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Procedia - Social and Behavioral Sciences 46 (2012) 36 – 40

Procedia
Social and Behavioral Sciences

WCES 2012

Social studies pre-service teachers' views about technology literacy

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Abstract

In this study, views of the social studies pre-service teachers about technology and technology literacy are presented focusing on the role of technology in 21st century and in our lives and importance of the social studies pre-service teachers in training technologically literate citizens. This study was conducted in a state university in Turkey. Ten senior students were selected. The data were collected from February 2009 through March 2010. The primary source of the data included semi-structured interviews. By using the content analysis, the discourse was systematically observed based on various coding categories.
Keywords: Social studies; student teacher, technology literacy

1. Introduction

Improved educational systems and increased educational attainment help countries in preparing to global and technology-based developments (Kozma, 2005). The production, distribution and usage of new technologies increase productivity and increases in human, institutional, and technological capabilities are; in turn, major sources of new knowledge and innovation which then feed economic growth. As stated by office of Technology Assessment for the US Congress (1995) technology is not a panacea for all educational problems but it is very essential in today's teaching and learning process. However, education keeps behind in the context of technology; when we compare it with other areas like medicine, business, law, banking and engineering (Oliver, 2002). Lack of support, training, motivation, governmental support can be shown as reasons of this situation (Starr, 2001). In addition, with the growing importance of technology, it is vital that students receive an education that emphasizes technology literacy. Technology has been going on since humans first created a blade from a piece of stone and harnessed fire. Automobiles, planes, telephones, televisions, computers, medical technologies and the others allow people to live more comfortable than before. All these make it important that people understand and more comfortable with the concepts and workings of modern technology. From the societal standpoint, an informed citizenry improves the chances that decisions about the use of technology will be made rationally and responsibly.

To educate citizens technologically literate, teachers should improve themselves. To use technology teachers need support. We have seen that many teachers do not have the necessary IT skills and feel uncomfortable, nor do they have the specific training needed to be able to use the new resources in the classroom (Carnoy, 2004). There is a need towards changes in the curriculum, assessment and the professional development of the educational staff. Also, there needs to be administrative support as well as incentives for teachers to engage in the change process. Teachers think that they do not have sufficient time for the reflective practices that facilitate the carrier development. They have little time or opportunity for communication and relationship building let alone opportunity for deliberating moral purpose or for identifying coherence across practices (Fox and Henri, 2005). Confidence is another important factor about ICT usage. Adequate training and observing others in real life situations are helpful

doi:10.1016/j.sbspro.2012.05.063

in this context (Scrimshaw, 2004). We can give the Zimbabwe's case as an example about it. In the Africa University Strategic Development Plan (2001-2008), it was asserted that, ICT is crucial and urgent to reduce the knowledge, technology and economy gap between Africa and the rest of the world. Also, In both the Cambodian and Japanese contexts, technology was perceived as useful for learning a foreign language and science, while in math and the students' first language it was perceived as less useful with mean values below the midpoint (Elwood and MacLean, 2009). However, integrating technology into education is not just a matter of having the necessary infrastructure. Plans related with technology integration must insure that educational faculties and also student teachers are prepared to use the technology effectively (Chitiyo and Harmon, 2009).

Among other courses, social studies is an important area in preparing students to our technological world of the 21st century. On the contrary, the researches about usage of technology and approaches related with technology makes it clear that social studies teachers are behind the other subjects teachers about this issue (Ross, 1991; Anderson and Becker, 2001; Atkins and Vasu, 2000; Becker, 2001; Dawson et al., 2000). Because of this, pre-service social studies teachers' views about technology literacy were investigated in this study.

1.1. Aim: In this study, views of the social studies pre-service teachers about technology and technology literacy are presented focusing on the role of technology in 21st century and in our lives and importance of the social studies pre-service teachers in training technologically literate citizens.

1.2. Problem and Sub-Problems: The main aim of this study is to determine the opinions of social studies pre-service teachers about technology literacy. In the context of this aim, the following questions were asked:

1. What are the opinions of the pre-service teachers about the positive and negative aspects of the technology?
2. What are the opinions of the pre-service teachers about technology literacy?
3. Do they see themselves literate in the context of using technology?

2. Method

In this study, a qualitative framework (Yıldırım and Şimşek, 2004) was utilized in collecting and analyzing the data. The data were gathered from Social Studies student teachers who are enrolled at a state university in Turkey.

2.1. The Site

This research was conducted in a state university in Turkey. Ten senior students were selected.

2.2. Participants

Changes start with teachers' engagement; if they believe in the necessity of educational reforms they will be motivated to implement them. And as we know, teachers are the people who put theories into practice. At first stage, teachers are responsible to maintaining these innovations. Teachers' reluctance to use technology will affect the status of technology in education system. The greatest inequities did not lie in how often computers were used; it is related to how they were used. Moreover, teachers' professional development in technology was both positively related with academic achievement and school environment (Wenglinski, 1998).

Consequently, since teachers are important in integration process of technology in education and the importance of preparation of educators towards technology integration student teachers were the main players in this study. The participants included 10 senior social studies pre-service teachers. The selection of pre-service teachers was based on purposeful sampling with no gender-specific selection. The logic and power of purposeful sampling lie in selecting information-rich cases for studying in depth. People can learn a great deal about the issues of central importance to the purpose of the research with purposeful sampling (Yıldırım and Şimşek, 2004). By choosing the key informants purposefully selected, the researcher had the opportunity to gather information-rich data.

2.3. Data Collection

The data were collected from February 2010 through March 2010. The primary source of the data included semi-structured interviews. All of the participants allowed the interview to be recorded. Interview sessions were held in their classroom. Each interview took about 25 to 35 minutes.

During the interview, following questions were asked:

- Could you define technology with your own words?
- Could you explain the concept of technology literacy?
- Have you seen yourself literate in the context of technology?
- What else would you like to add?

2.4. Data Analysis

Interviews were audio taped and regularly transcribed. Data were indexed, labeled, and coded according to the major topics. By using the content analysis, the discourse was systematically examined based on various coding categories. While doing content analysis, first, data were read many times to ascertain any patterns. A matrix was developed according to the given answers to each question. In order to understand the general category, open coding was used. Furthermore, in order to see the related subcategories, axial coding was applied.

3. Findings

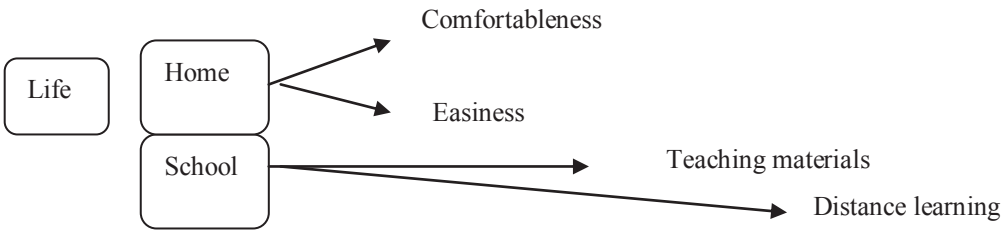
3.1. The Views of the Social Studies Student Teachers about the Technology

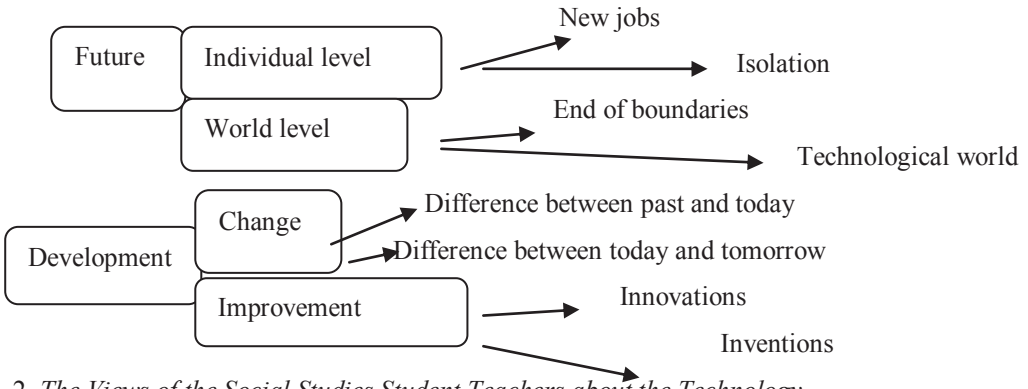
Life was the common category mentioned by the participants. Technology was considered as an important dimension of life by the Social Studies pre-service teachers. They stated that, they were living in a technologically designed world and we could see technology in all parts of our lives. We can give the statements of the participant with code SS5 for give an example about it. One of the participants said that: *"... technology has been affecting our lives. We use it in every side. In our homes, in the schools, in the hospitals, in the banks... For example we could not think a life without our cell phones. We got used to them"*.

Future was the second common category mentioned by the Social Studies pre-service teaches. They saw technology as future and they thought that the future would be formed through the technological processes. According to them in the future, will live in a more technological world and technology will create the future life. For example, participant with code SS3 explained it like this: "*When we look at our history, in the past people lived in a simpler world. And, perhaps they could not imagine a life as ours. But, know we can do lots of things that they could not imagine. Technology shaped our lives and continues to shape our future*."

Development was the third common category. They thought that, technology is development process and our world has been developing with technology. Participant with code SS8 represented her/his views as follows: "*When I think about technology, I remember developments at first. World has been change with technological developments. And, we could do everything that old people had not. So, I think technology is equal with development."*

Figure 1. Views about Technology



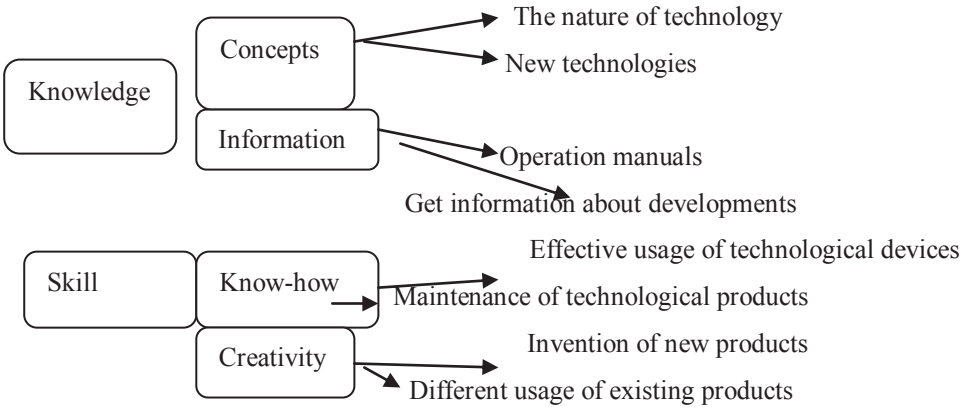


3. 2. *The Views of the Social Studies Student Teachers about the Technology*

When we looked at the explanations of the participants about the technology literacy we saw that they did not have adequate knowledge about this concept. They only guessed its' meaning and tried to say something about it. In this context, **knowledge** was the first common category voiced by them. They thought that, people who were technologically literate know lots of things about technology. For example participant with code SS1 stated that, "*I did not hear this concept before. But, I think it is about technology knowledge. Every day, we encounter with new technologies and there were new concepts and knowledge about them. We don't know lots of them*."

Skill was the second category. Participants stated that, in our technological world if we want to utilize from technology we must learn how we use them. About this, participant with code SS6 said followings: "*Some people have a lack of technical skills to operate technologic devices. I think we cannot call them as technologically literate people.*"

Figure 2. Views about Technology Literacy



As we can see on Figure 2, technology literacy was defined by our participants as**, knowing the concepts (both existing and new) about technology, using operation manuals appropriately, using technological devices effectively and ensuring their maintenance and creating new things**. But, they didn't describe themselves as technological literate people. They thought that, in schools they did not have adequate training about technology and they did not find opportunities to improve their technical skills. If they interested in technology, they improve themselves out of the school, but they stated that it was not adequate for describe them as technologically literate.

4. Discussion and Conclusion

In 21st century, technology affects our world and there are lots of debates about the inability of teacher preparation programs to fully prepare new teachers to use technology effectively. Teachers have ability to employ technology to improve learning and to cope with the problems in the many facets both in individual and in

professional lives (Topper, 2004). Therefore, they will require new understandings, new skills and new attitudes in this context. Teachers' attitudes towards and use of technology play a critical role in preparing tomorrow's workforce in the use of technology (Albee, 2003). When we look at this study, we can see that student teachers have internalised the importance of technology both in their individual and professional lives. However, as stated in Carnoy's (2004) research, they need more support to use technology effectively. Adequate training about technology is the other complaint that the participants made and the result is supported by the research which was done by Scrimshaw in 2004. As a result, social studies student teachers who were the participants of this study had inadequate knowledge about technology literacy and they could not describe themselves as technologically literate people.

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