EURASIAN JOURNAL OF TEACHER EDUCATION

Year: 2021 Volume: 2 Number: 2 Pages: 113-128

The Effect of Material Design Course in Turkish Teaching on Turkish Teacher Candidates' Perceptions of Digital Teaching Material Development Self-Efficacy

Fatih Tanrıkulu

Kahramanmaraş Sütçü İmam University, Turkey, fatih3878@hotmail.com, ORCID: 0000-0002-6730-0353

To cite this article:

Tanrıkulu, F. (2021). The effect of material design course in Turkish teaching on Turkish teacher candidates' perceptions of digital teaching material development self-efficacy. *Eurasian Journal of Teacher Education, 2*(2), 113-128.

Received: 06.09.2021 Accepted: 08.23.2021

Abstract

This research aims to determine the effect of the Material Design Course in Turkish Teaching on the self-efficacy perceptions of Turkish teacher candidates in developing digital teaching materials. The research was carried out with a quasi-experimental method with pre-test post-test control group, which is one of the quantitative methods. The sample of the study consists of (N=53) prospective Turkish teachers, 25 of whom are in the experimental group and 28 in the control group. In the study, "Self-Efficacy Scale of Teachers' Digital Teaching Material Development" was used as data collection tool. The scale was applied to the experimental and control groups as pre-test and post-test. The findings showed that the Material Design course in Turkish teaching positively affected the self-efficacy perceptions of Turkish teacher candidates in benefiting from digital teaching materials. While the variable related to the frequency of Web 2.0 use created a significant difference in the self-efficacy perceptions of the experimental group, it did not create a significant difference in the variables of gender, age, previous material design course, and technology usage environments.

Keywords: Digital content, digital material, e-content, material development, Turkish education, Web 2.0

Article Type:

Original article

Acknowledge:

Ethics Declaration:

The author declared that he complies with all ethical rules. Kahramanmaraş Sütçü İmam University ethics committee has approved the protocol of this study approved of ethical approval dated 10.01.2020 and number of E.37776.

Türkçe Öğretiminde Materyal Tasarımı Dersinin Türkçe Öğretmeni Adaylarının Dijital Öğretim Materyali Geliştirme Öz-Yeterlilik Algılarına Etkisi

Öz

Bu araştırma, Türkçe Öğretiminde Materyal Tasarımı Dersinin Türkçe öğretmeni adaylarının dijital öğretim materyali geliştirme öz-yeterlilik algılarına etkisini tespit etmeyi amaçlamıştır. Araştırma, nicel yöntemlerden ön-test son-test kontrol gruplu yarı deneysel yöntemle yürütülmüştür. Araştırmanın katılımcılarını 25 deney grubu, 28 kontrol grubu olmak üzere toplam (N=53) Türkçe öğretmen adayı oluşturmuştur. Araştırmada veri toplama aracı olarak "Öğretmenlerin Dijital Öğretim Materyali Geliştirme Öz Yeterlik Ölçeği" kullanılmıştır. Ölçek deney ve kontrol gruplarına ön-test ve son-test şeklinde uygulanmıştır. Bulgular, Türkçe Öğretiminde Materyal Tasarımı dersinin, Türkçe öğretmen adaylarının dijital öğretim materyallerinden yararlanma öz yeterlilik algılarını olumlu yönde etkilediğini göstermiştir. Web 2.0 kullanım sıklığı ile ilgili değişken deney grubunun öz yeterlilik algılarında anlamlı bir fark oluştururken, cinsiyet, yaş, daha önceden materyal tasarımı dersi alma, teknoloji kullanım ortamları değişkenlerinde ise anlamlı bir farklılık oluşturmamıştır.

Anahtar Kelimeler: Dijital içerik, dijital materyal, e-içerik, materyal geliştirme, Türkçe öğretimi, Web 2.0

Introduction

Changes in the structure of education have also changed the teaching materials (Yılmaz, 2013) and new supporter tools have gained importance (Hashim, 2015). It has been easier and more widespread to create digital material, digital content and e-content with Web 2.0, digital environment and applications. The fact that pre-service teachers are not encouraged to use technology despite the widespread digital environment and tools, and the theoretical weight of the courses may have a negative impact on pre-service teachers' attitudes toward the use of technology in the classroom (Eyüp, 2012). In order to avoid this negative perception, pre-service teachers must be encouraged to use digital environment and tools. Teachers should enrich the education settings by using technology in teaching (Cabı & Ergün, 2016). Teachers' technology usage, skills and perceptions are important in developing digital materials (Karahan, 2016). Teachers should have practical experience with technological tools (Kul et al., 2019) and the ability to develop digital-based quality teaching materials and content related to their fields (Birişçi et al., 2018; Eren et al., 2014). Developing digital materials and using digital media effectively might make pre-service teachers deliver a more successful professional performance by affecting their professional skills and efficacy perceptions. Language teachers and prospective teachers should also be encouraged to use digital materials, content developing tools, Web 2.0 environments. In this way, the skills of language teachers to develop digital materials and contents should be developed and their perceptions should be changed.

Literature Review

Educational Materials

Many studies of literature have placed an emphasis on the usage of materials. The use of materials in education has benefits such as presenting the subject effectively, providing observation opportunities, appealing to multiple senses, processing the subject effectively, clarifying learning, increasing the quality of education, increasing interest in the lesson, effective and permanent learning (Babayiğit, 2019; Bakaç & Özen, 2015; Göçer & Akgül, 2019; Güneş & İskenderoğlu, 2014; Seferoğlu & Yağcı, 2001; Uzunöz et al., 2017; Yalın, 2007). Using material in language lessons has benefits such as concretization of abstract subjects, making lessons fun, catching attention and saving time (Yıldız, 2020). The utilization of such positive effects of materials in Turkish lessons can make the lesson more effective. Considering that particularly qualified materials have a good

effect on the development of basic language abilities (Yürektürk & Coşkun, 2020), more effective use of these materials in Turkish lessons should be provided.

In order for the material to be qualified, attention should be paid to the stages of creating the material. It should have qualities that will attract students' attention, increase their motivation, help them achieve their goals, be appropriate for the level, usable, reinforcing learning, understandable, and cost-effective (Bozpolat & Arslan, 2018; Yıldız, 2020). The desired quality of the content requires being an expert in this subject (Al-Alwani, 2014). As material preparers, teachers and teacher candidates should also have the ability to develop qualified materials. In order for the materials used to be effective in education in digital environments, teachers should be provided with this skill.

Digital Material, Digital Content, E-Content

Along with e-learning methods, course materials have also changed (Tekin & Polat, 2016; Yılmaz, 2013). Digital environments have offered online and offline applications to develop teaching materials (Karademir, 2018). Thanks to assistive technologies, teachers prepare online learning environments and teaching materials (Korkmaz et al., 2019). Stakeholders should use these technological materials and applications effectively (Kul et al., 2019). In the education process, problems such as the lack of digital teaching materials, the use of teachers and the development of materials (Karademir, 2018) should not be experienced.

Different concepts such as digital content, e-content and digital material were used for educational materials produced in digital environments. These online and offline produced materials refer to program-based materials produced and used in computer and mobile environments. Digital content includes text, audio, video, graphics, animation, images and materials that can be downloaded and distributed electronically. Digital teaching materials are materials prepared in computers or mobile environments (Karademir, 2018).

E-content includes the usage of education and learning material and similar subjects (Kumar and Kushwaha, 2010). It is a combination of text, audio, video, clips and animation that are sent through digital environments (Mishra et al., 2017). It is digital text and clips designed to be shown to a certain intended population on suitable webpages (Nachimuthu, 2012). The Ministry of National Education in Turkey classifies e-content types as textbooks, interactive books, applications, tests, videos, interactive narrations, summaries, infographics, project documents (MEB, 2021). E-content must be enhanced by means of the integration of multimedia components such as text, audio, video, animation and clips created for making students understand the subject better (Amutha, 2016). The combination of sound, image and text is any type of content created and transmitted through various electronic media (Nachimuthu, 2012).

E-content has functions such as web, computer and mobile-based learning, virtual classrooms and collaboration in digital environments (Mishra et al., 2017). The use of e-content in education produces positive effects (Tekin & Polat, 2016). E-content has benefits such as creating, sharing and using information, concretizing information, providing information flow, creating their own materials, controlling the classroom environment, and improving the creativity and productivity of students (Amutha, 2016; Mishra et al., 2017; Nachimuthu, 2012).

Pedagogical approaches should be considered while creating e-Learning content (Kumar & Kushwaha, 2010). E-Content should follow appropriate instructional design methodology to ensure that learning objectives and expected outcomes are met (Mishra et al., 2017). In terms of the quality of digital material and content, the stages of e-content development such as analysis, design, development, testing, implementation, and evaluation (Nachimuthu, (2012) are crucial.

WEB 2.0

Web 2.0 is a synchronous or asynchronous online environment and applications that allow one or more users to create, share, modify and improve content. Web 2.0 is the second generation internet service that changes the way online interaction and collaboration (O'Reilly, 2005). It refers to web services and applications that allow users to collaborate, create their own content,

and share information online (Bajt, 2011). Web 2.0 offers rich opportunities for both students and teachers (Pan & Franklin, 2011). It supports teachers in developing teaching materials and creating a positive learning environment (Birişçi et al., 2018). It enables them to create a learning environment and develop materials in the digital environment and to access these contents easily (Kul et al., 2019). Web 2.0 tools create a sharing environment for other users to access, read, view and write (Oliver, 2010). Web 2.0 gives students control over content (Morgan, 2012). One of its most important features is that it helps to produce and share digital content and materials online.

Pre-service teachers should know, use and adopt Web 2.0 tools (Kul et al., 2019). The technology self-efficacy of teachers and teacher candidates, their ability to use Web 2.0 tools and environments can be effective in determining their performance (Birişçi et al., 2018). Technology integration in teaching requires establishing the relationship between technology and pedagogy as well as content knowledge (Koehler et al., 2007).

In language teaching, Web 2.0 has the potential to improve students' language skills (Morgan, 2012; Stevenson & Liu, 2010; Wang & Vásquez, 2012). Language learning applications are carried out on Web 2.0, positively affecting language class activities (Luo, 2013). Web 2.0 language learning environments are used in both mother tongue and foreign language education (Stevenson & Liu, 2010). It is seen that both teachers and teacher candidates should use Web 2.0 environments in order to create a perception of professional competence in language teaching.

Self-Efficacy

Perceived self-efficacy refers to the belief in one's abilities to organize and execute the units of action necessary to produce the given gains (Bandura, 1997: 3). Self-efficacy belief refers to the belief in oneself rather than the ability to perform the skill (Korkmaz et al., 2019). The higher the evoked self-efficacy level, the higher the performance achievements and the lower the emotional arousal (Bandura, 1982). Perceptions of teachers and prospective teachers about self-efficacy will positively affect their performance. The impact of experiences on self-efficacy will vary depending on whether success has been achieved and the effort required to do so (Abbitt, 2011: 136).

The shift of material usage areas to digital environments necessitates teachers to have self-efficacy in this area as well. Teachers' self-efficacy perceptions in this area have become more important as digital technologies have become more common in education (Kul et al., 2019). It makes it inevitable for teachers to use technology effectively and efficiently in education in parallel with the change in their competencies (Birişçi et al., 2018). For this reason, teachers need to gain the perception of self-efficacy by having the competence to use digital materials in digital environments.

One of the ways to have information about teachers' technology use levels is to determine their perceptions of technology self-efficacy levels (Korkmaz et al., 2019: 43). Teachers' self-efficacy perceptions in this area have become more important as digital technologies have become more common in education (Abbitt, 2011). Teachers and pre-service teachers should have enough self-efficacy in using Web 2.0 to develop content (Birişçi et al., 2018). Instructional technologies and material design courses have functions such as influencing self-efficacy beliefs towards teaching and developing a positive attitude by gaining knowledge and competence (Bakaç & Raşit, 2016). Digital content and material development in material design course in Turkish teaching can be effective on pre-service teachers' perceptions of digital material development self-efficacy. In the study, answers to the following questions were sought for this aim.

1. What is the effect of the Material Design Course in Turkish Teaching on the students' self-efficacy perceptions in developing teaching materials??
2. Do the self-efficacy perceptions of the students in the Material Design Course in Turkish Teaching differ according to the;
    a. Gender,
    b. Age,

c. Previously taken material design courses,

d. Technology usage settings,

e. and the frequency of using Web 2.0 environments?

Method

The study employed the pre-test post-test control group design, one of the semi-experimental research designs. “Self-Efficacy Scale of Teachers' Digital Teaching Material Development” was applied to both experiment and control groups before and after the Material Design Course in Turkish Teaching.

Study Group

The study group of the research consisted of Turkish teacher candidates studying at Kahramanmaraş Sütçü İmam University Turkish Education Department. While determining the study group, the students who took the Material Design in Turkish Teaching course (N:25) formed the experimental group, and the students who did not take the course (N:28) formed the control group. Information on the comparison of Turkish language teaching students in the experimental and control groups in terms of their introductory characteristics is given in Table 1.

Table 1.

The introductory characteristics of the prospective Turkish teachers in the experimental and control groups

Variables	Number	%
Gender		
Female	12	22.6
Male	41	77.4
Age		
21-23	40	75.5
24 and older	13	24.5
Previously Took Material Design Course		
Yes	23	43.4
No	30	56.6
Technology Usage Setting		
Phone	14	26.4
Phone and Computer	39	73.6
Web 2.0 Usage Status		
Very Low	3	5,7
Low	6	11,3
Normal	23	43.4
Good	17	32.1
Very High	4	7.5

Considering the sociodemographic characteristics of the students, it is seen that 77.4% are male and 22.6% are female. 75.5% of the participants were in the age range of 21-23, 24.5% were older than 24, 43.4% took material design lessons, 56.6% did not, 26.4% used telephone, 73.6% phone and computer. It was seen that 5.7% of the Web 2.0 media usage levels were very low, 11.3% were low, 43.4% were normal, 32.1% were good, 7.5% were at a level.

Data Collection

As a data collection tool in the research, Korkmaz et al. (2019) "Self-Efficacy Scale of Teachers' Digital Teaching Material Development (SESTDTMD)" was used. The scale consists of 3 factors and 38 items. The Cronbach Alpha value of the sum of the factors in the scale was found to be 0.961.

The scale used in the research was applied as pre-test and post-test. Before taking the Material Design course in Turkish Teaching, the scale was applied as a pre-test. Within the scope of the

course, theoretical and applied topics related to material development with digital environment and tools were covered throughout the semester. It designed digital materials for teaching Turkish by using digital environment and tools. After the application, a post-test was applied to determine the effect of the course on the digital teaching material development self-efficacy perceptions of teacher candidates.

Data Analysis

The analysis of the data obtained from the research was made using SPSS for Windows 25.00. Since the number of people in the groups did not exceed 30 in the analysis of the data, non-parametric analyzes were used. Statistical analyzes applied are given in Table 2.

Table 2.

Statistical methods used in research

Assessed Features in Examination	Statistical Method
Comparison of pre-education, post education, pre-test, post-test values of the students in experimental and control groups	Mann Whitney U test
Comparison of pre-education, post education, pre-test, post-test values of the students in the experimental group in themselves	Wilcoxon signed-rank test
Comparison pre-education, post education, pre-test, post-test values of the students in the control group in themselves	Wilcoxon signed-rank test
Comparison of post-test values of students according to their introductory characteristics	Mann-Whitney U Test Kruskal Wallis H Test

Ethical Considerations

In this study, all the rules specified in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. None of the actions specified under the second section of the Directive, "Scientific Research and Publication Ethics Actions" have been carried out.

Information on ethics committee approval

Name of the ethics committee: KSU Institute of Social Sciences

Date of ethical approval decision=10/01/2020-E.37776

Ethical assessment document number = 76218066-302.08.01

Results

In this section, findings obtained by the study are addressed.

Table 3 shows the average and standard deviation values of experiment and control groups` pre-test post-test scores of the SESTDTMD.

Table 3.

Average and standard deviation values of experiment and control groups` pre-test post-test and monitoring test scores of the SESTDTMD

		Pre-Test		Post-Test	
	N	$\overline{X}$	SD	$\overline{X}$	SD
Experimental Group	25	125,16	32,955	154,56	24,609
Control Group	28	131,57	17,368	142,25	19,363

The mean score obtained by the experimental group in SESTDTMD in pre-test is 125.16 and 154.56 in post-test, the control group obtained 131.57 in the pre-test and 142.25 in the post-test as the mean score.

Table 4 shows the comparison of pre-test scores of experimental and control groups before material design course in Turkish teaching obtained from SESTDTMD.

Table 4.

Comparison of pre-test scores of experimental and control groups obtained from SESTDTMD before material design course

	N	Ranking average	Rank total	U	p
Experimental Group	25	25,24	631,00	306,000	,433
Control Group	28	28.57	800,00		

When the table is analysed, it is seen that the difference between pre-test scores of experimental and control groups ($p>0.05$) is not significant ($U=306.000$ $p=.433$). As a result, it is possible to say that there is no difference between experimental and control groups in terms of pre-test scores obtained before material design course.

Table 5 shows the comparison of post-test scores of experimental and control groups obtained from SESTDTMD after material design course in Turkish teaching.

Table 5.

Comparison of post-test scores of experimental and control groups obtained from SESTDTMD after material design course in Turkish teaching.

	N	Ranking average	Rank total	U	p
Experimental Group	25	32,16	804,00	221,000	,021
Control Group	28	22,39	627,00		

When the table is analysed, it is seen that the difference between post-test scores of experimental and control groups after material design course $p<0.05$ is significant in support of experimental group ($U=221.000$ $p=.021$). As a result, it is possible to say that there is a significant difference in support of experimental group between experimental and control groups in terms of post-test scores after material design course.

Table 6 shows the comparison of scores of experimental group obtained from SESTDTMD before and after material design course in Turkish teaching.

Table 6.

Comparison of pre-test and post-test scores of experimental groups obtained from SESTDTMD before and after material design course in Turkish teaching

		N	Ranking average	Rank total	z	p
Post-test - Pre-test	Negative ranks	5a	4,70	23,50		
	Positive ranks	20b	15,08	301,50	-3,741	,000
	Connections	0c				

a. Post-test < Pre-test b. Post-test > Pre-test c. Post-test = Pre-test

When the table is analysed, the Wilcoxon Sign-Ranks test analysis of the differences between SESTDTMD pre-test and post-test in experimental group before and after the material design course in Turkish teaching was found to be $p<0.05$ significant in favor of the post-test at the significance level. It is possible to say that the material design course given to the students in the experimental group has an effect on the scores, that is, the material design course increases the students' development levels of digital teaching material developing self-efficacy.

Table 7 shows the comparison of scores of control group obtained from SESTDTMD before and after material design course in Turkish teaching.

Table 7.

Comparison of pre-test and post-test scores of control group obtained from SESTDTMD before and after material design course in Turkish teaching

		N	Ranking average	Rank total	z	p
Post-test - Pre-test	Negative ranks	8a	10,06	80,50		
	Positive ranks	20b	16,28	325,50	**-2,790**	**,005**
	Connections	0c				

a. Post-test < Pre-test b. Post-test > Pre-test c. Post-test = Pre-test

Wilcoxon Sign-Ranks test analysis of the difference between pre-test and post-test scores before and after the material design course in the Turkish teaching in the control group was found to be significant at the $p < 0.05$ significance level in favor of the post-test. It is possible to say that the students in the control group have an effect on the post-training scores, that is, trainings increase the self-efficacy levels of students in developing digital teaching material.

Although there was an increase in the post-test scores of the students in both groups as a result of the different trainings the students in the experimental and control groups received, the most progress was made in the experimental group. Therefore, it is possible to say that the material design course in Turkish teaching given to the experimental group is more effective in improving digital teaching material development self-efficacy.

The comparison of the pre-test and post-test scores of the students in the experimental group based on gender obtained from the SESTDTMD is given in Table 8.

Table 8.

Comparison of the pre-test and post-test scores of the SESTDTMD according to the gender of the students in the experimental group

			N	Ranking average	Rank total	U	p
Experimental Group	Pre-Test	Female	7	11,14	78,00	50,000	,431
		Male	18	13,72	247,00		
	Post-Test	Female	7	8,71	61,00	33,000	,069
		Male	18	14,67	264,00		

It is seen that the difference between the pre-test scores of the SESTDTMD of male and female students in the experimental group is insignificant at the $p > 0.05$ significance level ($U=50.000$ $p=.431$). It is observed that the difference between the post-test scores of male and female students in the experimental group is insignificant at the $p > 0.05$ significance level ($U=33.000$ $p=.069$). It was found that there was no difference between male and female students in the experimental group in terms of both pre-test and post-test scores of SESTDTMD.

The comparison of the pre-test and post-test scores of the students in the experimental group based on age obtained from the SESTDTMD is given in Table 9.

Table 9.

Comparison of the pre-test and post-test scores of the SESTDTMD according to the age of the students in the experimental group

		Age	N	Ranking average	Rank total	U	p
Experimental Group	Pre-Test	age of 21-23	18	13,03	234,50	62,500	,976
		Age>24	7	12,93	90,50		
	Post-Test	age of 21-23	18	13,89	250,00	47,000	,332
		Age>24	7	10,71	75,00		

It is found that all the differences between the pre-test and post-test scores according to the ages of the students in the experimental group are insignificant at the p> 0.05 significance level. It can be said that there is no difference between the students in the experimental group in terms of their pre-test and post-test scores according to their ages.

The comparison of the pre-test and post-test scores of the students in the experimental group obtained from the SESTDTMD according to their previous material design courses is given in Table 10.

Table 10.

Comparison of the pre-test and post-test scores of the SESTDTMD according to previous material design courses of the students in the experimental group

		Previously taken material design courses	N	Ranking average	Rank total	U	p
Experimental Group	Pre-Test	Yes	14	14,64	205,00	54,000	,208
		No	11	10,91	120,00		
	Post-Test	Yes	14	14,18	198,50	60,500	,366
		No	11	11,50	126,50		

It is seen that the differences between the pre-test and post-test scores of the students in the experimental group obtained from the digital teaching material development self-efficacy scale are insignificant at the p> 0.05 significance level, according to previously taken material design courses. Accordingly, it can be said that there is no difference between the students in the experimental group in terms of their pre-test and post-test scores according to previously taken material design course.

The comparison of the pre-test and post-test scores of the students in the experimental group from the SESTDTMD according to the technology usage environments is given in Table 11.

Table 11.

Comparison of the pre-test and post-test scores of the SESTDTMD according to the technology usage environments of the students in the experimental group

		Technology usage environment	N	Ranking average	Rank total	U	p
Experimental Group	Pre-Test	Phone	4	11,25	45.00	35,000	.604
		Phone Computer	21	13.33	280.00		
	Post-Test	Phone	4	8.75	35.00	25.000	.207
		Phone Computer	21	13,81	290,00		

It is seen that all the differences between the pre-test and post-test scores according to technology usage environments of the students in the experimental group are insignificant at the p> 0.05 significance level. It can be said that there is no difference between the students in the experimental group in terms of their pre-test and post-test scores according to technology usage environments.

The comparison of the pre-test and post-test scores of the students in the experimental group from the SESTDTMD according to Web 2.0 usage frequency is given in Table 12.

Table 12.

Comparison of the pre-test and post-test scores of the SESTDTMD according to Web 2.0 usage frequency of the students in the experimental group

		WEB 2.0 usage frequency	N	Ranking average	KW	p	Difference
Experimental Group	Pre-Test	Very Low	2	8.00	6,391	,172	-
		Low	2	3,50			
		Average	10	13,45			
		Good	8	13,81			
		Very High	3	19.00			
	Post-Test	Very Low	2	1.50	12,117	,017	5>3-4
		Low	2	9.75			
		Average	10	11.75			
		Good	8	14.25			
		Very High	3	23,67			

It is seen that the difference between the pre-test scores of the digital teaching material development self-efficacy scale according to the frequency of Web 2.0 use of students in the experimental group is insignificant at the p> 0.05 significance level (KW=6.391 p=.172).

It is seen that the difference between the post-test scores of the students in the experimental group according to the frequency of using Web 2.0 is significant at the p <0.05 significance level (KW = 12.117 p =.017). As a result of the Dunnet T3 post hoc test, which was applied to understand the source of the difference, the post-test scores of those who use very good WEB 2.0 were found to be higher than those with average and good use.

It can be said that there is a difference in favour of those who use Web 2.0 very well in terms of the post-test scores of the SESTDTMD according to the frequency of Web 2.0 use of the students in the experimental group.

Conclusion and Discussion

This research focused on determining the effect of material design course in Turkish teaching on students' perceptions of digital teaching material development self-efficacy. As a result of the research, it was determined that the material design course in Turkish teaching positively affected the students' self-efficacy perceptions in digital education material development. A positive change was observed in the experimental group according to the variable of using Web 2.0 environments. It has been observed that there is no significant change in the material design course in Turkish teaching according to the variables of gender, age, taking material design, and the environment of using technology.

The findings showed that the material design course positively affected the perception of digital material development self-efficacy. It should be said that the content of the Material Design course in Turkish Teaching is effective in seeing this effect. It is seen that the use of digital media

and applications for content development with digital applications, content development and sharing via Web 2.0, rather than material design courses (Eyüp, 2012), which are generally carried out on classical subjects, are effective. This finding confirmed the hypothesis of the research, that the material design course in Turkish teaching is effective on students' self-efficacy perceptions in developing digital teaching materials. According to these results, it can be suggested that the contents of the material design course for students should be carried out mostly in digital tools, programs, applications and Web 2.0 environments. As digital environments increase and become widespread day by day, especially distance education and learning become more necessary, course contents for these environments should be prepared and implemented. The ever-increasing need for digital materials and content and their effective use can be met by conducting field-oriented material design courses mostly on digital media. It will become more possible, especially if the Ministry of National Education has an EBA environment for digital materials and content and teachers use this digital platform effectively.

It is a remarkable finding in this study that teacher candidates consider themselves competent in developing digital materials after taking a material design course in Turkish teaching. If students feel competent in these environments, they will enable them to use digital environments more effectively and effectively. Especially, it will be an important gain in terms of professional competence of teacher candidates, who are at the professional competence level, to recognize and use digital media and tools. It is seen that pre-service teachers have become more equipped to develop digital material design thanks to the course. It will enable prospective teachers to use EBA and smart boards more effectively and effectively. Considering that materials make the lesson more effective (Babayiğit, 2019; Göçer & Akgül, 2019), it can be said that digital materials will also be effective in the classroom environment. It should be taken into account that the MEB can use the digital media and tools that it uses effectively and can produce new materials with these tools. It is seen that the significant difference in the experimental group is that digital materials create awareness in students. It should be taken into account that the perception of self-efficacy in developing digital materials can continue in their professional lives.

The findings showed that there is a significant relationship between pre-service teachers' digital material development self-efficacy and Web 2.0. Similar results were obtained in previous studies on Web 2.0. Batıbay (2019) concluded that using Web 2.0 tools in Turkish lessons increases motivation. Say and Yıldırım (2020) found that pre-service teachers' Web 2.0 content development self-efficacy belief levels differ according to different departments, and they expressed positive opinions about the use of Web 2.0 tools for creating classroom groups, preparing presentations and virtual classroom applications. Gürsoy and Göksun (2019) found that science teacher candidates' self-efficacy beliefs in content development with Web 2.0 tools and all sub-dimensions of content development with Web 2.0 tools improved as a result of the application. Kul et al. (2019) showed that pre-service mathematics teachers had a positive effect on Web 2.0 tools, Web 2.0 rapid content development, self-efficacy beliefs.

It will ensure the active participation of teachers by putting students in an interactive environment in digital environments. Again, in these environments, they will be able to achieve more effective results by using the digital materials that they will develop themselves. It is thought that students who benefit from Web 2.0 interaction in language teaching can increase their potential to produce output and revive their interest in language learning (Chartrand, 2012).

Finding a significant change in Web 2.0 variable but no significant change in other variables in the findings showed that using Web 2.0 environments could be effective on students' perceptions of digital material self-efficacy. It can be recommended that pre-service teachers use Web 2.0 interactive environments, which are digital environments, in material design courses and other courses.

This research is limited to the effect of the material design course on the self-efficacy perceptions of Turkish teacher candidates in digital material development. Future studies may be aimed at Turkish teachers or different groups. Studies using different methods can be included.

References

Abbitt, J. T. (2011). An investigation of the relationship between self-efficacy beliefs about technology integration and technological pedagogical content knowledge (TPACK) among preservice teachers. *Journal of digital learning in teacher education*, *27*(4), 134-143. https://doi.org/10.1080/21532974.2011.10784670

Al-Alwani, A. (2014). Evaluation criterion for quality assessment of E-learning content. *E-Learning and Digital Media, 11*(6), 532-542. https://doi.org/10.2304%2Felea.2014.11.6.532

Amutha, S. (2016). Impact of e-content integration in science on the learning of students at tertiary level. *International Journal of Information and Education Technology, 6*(8), 643.

https://doi.org/10.7763/IJIET.2016.V6.766

Babayiğit, Ö. (2019). Sınıf Öğretmenlerinin Türkçe Derslerinde Öğretim Materyali Kullanma Amaçlarının ve Durumlarının İncelenmesi. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi,* (51), 42-59. https:// doi.org/10.21764/maeuefd.497192

Bakaç, E., & Özen, R. (2016). Öğretmen adaylarının öğretim teknolojileri ve materyal tasarımı dersine yönelik tutumları, yaratıcılık algıları ve öz-yeterlik inançları arasındaki ilişki. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, *16*(1), 41-61. https:// doi.org/10.17240/aibuefd.2016.16.1-5000182910

Bandura, A. (1997). *Self-efficacy The exercise of control*. New York Freeman.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.http://tecfaetu.unige.ch/etu-maltt/walle/gosetto0/bases/mooc_motivation/ressources motivations/auto-efficacit%C3%A9_bandura.pdf

Bajt, S. K. (2011). Web 2.0 technologies: Applications for community colleges. *New Directions for Community Colleges*, (154), 53-62. https://doi.org/10.1002/cc.446

Bakaç, E., & Özen, R. (2015). Material design self-efficacy belief scale: A validity and reliability study Materyal tasarımı öz-yeterlik inancı ölçeği. *Journal of Human Sciences*, *12*(2), 461-476. https://www.j-humansciences.com/ojs/index.php/IJHS/article/view/3341

Batıbay, E. F. (2019). *Web 2.0 uygulamalarının Türkçe dersinde motivasyona ve başarıya etkisi: Kahoot örneği*. (Tez No. 582756). [Yüksek Lisans Tezi, Hacettepe Üniversitesi-Ankara]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi.

Birisci, S., Kul, U., Aksu, Z., Akaslan, D. & Celik, S. (2018). WEB 2.0 hızlı içerik geliştirme öz yeterlik inancı belirlemeye yönelik ölçek (W2OYİO) geliştirme çalışması. *Eğitim Teknolojisi Kuram ve Uygulama, 8,* 187-208. https://doi.org/10.17943/etku.335164

Bozpolat, E., & Arslan, A. (2018). Öğretmen adaylarının öğretim teknolojileri ve materyal tasarımı dersine ilişkin görüşleri. *E-International Journal of Educational Research*, *9*(3). https://doi.org/10.19160/ijer.463977

Cabı, E., & Ergün, E. (2016). Öğretim teknolojileri ve materyal tasarımı dersinin öğretmen adaylarının eğitimde teknoloji kullanımına yönelik kaygılarına etkisi. *Başkent University Journal of Education*, *3*(1), 37-43.

Chartrand, R. (2012). Social networking for language learners: Creating meaningful output with Web 2.0 tools. *Knowledge Management & E-Learning: An International Journal, 4*(1), 97-101. https://www.kmel-journal.org/ojs/index.php/online-publication/article/download/155/158

Eren, E., Yurtseven Avci, Z., & Seckin-Kapucu, M. (2014). Developing a scale for competencies and perceptions of necessity about using practical tools for content development. *Journal of Theory and Practice in Education, 10*(5), 1177-1189.

http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer

Eyüp. B. (2012). Türkçe öğretmeni adaylarının öğretim teknolojilerini kullanmaya yönelik öz güvenleri. *Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (9), 77-87.

Göçer, A., & Akgül, O. (2019). Türkçe öğretmenlerinin dil eğitiminde ortam tasarımı ve materyal kullanımı yeterliklerinin değerlendirilmesi. *Sosyal Bilimler Enstitüsü Dergisi*, *9*(18). https:// doi.org/10.29029/busbed.482891

Güneş, G., & İskenderoğlu, T. A. (2014). İlköğretim matematik öğretmeni adaylarının öğretim teknolojileri ve materyal tasarımı dersine yönelik yaklaşımları. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi, 34*(3), 469-488.

http://www.gefad.gazi.edu.tr/en/download/article-file/77510

Gursoy, G., & Goksun, D. O. (2019). The experiences of pre-service science teachers in educational content development using web 2.0 tools. *Contemporary Educational Technology*, *10*(4), 338-357. https://doi.org/10.30935/cet.634168

Hashim, M. H. M. (2015). Using technology and ınstructional e-material among technical teacher and student into teaching and learning: A qualitative case study. *International Education Studies*, *8*(3), 175-180. http://dx.doi.org/10.5539/ies.v8n3p175

Karademir, T. (2018). *Teknolojinin benimsenmesine ekolojik bir yaklaşım: Sürdürülebilir bir dijital öğretim materyali geliştirme ekosistemi* (Tez No. 494197). [Doktora Tezi, Ankara Üniversitesi-Ankara]. Yükseköğretim Kurulu Başkanlığı Tez Merkezi.

Koehler, M., Mishra, P., & Yahya, K. (2007). Tracing the development of teacher knowledge in a design seminar integrating content, pedagogy and technology. *Computers and Education, 49*(3), 749–762. https://doi.org/10.1016/j.compedu.2005.11.012

Korkmaz, Ö., Arıkaya, C., & Altıntaş, Y. (2019). Öğretmenlerin Dijital Öğretim Materyali Geliştirme Öz-Yeterlik Ölçeğinin Geliştirilmesi Çalışması. *Turkish Journal of Primary Education*, *4*(2), 40-56. https://dergipark.org.tr/en/download/article-file/880832

Kul, U., Aksu, Z., & Birisci, S. (2019). The Relationship between Technological Pedagogical Content Knowledge and Web 2.0 Self-Efficacy Beliefs. *Online Submission, 11*(1), 198-213. https://doi.org/10.15345/iojes.2019.01.014

Kumar, S. &Kushwaha, A. K. (2010). Development of an innovative e-content generation process. In Technology for Education (T4E), 2010 International Conference,180- 185, July 1-3, Mumbai, India. https://doi.org/10.1109/T4E.2010.5550038

Milli Eğitim Bakanlığı, (2021). EBA – Eğitim Bilişim Ağı (www.eba.gov.tr) http://fatihprojesi.meb.gov.tr/icerik.html

Mishra, U., Patel, S., & Doshi, K. (2017). E-content: An effective tool for teaching and learning in a contemporary education system. *IJARIIE*, *2*(1), 79-83. https://www.researchgate.net/profile/Sarjoo_Patel/publication/

Morgan, L. (2012). Generation Y, learner autonomy and the potential of Web 2.0 tools for language learning and teaching. *Campus-Wide Information Systems, 29*(39, 166-176. https://doi.org/10.1108/10650741211243184

Nachimuthu, K. (2012). *Need of e-content developments in education.* Education Today, An International Journal of Education & Humanities, APH Pub, New Delhi. https://doi.org/10.1109/ICRAIE47735.2019.9037773

Oliver, K. (2010). Integrating Web 2.0 across the curriculum. *TechTrends*, *54*(2), 50-60. https://idp.springer.com/authorize/casa?redirect_uri=https://link.springer.com/content/pdf/

O'Reilly, T. (2005). What is WEB 2.0. design patterns and business models for the next generation of software. https://www.oreilly.com/pub/a/web2/archive/what-is-web-20.html

Pan, S. C., & Franklin, T. (2011). In-service teachers' self-efficacy, professional development, and Web 2.0 tools for integration. *New Horizons in Education*, *59*(3), 28-40. https://files.eric.ed.gov/fulltext/EJ955543.pdf

Say, S., & Yildirim, F. S. (2020). Investigation of pre-service teachers' WEB 2.0 rapid content development selfefficacy belief levels and their views on web 2.0 tools. *International Journal of Educational Methodology, 6*(2), 345-354. https://doi.org/10.12973/ijem.6.2.345

Stevenson, M. P., & Liu, M. (2010). Learning a language with Web 2.0: Exploring the use of social networking features of foreign language learning websites. *CALICO journal*, *27*(2), 233-259. https://www.jstor.org/stable/calicojournal.27.2.233?seq=1#metadata_info_tab_contents

Tekin, A., Polat, E. (2016). A scale for e-content preparation skills: Development, validity and reliability. *Eurasian Journal of Educational Research, 62*, 143-160. http://dx.doi.org/10.14689/ejer.2016.62.9

Uzunöz, A., Aktepe, V., & Gündüz, M. (2017). Öğretim teknolojileri ve materyal tasarımı dersinin, mesleki açıdan kazandırdıklarına ilişkin öğretmen adaylarının görüşleri: Nitel bir çalışma. *Eğitimde Nitel Araştırmalar Dergisi*, *5*(3), 317-339. https://dergipark.org.tr/en/download/article-file/374224

Yalın, H. İ. (2007). *Öğretim teknolojileri ve materyal geliştirme*. (19. Baskı). Nobel Yayın Dağıtım.

Yıldız, S. (2020). Türkçe öğretiminde teknolojik materyal kullanımı. *Journal of World of Turks/Zeitschrift für die Welt der Türken*, *12*(1). http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer

Yılmaz, B. A. (2013). *Eğitimde FATİH Projesi ve Eğitim Bilişim Ağı (EBA).* Akademik Bilişim 2013 – XV. Akademik Bilişim Konferansı Bildirileri 23-25 Ocak 2013 – Akdeniz Üniversitesi, Antalya

Yürektürk, F. N., & Coşkun, H. (2020). Türkçe öğretmenlerinin teknoloji kullanımına ve teknoloji destekli Türkçe öğretiminin etkililiğine dair görüşleri. *Ana Dili Eğitimi Dergisi, 8*(3), 986-1000. https://doi.org/10.16916/aded.748300

Wang, S., & Vásquez, C. (2012). Web 2.0 and second language learning: What does the research tell us?. *CALICO journal*, *29*(3), 412-430. https://doi.org/10.11139/cj.29.3.412-430

Genişletilmiş Özet

Giriş

Eğitimdeki değişim öğretim materyallerini de etkilemiş yardımcı araçlar daha da önem kazanmıştır. Web 2.0, dijital ortam ve uygulamalarla dijital materyal, dijital içerik ve e–içerik üretmek daha kolay ve yaygın hale gelmiştir. Yaygınlaşan dijital ortam ve araçlar göz önünde bulundurularak öğretmen adayları teknoloji kullanmaya teşvik edilmeli, eğitimde teknoloji kullanımına yönelik algıları olumsuz etkilenmemelidir. Bu olumsuz algının önüne geçmek için öğretmen adayları dijital ortam ve araçları kullanmaya yönlendirilmelidir. Öğretmenlerin teknoloji kullanımı sağlanarak eğitim ortamı zenginleştirilmelidir.

Öğretmenlerin dijital materyalleri geliştirmede teknoloji kullanımı, becerileri ve algıları önemlidir. Öğretmenlerin teknolojik araçlarla ilgili deneyime, alanlarıyla ilgili dijital tabanlı öğretim materyali ve içerik geliştirme becerisine sahip olmaları gerekir. Dijital materyalleri geliştirme ve dijital ortamları etkin kullanma öğretmen adaylarının mesleki becerileri ve yeterlilik algılarını etkileyerek daha başarılı bir mesleki performans sergilemelerini sağlayabilir. Dil öğretmenlerinin de dijital materyal ve içerikleri geliştirme becerileri desteklenmeli, dijital ortam ve materyallere ilişkin algıları değiştirilmelidir. Türkçe öğretiminde materyal tasarımı dersinde dijital içerik ve materyal geliştirme gibi uygulamalar öğretmen adaylarının dijital materyal

geliştirme öz yeterlilik algıları üzerinde etkili olabilir. Bu araştırmada Türkçe öğretiminde materyal tasarımı dersinin öğretmenlerin dijital materyal geliştirme öz yeterlilik algılarına etkisini belirlemek amaçlanmıştır. Bu amaca yönelik şu sorulara cevap aranmıştır:

1. Türkçe Öğretiminde Materyal Tasarımı Dersinin öğrencilerin öğretim materyali geliştirme öz yeterlilik algılarına etkisi nedir?
2. Türkçe Öğretiminde Materyal Tasarımı Dersi öğrencilerin öğretim materyali geliştirme öz yeterlilik algıları üzerinde;

a. Cinsiyete,
b. Yaşa,
c. Daha önceden materyal tasarımı dersi alma durumuna,
d. Teknoloji kullanım ortamlarına,
e. Web 2.0 ortamlarını kullanım sıklığına göre farklılık göstermekte midir?

Yöntem

Bu araştırma ön test-son test kontrol gruplu yarı deneysel desenle yürütülmüştür. Araştırmada veri toplama aracı olarak Korkmaz, Arıkaya ve Altıntaş'ın (2019) geliştirdiği "Öğretmenlerin Dijital Öğretim Materyali Geliştirme Öz Yeterlik Ölçeği" kullanılmıştır. Araştırmanın çalışma grubunu Kahramanmaraş Sütçü İmam Üniversitesi Türkçe Eğitimi Ana Bilim Dalında öğrenim gören Türkçe öğretmen adayları oluşturmuştur. Türkçe Öğretiminde Materyal Tasarımı dersini alan öğrenciler (N:25) deney grubunu, dersi almayan öğrenciler (N:28) kontrol grubunu oluşturmuştur. Verilerin analizinde gruplardaki kişi sayıları otuzu aşmadığından non-parametrik analizler kullanılmıştır.

Bulgular

Deney grubundaki öğrencilerin ön test puanlarının aritmetik ortalaması 125.16, son test puanlarının aritmetik ortalaması 154.56, kontrol grubundaki öğrencilerin ön test puanlarının aritmetik ortalaması 131.57, son test puanlarının aritmetik ortalaması 142.25 olarak bulunmuştur.

Deney ve kontrol grubundaki öğrencilerin ön test puanları arasındaki farkın $p>0.05$ önem düzeyinde anlamsız olduğu görülmüştür ($U=306.000$ $p=.433$). Deney ve kontrol grubundaki öğrencilerin materyal tasarımı dersi öncesi ön test puanları açısından aralarında fark olmadığı söylenebilir.

Deney ve kontrol grubundaki öğrencilerin materyal tasarımı dersi sonrası son test puanları arasındaki farkın $p<0.05$ önem düzeyinde deney grubu lehine anlamlı olduğu görülmüştür ($U=221.000$ $p=.021$). Deney ve kontrol grubundaki öğrencilerin materyal tasarımı dersi sonrası son test puanları açısından aralarında deney grubu lehine fark olduğu söylenebilir.

Deney grubundaki öğrencilerin materyal tasarımı dersi öncesi ve sonrası ön test ve son test arasındaki farklara ait Wilcoxon İşaret Sıralar testi analizleri $p<0.05$ önem düzeyinde son test lehine anlamlı bulunmuştur. Deney grubundaki öğrencilere verilen materyal tasarımı dersinin puanlar üzerinde etkili olduğu, yani materyal tasarımı dersinin öğrencilerin dijital öğretim materyali geliştirme öz yeterlilik gelişim düzeylerini arttırdığı söylenebilir.

Deney ve kontrol grubundaki öğrencilerin aldıkları farklı eğitimler sonucunda her iki gruptaki öğrencilerin son test puanlarında artış olsa da en fazla ilerleme deney grubunda olmuştur. Bu yüzden deney grubuna verilen materyal tasarımı dersinin dijital öğretim materyali geliştirme öz yeterliliklerini artırmada daha etkili olduğu söylenebilir.

Deney grubundaki kız ve erkek öğrencilerin son test puanları arasındaki farkın $p>0.05$ önem düzeyinde anlamsız olduğu görülmüştür ($U=33.000$ $p=.069$). Deney grubundaki öğrencilerin yaşlarına göre ön test ve son test puanları arasındaki farkların tümü $p>0.05$ önem düzeyinde anlamsız olduğu görülmüştür. Deney grubundaki öğrencilerin daha önceden materyal dersi alma durumlarına göre ön test ve son test puanları arasındaki farkların tümü $p>0.05$ önem düzeyinde

anlamsız olduğu görülmüştür. Deney grubundaki öğrencilerin teknoloji kullanım ortamlarına göre ön test ve son test puanları arasındaki farkların tümü $p>0.05$ önem düzeyinde anlamsız olduğu görülmüştür. Deney grubundaki öğrencilerin Web 2.0 kullanım sıklığına göre dijital öğretim materyali geliştirme öz yeterlilikleri ölçeği ön test puanları arasındaki farkın $p>0.05$ önem düzeyinde anlamsız olduğu görülmüştür ($KW=6.391$ $p=.172$). Deney grubundaki öğrencilerin WEB 2.0 kullanım sıklığına göre son test puanları arasındaki farkın $p<0.05$ önem düzeyinde anlamlı olduğu görülmüştür ($KW=12.117$ $p=.017$). Farkın kaynağını anlamak için uygulanan Dunnet T3 post hoc testi sonucu Web 2.0 kullanımı çok iyi olanların orta ve iyi kullananlara göre son test puanları daha yüksek bulunmuştur. Deney grubundaki öğrencilerin Web 2.0 kullanım sıklığına göre son test puanları açısından Web 2.0'ı çok iyi kullananların lehine fark olduğu söylenebilir.

Tartışma

Bu araştırma Türkçe Öğretiminde Materyal Tasarımı dersinin öğrencilerin dijital öğretim materyali geliştirme öz yeterlilik algılarına etkisini belirlemeye odaklanmıştır. Araştırmanın sonucunda Türkçe öğretiminde materyal tasarımı dersinin öğrencilerin dijital eğitim materyali geliştirme öz yeterlilik algılarını olumlu yönde etkilediği tespit edilmiştir. Web 2.0 ortamlarını kullanma durumu değişkenine göre deney grubunda olumlu yönde değişim görülmüştür. Türkçe öğretiminde materyal tasarımı dersinin cinsiyet, yaş, materyal tasarımı alma durumu, teknolojiyi kullanma ortamı değişkenlerine göre anlamlı bir değişimin olmadığı görülmüştür.

Bulgularda materyal tasarımı dersinin dijital materyal geliştirme öz yeterlilik algısını olumlu yönde etkilediği görülmüştür. Bu etkinin görülmesinde Türkçe Öğretiminde Materyal Tasarımı ders içeriğinin etkili olduğunu söylemek gerekir. Genellikle klasik konular üzerinden yürütülen materyal tasarım dersleri (Eyüp, 2012) yerine dijital uygulamalarla içerik geliştirme, Web 2.0 üzerinden içerik geliştirme ve paylaşmaya yönelik ortam ve uygulamaların Türkçe dersinde kullanımının etkili olduğu görülmektedir. Bu bulgu araştırmanın hipotezi olan Türkçe Dersinde Materyal Geliştirme dersinin öğrencilerin dijital öğretim materyali geliştirme öz yeterlilik algıları üzerinde etkili olduğunu doğrulamıştır. Bu sonuçlara göre öğrencilere yönelik materyal tasarımı dersin içeriklerinin daha çok dijital ortamlardaki araçlar, programlar, uygulamalar ve Web 2.0 ortamlarında yürütülmesi önerilebilir.

Öğretmen adaylarının Web 2.0 ortamlarını kullanması ve bu ortamları etkili kullanması sayesinde öğrencilerle daha fazla etkileşim ortamı sağlayabileceği düşünülmelidir. Öğretmenlerin dijital ortamlarda öğrencileri etkileşimli bir ortama sokması onların aktif katılımını sağlayacaktır. Yine bu ortamlarda kendi geliştireceği dijital materyalleri kullanarak daha etkili sonuçlar elde edebilecektir.

Bulgularda Web 2.0 değişkende anlamlı bir değişimin görülmesi ancak diğer değişkenlerde anlamlı bir değişimin olmaması, Web 2.0 ortamları kullanmanın öğrencilerin dijital materyal öz yeterlilik algıları üzerinde etkili olabileceğini göstermiştir. Dijital ortamlardan olan Web 2.0 etkileşimli ortamların öğretmen adaylarının materyal tasarımı dersi ve diğer derslerde kullanması önerilebilir.