT), which as a result, has created new roles among the employers and leadership opportunities among students.

Thus, the case has shown different leadership positions' impact on the IPLP at the school. Traditionally, the headmaster would have been expected to take a significant role in such a school level change process yet the participants have not

mentioned the headmaster. A member of the administrative team (admin) has been mentioned mostly as a leader who empowered technology leaders. As the change is directly related to technology, teachers and leaders with technology competence have taken significant role in the IPLP. In a case study where the school principal does not empower technology coordinator and the technology team, it is found that lack of strong technology leadership by the principal negatively influenced the technology integration and his lack of support and recognition affected the morale of the technology coordinator and his team negatively (Wang, 2009). In this case study, the findings indicates that leadership's support and empowerment of technology leaders plays critical role in effective implementation of the IPLP and technology competence is an essential skill to manage the change process of 1:1 laptop program implementation. According to Topper et al. (2013) all administrative staff should involve and show commitment in the technology implementation process therefore all six people in the middle level managerial position and the headmaster are suggested to be more involved in for an effective IPLP.

5.1.2 Communication of change. The means of communication with the advances in technology are expected to enhance the communication between people. However findings of this study show that ineffective or lack of communication is found to be the main problem that leaders need to address. The goals of the program and the role of the teams are interpreted differently by the interview participants. It is found that even team members had difficulty in understanding the role of their team due to ineffective communication. Having a clear vision has been indicated nearly in all change management guidelines in the literature (See Table 1). In addition, Montrieux et al., (2014) also emphasize the importance of clear and practical vision in implementation process of technology integration. Therefore leaders and researchers should find ways to effectively communicate the vision since the efforts put at full-faculty meetings and during informal conversations was insufficient to communicate a clear vision to all teachers.

5.1.3 Management of change and professional development. Montrieux et al. (2014) also suggests the importance of professional development along with clear and practical vision on using innovative technology in the classroom. The results of this study show that some teachers can integrate technology into their classes with the tool specific trainings and those teachers are encouraged to share their learning

within the department and to take active roles in the teachers team. On the other hand some teachers find the trainings limited to introduction on how to use technology and therefore demand continuous subject focused trainings on how to integrate technology into subject matter. Some teachers feel that IT team is there to support but teachers have to explore authentic ways to integrate the tools in their classes. Topper et al. (2013) in their study suggests that the change team should provide subject specific professional development where teachers explore and reflect while working on authentic strategies to use in the classroom. Collaboration between subject teachers and technology leaders is required to reshape the curriculum, which requires solid knowledge on the subject matter, pedagogical methods to deliver the content as well as mastery in using technology. The case study shows that the problems that teachers and leaders encounter was not foreseen and the management lacks a long term strategic plan for the IPLP. The school has invested generously on teachers' professional growth by in-house and off-site professional development opportunities as part of the IPLP however lack of strategic approach and planning reduces the cost-effectiveness of professional development program. Therefore, the case study shows that professional development opportunities enhanced the implementation process of the 1:1 laptop program but professional development program requires a strategic long term planning to continuously develop teachers' competence in integrating ever-changing technologies into subject specific areas. Furthermore, researchers should investigate ways of collaboration between subject specific teachers and educational technologists to effectively integrate 1:1 laptop program into subject matters.

The study also shows lack of clear expectations from teachers on the necessary level of technological ability and an assessment guideline to measure effectiveness of the program aligned with the goals of the laptop program. The school in the case study aims to offer 1:1 laptop program to promote 21st century skills such as critical thinking, creativity and collaboration by adapting International Standards for Technology Use (ISTE standards) however the literature is limited on measuring effectiveness of the 1:1 laptop program based on subjective criteria or on academic achievement (Crook et al., 2015) which does not necessarily assess 21st century skills. The school has already collaborated with an international research group and they administered a survey to all faculty and students. However the survey did not

aim to measure the goals of the program but the perceived level of technology use, which could not be interpreted meaningfully without clear expectations. Therefore the leaders at the school should explore ways to measure the effectiveness of the 1:1 laptop program aligned with clear expectations from both teachers and students. The school may use Technology Integration Matrix (Allsopp, Hohlfeld, and Kemper, n.d.) to assess level of technology integration into the curriculum. Researchers should spend time in the field of study and develop meaningful measuring tools for the schools so that the results can meaningfully reflect on the effectiveness of the program and suggests areas of improvement.

In conclusion, the results show that leaders did not have a long-term plan for the IPLP. The one-year short-term plan implemented successfully and with the support of professional development opportunities and teachers who were able to integrate technologies into their subjects with the trainings was the successful part of the implementation process. However lack of clear expectations from teachers resulted in continuation of traditional teaching practices among some teachers. Leaders on the other hand struggled to find the assessment tools to measure what progress is made in the program and how effective it was. Therefore, teachers who did not change, was not accountable for not implementing the program. As a result, the IPLP has reduced momentum and the gains were limited to those teachers who implement the 1:1 laptop program.

The results of the study by Yuen's et al. (2003) could be applied to the case study as well. According to the cultural innovation model, multiple leadership and self-actualization is observed at the schools with well-established school culture and tradition such as the case in this study. In addition, as the model suggests use of ICT is not used as criteria for success while the school's vision includes ICT as a tool to support learning in the 21st century. Similar to Yuen's et al. findings teachers started teaching other teachers in this study as well. Even though Yuen's model could be applied in the case study to predict the leadership styles adapted to implement the change process, it does not predict the effectiveness of the implementation process.

5.1.4 Additional requirements for the change management of 1:1 laptop program. The results show that teachers expect to have leaders competent in technology to lead the change of 1:1 laptop program. The term e-leadership is used

to bridge the two fields of knowledge of educational technology and leadership in Jameson's (2013) study. He suggests e-leadership framework of educational technology skills for leaders based on extensive literature review study. Similar to the results of this study, *"The research literature reviewed demonstrates strongly that there is a need for senior, middle management and teacher-level strategic leaders to become personally committed to e-leadership."* (Jameson, 2013, p.911-912). This study also revealed key roles taken by natural leaders within teachers in the implementation process of the 1:1 laptop program and also importance of support and empowerment of the natural leaders by the administrative team. The approach of the leadership at the case study shows that teachers are also expected to be pro-active in the learning process, therefore it is important for leaders to encourage teachers to take initiative for their own professional growth and also to share the knowledge they gained through experience either it is a failure or success. It is also leaders' responsibility to create an environment where teachers feels safe to take risks and may be fail or make mistakes at times of trying new tools in the implementation process of 1:1 laptop program.

5.2 Conclusions

The study aimed to answer what worked in the implementation process of 1:1 laptop program in terms of change management practices (Hechanova and Cementina-Olpoc, 2013) according to teachers and leaders at a private school in Turkey. In addition, the study searched for additional requirements specific to 1:1 laptop program implementation at educational institutions. It is found that key executives supported the change by empowering technology leaders and teachers in the process. New leadership positions created within the school and natural leaders are given responsibility to lead and support teachers in the implementation process. Leaders have struggled and were found to be ineffective in communicating the vision of the program and role of the change teams. In order to reach wider community of teachers and enhance the participation of teachers in the change process, the initial change team is transformed to a new team which consisted of mainly teachers and indirectly led by the IT department and the academic dean. However new team's efforts to increase buy-in from teachers did not succeed due to lack of clear goals of the team and the 1:1 laptop program. Teachers do not think that the change process was well planned and leaders had a strategic IT plan to effectively implement

professional development sessions. Teachers agree that IT department has put effort related to technical issues and provided support in terms of how to use technology and tools, however at the current stage it is found that subject specific training is required to enhance teachers' competence in use of technology integrated with the subject matter.

Technology competence of educational leaders is found to be a requirement for leading a change process such as 1:1 laptop program implementation. The study also finds the empowerment of natural leaders significantly important in the process of implementation to create an environment where teachers take risks to try new tools and share their experiences with their colleagues.

This study contributes to the literature by investigating the change management process of implementation of 1:1 laptop program in detail from teachers' and leaders' perspective. It reveals the importance of communicating a clear vision of the program and role of the change teams; leadership support and empowerment of natural leaders within the organization, technology competent leaders as well as well-planned change process to effectively implement the 1:1 laptop program at a school level.

5.3 Recommendations for Educational Leaders

In this section, recommendations to educational leaders are listed.

Educational leaders and/or the change team should;

- Implement change management guidelines in sequence and moving from one to another after successfully implementing a step for a successful management of change (Kotter, 2007).
- Have clear goals to take an effective role in the change process.
- Communicate the vision and the goals of the program clearly to teachers.
- Reinforce the vision and the goals of the program consistently and continuously.
- Support and empower natural leaders and teachers by giving responsibility of managing the change process within the school.
- Provide continuous professional development opportunities tailored for specific subjects to integrate technology into curriculum.

- Develop strategic plans to increase the cost-effectiveness of professional development program.
- Explore ways to measure the effectiveness of the 1:1 laptop program aligned with clear expectations from both teachers and students.
- Adapt a long-term plan with clear expectations from teachers and students.
- Find ways to measure progress by objective measures based on the goals of the program.
- Continue to develop professionally in order to enhance their level of technology competency especially to lead technology related change practices.
- Contribute into an environment where teachers feels safe to take risks and may fail or make mistakes at times of trying new tools in the implementation process of 1:1 laptop program.

5.4 Recommendations for Researchers

In this section, recommendations to researchers are listed.

Researchers should;

- Conduct studies to find ways to effectively communicate the vision.
- Investigate ways of collaboration between subject specific teachers and educational technologists to effectively integrate 1:1 laptop program into subject matters.
- Spend time in the field of study to develop meaningful and authentic measuring tools for the schools to measure;
  a) the effectiveness so that the results can meaningfully be interpreted on the use of the program.
  b) the progress of the program so that the results suggests areas of improvement.

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APPENDICES

Appendix A: Interview Questions

1. Please tell me the overview of the process of implementing 1:1 laptop program?
2. Considering life with and without 1:1 laptop program, what has changed with 1:1 laptop program?
3. Was there any support?
4. If yes; who supported the change? Any support from admin/team
5. How did they support? Give an example. Clarify.
6. Do you think leaders have 1:1 laptop program in their agenda on a daily basis?
   If leaders are not mentioned in the previous question ask;
7. Why do you think leaders did not support the change?
8. What was the attitude of leaders towards your needs/reactions?
9. How did leaders take into account employees' needs?
10. How was the general atmosphere towards leaders
11. Where the needs of the teachers fully taken into account.
    If the answer is no;
12. In return, how was the your/employers attitude towards leaders?
13. Would you say as a result, teachers did not trust the leaders?
14. Do you think admin set an example in this process of 1:1 laptop program?
    a. Yes/ how? Give an example. How can we understand this?
    b. No/ What did you expect him to do?
15. How was the team?
16. What was the role of the team and how effective was the change team?
17. The composition of the team?
18. Do you think the change was a need?
19. Then why do you think did we decide to move on with this program?
20. Was there any road map? Did you know what was next? Did you know what to face?
21. Did they consult you about any issue or concern?
    a. If no, how was the planning if it was spontaneous?

b. If yes, were results/achievement made public?

22. How did you know you were doing OK related with these goals during the process?
    a. How did they collect data? What was assessed? Did you feel observed or monitored?
    b. What if you had questions what did you do? In case of a problem who did you consult?
23. Were you informed about the whole process?
24. How participatory and transparent was the process/leaders?
25. Do you think what we talked so far in terms of **(A)** leaders/**(B)** change team/**(C)** communication of change/**(D)** management of change is sufficient to implement this change?
26. Is there anything else you would like to add considering only **(A)** leaders/**(B)** change team/**(C)** communication of change/**(D)** management of change?

Appendix B: The Survey

Thank you for agreeing to take part in this anonymous survey. This survey consists of six pages. First four pages include 17 likert scale items from "Strongly disagree, Disagree, Neither agree or disagree, Agree and Strongly agree". Fifth page includes an open-ended question and the last page includes questions to identify demographics of the population. It should take about 8 to 15 minutes to complete the survey.

This anonymous survey will be used in my thesis research at Bahçeşehir University. The aim of this survey is to measure the effectiveness of 1:1 laptop program's implementation process.

Please note some operational definitions before answering questions. In the survey;

Leaders refers to people who takes leadership position at the school

Employees refers to teachers

Change refers to the implementation process of 1:1 laptop program at the school

Change Team refers to a team which manage the change process of 1:1 laptop program

Be assured that all answers you provide will be kept in the strictest confidentiality.

Please click "Continue" to begin.

Survey Items

Change Management of 1-1 Laptop Program

(Marked questions are mandatory)

Leaders refer to people who have taken leadership position in the school. Change refers to the implementation process of 1-1 laptop program at the school.

***1. Key executives clearly supported the change.**

(Please choose only one answer)

- Strongly disagree ☐
- Disagree ☐
- Neither agree nor disagree ☐
- Agree ☐
- Strongly agree ☐

***2. Leaders had political will to implement the change**

(Please choose only one answer)

- Strongly disagree ☐
- Disagree ☐
- Neither agree nor disagree ☐
- Agree ☐
- Strongly agree ☐

***3. Leaders were transparent about the change/s**

(Please choose only one answer)

- Strongly disagree ☐
- Disagree ☐
- Neither agree nor disagree ☐
- Agree ☐
- Strongly agree ☐

4. Leaders were sensitive to the employees' reactions

(Please choose only one answer)

- Strongly disagree ☐
- Disagree ☐
- Neither agree nor disagree ☐
- Agree ☐
- Strongly agree ☐

***5. Employees trusted the leaders who drove the change**

(Please choose only one answer)

- Strongly disagree ☐
- Disagree ☐
- Neither agree nor disagree ☐
- Agree ☐
- Strongly agree ☐

***6. Leaders role modelled the change/s.**

(Please choose only one answer)

- Strongly disagree ☐
- Disagree ☐
- Neither agree nor disagree ☐
- Agree ☐
- Strongly agree ☐

Change team refers to a team which manage the change process of 1-1 laptop program

7. There was a dedicated change team

(Please choose only one answer)

- Strongly Disagree ☐
- Disagree ☐
- Neither agree nor disagree ☐
- Agree ☐
- Strongly agree ☐

8.The change team was capable

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

9. The change team represented different units

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

Change refers to the implementation process of 1-1 laptop program at the school

10. The goals of the change were clear.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

11.The change was well planned and organized.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

12. The change effort was adequately funded.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

13. Progress toward goals was monitored.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐

Agree ☐
Strongly agree ☐

Change refers to the implementation process of 1-1 laptop program at the school

14. Change efforts were rewarded.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

15. People were consulted on the change.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

16. The change was explained to everyone.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

17. Progress toward goals was publicized.

(Please choose only one answer)

Strongly Disagree ☐
Disagree ☐
Neither agree nor disagree ☐
Agree ☐
Strongly agree ☐

What do you think about the implementation process of 1-1 laptop program?

_____
_____
_____

***Please select your age range**

(Please choose only one answer)

20-29 ☐

30-39 ☐
40-49 ☐
50-59 ☐
60-69 ☐
do not want to state ☐

***Please select your gender**

(Please choose only one answer)

Female ☐
Male ☐
do not want to state ☐

***Please select your department**

(Please choose only one answer)

English ☐
Turkish ☐
Foreign Languages ☐
Science ☐
Mathematics ☐
Social Sciences ☐

Please select your total years of teaching experience

(Please choose only one answer)

0-5 ☐
6-10 ☐
11-15 ☐
16-20 ☐
21-25 ☐
26+ ☐

Please select total years of experience at your current school

(Please choose only one answer)

10+ ☐
9 ☐
8 ☐
7 ☐
6 ☐
5 ☐
4 ☐
3 ☐
2 ☐
1 ☐

Please select total years of teaching experience with 1-1 laptop program

(Please choose only one answer)

10+	☐
9	☐
8	☐
7	☐
6	☐
5	☐
4	☐
3	☐
2	☐
1	☐

Appendix C: Letter to Teachers via Department Heads

Dear _____ Teachers,

I am doing a thesis research and collecting data on implementation of 1:1 laptop program via survey. The anonymous survey should take about 10 min. Detailed information can be found on the first page of the survey. Thanks _____ for accepting to share this message on behalf of me.

I would appreciate so much if you fill in the survey before the Thanksgiving holiday.
Link to survey: bit.ly/msgsurvey

Have a nice holiday şimdiden:)

CURRICULUM VITA

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EDUCATION

Bahçeşehir University 2013-2016	*Istanbul, Turkey* M.A. in Higher Education Management and Leadership. GPA: 3.91/4.00
Middle East Technical University 2002-2007	*Ankara, Turkey* M.Sc. in Physics Education B.A. in Physics GPA: 3.24/4.00

WORK EXPERIENCE

Baku Oxford School 2010-2013	*Baku, Azerbaijan* Physics Teacher and Head of ICT
Int. School of Frankfurt 2008-2010	*Frankfurt, Germany* Science/Physics and ICT Teacher
Chase Grammar School 2007-2008 Tutor	*Staffordshire, England* Physics Teaching Assistant and Resident Boarding

PRESENTATIONS

Leadership Styles and Technology: Leadership Competency Level of Educational Leaders. Presented at 5th International Conference on Leadership, Technology, Innovation and Business Management. *Istanbul-Turkey*. 2015.

E-CERTIFICATIONS

University of California, 2013	Foundations of Virtual Instruction.
Rice University, 2013	Inquiry Science Learning Perspectives & Practices: Science Leadership & Techniques for Success.