

Running head: TECHNOLOGY PLAN FOR TED ANKARA COLLEGE

Three Year Technology Implementation Plan
for
TED Ankara College, Turkey
Lehigh University - Demet Metan

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Abstract

This paper presents a three-year implementation plan of technology into TED Ankara College in order to assist the advancement of teaching and learning. It begins with an overview of current use of technology in the school and gives information about the existing educational philosophies and pedagogical practices. The plan proposes a vision for the school to change its educational practices by underlining the educational needs and goals. For the school to move forward within this vision and goals, this plan suggests implementation of technology in three-year timeline that entails the schools' technology policy, budgeting for hardware/software and necessary professional development supports.

Introduction

TED Ankara College is located in Ankara, the capital of Turkey. It is among one of the most prominent and affluent private K-12 school structures in Turkey. TED College consists of kindergarten, primary, elementary and high school levels and has 5,500 students, 571 teachers and 200 staff in its huge campus. In this technology plan, I will mostly focus on high school level, since I did my internship in TED College high school as an ESL teacher. TED has moved to a new huge campus and made incredible number of changes in its way of adapting educational technology; however there is still a long way to go. The purpose of this study is to examine how technology can contribute teaching and learning at TED College with the implementation of a three-year technology plan.

The rest of the paper is organized in three main sections. The first part of the plan provides information on the current situation of the school in terms both technology inventory and the current learning practices of the school. It gives a clear idea on the current status of education and technology of the school. The second section proposes an educational vision for the school to follow while adapting technology and improving the teaching and learning quality of the school. This part presents some desired changes in educational goals, philosophies, pedagogical practices, technology use in teaching and learning as well as giving brief information about the major obstacles and the benefits of this vision to education in the school. The third part suggests a compatible three-year technology implementation plan to the current situation of TED Ankara College and the presented educational vision as supported by technology. This systematic

implementation plan displays a technology policy, budgeting for hardware/software and necessary professional development supports and evaluation of the technology plan.

1 Technology Inventory and Current Practice

In this first part of the plan, an overview of the current position of TED Ankara College is given. If we would like to analyze the current technological situation of the school in terms of teaching and learning, we can look at those under the following categories.

Present Technology: Recently, TED College has moved to a new campus and made investments to technological infrastructures in order to elevate to a high level of technological standing. Wireless network services of the school are established by Cisco Systems Cooperation in high school and primary school buildings. The network infrastructure enables up to 576 computers to connect the internet in each building simultaneously. The network speed of the school is 1Mbit per second.

There are four computer labs in the school apart from the computer lab section in the main library. The first two computer labs are in the high school building and the other two labs are in the primary school building. Each computer lab has 4 printers, 2 scanners, and 1 data projector. One lab in each building is specifically used for computer lessons; yet all of the computer labs are open to use for everyone at anytime during the school hours. Students can do their homework, research, etc as well as conducting the computer club activities. However, the school's next goal should be able to provide more computers by opening up new computer labs.

The operating system of the computers is Windows XP Professional. In each computer, MS Office (Word, Excel, PowerPoint, Publisher), Browsers (Internet Explorer, Netscape), Adobe Acrobat Reader 7, QuickTime, Windows Media Player, Symantec Antivirus are installed as standard software. Through this established software; the students conduct their research and do their assignments.

When we specifically look at the high school level, the school consists of three floors. There is one technology classroom at each floor that contains equipment to conduct the lesson integrated

with the technology. There is a computer with the standard suite of software, a data projector, OHP, digital camera, tape recorder/player and a VCR. The teacher books this room in advance when he/she wants, so that the students can come and present their work by using the data projector. Teachers can present a specific topic of the day by using the computer and show some resources from the Internet.

Present Technology Support: TED College has established a department called Information Systems Center. This center provides Internet and information services to help on the latest technologies to the teachers, students and to the school staff. Who works in the center? There is one hardware specialist, three hardware technicians. There is also one software specialist and a network specialist for the whole school. The center is also in contact with the Cisco Systems Cooperation technicians. When there is a problem beyond the center's understanding in the school network, the network specialist calls the cooperate technicians and asks for their help.

In terms of support, there is coordination within the school. Teachers get help from the specialists and technicians when they cannot solve any technological problem they encounter. Computer teachers' knowledge is generally limited to teach basic software to the students. However, there is not any systematic support program that is given to staff and the teachers.

Current Educational Philosophy and Pedagogy: As far as I have witnessed during my internship in TED College, I believe that the school's educational philosophy is mostly based on Reconstructionism. Reconstructionism is based on principles such as being socially active, thinking globally and acting locally, changing the society and problem solving based learning for social issues (Cates & Columba, 2002). As I am an ESL teacher, I attended mostly to the 12th grade English classes. I have noticed that the curriculum has reconstructionist philosophy, since it requires students to read articles on global problems such as respect for cultural differences (societal problem) or global warming, endangered species (environmental problems)... Then they are assigned to do a semester-long group project to find solutions for these global problems and come up with ideas and suggestions to their local community. They have to support their ideas by using Internet and library search engines. They are encouraged to go to the library and

computer labs to do research on these topics. The teacher, sometimes, lets the students to spend the entire lesson in the computer lab to work on their projects with their group members.

In terms of the learning theories, the school adapts a combination of constructivism and social learning theory. The school implements the idea of teacher as a guide on the side rather than sage on the stage. Most of the tasks are designed for student-centered teaching and learning. The emphasis is also in student collaboration and “student-teaching-student” ideology. TED College tries to implement technology into these learning theories. For instance, in most of the presentations, students are asked to use PowerPoint and should use at least one graphic or concept map in their work. Moreover, when one group of students is presenting their work, the other groups take notes to give peer feedback to their friends after all the presentations are done. Each student is expected to use evaluation criteria that are given by the teacher. This is a way of implementing both social learning and constructivist approaches. It is social learning, because the students learn from cooperating with their group members while preparing the presentation. It is constructivism, because the students get feedback from their classmates and collaborate in learning. As constructivism is defined by learner’s being active and cooperative in learning (Cates, 2003), TED College achieves to implement this learning theory very well through these class activities.

However, there are still some teachers who are resistant to use technology and implement it to learning. Those teachers are just lecturing and continuing teacher-centered activities. I would like to see all teachers implementing technology into class activities and be a guide on the side. They should let the students be active on their learning process.

Current Technology Uses: Currently, technology is mostly used in sending e-mails, doing web researches, library search, and doing homework. Students also use technology to exhibit their art works such as paintings, drawings and photographs in the school website. Apart from this, TED College enables distance learning through three video conference rooms. The school has necessary tools to provide online courses in these units. The students connect to K-12 schools abroad and conduct educational activities as well as gaining information about different cultures.

TED College is a member of UNESCO Education Program which enables the school to have videoconferencing sessions with foreign fellow schools.

TED College also has established a school automation system recently. This system enables the school to monitor the students' achievement reports for each year as well as their attendance records. The assessment and evaluation records of each student are classified according to their grade levels and their classes by assessment and evaluation software. Each parent can access their children's records online by using the student ID and the password given to parents. Parents can also learn about the parent-teacher meeting dates, extra-curricular and cultural activities that take place in the school. Each parent stays in contact with the school through the mailing list of the school. School's automation system has a Question and Problem Database for each subject area that is designed for the University Entrance Exam. This database stores the exam questions of the last 15 years. Sometimes, the teachers take the students to the computer labs for drilling activities in their class hour.

The students' use of technology is also monitored by the technology policy. The school has filtering software installed to lab computers and library computers that blocks some websites and prevents the use of computers for non-educational purposes. The students are informed about the school's internet use policy in computer lesson; however neither the students nor the parents are expected to sign any agreement.

Current Technology Professional Development: I think this is the weakest side of the school. Professional development opportunities of the school especially for teachers and staff are very limited. Students' knowledge on how to use computers is exceeding the knowledge of most of the teachers. In order to develop teachers' computer skills, the National Ministry of Education is faster than the school in planning a development course. National Ministry of Education of Turkey has required all the teachers in the nation to attend computer classes for free. These classes are given by the computer teachers who are teaching in another school. This program is designed as two months long training. However, I believe that this made a slight difference in pushing teachers into technology. The reason is that most of the teachers are still resistant to learn technology, since they are afraid to use it. They have the fear that they might get offended

when something goes wrong with the technology while they are using it in class. As their technology knowledge is still insufficient, they try to stay away from the computers. They prefer to continue using overhead projectors and the cassettes rather than using data projectors and CDs.

Another problem is that most of the teachers do not know how to integrate technology into their classes. The school has not provided any professional development aid for the teachers to learn about the use of technology in different subject areas. There are only a few teachers who want to make a change in their teaching. These teachers try to find websites containing technology-integrated class activities. Administrators and staff do not get professional development aid to learn about technology, either. The school lacks providing support for them.

Present Technology Strengths: I think that there are three basic technology strengths of the school. First one is assessment and evaluation software they use in learning and teaching. The school keeps track of each student's individual progress in each subject area. This helps the teachers to realize the needs of the students in specific topics and therefore gives teachers the chance to make modifications in their lesson plan and weekly plan. In this way teachers can respond to students' needs easily. For instance, if the test scores of the students in a specific class is lower than the score of other classes in the listening section of an English exam, English teacher of that class can include more listening activities in her future lesson plans. Teacher may choose to have that specific class listen some parts of a novel and answer questions, while other classes are reading the novel and answering questions.

The second one is the main educational philosophy that is adapted by the school. As I said before, the school implements reconstructionism. It is a philosophy that embodies very important features for learners like, problem-solving ability, collaboration, thinking problems in a broader sense and bringing solutions to those problems in pieces, questioning arguments and counter arguments, etc. Therefore, I consider the school's implementation of reconstructionism in planning as one of the strengths.

The third strength is that the school has established an information systems center. This center is founded to supervise the technology in the school and assist teachers, students and staff in using the latest technology. This is part of the planning of the school to move forward in bringing the technology into the teaching and learning.

Present Technology Weaknesses: TED Ankara College still has many weaknesses. I can count three main points to improve here. First one is the insufficiency of integrating technology into learning by the teachers. This is probably the most important one and the immediate one. However, this first weakness of the school is directly connected to the second weakness which is the lack of professional support for teachers, staff and administrators. Teachers, administrators and staff need to be professional in using technology, first and then learn how to implement technology in teaching and learning very well. The third weakness is that school also does not have enough number of technology technicians and specialist to support 5,500 students, 571 teachers and 200 staff. School needs to expand its information systems center to be able to carry out its future technological needs and plans.

Consequently, it is a fact that TED Ankara College has made a big difference getting technology into the school, with its assessment and evaluation software, questions and problems database, distance learning program and so forth. However, I strongly believe that the school needs more reform programs. It needs to focus especially on professional development support as well as the points that I listed in the section “present technology weaknesses” above. In order to achieve a comprehensive reform, TED College first needs to make changes in its educational vision and goals to improve teaching and learning in the school and raise more qualified generations.

2 Future Goals and Directions

This section focuses on future educational goals and desired changes in order to achieve educational reform in TED Ankara College. TED needs a new educational vision that is supported by technology to achieve the following goals.

Overall Goals / Outcomes: I believe that in the next three years in terms of teaching and learning, TED Collage should be able to achieve a set of goals. The first goal is that the learning

and teaching atmosphere in the school should aim to prepare students to be successful in both workplaces and in their continued higher education. In relation to this goal, the second goal of the school should be to raise self-directed learners and effective communicators through becoming tech-savvy and digitally literate to work on the 21st century global economy. The school should equip students with 21st century skills like collaboration, initiative, problem solving (Garrigan, 2003). The third goal of the school should be to focus on fostering learners' development in higher order skills such as analysis, synthesis, evaluation and problem solving. The fourth goal of the school should be to bringing up generations who are sensitive to their global and local environment and eager to contribute to the well-being of their society through collaboration. Finally, the fifth goal is to focus on individual differences in learning through differentiated instructions. I would like TED College to be a positive learning environment that functions in the light of these goals to raise self-respected, collaborative, knowledgeable, free-thinking, creative and well-rounded individuals who are successful not only in their academic life but also in their social life.

Desired Changes in Goals / Philosophy: In order to achieve the goals I have stated, the school needs to make various modifications in its philosophy. The first change the school needs is to adapt some parts of the various educational philosophies. The school should put more emphasis on social-learning philosophy. The learners should involve in more group activities as well as doing more voluntary community-service projects. There are barely voluntary community-service learning projects planned in the school. I believe that the current application of the social-learning theory such as only having peer feedback and a few number of group work activities is not enough. I suggest that the school should go beyond that. There are two obvious benefits of that change. One is that the students will learn how to cooperate and work together with both the students from their school and other schools. This will develop the learners' collaboration skills. The other benefit of this change is that the students will be aware of the circumstances of the local environment surrounding them. They will be able to contribute to the well-being of their society by giving a hand to change the society they live in for the better. I think the administration of the school should play a significant role in organizing these community-service projects. The president and the vice-president of the school can find a fellow school which is situated in socio-economically disadvantage areas of Ankara and contact with that school. The

teachers who are involved in these projects can prepare an evaluation report and state the successful and weak areas of this project.

The second philosophical change in schools' education system should be to use essentialism in the school. Essentialism requires students to acquire core of common knowledge by practical instruction. Some of the main principles of essentialism are achieving high standards and being competitive (Cates & Columba, 2002). I believe that this educational philosophy is related with the goal of getting students ready for a competitive 21st century global market. Additionally, reaching high standards in education is definitely one of the expectancy of the school, so that the students will be successful both in their future academic life and workplaces. I believe that especially, contacting online experts to get information is a good use of essentialism through technology. By this way, the learners and the educators can improve themselves by getting online help in any field and reach out more information to achieve higher standards of education.

Desired Changes in Pedagogy: The basic changes I would suggest for teaching and learning methods is that school needs to move to more student-centered teachings methods. Howard Gardner (1997) argues that the teacher-based instruction is not an effective teaching method in fact, since the students are passive in their learning process. He adds that there is a lot of research that shows the students should be active on their learning and do things "hands on" in order to achieve an effective learning. Otherwise, the things we thought are learned through memorization or teacher-based learning is lost within a year or two. Therefore, teaching and learning methods of the school should be shifted to student-based activities in a great extent. The learners need to be active and engaged in their own learning process.

This method is connected with my goal of having self-directed, initiative learners which is needed for the 21st century skills. The learners should be the ones who are in charge of their learning and take the initiative in their learning process. The socio-learning philosophy and the schools' current philosophy of constructivism support my student-centered pedagogy. As active learners would be busy cognitively in their learning process and try to create meanings out of the materials or instructions and construct it in their mind, cognitivism and constructivism are linked with student-centered pedagogy. Socio-learning philosophy is relevant, since the social

interaction requires students to take part actively in their work groups or social collaborations. The school administration should provide a compulsory assistance development program to the teachers on how to change their teacher-based lessons to student-centered learning environments.

The multiple intelligence approach into the teaching and learning should be added into the school too. The school needs to be aware of that every child has different intellectual strengths and they learn differently. Howard Gardner (1997) suggests that the most unfair education is the one that treats different kinds of learners in the same way and assesses them in the same way. As human beings learn differently, there is a need for differentiated instruction in the schools. *Learning Point's* report *Technology in Education: Ideas for Transformation* (2004) approves that teachers should use differentiated instruction and customize learning based on students' individual interests. Thus, I believe that teachers should be very careful in designing their instruction as they need to address all kinds of learners like visual learners, kinesthetic learners etc. The teachers and the technology center should be aware of learning differences among students and should supply various educational materials and assessment tools for all kinds of learners. Because of its great importance, differentiated instruction cannot be ignored in all aspects of teaching and learning and needs to be applied in the school.

Depending on the multiple-intelligence theory, the forms of assessment used in the school should vary too. The assessment should not mostly depend on the standard-based assessment tools. TED College uses standard-based assessment commonly due to pressure to get students prepared for the university examination, which is a multiple choice test. I will give more detailed information about this as a constraint in the *major obstacles to overcome* part. On the other hand, I believe that it is a necessity for school to make a shift towards the performance-based assessment tools for many reasons. As Grant Wiggins (2002) suggests that authentic-assessment consists of real-life tasks like doing projects or presentations. Students cannot relate real-life tasks in fill in the blanks, multiple choice answer questions, since these types of assessment just requires learners to memorize information. On the other hand, real-life based performance tasks are a part of 21st century skills. The students need to know how to do projects, search and collect data when they graduate from school and planning to work in the market. This correlates with my goal to prepare them for global market economy of 21st century.

Similarly, performance-based assessment will achieve my goal to foster students' higher order thinking skills through research, analysis of their findings, synthesis of information, and drawing conclusions from their evaluations. The students will be able to work on their problem-solving skills and higher-order thinking skills by moving authentic-assessments forms of pedagogical applications into the school. Heads of the each subject area should take the initiative to change the assessment materials and tools in each field. They will work with teachers in their departments to find alternative performance-based assessment tools, projects, portfolios, presentations etc. and integrate these assessment tools into the existing national curriculum. In this way, the goals of the curriculum will be met as well as achieving the goals for the higher-order thinking and 21st century skills.

Desired Changes in Technology Use in Teaching and Learning: I believe that technology can play a very important role in supporting my goals, philosophy and pedagogy. The integration of technology into teaching and learning constitutes the foundation of the technology use in the school. Technology can be used as a tool to foster higher-order thinking skills. As I have stated in the previous section, performance-based assessment would help to foster these skills. What role can technology play here? The online resources for teachers provide lots of lesson plans and performance-based activities. Teachers can use the ideas and class activities that they find from Internet. Moreover, the learners can use web-based content in their projects and search tools to reach out information. Learners can reach valuable sources such as books, articles, photos, and videos etc through *open content* without paying any cost (Garrigan, 2006). The students can also do content publishing as well through use of rich media tools such as e-portfolios, blogs, wikkis etc. Especially, e-portfolios show the learners' progress, efforts and achievements over time. All of these web tools foster students to produce performance-based tasks and use technology as an information producer rather than just an information consumer.

Cmap software is another free powerful tool that is used for teaching and learning. It is an amazing program that helps students to organize, visualize and share information. It is also fun to use for both students and teachers. Students can use it to organizing their ideas when writing essays. Teachers can use it for brainstorming activities in any subject area. It uses constructivist

educational philosophy as it helps the learners to understand the concepts by make connections among them. It uses also social learning philosophy as students can collaborate and share their graphics and presentation of information with other learners. Using Cmap tools also contributes to the student-centered learning environment that we plan to achieve, since the student actively engage in their learning by organizing their ideas and drawing graphics. In the implementation part, I will provide more details about the use of this software and benefits to teaching and learning.

Another support that technology will bring to my goal is to achieve a student-centered learning environment. Through the use of educational web-sites, web-search tools, and content-publishing tools etc, the students will take an active role in their learning by doing most of the work on their own. The students are the ones who will spend effort in practicing and using basic skills, writing, listening, reading as well as using their creativity in a given project. Technology will be an excellent tool for pushing students to get into the stage of their own learning process and eliminate the teacher dominancy on learning.

Additionally, the students' familiarity with the technology would also improve their technology skills. The students will be able to use technology confidently when they enter into the workforce market or higher education. Being competent in technology is also one of the 21st century's skills requirements in our global world. Therefore, I believe that integration of technology into teaching and learning not only brings benefit to learning in a large scale, but also it is a benefit on its own for the learners when they open to the outside world.

I believe that the use of these technological tools and its implementation to teaching and learning would change a lot already, yet the departments may suggest buying new software if the learners are falling behind in a specific subject area or have difficulty in understanding certain abstract concepts. In terms of technology support, the teachers need to get immediate assistance in learning how to use and integrate technology into their teaching. They need to be able to competent in technology to use it much more often in and out of the classrooms.

Major Obstacles to Overcome: There are two major obstacles to overcome in attaining my vision. The first one is that the teachers and administrators need immediate professional support in learning how to use technology and then learn how to implement technology in teaching and learning. My challenge here is that some of the teachers are unwilling to learn about technology and use it in their teaching and learning. They also have difficulty in changing their conventional teacher-centered learning since they are used to teaching in this way for years. As I have suggested before, professional technology support for teachers and administrators would be very helpful in overcoming this difficulty. The need to shift student-centered learning environment should be stated clearly to the teachers, administrators and the head of each department. They need to learn that students' being active and engaged in learning would enhance learning in the school.

My second challenge is the existence of OSS (university entrance examination) as a fact. Due to OSS, the school gives priority on standard-based assessment tools, since the students need to be successful in OSS and show academic success in that multiple-choice test in order to enter prominent universities. Therefore, I will face obstacles in bringing more focus on performance-based assessment in the school. Administrators, teachers even the parents would not want the learners to spend less time in preparation to OSS and practicing multiple-choice questions. I will overcome this difficulty by suggesting the use of performance-based assessment in the early years of high schools, in 9th and 10th grade levels. The students have a very strict plan to get prepared for OSS, especially in 11th grade. They spend most of their time and effort for that exam. Due to this, I will convince the administrators, parents, and the teachers to use performance-based assessment in the beginning years of the high school. I will also inform them about the effectiveness and long-lasting learning influence of this assessment on the learners which would be useful for OSS, too.

Summary of Benefits: As a result, I believe that with these changes, the learning and teaching quality of the school will greatly enhance. After accomplishing these goals I have listed, the school will have the confidence to equip next generations with most important skills that prepare them for the 21st century's global world. The students of TED College will be technology competent, cooperative, and self-confident. As we have looked these important outcomes and

created a vision for attaining these valuable features for the learners, our next step will be about how to implement technology into the school, so that TED would be an ideal place to get education.

3 Implementation Plan

The third part of my technology plan focuses on how technology will be implemented in TED Ankara College and what changes the school has to go through in order to achieve the educational goals that are stated in Future Goals and Directions section. Our goal to raise collaborative, effective communicator, tech-savvy generations who are good at higher-order thinking skills requires us to bring technology to the school with a systematic technology plan. In order to achieve these goals, the implementation of the technology plan will be done in multiple steps. These steps are arranging the budget, organizing the professional development assistance to stakeholders, getting hardware, software, and infrastructure into the school and deciding on the technology policies. I provide a three year long implementation plan of technology into the school along with a timeline and a necessary evaluation criterion which will determine the success of the program. We will start with looking at the planning process and implementation strategies, first.

Planning Process and Implementation Strategies: The plan of the three year technology implementation program for TED Ankara College is composed of a number of steps. In the process of integrating technology into the school, the first step is to set up a Technology Planning Committee in the school. We need to establish this committee, because the existing Information Systems Center is not enough to conduct the technology planning that I will be offering here, since it does not represent all the stakeholders. The new committee should be able to address all the components of the school. It will include the members of the Information System Center that the school already has, but there will be additional members in the Technology Planning Committee.

This new committee will have a multilayer organizational structure, in particular three different layers. In the first layer, school board, administrators, the department heads, the head of the staff development department will take place to give administrative decisions. In the second layer,

there will be librarians, computer teachers, one student that represents each grade at the high school as well as the board of students' technology club of the school and volunteered parents. This multilayer feature of the committee will make the committee very dynamic. The decision making process of the committee will be fast and efficient. As it would be hard to give decisions with a lot of people, the administrative level of the committee will make decisions after getting the second layer's opinions. It is also essential to have the second layer of the committee, since the points of all the stakeholders should be represented in the technology planning committee.

The existing members of the Information Systems Center, the hardware specialist, three hardware technicians, one software specialist and one network specialist of the school will form the third layer of the Technology Planning Committee. They will attend the meetings to express their view when the school is buying any software, hardware or any technological device. They will especially help in giving information about the cost and benefits of hardware and software that the committee is planning to buy. For instance, when buying technological tools, the approval process will function in the following way.

First, the department heads, the teachers and the technology professionals will prepare a paper in which they propose the first layer of the committee to consider buying and using new technological tools in the school. The committee will discuss those tools and the administrators will evaluate the suggestions. Administrators will inform the last decision to the principal by giving a proposal report. However, the final decision is given by the principal of the school and the administrative board of the TED Foundation, since it is a private, charitable foundation school.

The funding of the school will be provided from three resources. The school's own charitable foundation, Omer Sabanci Foundation, and Lions & Rotary Club. All of these funding sources are big non-profit organizations of the country. I will give more detail about funding and how it will be used later in the *Budget* section.

The second step is about how this technology plan will be implemented in TED Ankara high school. This three year plan will be performed with the focus given to one subject area each year.

As the school gives priority to science and math which are required for the university entrance examination, the technology plan will take these two subject areas as its bases for the first two years. For the last year, the school will focus on English language teaching and learning, since the school has International Baccalaureate program and some of the graduates are going to foreign countries to continue their education there. This plan is not only compatible with the school's infrastructure but also suits to the schools' aim of getting students ready for continuing their education after the high school. The learners will be able to learn computer literacy for 21st century global market as well as academic subject areas that they need for getting into the universities.

In this technology plan, the school's existing PC infrastructure will be used in class activities, assignments and projects. As TED students are coming from an affluent part of the society, almost every student has their own computers at home. They are very good at using productivity tools. However, as part of our goals, the students need to increase their research skills, online collaboration and communication, web-based publishing and creation and high level of applications like, use of multi-media tools and simulations. They also need to be familiar with the project-based and inquiry-based learning as one of the goals of the school to turn the school to a student-centered learning environment and make students active in their learning process (Garrigan, 2003). By the implementation of this technology plan, the students will learn to be more information producers rather than consumers.

In order to achieve these goals and implement the technology plan successfully, the school, as a whole should use adoption of technology model. When we analyze the technology adoption status of the technology planning committee according to the Cates' model (2002) we see 3 different groups. The technology technicians and specialist can be counted as innovators, since it is their job to actively search information about the innovations. The students and parents are the early adopters, since they can afford the new technological tools. The teachers and administrators, librarians, department heads are the late majority who wait to be for the pressured to adopt the innovation. The staff is laggards who are low in social status and income and not willing to make the change.

The change agents of the school are the principal and the administrative board of the TED foundation in my case, since they have great authority over the school and on those who will be involved in the implementation of the technology plan. The members of the Information System Center are champions of the technology adoption, because they provide support and persuasion for the others. The changees are teachers, department heads and support staff. According to this scene, my strategy for adoption of the technology to these groups is to offer professional development to the late adaptors, and laggards. We will use a model that will help us to pick up the laggards to get to the level of the late adopters and then move forward with those two groups. I will give additional information on how to do it in the *professional development* section later.

Policies: It is very important for a school to define the technology policies at the first stage so that every member of the school knows what to do and how to act. Setting the policies beforehand will help the school to avoid any confusion that can occur later on. I suggest that the Technology Planning Committee should prepare a handout that states the technology policy of the school very clearly before the beginning of the academic year in which technology will be implemented in the school. When students are getting registered to the high school, the parents will be asked to sign an agreement on the use of technology in the school, so that it is clear for both the school and the parents their own responsibilities on the use of technology in the school. They will be given and asked to keep one copy of the technology policy in which the rights and responsibilities of both the teachers and the students are clearly defined. According to the policy, the students will be responsible for the learners' use of technology in the school. This plan aims to provide students a safe environment to find, share and publish information.

The policy will cover security issues regarding the Internet access of the learners. The students will be allowed to use school computers for only educational purposes. Each student will use their personal account numbers and will be responsible for their actions. The students will also be responsible for giving harm to technological tools of the school. If they give any damage to these tools, they will be responsible to pay for the repair or replacement of the damages item with a new one.

Additionally, the students will not be allowed to enter any systems and resource that are not available for them to access such as report card databases. Attempting to get into such recourses will have severe punishments like blocking the students account and sending them to the disciplinary committee of the school.

In terms of the stability of the system, the students would not be allowed to bring thumb drive to sharing their documents. Instead, they will use Google Docs for sharing their documents. Using this method will eliminate the possibility of getting viruses to the school system.

Budget: The budget of the three year technology plan will be supported by the three non-profit organizations that I have listed before. The monetary sources are the school's own charitable foundation, Omer Sabanci Foundation, and Lions & Rotary Club. Omer Sabanci Foundation has agreed to give a total of \$30,000 to fund this technology plan and Lions & Rotary Club is providing \$20,000. TED foundation is providing \$ 90,000 for the college's technology plan. Year by year funding of the technology plan is given in Appendix 1.

Hardware, Software, Infrastructure: In this section, I will provide detailed information about how the budget will be spent, what the school should buy each year and the rationale behind making these expenses. In Appendix 2, the allocation of the budget is given in detail for each year. Firstly, I am suggesting buying 30 iMacs, 10 PCs in the first year, 10 iMacs in the second year and 10 PCs in the third year of the technology plan (see Appendix 2). There is a very important reason why I prefer to buy iMacs in a large amount compared to PCs. Although PC desktops are cheaper than the iMac, the school should keep up with the world technology standards which are needed for the 21st century skills.

As TED Ankara College is one of the most prestigious and competitive high schools in the country, it has to be a leader in introducing Macintosh computers to the nation. I strongly believe that the nation as a whole will be willing to know about Macintosh Operating System as well as Linux. I am not suggesting here to implement 1-1 or OLPC project in the school now, because of the constraints in the budget, but I am suggesting that most of the computers we will be buying should be Apple computers. In this way, TED students will be the first high school graduates in

the nation who know how to use Macintosh computers. They will be knowledgeable about the technology that is used all around the world. This is important not only because it will take the graduates one step forward from other graduates in their attempt to join the workforce but also when they are planning to go on their study abroad. So, the learners will not face difficulties in terms of technology if they decide work and study in the global platform.

I have suggested buying only twenty PCs over the three years, since almost all students have one PC at home. On the other hand, the school does not have enough computers to support all 1,500 high school students. Existing two labs are not enough. In these three years, the school will get two iMac Labs and one additional PC lab and so that the school will have five computer labs in total. We will buy three data projectors in the first two years, since lab requires one.

We will not buy any software as part of this technology plan. Instead we will use free software that is available on the net. I put the Cmap tools as required software for the school to use during this three year technology plan. For science software, the science teachers can choose to learn and explore Netlogo and get help from the technicians of the school to use it. Similarly, Pov-Ray is software for mathematic subject area and the mathematic department can use it in their teaching. In addition to this, the departments are always welcome to suggest buying new software if the learners are falling behind in a specific subject area or have difficulty in understanding certain abstract concepts.

On the other hand, Cmap Tools is software that can easily be used for all subject areas. It is a powerful concept mapping tool that helps constructing, organizing, outlining, visualizing and sharing information. The students and the teachers can use it for various activities like brainstorming, outlining essays, analyzing novels or a biological chain etc. As it is used for organizing and construction of knowledge, it is related with the constructivism learning theory. The students can create their own concept maps and can build up the information in the way that they can perceive easily. They can show the connections between a set of information and construct the newly presented information in their own way, which will help them to construct that information in their mind in the same way. Cmap tools will also help the teachers to present

a new topic or review a previous subject by recalling information in class. The visual element of the program helps the students to grasp information and construct it in the learners' mind, too.

Although Cmap tools are similar to Inspiration in its function, it is also designed to be shared among the learners (Garrigan, 2006). As one of the functions of the program is collaboration among the learners, I strongly argue that it will suit to the need and the goal of TED Ankara College. The students will be able to share the materials they create and assist each other in their learning process. This function of the software is relevant with social learning theory that the school is trying to implement. The school's aim in improving students' collaboration skills is also one of the abilities that are needed for the 21st century global market. I choose Cmap instead of *Inspiration*, because of its compatibility with the schools' goals and philosophies.

There will not be any expense for the school network, since the existing computer network infrastructure is good enough as it enables up to 576 computers to connect the Internet simultaneously. The network speed, 1 Mbit per second, of the school is enough to support our three year program, too. This will save us money and give us flexibility to use the rest of the funding to the professional development of the teachers as well as to the support and leadership.

Professional Development: This is the most strategic part of this three year technology plan, since the current technological knowledge of the teachers and the staff is the weakest part of the school. National Ministry of Education's two months long teacher training on technology did not help as much as it is needed to conduct this technology plan. The school has not provided any professional development so far for the teachers to learn about how to integrate technology in different subject areas, either. Administrators have not got any support from the school or the government. Therefore, there is a need for a systematic professional development program for the school teachers, administrators, and the staff.

Many research studies claim that it is significant to fund the professional development in a technology plan. For instance, Sam Carlson (2002) says that the teachers are the key to the educational opportunities provided by technology, and therefore they should never be ignored. Moreover, Christopher Moersch (2002) recommends investing in teachers so that they will use

the existing technology to develop students' higher order thinking skills. Considering both the importance of the professional development and the current weakness of the school, I have given the second biggest budget to the training of the teachers, staff and the administrators.

Firstly, administrators are the most important part of this process of change (Fullan, 2001). The administrators should learn the importance of using technology in the schools, so that they can be committed to make appropriate changes in the school. It is vital for them to understand and support the efforts of the teachers to integrate technology into the classroom. As the administrators will be the change agents in this project, once they understand the significance of the project, they will provide the teachers release time to attend the training workshops and encourage them for implementing innovative teaching methods by using technology. (Carson, 2002)

The professional development program that I will be offering is an on-demand and ongoing support for teachers. It is an ongoing program because all the math, science and ESL teacher are starting the training at the same time and getting professional assistance in each year of the program continuously. However, the weight of the professional development changes over time according to each subject area. The first year math gets more assistance, the second year science and the third year ESL gets the most hours of the professional development. Each subject area teachers learn how to integrate technology into their teaching according to the goal of preparing students for the 21st century skills. In separate classes, teachers will get training by focusing on their subject area and learning how they can use technology to develop the higher order thinking skills of students in a given unit. They will also learn how to relate technology into the curriculum, so that the students can perform analysis, synthesis and evaluation levels of thinking skills.

The training of the teachers will start at the summer just before the implementation of the technology plan. When the school starts the teachers will have had two months of training on how to use technology. This will aim to make teachers proficient in using computers before the academic year. At the beginning of the semester, the teachers will learn how to integrate technology into the curriculum, learning and teaching. At the first year, math teachers will get

training for 3 hours at every Saturday after school. They will have a more intensive program than the science and ESL teachers. Science and English teachers will have one training day in a month during the first academic year. While math will have had 48 hours of training in the first academic semester, the science and ESL department will have 12 hours of assistance on how to use technology. This professional development will be changed systematically for the science and English subject areas in the following two years.

This professional development will have phases. Start up phase is the summer training that aims to gain teachers competence in using technology. The second phase is to understand and learn the reasons of integrating technology into the class. The third part of the professional development is to learn how to implement technology into the learning and teaching. During this phase, the teachers will have hands-on practice on the implementation of technology. They will use the recommended software programs and create new class activities that use technological devices. The teachers will be expected to write lesson plans that integrate technology into the lessons they will be teaching the next month and present their lesson plan to their department colleagues. Preparing lesson plans beforehand will also help them in their teaching and will save time for teachers. The last phase is reflection and invention. This will be conducted simultaneously with the previous section. In this part, the teachers will get feedback from the teachers in the same class. The teachers will evaluate each others' plans according to the goals of the school. They will make suggestions and modifications if their peer's plan does not correlate with the goals of fostering 21st century skills or higher- order thinking skills or ignores the multiple intelligence or the student-centered theories.

This systematic training will be an obligatory program for the teachers, however in order for the teachers to embrace this professional development program and get efficiency from the program; two strategies will be used to motivate the teachers. The program will offer the most successful three teachers getting double payment one month of that academic year. Second is that all participants will get a certification from the TED Foundation and the Ministry of Education. This will create a competitive environment among the teachers and motivate them to attend the professional development.

Timeline: In this section, I will provide information about what will happen at what point of the three year program. Assuming that the technology plan will be starting at 2007, I will list here what should be done at the end of academic year 2006. Two week after the schools have been closed, a Technology Planning Committee will be established in the school. The first thing they will do is to order the iMacs so that the teachers can get training on how to use them during the summer.

At the same time, the administrators and staff get their own leadership/staff development, so that they will learn the importance of implementation of technology into the school and they will be change agents to the program. After the completion of their training, the school board and the administrators will decide on the technology policy of the school. At the start of the academic year, the technology policies will be distributed to both the teachers and parents when the students are enrolling to the school.

Teachers' training will be an intensive program during the summer and they will start learning how to use technology. Towards the end of the summer training, teachers will be competent in how to use iMacs as well as PCs. Teachers will be in a position where they question how to use the technology in classes and integrate it to their subject area. The professional development that will be require for all the teachers during the first academic year will start to give teachers ideas on how to implement the technology. During this time, only teachers and administrators will have access to the iMacs, PCs, newly established computer lab. The teachers will use this lab both for their professional development sessions and their own work. They will explore open content and learn about the available educational resource for them and their students. Their findings and brainstorming on the use of technology in the classroom will lead them to the technology enhanced, learner-supported approaches. As they search on the web, they will be more aware of their activity and material choices. They will start to analyze and choose which activities will meet the needs of their learners and which activities will correlate with the vision of the school.

At the spring semester of the first year, other hardware products like data projectors, video cameras will arrive to the school. The new lab will be established and prepared to be open for

students' use. Cmap tools will be downloaded on all the computers. The standard suite of software will be ready to use. Then, iMacs will be introduced to all students at the high school. Students will learn how to use iMacs in their computer lessons. By the end of the first year, the students will learn how to use iMacs basically.

In the second year, the implementation of technology to teaching and learning will start to show its first practices. The students and the teachers will be using computers and Cmap software very often in their classes. For instance, the students will make a concept map on the systems and components of human body stating the functions of each organ in their biology class. This will help students to visualize and contextualize the topic and help the students' learning process. The information will be constructed in the minds of the learners in a meaningful way, so that the students can remember this information and retrieve it when they are asked a question in university exam.

In the mean time, the professional development of the teachers will continue. In this phase, teachers will be more aware of the benefits of the implementation of technology into the classes. The teachers will be able create new ideas on how to use technology to foster collaboration, higher-order thinking skills of the students as well as addressing the learner differences. The teachers will learn about web quests, e-portfolios and blogs and their contribution to developing student's reading, writing, critical thinking and higher order thinking skills.

At the beginning of spring semester of the second year, the students will be familiar with iMacs and will be start to work on the iMovie. As the teachers are a couple of steps ahead of the students on how to use iMovie software, they will be able to assign iMovie project. This project will not only constitute a student-centered environment in which students are always on task but also foster students' creativity in a given topic. The students will also gain technological knowledge of shooting a video, editing clips, editing audio to a video as well as having fun.

In the third year, all hardware purchases will be finalized. New PCs, data projectors and printers will be placed to the lab. As a major benefit of two years of professional development for teachers, the educators will be able to find lots of online resource, lesson plans and performance-

based activities. Teachers can start assigning more performance-based projects and assignments to the students. The learners will be using blogs to post their weekly assignments. They will also work collaboratively on their webquest projects in groups and use search tools to reach out information. The students can also do content publishing as well through use of rich media tools such as e-portfolios, blogs, wikis etc. All of these web tools foster students to produce performance-based tasks and use technology as an information producer. Through the use of these educational tasks, the students will take an active role in their learning by doing most of the work on their own.

Evaluation: The evaluation of this three year technology will be composed of two forms of evaluation. First one is formative evolution which will be done at the end of each year. Second one is summative evaluation which will take place at the end of the technology plan.

In terms of formative evaluation, the whole technology committee will be responsible for monitoring the implementation of the technology plan in the school. The second and the third layer of the committee will prepare a formative evaluation report of the each year to submit it to the first layer. The first layer of the committee will get together to analyze the technology report at the end of each year. They will evaluate whether the school has achieved its teaching and learning goals according to the technology plan. They will also look at where they are in terms of the plan's timeline and see whether they are in parallel with the timeline at the end of the year. They will check where they are in terms of the budgeting of the program. If there is anything wrong with the plan, they will manipulate the plan. They will decide and write what kind of changes they can do in the future implementation of the plan in order to prepare students according to the school's goals.

The summative evolution will assess the whole technology project at the end of three years. This evaluation will be conducted in three different ways. One way of doing it will be preparing a very detailed and formal evaluation. This evaluation will be an overall evaluation that contains parts from the formative evaluations. The first layer of the technology planning committee will prepare this and submit it to the principle of the school and the administrative board of the TED foundation.

Second way of assessing the overall success of the program, the school board will prepare two different types of questionnaires. One will be given to the teachers and the other will be given to the students. These questionnaires will include questions specific to math, science and English subject areas. The students will rank the effectiveness of technology based learning on their learning in math, science and ESL. The third way is to look at the math, science and English scores and compare it to students' scores of the previous years.

Summary

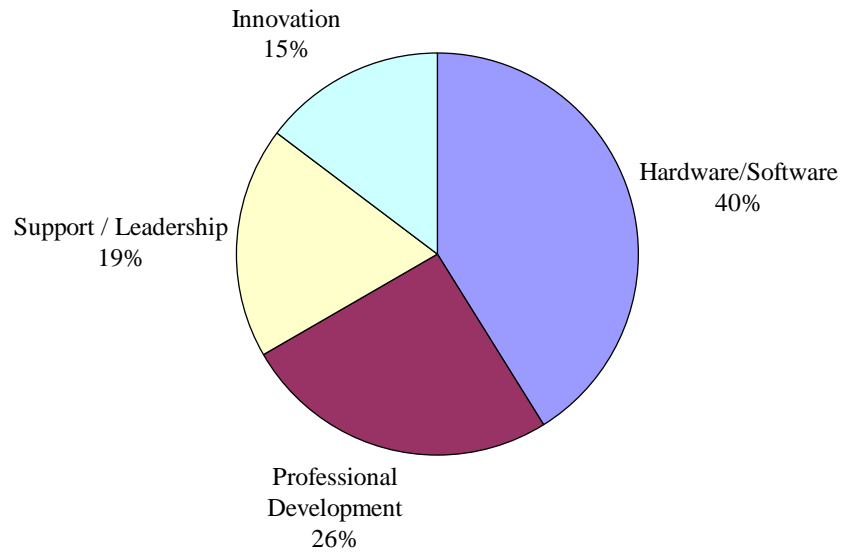
Consequently, the implementation of this systematic three year technology plan will create a great difference in promoting the learning environment of TED Ankara College. The school will make a great step in achieving its educational vision and goals. The aim of developing students' technology skills, cooperation skills and high level of thinking skills will be fulfilled by the help of this program. The school's shift to performance-based assessment and student-centered learning environment by the help of the technology will provide a pathway to raise technology competent, cooperative, self-confident, creative, knowledgeable generations.

In order to keep this comprehensive technology implementation plan up to date, the findings from both summative and formative evaluations will play a critical role. The first layer of the technology committee, principle and the administrative board of TED foundation will be active after the plan to respond the evaluation findings and maintain the momentum of the technology plan for the future years. They may also expand the program to other subject areas such as social sciences in the school. By keeping the plan up to date and applying the implementation of technology to other subject areas, TED College will be a one of the unique private colleges that renews itself according to the needs of today's demanding educational system.

Appendix 1. Funding

Source	Years			Total
	2007	2008	2009	
TED Foundation	50,000	20,000	20,000	90,000
Lions & Rotary Club	20,000	0	0	20,000
Sabancı Foundation	0	20,000	10,000	30,000
Total	70,000	40,000	30,000	140,000

Allocation of Budget



Appendix 2. Expenses

Years	Item	Type	Quantity	Unit Price	Total
2007 Expenses					
	iMac	Hardware	30	1,000	30,000
	PC	Hardware	10	600	6,000
	Data Projector	Hardware	2	1,000	2,000
	Video Camera	Hardware	10	200	2,000
	POV-Ray	Software	N/A	0	0
	Professional Development	Training (all teachers, specifically math)	24	500	12,000
	Support/Leadership Innovation	(Administrators/Staff)			10,000
					8,000
2008 Expenses					
	iMac	Hardware	10	1,000	10,000
	Data Projector	Hardware	1	1,000	1,000
	Laser Printer	Hardware	2	200	400
	Netlogo	Software	N/A	0	0
	Professional Development	Training (all teachers, specifically Science)	24	500	12,000
	Support/Leadership Innovation	Training (Staff)			10,000
					6,600
2009 Expenses					
	PC	Hardware	10	600	6,000
	Toefl	Software	N/A	0	0
	*Cmap	Software	N/A	0	0
	Professional Development	Training (all teachers, specifically ESL)	24	500	12,000
	Support/Leadership Innovation	Training (Staff)			6,000
					6,000

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