



THE SOCIAL IMPACT OF TECHNOLOGY IN HUMAN LIFE: THE AWARENESS OF PRE-SERVICE TEACHERS

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ABSTRACT

The research aims to explore the impact of communication and information technology to the society structure and the human life regarding the perceptions and awareness of pre-service teachers. The human behaviours and features are changing in 21. Century and the adaptation become significant. Integrating technology to the human life provided advantages and disadvantages to our lives besides changing human behaviour. Although technology provided credible reflection to personal and professional effectiveness, it also reveals the health and safety problems to the human life. This research concentrated on qualitative research design and case study approach was employed to examine the perceptions and awareness of pre-service teachers in relation to research focus. In this respect, self-report was the data collection technique to explore human features and the social impact of technology (health, safety, personal and professional effectiveness, usability in education process). Regarding the content analysis of the findings as they were revealed from self-reports, pre-service teachers experienced and they are aware of the impact of technology to their lives with its advantages and disadvantages.

Keywords: case study, education, professional effectiveness, technology, social impact

INTRODUCTION

In the information society, an attempt to be technology-centric, technology adoption makes individual, social context, situated activities, and contextual resources in order to measure the information society within social theories. As exploring social theory as a framework for social and cultural measurements of the information society, information is referred to as “digital divide” and “information and communication technology (ICT)” (Qureshi, 2006).

There is a social exclusion, that how information and communication technology empowers socio-economic as opposed to technological processes, learning, cultural change, institutional reorganization, the use of ICT to respond to user needs and develop applications, transferring of experiences and best practice, public/private partnerships and regional partnerships, movement from a technical, technology-centered perspective to an applications- and users- oriented perspective, to support demand and the needs of users, pilot applications and supporting local initiatives and innovations, the integration of policy initiatives on the information system (Pruulmann-Vengerfeldt, 2006; Stephanidis, Salvendy, 1998).

Hence, information and communication technology has great impact on the information society, there are barriers in ICT which are availability, accessibility; affordability, awareness, appropriateness (Phipps, 2000). Technological revolutions shape information society by considering health and safety problems, personal and professional development and usability in education as the social impact of the technology and information, communication technology. Changes become apparent in information society through these aspects (Güneş, 2009).



The research study examines to reveal impacts of information technology on health, safety, psychological, physical, personal, and professional development and the usability in education. In this respect, features of people in information society are aimed to be examined in the research study. Therefore, following research questions are set to find out the impacts of information technology on health, safety, psychological, physical, personal, and professional development, and usability in education:

1. To what extent do pre service teachers have awareness on the features of human being in information society?
2. How do information technologies affect health and safety?
3. How do information technologies affect professional and personal development?
4. What is the role of technology in education?

2. METHODOLOGY

The research encompassed two steps that are training about the subject matter knowledge in relation to research focus and the data gathering process through self-reports in order to explore the impact of communication and information technology to human features and social lives in terms of health, safety, personal and professional development and usability in education and learning process.

In terms of training part of the research, 26 pre-service teachers were well informed and trained how technology effect human behaviours and features, also how technology effect health, safety, personal and professional development with its usability in education aspects. Therefore, this part of the research which took forty minutes presentation by instructor and twenty minutes discussion provided a ground for credible data gathering process. In other words, it is the milestone of this research for further steps.

The second part of the research covered data gathering and analysis process. Self-report which consisted of self-evaluation and reflection of 26 pre-service teachers about the human features in 21. century and social impact of technology in terms of health, safety, personal and professional effectiveness, usability in education was collected and analysed.

2.1. Research Design and Approach

This research is based on qualitative research design that meanings, perceptions and awareness of the prospective teachers have potential impact to retrieval the qualitative findings within an inductive process (Denzin, Lincoln, 2003).

As this research represents the qualitative inquiry tacked to thick descriptions of the participants, case study approach was chosen as an appropriate research approach to explore in-depth description of the particular case in relation to research focus and questions (Creswell, 2003). Although the research relies on a single case study, the in-depth exploration of the research bonds based on research questions provided overcoming the limitations of conducting a single case study approach.

2.2. Context and Participants

The 26 volunteer pre-service teachers who enrolled instructional technology and material development course in classroom teacher education programme became part of this research and reflected their experiences and perceptions through their self-report. Before requesting their self-report of the participants, the pre-service teachers became informed about features of human being in 21. century and dimensions of social impact of computer information technologies in our lives. In other words, orientation and the training were delivered to the pre-service teachers by the course instructor. In this respect, pre-service teachers became confident on subject and the research focus which this increased



the voluntarism to be part of the research process. Volunteer participation provided a ground for confidentiality and trustworthy within the process.

2.3. Data Collection and Analysis

The self report was the data collection technique in this research to explore the perceptions and the awareness of the pre-service teachers about the features of human being in 21. century and the impact of technology to the dimensions of social impacts which are health, safety, personal and professional development, usability in education as a result of information and communication technologies.

As self-report is well reflected document and formed by specific questions in relation to focus (Denzin, Lincoln, 2003), these included three broad categories for this research which are: a. Contributions of technology to the human life b. The self- evaluation on how technology affects features of human being c. The evaluation on how technology affects health, safety, personal and professional development, education as social impacts according to the result of information and communication technology. Before collecting self-reports which encapsulated their experiences and perceptions, pre-service teachers expressed that they were confident on the features of human being in 21. century and the effect of information technologies to the social aspects such as health, safety, personal and professional development, usability in education as a result of training in relation to subject matter knowledge.

Then, self-reports revealed how technology effects pre-service teachers' features in respect to internalizing being human in 21. century and experiencing health, safety problems, personal and professional developments, usability of technology in education regarding the impact of information and communication technology and its reflection to their lives. The in-depth qualitative data were gathered from self-reports and analyzed through thematic analysis according to three broad categories as mentioned above. Significantly, themes captured how pre-service teachers perceived their features as a result of information technology and its impact to their lives. Additionally, themes were formed based on the social dimensions which are health, safety, personal and professional development, usability in education as a result of communication and information technology. Therefore, themes were selected, coded and interpreted based on research questions of this research (Yıldırım, Şimsek, 2005).

3. FINDINGS

The qualitative data from self-reports within inductive process reflected credible findings regarding the impact of communication and information technology to human features and human life in terms of health, safety, personal and professional development, usability in education practices based on the experiences and perceptions of pre-service teachers (Veatch, 2009). Being pre-service teachers in the information society and the social impact of technology in the information society were exhibited in respect to experiences of the participants. The research findings demonstrated that almost all pre-service teachers have awareness about the impact of technology to their changing features and their social life. Significantly, pre-service teachers reflected that in general communication and information technology develops their personal and professional effectiveness which it is significant to transfer abilities to the workplace. In addition, they reported that technology become crucial for their learning process and useful for their educational practices while studying their programme and undertaking instructional technology and material development course. However, pre-service teachers remarked that using technology effect health and safety issues. Significantly, they were no confident with sharing ideas and experiences within online platform and also, they believe physical and physiological problems arise as a result of using technology (Hinchliffe, 2004).



3.1. Being a Pre-Service Teacher in Information Society

Being a human and being a prospective teacher who will feed the generation of the society in information society is crucial and at the same time difficult. With the development of information and communication technologies, there is dramatically shift on the changes of human behaviours and features that technology reveals. In respect to 21. century revolution in every aspects of human life, features of the human being have been changed and more attention is drawn to being open to change and development, renewing knowledge and ability, producing new knowledge and reaching out knowledge, having intellectual flexibility for social and technical problems, involving self-learning and development, being information literate, being computer and internet literate. As these human features listed, those who capture and internalize these features can become adaptable and successful in their life within information society (Earp, 2009). The self-report of 26 pre-service teachers exhibited variety responses and self-evaluations concerning the being human and pre-service teachers in information society. In addition, experiences and perceptions of prospective teachers highlighted how technology and living in information society reshape their self awareness and evaluation. Although almost all pre-service teachers considered technology as essential part of their life, they respond in a different way for their changing features in their self-evaluation through self-reports. Furthermore, almost all of them agreed that being capable to using technology is significant step for their professional practice and being aware of human features in information society is remarkable issue for the success in personal and professional life within the information society. Significantly as a being pre-service teacher and being a teacher, adaptation to the information society with all listed features is inevitable.

Considering the being open to change and development as one of the human feature in information society, almost all pre-service teachers evaluated themselves that they have difficulty to do this. In this respect, some of them (N=9) reflected that they are open to change and development. As renewing knowledge and ability is the prerequisite feature of the human being in information society, it is also significant for the prospective teachers to internalize and transfer this feature to their personal and professional life. In respect to this, some of the pre-service teachers (N=11) reported in their self-evaluations that they are aware of renewing knowledge and ability. At the same time, they have ability to renewal knowledge and ability. However, the almost all pre-service teachers (N=15) indicated difficulty to cope with renewing knowledge and ability in their field and life.

Almost all pre-service teachers (N=23) remarked that technology provides a ground for reaching out knowledge and information immediately. However, some of them (N=3) considered that they are not confident to produce knowledge. Furthermore, Almost all pre-service teachers (N=24) through their self-report exhibited that they have no intellectual flexibility to solve social and technical problems within information society and they need further professional trainings to internalize intellectual flexibility ability. In here, it can be underlined that there is a question mark for the education system effectiveness and the enrolled programme and courses in respect to how teaching and learning process posses the ability of intellectual flexibility.

The motivation to learning is another important feature of the human in information society. The human being should look for possible learning environment to feed their subject knowledge and enrich professional experiences. In this respect, almost all pre-service teachers (N=25) highlighted that they have intrinsic motivation to learn beside the instructed learning process. Significantly, almost all pre-service teachers (N=23) paid attention that they are not aware of being information literate however they thought that they are computer and internet literate because of the impact of technology to their life.

Regarding the experiences and perceptions of the pre-service teachers, it is fundamental to internalize features of human being in information society and look for the possible solutions to enrich the abilities in order to transform and reflect these features in their future professional practice (Mackey,



Jacobson, 2005). Almost all pre-service teachers agreed that training session is the milestone to be aware of human being features in information society and it helps them think and evaluate their current abilities and subject matter knowledge to become better for further. However, some of the students (N=3) underlined that coping with those features with a self effort is not enough to be effective in the life, therefore they argued the lack of practice within the programme and courses as one of the expectation from the course and the instructor (Floridi, 2009, May, 2000).

3.2. Social Impacts of Technology in Information Society

Regarding how technology affect social life of the human being in terms of health, safety, personal and professional development and education aspects, 20 pre-service teachers highlighted that technology reveals health and safety problems as disadvantages. In addition, pre-service teachers reflected parity that technology promotes personal and professional development. Parallel to the development in personal and professional effectiveness, they proposed that technology is the fundamental part of the learning and teaching process in education practices. In this respect, research findings encompassed the impact of technology to the health, safety, personal and professional development, usability in education practices as the social impacts to the human life. Therefore, the following findings and discussion highlighted the experiences and perceptions of the pre-service teachers in four broad aspects: firstly, the impact of technology to the health (physical and psychological problems), then the impact of technology to the safety management (being confident in online technology and reflect ethical understanding), moreover the impact of technology to the personal and professional development, lastly the role of technology in education.

In respect to health problems which are the one of the social impact of the technology in human life, almost all pre-service teachers agreed that technology naturally posses physical and psychological problems. Significantly for the psychological problems, in particular, ST3 highlighted, “I feel isolated and alone while using technology”. In addition, ST12 underlined, “technology eliminates socialisation and communication link between individuals. Furthermore, ST20 stated, “technology causes dependency and directs our life”. Further to these, ST23 remarked, “technology affects human inspiration negatively”.

Additionally, physical problems are the part of the health issue in terms of social impact of the technology to human life. In this respect, ST6 stated, “using computer and internet in a long hours affect my body posture negatively”. Further to this, ST14 remarked, “engaging with technology long time period cause bonds pains”. Almost all pre-service teachers have awareness of that technology affect the health of human being in physical and psychological aspects.

Feeling in a safe and controlling safety is the crucial part of the safety management. All human being needs to feel confident and concern ethical understanding and behaviours in their lives. Integrating ICT to the human life causes ethical and safety problems as it is resulted in unexpected human behaviours. Regarding the experiences and perceptions of the pre-service teachers, almost all pre-service teachers agreed that technology may cause ethical and safety problems. However, they were not well informed about what safety management and ethical understanding is as limited responses revealed from their self-report of pre-service teachers.

Regarding the impact of technology to personal and professional development, pre-service teachers reflected parity and highlighted concrete examples from their experiences that technology has contributions to their personal and professional effectiveness. In terms of personal development and effectiveness, almost all pre-service teachers (N=23) reflected that engaging with ICT provides communication, negotiation, team work abilities especially in online platform. In addition, ICT promotes presentation and critical understanding abilities to become efficient in daily life. Pre-service teachers highlighted that ICT is the supplementary part of the human life which it could not be life itself.



Further to this, pre-service teachers agreed that ICT is the fundamental part of the professional effectiveness as well. Within a framework of professional development and effectiveness, pre-service teachers reported that ICT integrated classrooms enhance the teaching practice. In particular, practicing professionalism in teacher education field based on micro-teaching, they underlined that they internalized how technology supports their development on the road of the professionalism. Significantly, ST2 remarked, “using power point and ohp in micro teaching helped me deliver the course effectively”. Further to this, ST12 highlighted, “using ICT in our teaching practice help us internalize how technology is significant in teaching”. However, some of the pre-service teachers (N=3) reflected that technology is not effective for personal and professional developments.

Regarding the role of technology in education practices, almost all pre-service teachers (N=23) are aware of the importance and the impact of technology to learning and teaching process. Almost all of them reported that teaching and learning processes can be enriched by technology within the scope of instructional technology and material development spectrum. The pre-service teachers highlighted the role of technology in education practices in many ways:

- “Technology fosters learning”
- “Technology supports the instruction and teaching process”
- “It has the facilitation role for the teaching”
- “It provides exchange of ideas and knowledge”
- “It fosters communication and collaboration”
- “It supports concrete learning experiences and environment”
- “Technology enhances meaningful learning and experiences”

Therefore, information technology and living in an information society also affect how we perceive and aware of the forthcoming issues in education and how we internalize and experience the new practices. In this respect, although each pre-service teacher has various experiences in information society, they almost agreed that technology could not be separate from human life with its all advantages and disadvantages (Floridi, 2009).

4. DISCUSSION AND CONCLUSION

Innovations of communication and information technology provide potential benefits on the practices of education and societal structure. The dynamic and interactive aspects of quality in education refer quality education. This is characterized by increased customer satisfaction through continuous improvement in which all employees and students actively participate. The continuous improvement by the dynamic and interactive aspects of quality in education relies on facilitating communication networks (Srikanthan, Dalrymple, 2004).

As learner satisfaction based on their active participation is one of the proposed instruments to catch the quality, it is crucial to examine satisfaction in by considering communication facilitation and information technology. In this respect, technology and its impacts plays important role for the changes in the teaching, and learning experiences. Increasingly, changes in information technology and communication make the clear stance of information society in both personal and professional development (Tynjala, Hakkinen, 2005).

21. century, information society promotes basic features for human being. Being adaptable to changes, being open to development, gaining new skills and knowledge, reaching out new information and construction of knowledge, thinking social, technical events, learning by self-intrinsic, being information literacy, being computer and internet literacy are the key features of human being in the information society (Güneş, 2009).



The framework of information society relies on social theory that social and cultural aspects reveals “digital divide” and “information and communication technology”. In this respect, health, safety problems, personal and professional development, usability in education within information society are underlined in the research study that information technology has great impact for shaping both human being features and behaviors, significantly the pre-service teachers experienced and have awareness of this reality (Qureshi, 2006).

Although the study provided invaluable insights as regards the impact of technology to human life and social behaviours within education practices, more than one data collection techniques and mix approach could be better to explore the perceptions and awareness of pre-service teachers from different angles and larger perspective. In addition, this research revealed how technology was perceived in personal and professional experiences as accepted part of the life and the education field.

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