The Scale of Preservice Teachers' Digital Pedagogic Competencies: Validity and Reliability Study

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ABSTRACT

Educators increasingly show interest to digital media that contains different learning styles and affects social and cultural aspects of children and young people. In our country, the relationship betweeen technology, pedagogy and teacher has gained importance within the scope of "The Movement of Increasing Opportunity in Education and Improving Technology" (FATIH in Turkish) project of Ministry of National Education, which newly comes to the fore, related to active implementation of digital technologies in education. The education to be given within the scope of the project has been called digital pedagogy by researchers as it comprehends both digital information and pedagogy. The objective of the study is to develop a valid and reliable measuring tool in order to measure the competency of teacher candidates to use and create digital devices. When the measureing tool was developed, the courses to be given to teachers during the development of the measuring tool and the cases including digital pedagogy in literature were taken into consideration. Firstly, exploratory factor analysis was conducted for DPCS and a three factor structure that revealed % 55.6 of total variance was obtained. The structure acquired was tested with the exploratory factor analysis and model fit was tested through confirmatory factor analysis. As a result of the exploratory and confirmatory factor analyses, it was found that the model, which consisted of 19 items and three factors, was appropriate theoretically and statistically.

Keywords: *Teachers, Preservice Teachers, Digital Pedagogy, Competency*

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INTRODUCTION

Communication and information technologies have increasingly become a part of our daily lives (Bayhan, Olgun & Yelland, 2002). Individuals use digital technologies as a device to create and spread entertainment, research and artistic studies; to establish a relationship with the world and each other through more different ways than previous generations did. (Wagner, 2008). The technologies used in education are divided into two groups as standard (board, chalk etc.) and digital (smart board, the internet, computer etc.) (Koehler, Mishra & Yahya, 2007). The standard technologies have been highly used in eduction for a long time and a sufficient education related to these devices has been given to teachers. However, the use of digital technologies in education has not the desired level; in new millennium, traditional teaching methods fall behind to meet the interests and needs of students of the age, new approaches have replaced the traditional views that suggest the impossibility of integration of pedagogy and technology (Barab, King & Gray, 2004; Roblyer & Edwards, 2000).

Educators increasingly show interest to digital media that contains different learning styles and affects social and cultural aspects of children and young people. The activation of this interest in educational process is enabled not only by including newly developing abilities of digital world in the programme, but also by stating how and in what way these abilities are connected. The dimension containing the questions of "how" and "in what way" is the dimension of "digital pedagogy." If the technology at hand has stages of development, it should be discussed how it must be in the learning

dimension (Willett, 2007). This is related to the creation of new pedagogic fields in educational programmes, and of educational environments for the growth of a generation that will keep up with the developing technology. Along with these developments, today curriculums have been integrated with technological advances (Digital literacy, e-abilities, screen reading etc.).

Technological changes affect class climate, the methods and tecniques used in teaching as well as giving some responsibilities to teacher and student. This requires a connection between pedagogy and technology. While the target of models which are result-oriented, is to make teachers obtain information and abilities concrning the use of technology, the objective of the model, that are pedagogy-oriented, is to make teachers associate their technological information with pedagogic information (Yurdakul, 2011). Individuals should balance technical and personal elements by taking digital pedagogics into consideration in the process that they try to reach their learning targets. The case is the same for teachers and teacher candidates. The elements of developing digital pedagogy should be dealt for teacher candidates in the process that they begin teachership, and it should be begun to teaching process (Lloyd & Irvine, 2005). Since teachers determine that students coming to school, whether use educational technologies in a correct and relevant way or not, teachers should have information in that field.

The changes experienced in education applications lead to make changes in competencies that teachers are required to have. Various projects, related to the active actualization of digital technologies in education, have been carried out in our country. The most recent one of these is the project, called the Movement of Increasing Opportunity in Education and Improving Technology briefly known as FATIH in Turkish, conducted by Ministry of National Education and Ministry of Transport in a cooperation. Through FATIH project (2011-2014), which is claimed to contain reformatory changes for Turkish Education System, computer for every school in the first transformation, the active use of information technologies in the second transformation and tablet for every student in the next transformation have been aimed. Within the scope of the project planned to be completed in three years, it is stated that computers connected to the internet, smart board and delineascope are to be placed in classes. (Kayaduman, Sırakaya & Seferoglu, 2011).

When we take a look at the regulations made within the scope of Fatih project, it is considered appropriate and necessary to give in service training in several cases from the education of teacher to physical conditions of school. The substructure of the equipment provided for the classes given within the scope of the project, educational e-contents, teacher's guidebooks and courses of basic computer use to be accorded to information technologies are basically main topics. As a result of the in service training given, teachers are expected to actively use the equipment to be provided within the scope of the project, to find and select e-content media which are suitable for the objectives of course, to prepare appropriate products for the objectives of course and to make BT supported course design by using the material he/she finds/prepares (http://fatihprojesi.meb.gov.tr/tr/icerikincele.php?id=12, 2012). The education to be given within the scope of the project has been called digital pedagogy by researchers as it contains both digital information and pedagogy. The digital pedagogy requires that teachers know basic information related to digital devices and use them actively in education process. Because to benefit from information technologies at maximum level in education in the digital age, depends upon the creation of innovative methods, the reforms to be made around the pedagogic learning should be in the direction to increase the interest and attendance of students (Salmon, 2002; Sandholtz, Ringstaff & Dawyer, 2002). The teachers to integrate teaching courses that will not be transformed by themselves into their courses, are necessary (Kumar, Rose & D'Silva, 2008). It is recommended that teacher education programme instructors be equipped with technological pedagogical skills which will enable them to competently integrate the new technologies in their teaching and learning (Condy, Chigona, Gachago and Ivala, 2012).

Prensky (2001) defines students as natives and teachers as immigrants of the digital world; emphasizes and supports that some changes should be made in the subjects discussed and pedagogic educations obtained by teachers in order to create an efficient interaction with students. At the same time a teacher, who has a good information of pedagogy, understands how students create information, how they obtain abilities and how they develop mental habits for learning (Mishra & Kohler, 2006).

The digital technologies have dramatically changed applications and practices in many fields (Barko, Whitcomb & Liston, 2009; Mishra & Koehler, 2006). When literature was reviewed, it was tried to determine the digital pedagogic competencies of teachers in order to specify the effects of these changes on teachers (Reinmann, Freebody, Hornibrook, Howard, 2009; Parigi & Rossi, 2011; Krumswik, 2006). It was seen in the studies that teachers did not regard themselves sufficient in digital terms (Isman, 2002; Bozkurt, Bindak & Demir, 2010). However some studies have been done about teacher candidates' perceptions, attitudes, and readiness. Aderson and Maninger (2007) evaluated preservice teachers' abilities, beliefs, and ıntentions regarding technology integration.

; Teo, Chai, Hung and Lee (2008) investigated preservice teachers beliefs about teaching and uses of technology

However Koç and Bakır (2010) investigated pre-services teachers'(elementary teachers, mathematics teachers, english teachers, science teachers, special education teachers) knowledge, experıences and perceptions about preparation to using educational Technologies. Furthermore Topkaya, (2010) investigated preservice englısh language teachers' perceptıons of computer self-effıcacy and general self-effıcacy and Adalıer (2012) analysed Turkish and English language preservice teachers' computer self-efficacy and attitudes toward computer.

However, needs analysis should be made to see at what level the competencies of teacher candidates, who are to be newly graduate, within the scope of digital pedagogy. Therefore, a measuring tool is required to determine the relevant cases. The objective of the study is to develop a valid and reliable measuring tool in order to measure the ability of teacher candidates, who study at faculty of education, to use and form digital devices. In accordance with this objective, a "Digital Pedagogic Competencies Scale" is to be developed, and the validity and reliability studies of the scale are to be conducted.

METHOD

The research is a study of scale development. The work group of the scale and improvement works are dealt in this chapter.

Work Group

In this study, it is aimed to develop a scale to measure digital pedagogic competencies of 246 teacher candidates, who study at Faculty of Education, Sakarya University and at Ataturk Faculty of Education, Marmara University in 2011-2012 school year, compose the work group. Some statistical processes were conducted on the data obtained from the work group and the scale was developed. The scale was applied to 246 people in total in the process of developing Digital Pedagogic Competencies Scale (DPCS).

Development of Scale

When DPCS was developed, firstly an item pool composed by making interviews with teacher candidates who form a target group for whom the scale was to be used, and observations as well as examining literature. There were 29 items in the item pool. 5 point likert type gradation was used to express agreement level related to the items in the scale. This gradation was created as "(*1) I certainly agree; (2) I do not agree; (3) I'm undecided; (4) I agree and (5) I completely agree*."

First of all, some specialists to be applied for comprehension and face validity were appointed in validity studies. The comprehension and face validity were presented to academicians who were specialists in Scale, Computer and Instructional Technology, Assessment and Evaluation and field of Turkish Language, and their opinions were received. In accordance with the opinions received and criticisms, the necessary corrections were made in the scale items, and a total 29 item scale was composed, and the validity and reliability studies were conducted over these items.

The exploratory factor analysis was applied to the data obtained from the scales at first. To determine the items to be found in the scale in the exploratory factor analysis, it was noted that eigenvalues of items were at least 1 (Shevlin ve Lewis, 1999), load points of items were.30 at minimum (Martin and Newel, 2004; Schriesheim and Eisenbach, 1995), the items should be in only one factor and there should be at least .10 variance between the factors found in two factors (Buyukozturk, 2007). Moreover, for one item dimensions that did not reveal %5 variance and the items having sufficient load in two dimension, the items without .10 factor load were reduced (Buyukozturk, 2007) and one factor items were excluded. Furthermore, basic components analysis and varimax rotation method were used in EFA (Exploratory Factor Analysis).

The model fit of item-factor structure obtained from EFA was tested with the confirmatory factor analysis (CFA). The multi fit indexes were used for CFA. For GFI, CFI, NFI, RFI, NNFI and IFI, >.90, (Hu and Bentler, 1999) and for RMSEA <.08 was taken as a measure (Cole, 1987) in fit indexes as in general. The internal consistency and split half reliability processes were made for the realiability of the scale. For the validity and reliability analyses, SPSS 11.5 and LISREL 8.54 (Jöreskog and Sorbom, 1996) programmes were used. The item analysis of DPYÖ was examined through the corrected item-total correlation.

FINDINGS AND INTERPRETATION

The exploratory and confirmatory factor analysis were made for the structure validity of DPCS. The internal consistency and split half reliability processes were made for the reliability.

Structure validity

Exploratory factor analysis

EFA was made to determine the factor structure of DPCS in this study. In order to test the fitness of data gathered from the sample to the factor analysis, KMO and Barlett tests were conducted. χ^2 value of KMO was found as .90 and Barlett test made for DPYÖ as 1911.78 ($p < .001$). That KMO is found as higher than .60 and Barlett test as meaningful, shows that the data are appropriate for the factor analysis (Buyukozturk, 2007).

As a result of EFA, a three factor structure that revealed % 55.6 of DPCS total variance was obtained. The first of these factors are 16., 21., 22., 23., 24., 25. and 26. items and it consists of 7 items in total. The load point of items in this factor vary between .43 and .84. This factor that revealed %21.33 of total variance in the scale, was expressed as "Educational Digital Pedagogic Competency" (EDPC). In the second factor found in the scale, there are 7 items in total including 2., 6., 8., 9., 11.,12. and 13. items. The load point of the items in this factor vary between .48 ile .76. This factor that revealed %19.02 of total variance in the scale was called "General Digital Pedagogic Competency" (GDPC). The third factor in the scale consists of 5 items in total including 1., 4., 10., 18. and 19. items. The load point of the items in this factor vary between .55 ile .78. This factor that revealed %14.80 of the total variance of the scale was named "Web Digital Pedagogic Competency" (WDPC). Both the total of the scale and the total points for each sub-dimension are obtained from DPCS. The total point increase acquired both for the whole scale and sub-dimensions, indicates that the digital pedagogic competency has risen. The factor points of scale items and the variances revelaed by sub-scales are given in Table 1.

Table 1.
Factor Loads of Digital Pedagogic Competency Scale Items and Variances Revealed by Subscales

Item Number	Educational Digital Pedagogic Competency	General Digital Pedagogic Competency	Web Digital Pedagogic Competency
16	.43		
21	.63		
22	.70		
23	.74		
24	.84		
25	.82		
26	.73		
2		.50	
6		.48	
8		.69	
9		.63	
11		.69	
12		.76	
13		.66	
1			.58
4			.58
10			.55
18			.78
19			.70
Total variance % 55.15	**%21.33**	**%19.02**	**%14.81**

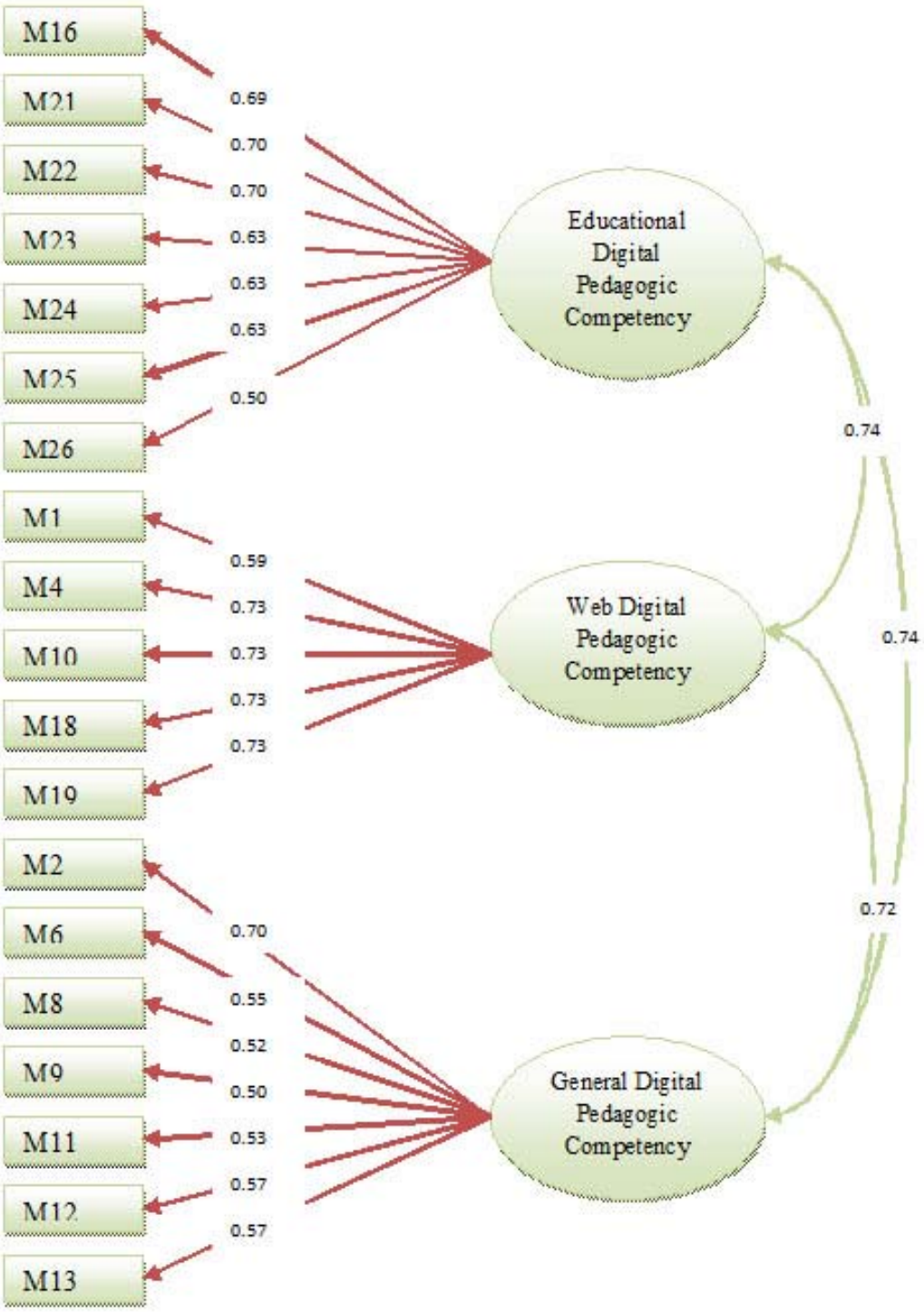
Confirmatory Factor Analysis

It was tested by DPCS confirmatory factor analysis consisting of 19 items and three sub-factors.

Confirmatory Factor Analysis for Digital Pedagogic Competency Scale

Fit indexes of the model obtained were examined in DFA made and it was seen that the value of chi-square (X^2=278.00, sd=200, p= .00) was meaningful. The values of fit index were found as RMSEA= .062, NFI= .95, CFI= .98, IFI=.98, RFI= .94, GFI= .89 and NNFI=.97. Moreover, it was regarded as suitable to make a modification between 5- 4., 7.-2., 9.-8., 11.-10. and 14.-13. items in accordance with the modification offers of confirmatory factor analysis. These values of fit index show that the model gives a good fit. The factor loads related to the three dimensional model are indicated in figure 1. As it is seen in figure 1, factor loads vary between .50 ile .70 for EDPC sub-dimension, .50 ile .70 for GDPC sub-dimension, and .59 ile .73 for WDPC sub-dimension.

Figure 1. DFA Results Related to Digital Pedagogic Competency



Reliability

The internal consistency and split half reliability methods were used to specify the reliability of DPCS.

Internal Consistency Coefficient for Digital Pedagogic Competency Scale

The internal consistency coefficient of DPCS was found as .91. The split half reliability of DPCS was determined as .88. The split half reliability was seen as .85 for EDPC and as .73 for GDPC and as .74 for WDPC. The reliability coefficients of DPCS calculated with the internal consistency and split half reliability method, are shown in Table 2.

Table 2. Reliability Co-efficients Calculated with Internal Consistency and Split Half Reliability Method Digital Pedagogic Competency Scale

Dimensions	Internal Consistency	Split Half Reliability
Educational Digital Pedagogic Competency	.89	.85
General Digital Pedagogic Competency	.81	.73
Web Digital Pedagogic Competency	.76	.74

Item Analysis

Item analysis was made to determine the selectivity power of DPCS. As a result of the analysis made, it was seen that corrected item-total correlations of DPCS were arranged between .46 ile .66. The findings are seen in Table 3.

Table 3. Corrected Item Test Correlations of Digital Pedagogic Competency Scale

	When Item is Absent, Scale Average	When Item Scale Variance	Item Total Correlation	When Item is Absent, Scale Alpha
m1	64,87	132,553	,517	,902
m2	65,62	128,685	,486	,903
m4	64,64	134,196	,499	,902
m6	65,41	131,020	,502	,902
m8	65,70	128,094	,525	,901
m9	66,08	131,025	,464	,903
m10	65,31	123,897	,618	,899
m11	65,65	122,191	,646	,898
m12	66,65	130,155	,481	,903
m13	66,64	126,870	,497	,903
m16	65,22	125,562	,639	,898
m18	64,77	131,976	,499	,902
m19	65,31	128,196	,581	,900
m21	65,54	129,327	,631	,899
m22	65,47	128,250	,649	,898
m23	64,91	131,462	,594	,900
m24	65,10	131,528	,580	,900
m25	65,00	131,114	,587	,900
m26	65,00	129,900	,614	,899

CONCLUSION AND DISCUSSION

The objective of the research is to develop DPCS in order to determine digital pedagogic competency of teacher candidates. Firstly, the exploratory factor analysis was made for DPYÖ and a three factor structure that revealed % 55.6 of total variance was obtained. When it is thought that %30 and above is taken as a measure for the variance rate explained in scale development and adaptation studies, it is seen that the structure validty of the scale is enabled. The highness of the variance explained can be interpreted as an indication that the relevant conception or structure is measured ever so well (Buyukozturk, 2007). The structure obtained was tested with the exploratory factor analysis and model fit was tested through confirmatory factor analysis. As a result of the exploratory and confirmatory factor analyses, it was found that the model, which consists of 19 items and three factors, was appropriate theoretically and statistically.

The lowest point to be obtained from DPCS is 19, and the highest one is 95. The increase in points shows that the digital pedagogic competency has risen in terms of teacher candidates. When we take a look at the distribution of the items in the scale according to the factors, it has been determined that 16., 21., 22., 23., 24., 25. and 26. items are EDPC; 2., 6., 8., 9., 11., 12. and 16. items are GDPC; 1., 4., 10., 18. and 19 items are WDPC.

The internal consistency and split half reliability methods were used to determine the reliability of DPCS. As a result of the analyses made, the internal consistency co-efficient of DPCS is 91, for EDPC, GDPC and WDPC sub-dimensions, these are respectively .89, .81 and .76. It has been determined that the split half point of DPCS is .88 for the total of the scale, is respectively .85, .73 and .74 for its sub-dimensions. The highness of internal consistency and split half reliability of DPCS shows that the reliability of the scale is good.

As a result of the item analysis, it has been seen that the item-total correlations of the scale vary between .46 and.66. Given the fact that .30 and higher items selects individuals very well in terms of the quality measured, is adopted in the interpretation of item-total correlation (Buyukozturk, 2007), it can be said that the scale is at the sufficient level in terms of item total correlation. In conclusion, DPCS developed within the scope of this research, emerges as a valid and reliable scale to be used to determine the digital pedagogic competency of teacher candidates. Moreover, to conduct various researches with “DPCS” will make important contributions to the measure power.

REFERENCES

Adalıer, A. (2012). Turkish and English Language Teacher Candidates’ Perceived Computer Self-Efficacy and Attitudes Toward Computer. *The Turkish Online Journal of Educational Technology, 11(1)*, 192-201.

Aderson, S. E., & Maninger, R.M. (2007). Preservice Teachers' Abilities, Beliefs, and Intentions Regarding Technology Integration. *Journal of Educational Computing Research, 37(2)*, 151-172.

Barab, S. King, R.& Gray, J. (eds.) (2004). *Designing for virtual communities in the service of learning*. Cambridge, England: Cambridge University Press.

Barko, H., Whitcomb, J. & Liston, D. (2009). Wicked problems and other thoughts on issues of technology and teacher learning. *Journal of Teacher Education, 60*(1), 3-7.

Bayhan, P., Olgun, P. & Yelland, N. (2002). A study of pre-school teachers’ thoughts about computer-assisted instruction. C*ontemporary Issues in Early Childhood, 3*(2), 298–303.

Bozkurt, A., Bindak, R. & Demir, S. (2010). Matematik öğretmenlerinin bilgisayarı etkin kullanma yeterlilikleri ve çalıştıkları ortamların uygunluğu, *Proceedings of 10th International Educational Technology Conference (IETC) 2010*, İstanbul, Türkiye, 930-934.

Büyüköztürk, Ş. (2007). Sosyal bilimler için veri analizi el kitabı. Ankara: Pegem Akademik Yayıncılık.

Cole, D.A. (1987). Utility of confirmatory factor analysis in test validation research. *Journal of Consulting and Clinical Psychology, 55*, 1019-1031.

Condy, J., Chigona, A., Gachago, D. & Ivala, E. (2012). Pre-Service Students’ Perceptions and Experiences of Digital Storytelling in Diverse Classrooms. The Turkish Online Journal of Educational Technology, 11(3), 278-285.

Erçetin, Ş.Ş., Çetin, B. & Potas, N. (2007). Multi-dimensional organizational intelligence scala(muldimorins). *World Applied Sciences Journal, 2*(3), 151-157.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structural analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6,* 1–55.

Informative Presentation of FATIH project (2012). Retrieved June 15, 2012, from http://fatihprojesi.meb.gov.tr/tr/icerikincele.php?id=12.

Işman, A. (2002). Sakarya İli Öğretmenlerinin Eğitim Teknolojileri Yönündeki Yeterlilikleri. *The Turkish Online Journal of Educational Technology – TOJET. 1(1),* 72-91.

Jöreskog, K.G., & Sorbom, D. (1996). LISREL 8 reference guide. Lincolnwood, IL: Scientific Software International.

Kayaduman, H., Sırakaya, M. & Seferoğlu,S.S. (2011). Eğitimde FATİH Projesinin Öğretmenlerin Yeterlik Durumları Açısından İncelenmesi. *Akademik Bilişim, 2-4.*

Koehler, M. J., Mishra, P., & Yahya, K. (2007). Tracing the development of teacher knowledge in a design seminar: Integrating content, pedagogy and technology. *Computers & Education, 49*, 740-762.

Koç, M., & Bakır, N. (2010). A Needs Assessment Survey To Investıgate Pre-Servıce Teachers'. *The Turkish Online Journal of Educational Technology, 9*(1), 13-22.

Krumsvik, R. (2006). The digital challenges of school and teacher education in Norway: Someurgent questions and the search for answers. *Education & Information Technologies,11,* 239-256.

Kumar, N., Rose, R.C. & D'Silva, J.L. (2008). Teachers' readiness to use technology in the classroom: An empirical study. *European Journal of Scientific Research, 21*(4), 603-616.

Lloyd, M. & Irvine, S. (2005). Digital pedagogy: Finding the balance in an online learning and teaching environment. Retrieved June 15, 2012, from http://www.ascilite.org.au/conferences/brisbane05/blogs/proceedings/44_Lloyd.pdf.

Martin, C.R., & Newell, R.J. (2004). Factor structure of the hospital anxiety and depression scale in individuals with facial disfigurement. *Psychology Health and Medicine, 3*,327-336.

Mishra, P. & Koehler, M.J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054.

Parigi, L. & Rossi, F. (2011). Pedagogical digital competence in Italy. From teachers' perceptions to syllabus designICERI2011, Proceedings, ISBN: 978-84-615-3324-4.

Prensky, M. (2001). Digital Natives, Digital Immigrants. *The Horizon, 9*(5), 1-6.

Reimann, P., Freebody, P., Hornibrook, M., & Howard, S . (2009). *Immersive learning environments: A study of teachers' innovation using The Le@rning Federation's digital learning resource*s. Melbourne, Victoria: Curriculum Corporation, (pp. 73)

Roblyer, M.D. & Edwards, J. (2000). *Integrating educational technology into teaching. Merrill*, NJ: Prentice Hall.

Salmon, G. (2002). *E-tivities: The key to active online learning*. London: Kogan Page.

Sandholtz, J., Ringstaff, C. & Dawyer, D. (2002). The evolution of instruction in technology- rich classrooms. In R. Pea (ed.), *Technology and learning* (pp. 255 – 276). San Franscisco: Jossey-Bass.

Schriesheim, C.A., & Eisenbach, R.J. (1995). An exploratory and confirmatory factor analytic investigation of item wording effects on obtained factor structures of survey questionnaire measures. *Journal of Management, 6*, 1177-1193.

Shevlin, M.E., & Lewis, C.A. (1999). The revised social anxiety scale: Exploratory and confirmatory factor analysis. *The Journal of Social Psychology, 2*, 250-252.

Teo. T., Chai, S. C., Hung, D., & Lee, C. B. (2008). Beliefs about teaching and uses of technology among preservice teachers. Asia-Pacific Journal of Teacher Education, 36(2), 163-174.

Topkaya, E. Z. (2010). Pre-Servıce Englısh Language Teachers' Perceptıons of Computer Self-Efficacy and General Self-Efficacy. The Turkish Online Journal of Educational Technology, 9(1), 143-156.

Wagner, T. (2008). *The Global Achievement Gap*. New York: Basic Books.

Willett, R. (2007). Technology, pedagogy and digital production: a case study of children learning new media skills. Learning, Media and Technology, 32 (2) 167-181.

Yurdakul, K. I. (2011). Öğretmen Adaylarının Teknopedagojik Eğitim Yeterliklerinin Bilgi ve İletişim Teknolojilerini Kullanımları Açısından İncelenmesi. *Hacettepe University Journal of Education*, 40, 397-408.