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The teacher candidates' views concerning the 21st century literacy education project (LEP)

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Abstract

Today, the concept of "Literacy" represents reading and writing in various forms of texts which embody knowledge and a range of skills. Different literacies are essential for human to live, work and produce in the society. In order to use communication technologies in educational and teaching processes appropriately, individuals are not only required to become scientifically and technologically literate but also multimedia literate. Within this respect, a Project called "The 21st Century Literacies Education for Teacher Candidates" was conducted with the support of TUBITAK at Amasya University. The aim of the project was to improve the information and skill levels of the teacher candidates concerning the 21st century literacy and to teach benefits of most efficient ways from various literacy types in education and teaching processes. Teacher candidates were provided with information, technological, media, visual and natural and science literacies besides traditional one. The sample of this qualitative study consisted of 24 teacher candidates from 10 different universities. After presentation of each literacy type, the views of teacher candidates were taken. When the teacher candidates' views were observed, as a result of "21st Century Literacies Education" project it can be said that this education creates awareness and constitutes information, skill and competence that can be used in their future academic lives. According to their feedbacks, individuals that received the 21st century literacy education, expressed that they acquired the skills to access the contents presented in multimedia environment, to understand these accessed contents, interpret them, criticise and reproduce them.

Keywords: *Teacher Candidate; 21st Century; Literacies; Education*

1. Introduction

The level of development of a society is in direct relationship with the quality of education and instruction in that society. The quality of education and instruction is directly related to the qualities of teachers. Since the most important and critical element of the education system is the teacher, teacher-training institutions should not develop processes that would enable teachers to achieve these qualifications based on the social and technological status quo, but rather based on the possible future conditions. Intensive use of new communication technologies both in educational processes and in private lives requires critical approach to the information accessed by the individuals, reshaping the social structure, and participation in democratic processes. New world conditions that we live in require the learning individuals to be equipped with different information and skills. Thus, the concept of literacy that expressed the condition of being educated, having knowledge, or reading and writing in the past, has now changed and its scope has widened.

Today, the classical items of instruction and learning, namely books, notebooks, pencils and the blackboard have been replaced with computers, smart boards, tablets, and memory sticks. And

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accessing the knowledge, teaching, and learning became more complicated. The only factor that has remained constant is the fact that both old and new tools aim to develop reading and writing skills. Therefore, it is necessary to revisit and adapt the literacy skills for the changing conditions. The concept of literacy has often been discussed and redefined with a multidisciplinary approach. As Gunther Kress (2003) noted, it is no longer possible to consider the concept of literacy without considering various social, technological, and economical factors. However, two significant developments should be mentioned for the determination of the concept of literacy. These are; the replacement of writing, which reigned for centuries, by the visual, and the replacement of books by the screen. These two developments revolutionized literacy practices and effected in every level and field within the context of representation and communications. The reign of the visual and the screen over the written manuscript would profoundly affect cognitive/affective, physical, and cultural relationships of an individual with his environment and the individual's form/shape of knowledge, because the narrated world is quite different from the world shown according to Kress (2003;1). The screen becoming the primary tool for communications would not only create comprehensive effects on communications itself, but would deeply affect the processes of power and competence as well. Written and oral language provides a sequential and consecutive reasoning in understanding and interpretation of the world and the environment. However, the screen and the visual represent the environment as a situation rather than a process. Therefore, the presented world is more resistant to thought and analysis and could direct and manipulate the perceptions of the individuals. Thus, these two changes would lead to comprehensive political, economic, social, cultural, conceptual, cognitive, and epistemological changes.

2. Literacy

Today, the new "literacy" concept reflects the ability to read and write different type of texts including several knowledge and skills. Different literacies that are necessary to live, work, and to be a citizen should first be achieved by the pre-service teachers so they can train their students to learn, to access information directly, to be active, to participate, and to think critically with the multiplier effect when they perform their profession as individuals (O'Rourke, 2005; Cope, 2000).

Thus, the application for the "21st Century Literacies Training for Pre-Service Teachers" project was accepted on July 31, 2015 within the TUBITAK Scientist Support Program-2229 (No: 1059B291500022) and the project was conducted on August 24 – 27, 2015 in the Amasya Tourism and Hotel Management Practice Hotel with the participation of pre-service teachers from ten different universities. In this project, training was provided in the following subjects: Basic Literacy, Technological Literacy, Information Literacy, Visual Literacy, Media Literacy, and Scientific Literacy subsumed under the title "21st Century Literacies".

Within the context of 21st Century literacies or multi-literacy, today being literate does not only cover the ability to read, comprehend, interpret, and criticize written manuscripts, but also different "texts" such as pictures, visuals and videos. The level and performance of the reading skills perceived as such would be an indicator of the achievements of the individuals in their educational and private lives. In these times where information is rapidly produced, developed, edited and distributed, and where reading and writing are no longer sufficient, the individual needs to be multi-literate. Thus, teachers should attain pedagogical efficiency to train students so that the latter could gain these information and skill requirements (Lo & Clarke, 2010).

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To prevent the monopolization of written language and all kinds of texts produced using the technology of today by political, economical, and cultural elite in the future. Individuals in education should achieve the highest levels of reading and writing skills, as well as critical interpretation skills. To be successful in business and in the professional arena, and to be able to follow the developments, basic literacy is a prerequisite. The contribution of the literacy level of a society is an undeniable fact for reducing poverty and establishing economic development and democracy, and protection of human and children's health (Güneş, 1994). PISA (Program for International Student Assessment) and PIRLS (Progress in International Reading Literacy Study) tests, by measuring the educational achievements of students in school and reading skills, compare the qualities and activities of countries in education (EACEA, 2011). PIRLS, on one hand measures the reading skills, the increase in reading achievements, values and tastes towards reading, on the other hand assesses the family support in reading, how the reading skills are achieved at an early age countrywide, and the practices the teachers follow to teach reading (PIRLS, 2015). Basic literacy is the foundation for quality in education and the student success. Literate students are only made possible through qualified teachers with a high level of literacy awareness.

To catch up with the speed of scientific and technological developments individuals have to continuously renew themselves. As Alvin Toffler (1970) said "the illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn". Information and communication technology (ICT) literacy represents the knowledge and skills to efficiently use technologies as a concept. However, to reduce this field of literacy into the skills to use technology would be narrowing the content of the field down. The other components of ICT literacy are as significant as the skills to use technology. These are; basic literacy, problem solving skills, information literacy, and technology literacy. It is impossible to read (alphabet, numbers) the information with respect to expression and meaning without basic literacy skill. Thus, reading and writing skills are required as basic skills. On the other hand, problem solving skills are related to situations where the individual consciously expresses their knowledge and performs their skills when faced with problems. Information literacy is related to situations where the individual recognizes the need for information, knows the information sources, accesses the information, and could analyze, interpret and criticize the information, and evaluates and uses it (Kurbanoğlu & Akkoyunlu, 2001).

There are different definitions on information literacy in the literature. There are two types of definitions; one is concerned with the concept of "information literacy" while the other is interested in the qualifications of an information literate individual (Aldemir, 2004). The information literacy definitions in the first order includes subjects such as realizing the need for information, accessing the information, analyzing the information, interpretation, evaluation, sharing, having problem solving skills, lifelong learning, learning society, continuous education, information explosion and the increase in the amount of information available, democratization and copyrights. These definitions gain new dimensions in parallel to technological developments. Taylor (1979) stated that characteristics such as ability to access information using different resources to solve real life problems, sustaining enlightenment, determining strategies on when and how to obtain information should be included in the definition of information literacy. As for the latter approach, as the information increased quantitatively, the skills that individuals, who need information must have increased as well. These skills formed the foundation of information literacy.

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Media literacy skills differentiate and gain significance every day due to technological and digital developments. The concept of media no longer solely identifies print media, audio and visual communication tools, but digital and multimedia as well. Different literacy types related to this field generally are related to media and information literacy. Visual literacy, technological literacy, and digital literacy skills are required for media literacy as well. In a position statement published the NCSS (2009) that media literacy helps students become critical evaluators of media.

"In the 21st century, media literacy is an imperative for participatory democracy because new information/communication technologies and a market-based media culture have significantly re-shaped the world. The better we can prepare our students to critically question the information and media they are seeing, hearing, and using, the more likely they are to make informed decisions and to participate as citizens who can shape democracy for the public good." (NCSS, 2009:89)

Thus, the one of the principal tasks of education is to introduce media and information and communications technologies to the students, motivate them to use these expediently and with responsibility, critical behavior and to develop literacy skills.

Visual literacy occupies a significant place among the literacy types, since pictures and visuals communicate the content aimed at an individual faster, more practical and more effectively. Education-instruction, communications, scientific and cultural activities conducted with visuals and visual texts necessitate the restructuring the concept of visual literacy. Thus, the boundaries of the definition of visual literacy expand and new and current skills are added to the skills it contains. The definitions made so far included skills such as recognizing, understanding, using, producing visuals, establishing communications, interpretation, analysis, and assessment (Ausburn&Ausburn, 1978; Braden&Hortin, 1982; Heinich, Molenda &Russel, 1982; Considine, 1986; Lacy, 1987). Today, it is also expected and required to have skills such as determination of the need for visuals, accessing and criticizing the visuals identified, and having the skills to consider legal, ethical, social, and economic circumstances about their use. The fact that visuals are used as communication tools in distinct fields necessitates an interdisciplinary approach to these efforts (Brill & Branch, 2007).

The most recent and comprehensive study on visual literacy was conducted by The American Association of College and Research Libraries (ACRL). In this study, published by ACRL with the title of *Visual Literacy Competency Standards for Higher Education*, it was defined as follows:

"Visual literacy is a set of abilities that enables an individual to effectively find, interpret, evaluate, use, and create images and visual media. Visual literacy skills equip a learner to understand and analyze the contextual, cultural, ethical, aesthetic, intellectual, and technical components involved in the production and use of visual materials. A visually literate individual is both a critical consumer of visual media and a competent contributor to a body of shared knowledge and culture" (Hattwig, et all, 2013:69).

Another type of literacy within the context of multi-literacy is scientific literacy. The most significant functions of subject fields in scientific literacy are to provide scientific process skills, research skills, and positive attitudes towards science and knowledge for the learning of individuals. Previously science courses mainly transferred knowledge, however today they aim to develop field-related skills of the students, most of which overlap with other literacy types such as

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learning to learn, understanding the basic concepts, interpretation, implementation, problem solving, and scientific behavior (Uluçınar, 2013). There are different definitions for scientific literacy in the literature. However, it is possible to divide these definitions in two groups; in the first there are definitions that approach scientific literacy based on the social function of knowledge and science, and the second group of definitions that defend the importance of scientific information within science for scientific literacy (Holbrook and Rannikmae, 2009). The Programme for International Student Assessment (PISA), organized by Organization for Economic Cooperation and Development (OECD), defines scientific literacy as "the capacity to use scientific knowledge, to identify questions, and to draw evidence-based conclusions in order to understand and help make decisions about the natural world and the changes made to it through human activity" (Schleicher, 1999: 59) The Science and Technology Instruction Program recently adapted in Turkey states the need for students to be trained as scientific and technologically literate individuals in the vision statement.

3. Method

The present study that aimed to identify the views of pre-service teachers on 21st Century literacy types (basic, visual, media, information, technology, and science) phenomenological design, one of the qualitative research methods was used. Phenomenological design concentrates on phenomena that we are aware of but we do not comprehend completely. Phenomenology provides a suitable basis for research in studies that aim to investigate the phenomena that are not totally alien, but difficult to comprehend immediately (Yıldırım and Simsek, 2013).

The phenomenological inquiry aims to understand the world as experienced and articulated by the participants. This approach considers that every human being has his or her own perception about the world and reality. The quintessence of such lived practiced can be acquired by non-undertaking from the investigator.

3.1. Study group

The study group included 24 pre-service teachers attending 10 different universities and participated in the project "21st Century Literacies Training for Pre-Service Teachers" conducted at Amasya University and sponsored by TUBITAK.

3.2. Data collection

Pre-service teachers were requested to write down their views on each literacy training session after the presentations were over and after the purpose of the study was explained and it was noted that participation is completely on voluntary basis, and they should refrain from mentioning their personal information on the answer sheets. Pre-service teachers were given 30 minutes to write their views on the training they received. The tool of measurement used in the study is provided in the Appendix section of this manuscript.

3.3. Data analysis

Descriptive analysis technique was used in the analysis of data obtained in the present study (Yıldırım and Simsek, 2013). The path described below was followed to conduct data analysis:

1. The survey forms written by the pre-service teachers were enumerated and initially the percentages for positive and negative views were calculated, and then the preamble statement(s) for the

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views of each pre-service teacher were read one by one and the statements that supported the same main idea were merged into one single conclusion statement.

2. Validity and reliability process: The whole processes in the study were explained step by step to provide validity. To improve the reliability of the classifications, the study was analyzed by the researchers separately before it was conducted, and the analyses were compared to arrive at the final version. The reliability calculations for the study were conducted using Goodness of Fit Percentage Formula [P = (Na / Na + Nd) x 100] (P: Goodness of Fit Percentage; Na: Goodness of Fit value; Nd: Discrepancy value) (Miles and Huberman, 1994). According to Yıldırım et al. (2013), if the goodness of fit percentage is at least 70%, it is accepted that the findings were reliable. The "goodness of fit percentage" for the study was calculated as 97%.

4. Findings

In this section, the views and the rationale behind these views of pre-service teachers on basic, visual, media, scientific, technological, and information literacies are presented.

4.1. The views of pre-service teachers on basic literacy

88% of pre-service teachers found the conventional literacy training satisfactory, while 12% stated that it was not. Most significant reasons for those who found the training satisfactory were; clarity, tangibility, and presentation of known basic information. It was observed that those who found it unsatisfactory claimed the training was theoretical and there were no opportunities for practice.

All of the pre-service teachers stated that basic literacy training created awareness. Their most significant reasons for awareness were:

- Basic literacy constitutes the infrastructure for other literacies
- Their points of view on the form of critical reading of texts were changed
- Examples were given from daily life
- Reading was perceived from a different point of view
- When reading a manuscript, raising awareness about the author and the conditions the text was written in instead of having a reader's shallow point of view.

It was observed that 100% of pre-service teachers expressed basic literacy training created information/skills/efficacies that could be utilized in academic life and in the future. Their most prevalent reasons for that were the following:

- Being a conscious reader helps with personal development
- Placing emphasis on reading comprehension would develop questioning skills
- It would create a different point of view for career planning.

4.2. The views of pre-service teachers on visual literacy

95% of pre-service teachers found the visual literacy training satisfactory, while 5% expressed that it was not satisfactory. The most important reasons for finding the training satisfactory were:

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- Arts and art works have positive effects on the quality and attributes of human life
- Colors have effects on human psychology and life
- Aesthetic sensitivity has positive contributions to all professions and expertise.

Those who found visual literacy training insufficient (5%) claimed that they are already trained in visual arts and took similar courses, so they knew about the subject already.

100% of pre-service teachers expressed views that visual literacy training raised awareness. Their most prevalent reasons for this awareness were:

- Change in their points of view for arts and artistic works
- Learned information on the interpretation of art works
- Contribution to the creation of common values for humanity via the presentation of universal themes with locality in art
- Providing permanent learning experiences in meanings and explaining the meaning of visual materials
- Visual quality makes the learning material enjoyable

It was observed that 97% of pre-service teachers stated that visual literacy training provided information/skills/efficacies that could be beneficial in academic life and in the future. The most significant reasons for this view were as follows:

- Aesthetic sensitivity would contribute to doing the best in everything we do
- Visual literacy would contribute considerably to self-expression
- It would have positive effects on interpretation of life and people

The rationale behind the views of those who found the training unsatisfactory (3%) was the fact that they had a sufficient awareness already via visual arts training courses and other courses they have attended.

4.3. The views of pre-service teachers on scientific literacy

100% of pre-service teachers expressed that they have found scientific literacy training satisfactory. Their most prevalent reasons were:

- It was an applied training
- It was supported with visuals
- It viewed phenomena and events through a scientific perspective

95% of pre-service teachers expressed that scientific literacy training raised awareness. However, they failed to identify concrete preamble about what awareness was. 5% of pre-service teachers stated that scientific literacy training did not raise awareness. These claimed that the training was a repetition of what they already knew.

It was observed that 85% of pre-service teachers stated that scientific literacy training provided information/skills/efficacies that could be beneficial in academic life and in the future. The most significant reasons for this view were as follows:

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- It would be helpful in career planning
- It would be beneficial in post-graduate education

It was observed that 15% of pre-service teachers stated that scientific literacy training did not provide information/skills/efficacies that could be beneficial in academic life and in the future. The most prevalent reason for this view was the information given was not suitable for use in daily life.

4.4. The views of pre-service teachers on information literacy

96% of pre-service teachers expressed that they have found information literacy training satisfactory. Their most prevalent reasons were:

- Basic concepts about information literacy became clear
- It was conceived how to learn accurate information
- To learn how to benefit from databases
- Consciousness about the use and interpretation of information was created

4% of pre-service teachers stated that information literacy training was unsatisfactory. These claimed that the training was a repetition of what they already knew.

88% of pre-service teachers expressed that information literacy training raised awareness. Their most significant reasons were:

- It created information literacy awareness
- It made it clear how to use accurate information

12% of pre-service teachers expressed that information literacy training did not raise awareness. These claimed that the training was a repetition of what they already knew.

It was observed that 92% of pre-service teachers stated that information literacy training provided information/skills/efficacies that could be beneficial in academic life and in the future. The most significant reasons for this view were as follows:

- They have understood the benefits of critical and questioning attitudes in the future
- It would benefit career planning
- It provided information that would facilitate daily life
- It created awareness for scientific research process

It was observed that 8% of pre-service teachers stated that information literacy training did not provide information/skills/efficacies that could be beneficial in academic life and in the future.

4.5. The views of pre-service teachers on media literacy

100% of pre-service teachers expressed that they have found media literacy training satisfactory. Their most prevalent reasons were; the training was instructed by a well-equipped instructor and in an efficient way, the trainees were able to revise the things they knew right or wrong about

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the media, beneficial and accurate examples were selected for applied studies, and they have gained media literacy knowledge and skills.

92% of pre-service teachers expressed views that media literacy training raised awareness. They have stated that as a result of the training, they became aware that:

- There were skills about the conscious use of media content and these skills were necessary
- Media content should be viewed from different perspectives and with a critical approach
- It is important to consume media content through analysis
- Media content could be perceived and interpreted in different ways
- The importance of consuming media content by comparing it to different resources

It was observed that 100% of pre-service teachers stated that media literacy training provided information/skills/efficacies that could be beneficial in academic life and in the future.

4.6. The views of pre-service teachers on technological literacy

92% of pre-service teachers expressed that they have found technological literacy training satisfactory. Their most prevalent reasons were:

- They have learned about the technological concepts and technology jargon
- They were clearly informed since the subjects were adequately supported by current examples
- They have learned the educational areas where technology was utilized

92% of pre-service teachers expressed views that technological literacy training raised awareness. They have stated that as a result of the training, they gained awareness, because:

- They have learned information that could be used in educational and instructional processes
- They have learned about new software
- It made them aspire to develop themselves in the field
- It raised awareness for access to information

It was observed that 100% of pre-service teachers stated that media literacy training provided information/skills/efficacies that could be beneficial in academic life and in the future, it facilitated their lives, and would contribute to their academic standing, and furthermore it would help them communicate with students better.

5. Result

In the present study where phenomenological design was used and the views of pre-service teachers on the 21st Century literacies (basic, visual, media, information, technological, and scientific) were scrutinized. The views and the rationale behind these views of pre-service teachers on basic, visual, media, information, technological, and scientific literacies are explained in detail below.

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It could be deducted from the findings of the study as a whole that multi-literacy is a basic requirement for today's individuals. Thus, it could be suggested to include a "21st Century Literacy" or "multi-literacy" course in higher education programs, at least as an elective course. Furthermore, it was considered beneficial to publish informative content within the social media and via mass communication programs.

The fact that fast changes are experienced in the fields of science, technology, and communications, and continuous flow of visual messages in the days we live, requires the renewal of educational system and the educators as well. For the individuals to be productive, participating, and free thinking, and to be able to organize their own lives, it is necessary for them to develop their multi-literacy skills. Thus, we deem it necessary that the teacher training curricula and content should be reviewed and restructured.

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