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Examination of Technology in Turkish Social Studies Curricula

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Abstract

This study is designed in descriptive model because it aims to analyze 4th, 5th, 6th and 7th grade social studies curricula in a technology focused view. In this context, document analysis technique was used which is a qualitative research method. Learning areas, acquisitions and skills in social studies curricula are considered in evaluation process. In conclusion, it was seen that in social studies curricula, Science, Technology and Society learning is directly technology oriented and this learning area has strict connections with others. Technology oriented activities are also implemented as needed in other learning areas. Besides, it was determined that there are 23 technology oriented acquisitions in 4 th, 5 th, 6 th and 7 th grade social studies curricula in Turkey. Six of them are in the 4th grade, six of them are in the 5th grade, five of them are in the 6th grade and six of them in the 7th grade. In this context, technology oriented acquisitions formed 13,2% of whole acquisitions in curricula (total 174). In skill dimension “using information technologies” skill is technology oriented and it is towards the effective usage of technology.

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1. Introduction

People invent different tools and techniques to meet their main requirements and to make things easier since their existence in the world. (Günay and Arıduru, 2001). Using different tools and more importantly invention skills distinguish people from other beings (Şenel, 1995; Childe, 2007, p.20; Öztürk, 2008, p.40). Technology is based on this characteristic. Technology has been defined in different ways by various scientists. In broad terms, it can be defined as a process that people make modifications in the nature for the aim of meeting different desires and needs (Commoner, 1996; AAAS, 1993; NRC, 1996; ITEA, 2000; NAE and NRC, 2002; Pearson and Young, 2002; Garmire and Pearson, 2006; International Technology Education Association, 2007). It emerged with early humans' inventions of different tools that they could not do with their indefensible and deficient bodies; and life became more

qualified through those tools. Tools used for a specific purpose and humans' activities towards that purpose (Heidegger, 2010) are included in the context of technology. Technology represents inventors' views and cultures because it is created by that people (Maguth, 2009), and it has effects on human while it is shaped by them (ITEA, 2007).

The relationship between technology and education has been of the interest since the beginning of humanity and it can be said that technology education began primitively with teaching the use of those tools to others. First people taught their children through shapes which they draw on sand by a stick, how they caught animals to eat, which animals they had to avoid, which plants were edible and which were poisonous. People are to convey information like lighting a fire and making clothes with animal hides to their children through samples and advices, because they cannot transfer those information through inheritance to next generation (Childe, 1988, p.22). Parallel with the technological developments, there is a change in education, and students have opportunities to learn in their pace (Thornton, 2006). Traditional face to face teaching is replaced with written materials (Çetin et.al., 2004, p.145) and informatics and those materials have reached to a level in which they are replaced with teacher. In Industrial Age domestic production was replaced with mass production and the requirement towards people who have tool using skills and who produce for society (Oktay, 2007, p.17).

Science and technology do not shape only the education, but also they define a new labor force; free market economy, bank networks, multinational firms and as a result the concept of globalisation has risen with it (Şahin 2001; Yılmaz and Horzum, 2005). Thus, humans' activities go beyond the scope of national state and they gain international characteristics. On the other side, while human can get information about anything they search; special information about people like credit card numbers, employee info and etc. can be accessible. Besides, at the end of the "Genom" project human can get a gene identity card (Bökesoy and Arda, 1993). Humans' gene map will be defined with this identity card and besides, their social status can be determined with it. For instance, humans' orientations can be defined with DNA codes and those codes can be considered when s/he will look for a job, marry or register to anywhere (Collins, 1999; ITEA, 2007). Technology is very important for human lives and it has both positive and negative effects, thus teaching knowledge, skills and attitudes towards technology are important not only for development of countries but also for the world's future. However, in formal education process technology education is only offered recently.

Parallel with technological developments that underlie on issues like widespread of nuclear weapons, genetically modified plants, Internet's hegemony, global warming and AIDS which remain on the international agenda (Weiss, 2005), governments have accepted that the necessity of reconstruction of educational systems (Means, Olson ve Ruskus, 1997, p. 1). Japanese success on technology and skill based education have forced other countries, especially the USA, to make changes on their educational systems in the context of technology (Chafy, 1997). In the 21st century, countries' power and statute are determined by their level in solving socio-economic, cultural and political problems with availing the advantages of science and technology (Kellani, 2009). In today's world, countries tend to have prevalence on other areas to the degree that their hegemony on science and technology. This shows the importance of technology in states' competitions once more (1). Besides, international organizations like UNESCO and World Bank stated that developing countries could eliminate the poverty when they would aware the importance of technology (Brewer and et.al., 20005). When we analyze Dewey's views, it can be seen that he highlighted the importance of technology as a tool that is used by modern people to increase their skills. Besides, Dewey considered technological development level as a criterion when he classified societies as modern and non-modern (Dewey, 1964). Technology is especially an idea and a product of human brain (Erkan, 2006) and, it is so important in life that individuals and societies without technology are interpreted as being out of life (Kabakçıbaşı and Odabaşı, 2004). This is more important for today's people who can communicate anywhere by cell phones and can make sort of works with a click and, it is

necessary for them to get knowledge about technological world and use it for making life easier (Bacanak, Karamustafaoğlu and Köse, 2003). Technology education is also necessary to notice technological danger (Kabakçı and Odabaşı, 2004), to meet expectations of employer in professional life (Machin and Reenen, 1998), to be able to choose and use best products for their purposes at home and work and it improves the chances to effect governmental decisions about the usage of technology (International Technology Education Association, 2007).

Technology takes place as an individual course in some educational systems, and governments never exclude it from their curricula. In modern world, technology education is not a phenomenon just related with technical schools, it extends across effective and economic usage of tools (Lewis, 2000) and issues like the role of technology in modern societies (Şenel and Gençoğlu, 2003), and its' social aims (Chafy, 1997; Pavlova, 2005) are evaluated critically during this process. Technology is generally offered as an individual course in primary and secondary schools and connections with other learning areas are established. On the other hand, it is emphasized that technology education should be included pre-school education (Turja, Ulpe and Chatoney, 2009). The role of the technologies on sustainable development is also pointed (Elshof, 2009; Filho, Manolas and Pace, 2009; Middleton, 2009; Pavlova, 2009; McGarr, 2010) and the momentum towards inclusion of technology in primary school curricula, and it shows the acceptance of its' importance and educational role in lots of countries (Hill, 1997; Raizen, 1997; Stables, 1997; Fler, 2000; Mawson, 2003; Sade and Coll, 2003; Ankiewicz, de Swardt and de Vries, 2006; Filho, Manolas and Pace, 2009). In Turkey, technology education is included in compulsory education with Science-Technology and Tecnology-Design courses. Besides, technological issues are included in other courses like social studies. Social studies course is accepted as a preparation process of democratic citizenship and, questions like “how can we keep up with rapid changes in technology? and how can we arrange relationship among people from different cultures in the context of technology?” are included in scope of this course. In this context, it is seen that social studies course focuses especially on the social dimensions of technology. When we analyze social studies curriculum which has been implemented since 2005, together with requirements towards more comprehensive connections (Özensoy, 2009), issues are associated with effects of scientific and technological developments on social change. Thus, the level of the relationship between technology and social studies is important. The aim of this study is to evaluate the social studies curriculum while focusing on technology and to explain the relationship between them. Following questions are answered in study in accordance with this aim:

1. What are the technology focused learning areas in 4th, 5th, 6th and 7th grade social studies curricula?
2. What are the technology focused acquisitions in 4th, 5th, 6th and 7th grade social studies curricula?
3. What are the technology focused skills in 4th, 5th, 6th and 7th grade social studies curricula?

2. Method

This study is designed in descriptive model because it aims to analyze 4th, 5th, 6th and 7th grade social studies curricula in a technology focused view. In this context, document analysis technique was used which is a qualitative research method. Learning areas, acquisitions and skills in social studies curricula are considered in evaluation process. Researchers analyzed the technology related items in curricula individually and common findings are presented in conclusion.

3. Findings

Findings about technology focused evaluation of 4th, 5th, 6th and 7th grade social studies curricula are presented following with learning area, acquisition and skill subtitles.

3.1. Learning Areas

Learning areas in 4th, 5th, 6th and 7th grade social studies curricula are Individual and Society; Culture and Heritage; People, Places and Environments; Production, Distribution and Consumption; Science, Technology and Society; Groups, Institutions and Social Organizations; Power, Governance and Society and Global Connections. Among those learning areas Science, Technology and Society is directly technology oriented. Explanations in curricula related with this learning area are as follows;

In this learning area 4th and 5th graders will (MEB, 2006a);

Comprehend that scientific and technological developments are based on creative, critical and scientific thinking and the effects of scientific and technological developments on social life and get skills about using technology in information process. Besides, while students will learn how technologies are connected with their daily life, they will discuss the damage of some technologies on natural environment. They will notice that original products are produced by law and consider the principles of academic honesty.

“Science, Technology and Society” learning area is connected with other learning areas. Thus, social studies curricula include experiences related with the issues of science, technology and society.

In this learning area 6th and 7th graders will (MEB, 2006b);

Comprehend the results and effects of social sciences sub-disciplines on daily and social life, and teacher asks them to give an opinion about the future life based upon scientific and technological developments of the 21st century.

They will notice recent scientific research and experiences are protected by law while they are discussing the effects of copyright and patent on scientific developments.

They will give examples about contributions of civilizations on science and technology in the process which began with the invention of simple tools. In this way, they will summarize the creation process of scientific heritage up to now and they will notice the parallelism between creative, critical, scientific thinking and developments in science and technology.

When we analyze the social studies curriculum in the context of Science, Technology and Society learning area, it is seen that students are asked to understand the relationship between science and technology and to comprehend the social differences based upon science and technology. Besides, as it is emphasized in curriculum, this learning area is connected with other learning areas closely. In this context, during the learning process of other areas as, it is required to analyze the effects of science and technology on social life. Technology has effects on all dimensions of social life. Aforementioned connections in curriculum are important to develop students’ awareness about the effects of technology and to educate them as technologically literate citizens who can use technology properly in their life.

3.2 Acquisitions

Technology focused acquisitions in 4th, 5th, 6th and 7th grade social studies curricula are presented in Table 1 as following;

Table 1. Technology focused acquisitions in 4th, 5th, 6th and 7th grade social studies curricula

| Acquisitions | Class Level | Learning Area | Unit |
|---|-------------|---------------------------------|-----------------|
| 1. Classify technologic products according to their usage area. | 4 | Science, Technology and Society | So Glad to Have |

| | | | |
|--|---|---------------------------------|---------------------|
| 2. Know certain time measuring devices and techniques that human use. | 4 | Science, Technology and Society | So Glad to Have |
| 3. Comprehend the development process of technological products which they use. | 4 | Science, Technology and Society | So Glad to Have |
| 4. Compare past and present considering the changes on life and the environment that made by technological products. | 4 | Science, Technology and Society | So Glad to Have |
| 5. Design original products considering needs of her/his environment. | 4 | Science, Technology and Society | So Glad to Have |
| 6. Use technological products without harming themselves, the others and the nature. | 4 | Science, Technology and Society | So Glad to Have |
| 7. Make correlations between inventions and the technological developments. | 5 | Science, Technology and Society | Dreams Come to True |
| 8. Discuss the effects of inventions and technological developments on social life. | 5 | Science, Technology and Society | Dreams Come to True |
| 9. Aware of the common characteristics of inventors and scientists. | 5 | Science, Technology and Society | Dreams Come to True |
| 10. Present the evidence-based importance that Atatürk gave towards science and technology. | 5 | Science, Technology and Society | Dreams Come to True |
| 11. Know and follow appropriate periodicals about science and technology. | 5 | Science, Technology and Society | Dreams Come to True |
| 12. Discuss the effects of communication and transportation technologies on economic relationship between countries. | 5 | Science, Technology and Society | Dreams Come to True |
| 13. Based on research and findings of social sciences, give examples to effects of the social sciences on social life. | 6 | Science, Technology and Society | Electronic Century |
| 14. Bounce ideas about potential effects of scientific and technological developments on future life. | 6 | Science, Technology and Society | Electronic Century |
| 15. Notice the relationship among medical inventions and developments and human life and social solidarity. | 6 | Science, Technology and Society | Electronic Century |
| 16. Advocate the requirement of legal supplement of products which have copyrights and patent. | 6 | Science, Technology and Society | Electronic Century |
| 17. Based on applications and products, notice the importance Atatürk gave to rationalism and science. | 6 | Science, Technology and Society | Electronic Century |
| 18. Give examples to the contributions of first civilizations towards scientific and technological developments. | 7 | Science, Technology and Society | Science in Time |
| 19. Based on the first examples of writing, notice usage areas of writing and its' importance in information transfer process. | 7 | Science, Technology and Society | Science in Time |

| | | | |
|--|---|---------------------------------|-----------------------------|
| 20. Evaluate the scientific and technological contributions of scientists who lived in Turkish and Muslim states. | 7 | Science, Technology and Society | Science in Time |
| 21. Notice the effects of developments between 15 th and 19 th centuries in Europe on today's scientific background. | 7 | Science, Technology and Society | Science in Time |
| 22. Correlate freedoms of thought, expression and science with scientific development. | 7 | Science, Technology and Society | Science in Time |
| 23. Based on examples from past and today, evaluate the effects of production technologies on social and economic life. | 7 | Science, Technology and Society | Economy and the Social Life |

As we can understand from Table 1 there are 23 technology oriented acquisitions in the 4th, 5th, 6th and 7th grade social studies curricula in Turkey. Six of them are in the 4th grade, six of them are in the 5th grade, five of them are in the 6th grade and six of them in the 7th grade. In this context, technology oriented acquisitions formed 13,2% of whole acquisitions in the curricula (total 174). It was seen that those acquisitions were oriented to knowing and classifying technology, comprehending its' development in historical process, comparing technologies from past to today and predicting towards future, understanding the effects of technology on social life and based on their daily life giving examples about those effects, using technology in ethic and accurate ways.

3.3. Skills

“Using information technologies” ranks among main skills of the 4th, 5th, 6th and 7th grade social studies curricula. Details about these skills are explained in curricula as follows (MEBd):

1. Using computer under directions.
2. Recording, formatting and reusing information that are gained from different sources.
3. Presenting formatted information on computer environment.
4. Preparing multimedia reports by using texts, graphics, color and voice effects.
5. Gaining ability to access to information by using phone and television networks.
6. Using properly the technological products that have access in daily life.

Conclusion and Discussion

We are increasingly dependent on the technology; in spite of this we are ignorant of the nature and history of the technology that sustains us. As citizens of a democratic country, we are disengaged from decisions that help to shape our future. We need to train our students as technologically literate individuals and it requires some changes in our educational system. Looking at findings, we can say that despite the growing importance of technology in social studies curricula in Turkey it is not enough. To have an impact about technology and this should also influence what happens in every classroom.

In conclusion, it was seen that in social studies curricula, Science, Technology and Society learning is directly technology oriented and this learning area has strict connections with others. Technology oriented activities are also implemented as needed in other learning areas. Besides, it was determined that there are 23 technology oriented acquisitions in 4th, 5th, 6th and 7th grade social studies curricula in Turkey. Six of them are in the 4th grade, six of them are in the 5th grade, five of them are in the 6th grade and six of them in the 7th grade. In this context, technology oriented acquisitions formed 13,2% of whole acquisitions in curricula (total 174). In skill dimension “using information technologies” skill is technology oriented and it is towards the effective usage of technology. In Bologna Declaration,

which was published by European Union in 1999, inclusion of technological developments in educational process was suggested. Thus, the need emerges towards designing new curricula which will be technology oriented. By force of transfer from industrial arts to technology education, people need to be technologically literate to place in a technology based society Technology education is included in the framework of curricula in many countries and the first objective of this education is to develop technological literacy (Waetjen, 1993; de Vries and Tamir, 1997; Verner and Betzer, 2001; Zuga, 2004; Canavan and Doherty, 2007, p. 292; Solomonidou and Tassios, 2007, p. 116; Rossouw, Hacker and de Vries, 2010). In this context, we can say that together with technology oriented acquisitions and skills, social studies curricula can contribute students to comprehend the effects of technology on social life in different dimensions and to be technologically literate.

In social studies curricula it was stated that Science, Technology and Society learning area should be connected with other learning areas. This statement can provide students with opportunities to evaluate technology in the context of other social disciplines like history, geography, archeology, economy, law, political sciences and philosophy. For instance, future elections can be done through technology, people can organize and contact with government in digital environments; because of this reason, technology literacy should be related with political sciences inevitably. In this context, linking technology with political sciences in social studies and making practices about it will provide students to be technologically literate and also to be active citizens of the future. Synder (2008, p.147) mentioned that together with developments in the political system, technology has gained importance in means of how we can learn to use information and communication technologies and how we can communicate with others. Thus, it is important for social studies educator to use technology and digital materials for the purpose of teaching students to be active citizens of democratic society. The relationship between Science, Technology and Society learning area and other learning areas is functional and necessary for this reason.

According to Mason and et.al. (2000), students can learn to use technology in context and thus, ICT is among inseparable parts of social studies. In other words, students should use technology in all courses, not only in computer course. Social studies have a critical role in this situation. Especially in the 21st century together with frequent usage of concepts like e-government, e-individual, e-citizenship, digital citizenship and cyber citizenship, integrating technology into social studies has gained more importance. In Turkey, social studies curriculum is included with technology oriented acquisitions and skills. However, it is not enough and here the important thing is to give these acquisitions and skills effectively to students. Thus, activities about these learning areas and teachers who teach students are more important. Research about these activities and teachers' competencies can provide to determine the problems in practice and to take necessary steps about this issue.

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