

DIGITAL CITIZENSHIP AMONG PHYSICAL EDUCATION TEACHING MAJORS BEDEN EĞİTİMİ ÖĞRETMEN ADAYLARINDA DİJİTAL VATANDAŞLIK

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ABSTRACT

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This study aims to examine whether the digital citizenship levels of physical education teacher candidates differ according to their gender, grade level, and perceived computer skills; and whether there is a relationship between their digital citizenship levels, ages, and daily hours of internet usage. The study's population was made up of physical education teaching majors studying at Mersin University. 171 teacher candidates with an average age of 21.96 participated in the study. The Demographic Information Form, which included questions about gender, age, grade level, perceived computer skill level, and daily hours of internet usage, and the Digital Citizenship Scale were used to collect data. The findings revealed that the digital citizenship levels of candidates did not differ according to gender and grade level but differed according to perceived computer skill levels, and the digital citizenship levels of candidates who perceived their computer skills as high were higher than the digital citizenship levels of candidates who perceived their computer skills as low. In addition, there was no significant relationship between the digital citizenship levels of the candidates who perceived their computer skills at higher or lower levels, their age, and their daily hours of internet usage. As a result, the effective variable in the digital citizenship levels examined in physical education teacher candidates was the perceived computer skill level.

ÖZ

Bu çalışmada beden eğitimi öğretmen adaylarının dijital vatandaşlık düzeylerinin adayların cinsiyetleri, öğrenim gördükleri sınıf düzeyi ve bilgisayar kullanım becerisine yönelik algılarına göre değişiklik gösterip göstermediğini ve adayların dijital vatandaşlık düzeyleri ile yaşları ve günlük internet kullanım süreleri arasında ilişki olup olmadığını incelemektedir. Araştırmanın evrenini Mersin Üniversitesi'nde öğrenim gören beden eğitimi öğretmenliği bölümü öğrencileri oluşturmuştur. Araştırmaya yaş ortalaması 21.96 olan 171 öğretmen adayı katılmıştır. Veriler, cinsiyet, yaş, sınıf, algılanan bilgisayar becerisi düzeyi ve günlük internet kullanım süresine yönelik soruların yer aldığı Kişisel Bilgi Formu ve Dijital Vatandaşlık Ölçeği aracılığı ile toplanmıştır. Araştırma bulguları öğretmen adaylarının dijital vatandaşlık düzeylerinin cinsiyet ve sınıf düzeyine göre farklılaşmadığını, ancak algılanan bilgisayar beceri düzeyine göre farklılaştığını; bilgisayar beceri düzeyini yüksek olarak algılayan adayların dijital vatandaşlık düzeyinin, düşük olarak algılayan adayların dijital vatandaşlık düzeyinden daha yüksek olduğunu ortaya koymuştur. Bunun yanında çalışmada, kendi bilgisayar becerisini yüksek ve düşük düzeyde algılayan adayların dijital vatandaşlık düzeyi ile yaşları ve günlük internet kullanım süreleri arasında anlamlı bir ilişki olmadığı görülmüştür. Sonuç olarak, beden eğitimi öğretmen adaylarında incelenen dijital vatandaşlık düzeyinde etkili değişkenin algılanan bilgisayar beceri düzeyi olduğu ortaya konmuştur.

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Introduction

The Internet, known as a global network consisting of billions of computers and electronic devices (Galbreath, 1997; Madakam et al., 2015), was put into widespread use in society in 1991 and was adopted by people in a short time (Castells, 2014; Leiner et al., 1997; Leiner et al., 2009). In addition to the Internet, as technology develops and its benefits to human life become clearer, more and more people have begun to incorporate the online world into their daily lives (Haythornthwaite & Wellman, 2002; Howard et al., 2001; McKenna & Bargh, 1999; Venkatesh, 1996). Since the worldwide adoption of the internet, the number of global internet users has increased and ushered in a new era in which technology and data play a larger and more important role in human life (Hunsaker & Hargittai, 2018; Kornbluh, 2018; König et al., 2018). Statistics show that 62.5% of the world's population, approaching 8 billion (Worldometer, 2022), uses the internet (4.95 billion people) (We Are Social, 2022). The internet, which has an increasingly important place in people's daily lives, has been widely used for various purposes, such as watching television and videos, listening to music, getting information, communicating, meeting, chatting, following the news, paying bills, shopping, managing bank accounts, playing games, and finding addresses (Fallows, 2004; Martínez-Domínguez & Mora-Rivera, 2020; Ruzgar, 2005; Teo, 2001). Although the Internet has a variety of benefits and is one of the most powerful inventions, it also has many disadvantages, such as exposure to viruses and cheating, leading to physical inactivity, health problems and obesity, depression, loneliness, social isolation, leading to unnecessary shopping, being an unsafe environment for children, causing internet addiction, exposure to bullying and crime, unwanted advertisements, pornographic and violent images (Bargh & McKenna, 2004; Campbell, 2005; Diomidous et al., 2016; Mustafaoglu et al., 2018; Quaglio & Miller, 2020; Scheerder et al., 2019). On a global scale, it has been reported that internet users spend an average of 7 hours a day on digital media online via devices such as smartphones, desktop/laptop computers, tablets, and game consoles (We Are Social, 2022). This widespread use of the Internet has brought with it the challenge of enabling individuals to participate in a safe, effective, critical, and responsible way in a world full of digital technologies (Ferrari, 2012). This problem has been discussed in the literature as the concept of *digital citizenship*, which is briefly called the ability to participate in society online, and this concept is explained as positive interaction with society, active participation in society, and acting appropriately and responsibly in society through the use of digital technology (Mossberger et al., 2008; Ribble & Bailey, 2007). Digital citizenship refers to competent and positive interaction with digital technologies used for purposes such as working, sharing, socializing, playing, and communicating; participating in local, national, or global communities in a politically, economically, socially, and culturally active and responsible manner in terms of values and attitudes and being involved in the lifelong learning process and constantly defending human dignity in formal, informal, or non-formal settings (Frau-Meigs et al., 2017). In other words, digital citizenship includes general citizenship skills like respecting others' rights, empathizing, and valuing democracy and human rights, as well as specific competencies like online consumer awareness and critical evaluation of online information and resources (Choi, 2016; Simsek & Simsek, 2013; Richardson & Milovidov, 2019).

The issue of digital citizenship continues to be an important concern for individuals of all ages (Hollandsworth et al., 2017; Isin & Ruppert, 2015). Since it does not appear possible to return to a world without the internet, the need to raise individuals who are open to and adaptable to changes in the world in which they live is at the top of the list of important issues in all educational systems (Livingstone et al., 2011; Ranguelov, 2010; Slonje et al., 2013). This scientific data on internet usage areas, benefits, and drawbacks have made it unavoidable for children and young people to know about the internet (Bennett et al., 2008; Livingstone & Bober, 2004). Young people today live in a world transformed by digital technologies that effortlessly enable them to connect and access vast amounts of information through social media (Watkins, 2009). Making sense of this overly rich information and engaging effectively and responsibly in this information environment presents a new set of challenges for educators who seek to prepare young people as citizens, exercise their rights, and participate actively in community affairs (O'Brien, 2008). Studies in many countries have revealed the negative effects of internet use, such as high depression, anxiety, stress, feelings of loneliness, poor sleep quality, and poor academic performance, on children, adolescents, and young people (Balhara et al., 2018; Chung et al., 2019; Nowland et al., 2018; Rodríguez-García et al., 2020; Sohn et al., 2019). Although it creates problems also for adults, it is among the responsibilities of education authorities to protect children and young people from harmful content and behaviors on the internet (Valcke et al., 2007; Valcke et al., 2011; Willard, 2007). In the field of education, increasing knowledge and skills for digital citizenship is considered a bridge for children and young people to

use the internet appropriately (Ghamrawi, 2018; Hollandsworth et al., 2011). Digital citizenship, which is among the important issues in education, is also central in terms of the qualities of teachers, who are responsible for being role models for their students.

The digital citizenship levels of teacher candidates, who also constitute the sample of this research, have been examined in various studies (Albayrak Ozer & Ozer, 2020; Çiftci & Aladağ, 2018; Swallow, 2020; Xu et al., 2019). In one of these studies, Elmali, Tekin, and Polat (2020) examined the digital citizenship levels of preschool, computer education, and instructional technologies teacher candidates and found the digital citizenship levels of the pre-service teachers in this group to be moderate. In another study, Dedeşali and Dasedemir (2019), who examined the digital citizenship level of social studies teacher candidates according to the gender and age variables, revealed that there was no difference between the two genders, but there was a difference according to the age groups of the prospective teachers, and their study revealed that the level of digital citizenship of the participants aged 20-22 was higher than the pre-service teachers aged 17-19 and aged 23 and over. Another study revealing that there is no difference in the level of digital citizenship of teacher candidates according to gender was conducted by Djudin and Kartono (2022) in a sample of teacher candidates in Indonesia. Ata and Yıldırım (2020) examined the digital citizenship perceptions of education faculty students and revealed that the level of digital citizenship perception of teacher candidates is higher, and the level of female teacher candidates is lower than that of males, but it is similar according to age groups and daily hours of internet usage. Çiftci and Aladağ (2018) examined the digital citizenship levels of primary school teacher candidates in terms of various variables and discovered that there was a difference in the digital citizenship levels of teacher candidates depending on the grade studied, with the digital citizenship level of 2nd-grade participants being lower than that of 4th-grade participants. In the same study, it was revealed that there was a significant difference in terms of digital citizenship between the perception levels of teacher candidates, which were stated as low, medium, and high according to their perception of internet use proficiency and that the digital citizenship perception of the candidates with a low perception of computer proficiency was also revealed. In addition, in the study, it was determined that there was no difference in the level of digital citizenship of female and male classroom teacher candidates, and there was no difference in terms of daily hours of internet usage. Soykan and Keser (2018) revealed no difference in digital citizenship levels based on gender or age in another study that examined the level of digital citizenship in teacher candidates based on these two variables. Aladağ and Çiftci (2017) also examined the digital citizenship levels of primary school teacher candidates and found no difference according to gender and grade level. Although the teacher training program's modules on computer and internet use (Information Technologies and Instructional Technologies courses) do not specifically cover digital citizenship, they are nonetheless anticipated to raise teacher candidates' levels of digital citizenship because they cover subjects like computer and internet literacy and safe internet use (Council of Higher Education, 2018). It appears necessary to include the grade variable in future studies in order to reveal the potential effects of these undergraduate courses taken by prospective teachers at various grade levels on their level of digital citizenship.

As discussed above, there have been studies in which digital citizenship levels were examined in areas other than physical education teaching and compared based on gender, grade level, age, daily hours of internet usage, and perceived proficiency in computer use, but it was observed that the findings for these variables were not clear. Furthermore, almost no studies have been conducted to examine the digital citizenship levels of physical education teacher candidates. Regardless of the field of education, in the 2023 Education Vision, which the Ministry of National Education (2018) accepts as a whole home, street, digital environment, and school, it is emphasized that all teachers should improve themselves in digital education. Additionally, it is noted that teachers "make use the information and communication technologies effectively in the teaching and learning process" in the Ministry of National Education's 2017 publication "General Competencies for Teaching Profession," which applies to all teachers. The emphasis placed on the special field competencies of physical education teachers on the necessity of having the ability to "use technological resources in the process of realizing the objectives of teaching" also emphasizes that competence in the use of technology is a requirement for all physical education teachers. This information indicates that, regardless of the teaching field, the use of technology in education is unavoidable (Ministry of National Education, 2017). For this reason, determining the level of digital citizenship of physical education teachers, like all other field teachers, is critical in terms of contributing to the field's limited literature. Therefore, this study aimed to determine the digital citizenship levels of physical education teacher candidates by gender (female and male), grade level (1st grade, 2nd grade, 3rd grade,

and 4th grade), and perceived ability to use digital technologies (weak, medium, and high) variables and to examine whether there is a statistically significant relationship between the level of digital citizenship, age, and daily hours internet usage of teacher candidates.

Method

Research Design

A cross-sectional correlational design was used in this study. The relational survey model, which is used to examine and identify relationships between multiple variables or data points, and to discover patterns or trends between variables by making comparisons, was used in the research (Fraenkel et al., 2012).

Participants

Students in the Sports Sciences Faculty of Mersin University made up the study population. Using a convenient sampling method, physical education teacher candidates were recruited from the department of physical education and sports. The mean age of study participants was 21.96 ± 2.21 ($\bar{x}_{female} = 21.52$, $SD = 1.66$, $\bar{x}_{male} = 22.38$, $SD = 2.57$). The sample comprised 171 students, of which 49.1% were females and 50.9% were males. Of the 171 teacher candidates, 24% were grade 1 students; 24.6 were grade 2 students; 24% were grade 3 students; and 27.5% were grade 4 students. The teacher candidates' average daily hours of internet usage were 5.32 ($SD = 2.64$). Of the participants, 54.76% consider themselves moderately skilled, and 45.24% highly skilled at computers.

Data Collection Instruments

A self-administered Demographic Information Form and the Digital Citizenship Scale were used to collect data.

Demographic Information Form

A Demographic Information Form was designed by the researchers to collect data on physical education teacher candidates' gender (female, male), age (in years), grade (1st grade, 2nd grade, 3rd grade, 4th grade), perceived computer proficiency level (intermediate, high), and daily hours of internet usage (in hours). Demographic data collected was used to examine whether demographic variables were associated with the digital citizenship level of the participants.

Digital Citizenship Scale

The Digital Citizenship Scale was developed to reveal individuals' perceptions of their abilities and paths as active and/or critical members of online communities as part of their daily lives at local, national, and global levels. The scale was originally developed by Choi, Glassman, and Cristol (2017), and translated into Turkish by Erdem and Koçyiğit (2019). The scale consisted of 18 items and 5 subscales (Internet Political Activism, Technical Skills, Local/Global Awareness, Critical Perspective, and Networking Agency), primarily based on a 7-point Likert response scale that ranged from 1 (strongly disagree) to 7 (strongly agree). This study did not involve the use of subscale scores, rather, the analyses were based on the total digital citizenship score gathered from 18 items. The total score was calculated by summing the scores of individual items and dividing them by the number of items. There are no reverse-scored items on the scale. The total scores ranged from 1 to 7, and higher scores obtained from the scale indicate that individuals have higher levels of digital citizenship characteristics. The three sample items of the scale are as follows: (1) "I attend political meetings or public forums on local, town, or school affairs via online methods", (2) "I post original messages, audio, pictures, or videos to express my feelings/thoughts/ideas/opinions on the Internet", and (3) "I am able to use digital technologies (e.g., mobile/smart phones, Tablet PCs, Laptops, PCs) to achieve the goals I pursue". In the original study (Choi et al., 2017), the scale's reliability (Cronbach) was .88, .87 in the Turkish version (Erdem & Koçyiğit, 2019), and .80 in the current study.

Data Collection Procedures

The Mersin University ethics committee provided its ethical approval and the Department of Physical Education and Sports at Mersin University gave its official consent for this study. After obtaining the necessary permissions, the available courses for the study and participants were determined. The lecturers of the courses were informed about the study, and their permission was obtained for data collection. All the students in the lecturer's course were informed about the purpose and scope of the study, and those who voluntarily agreed to

participate in the study were given data collection tools. The scale was anonymous to ensure confidentiality and took approximately 5-7 minutes to complete.

Data Analysis

Independent samples *t*-tests were used to test the difference in digital citizenship levels between female and male participants, and between participants who perceive themselves as moderately skilled and highly skilled on computers; one-way analysis of variance was used to compare differences in digital citizenship score between 1st, 2nd, 3rd, and 4th-grade teacher candidates; and Pearson's correlation analysis was used to examine correlations between digital citizenship score and participants' daily hours of internet usage and age. The collected data were analyzed using IBM SPSS version 20.0 software for Windows.

Results

An independent-samples *t*-test was conducted to compare the digital citizenship levels of female and male physical education teacher candidates. The *t*-test results showed that there was no statistically significant difference in mean digital citizenship score between female and male teacher candidates; $t(169) = -.70, p = .49$. Both females ($\bar{x} = 4.04, SD = .87$) and males ($\bar{x} = 3.95, SD = .82$) were similar in digital citizenship levels (Table 1).

A one-way analysis of variance (ANOVA) was conducted to examine the differences between the 1st, 2nd, 3rd, and 4th-grade physical education teacher candidates in terms of digital citizenship level. The ANOVA test showed that there was no significant difference among the four different grades of teacher candidates, $F(3,167) = .31, p = .82$. Results concluded that digital citizenship levels were similar for 1st ($\bar{x} = 3.92, SD = .82$), 2nd ($\bar{x} = 3.96, SD = .72$), 3rd ($\bar{x} = 4.03, SD = .87$), and 4th grade ($\bar{x} = 4.08, SD = .96$) teacher candidates (Table 1).

An independent-samples *t*-test was conducted to compare the digital citizenship levels of teacher candidates who perceive themselves as moderately skilled and highly skilled on computers. The *t*-test results revealed a statistically significant difference in mean digital citizenship score between teacher candidates who consider themselves to be moderately skilled and highly skilled on computers, $t(166) = -2.15, p = .03$. The mean digital citizenship scores of teacher candidates who perceive themselves as moderately skilled ($\bar{x} = 3.89, SD = .86$) were lower than the scores of teacher candidates who perceive themselves as highly skilled ($\bar{x} = 4.16, SD = .80$) on computers (Table 1).

Table 1. Comparison of Digital Citizenship Scores According to Gender, Grade, and Perceived Computer Skill Level

| Gender | <i>n</i> | \bar{x} | <i>SD</i> | <i>t</i> | <i>p</i> |
|-----------------------|----------|-----------|-----------|----------|----------|
| Female | 84 | 3.95 | .82 | | |
| Male | 87 | 4.04 | .87 | -0.70 | .49 |
| Total | 171 | 3.99 | .84 | | |
| Grade | <i>n</i> | \bar{x} | <i>SD</i> | <i>F</i> | <i>p</i> |
| 1 st grade | 41 | 3.92 | .81 | | |
| 2 nd grade | 42 | 3.96 | .72 | | |
| 3 rd grade | 41 | 4.03 | .87 | .31 | .82 |
| 4 th grade | 47 | 4.08 | .96 | | |
| Total | 171 | 3.99 | .84 | | |
| Computer Skill Level | <i>n</i> | \bar{x} | <i>SD</i> | <i>t</i> | <i>p</i> |
| Moderately skilled | 92 | 3.89 | .86 | | |
| Highly skilled | 76 | 4.16 | .80 | -2.15 | .03 |
| Total | 169 | 3.99 | .85 | | |

A Pearson product-moment correlation was run to determine the relationship between digital citizenship score, teacher candidates' daily hours of internet usage, and their age. Before the correlation analysis, since there was a significant difference between the digital citizenship levels of the participants who perceived themselves as moderately and highly skilled in computers, the data was split according to the perceived computer skill level. A correlation analysis showed that the correlation coefficient between digital citizenship score and daily hours of internet usage ($r = -.21$, $n = 92$, $p = .05$), and age ($r = .11$, $n = 92$, $p = .29$) was not statistically significant in teacher candidates who perceive themselves as moderately skilled on computers. Similarly, correlation analysis revealed that digital citizenship score was not significantly correlated with daily hours of internet usage ($r = .14$, $n = 76$, $p = .22$), and age ($r = -.04$, $n = 76$, $p = .76$) in teacher candidates who perceive themselves as highly skilled in computers (Table 2).

Table 2. The Correlation between Digital Citizenship, Daily Hours of Internet Usage, and the Age of Teacher Candidates Who Perceive Themselves as Moderately Skilled and Highly Skilled

| | | Digital citizenship |
|---------------------------------|-----------------------------|---------------------|
| <hr/> | | |
| Moderately skilled in computers | | |
| | <i>Pearson Correlation</i> | -.21 |
| Daily hours of internet usage | <i>p</i> | .05 |
| | <i>n</i> | 92 |
| | <i>Pearson Correlation</i> | .11 |
| Age | <i>p</i> | .29 |
| | <i>n</i> | 92 |
| | <hr/> | |
| Highly skilled in computers | | |
| | <i>Spearman Correlation</i> | .14 |
| Daily hours of internet usage | <i>p</i> | .22 |
| | <i>n</i> | 76 |
| | <i>Spearman Correlation</i> | -.04 |
| Age | <i>p</i> | .76 |
| | <i>n</i> | 76 |
| | <hr/> | |

Discussion

This research aimed to examine whether the physical education teacher candidates' level of digital citizenship differs according to their gender, grade level, and perceived computer skills; and whether there is a relationship between digital citizenship level and their age and daily hours of internet usage. Considering the gender variable, the findings of the study revealed that there was no difference between the levels of digital citizenship of male and female physical education teacher candidates, and their scores were higher than the average. In support of the research findings, Erdem and Koçyigit (2019) examined the digital citizenship levels of undergraduate students and revealed that there was no difference between male and female participants. In another study, the digital citizenship level of undergraduate students studying in teaching departments was examined, and no difference was found between the two genders, and the digital citizenship level of both male and female participants was found to be higher than the average (Elcicek et al., 2018). Researchers examining the level of digital citizenship in the sample of primary school teacher candidates revealed that the digital citizenship levels of female and male teacher candidates are above average and similar (Aladağ & Çiftçi, 2017). In another study examining the digital citizenship levels of classroom teachers, it was reported that there was no difference in the level of digital citizenship between men and women (Çiftci & Aladağ, 2018). Sakallı and Çiftci (2016), who examined the digital citizenship levels of primary school teacher candidates, revealed that there was no difference in the level of digital citizenship of female and male teacher candidates, and the digital citizenship level of both genders was higher than the average. Examining the digital citizenship levels of secondary education majors, Kaya and Imer (2020) found that the digital citizenship levels of pre-service teachers were high and reported that there was no difference between the digital citizenship levels of female and male participants. Another study

revealing that there is no significant difference between female and male teacher candidates in terms of digital citizenship level was conducted by Dedeşali and Dasdemir (2019), and the level of digital citizenship was found to be high in their research. Examining the digital citizenship levels of social studies teacher candidates, akmak and Aslan (2018) showed that there was no difference between female and male teacher candidates' digital citizenship levels and that the digital citizenship level was higher than the average. Analyzing the digital citizenship levels of the 1st and 2nd-year students of the faculty of education, Ata and Yıldırım (2019) found that the digital citizenship levels of teacher candidates were higher than the average and male participants had higher levels of digital citizenship than female candidates. Yılmaz and Doęusoy (2020) also found that there was a difference in the level of digital citizenship between female and male teacher candidates, and in their study, the digital citizenship level of female candidates was found to be higher than male candidates. Kansu and ksüz (2019), who examined the digital citizenship levels of primary school teacher candidates, revealed that the digital citizenship levels of teacher candidates differ according to gender. In the same study, the digital citizenship levels of female teacher candidates are found to be higher than those of male candidates, but the scores are found to be higher in both genders. In an international study, Liu and Liu (2021) examined the digital citizenship levels of teachers working in underdeveloped regions of China and revealed that teachers' digital citizenship levels were low and there was no difference between female and male teachers. In a similar study, the digital citizenship levels of the candidates studying at a teacher training institution in China were examined and found to be higher than the average (Xu et al., 2019). In the same study, it was reported that there was no difference between the digital citizenship levels of female and male teacher candidates. In the US sample, teachers' level of digital citizenship was examined, and it was found to be high (Choi et al., 2018; Cristol & Gimbert, 2018). It is thought that the reason why the digital citizenship levels of male and female physical education teacher candidates in this study are similar is that both genders have a similar level of literacy required for internet use within the scope of the courses they have taken in the teacher training program (Council of Higher Education, 2018). In addition, findings from this research and research findings that support or do not support these findings also show that more scientific research is needed to establish the relationship between gender and digital citizenship.

It was observed that the digital citizenship levels of the physical education teacher candidates participating in this study did not differ according to grade level. The reviewed literature revealed that more studies found that the grade level variable had no effect on the level of digital citizenship than those that found it did. In one of these studies, researchers examining the level of digital citizenship on a sample of primary school teacher candidates revealed that the level of digital citizenship of primary school teacher candidates is above average and similar according to the grade levels they studied (Aladaę & iftçi, 2017). Sakallı and iftci (2016), who examined the digital citizenship levels of primary school teacher candidates, also revealed that there is no difference in the digital citizenship levels of pre-service teachers studying in the 1st, 2nd, 3rd, and 4th grades. Kaya and Imer (2020), who examined the digital citizenship levels of secondary education majors, reported that there was no difference between the digital citizenship levels of prospective teachers studying in different grade levels (1st, 2nd, 3rd, and 4th grades). Examining the digital citizenship levels of social studies teacher candidates, akmak and Aslan (2018) found no difference between the digital citizenship levels of 1st, 2nd, 3rd, and 4th-graders, and the digital citizenship levels were higher than the average. Yılmaz and Doęusoy (2020) compared the digital citizenship levels of education majors according to grade level and revealed that there was no difference between the 1st, 2nd, 3rd, and 4th graders. In another study examining the digital citizenship levels of primary school teachers, it was reported that there was a difference in the level of digital citizenship among the participants according to different grade levels and that the digital citizenship level of the candidates studying in the 2nd grade was lower than those studying in the 4th grade (iftci & Aladaę, 2018).

The results obtained in the study revealed that the digital citizenship levels of physical education teacher candidates differ according to their perceptions of computer skills, and the digital citizenship scores of the candidates who perceive themselves at a higher level in terms of computer skills are higher than those who perceive themselves at a moderate level. When the literature is examined, it is seen that the research associating digital citizenship and perceived computer skill level was mostly conducted in a sample of primary school teachers, which supports the findings of the current research. In one of these studies, researchers examining the digital citizenship level of primary school teacher candidates revealed that there is a difference between participants with different perception levels of internet usage skills and those with a higher perception level have

a high digital citizenship level (Aladağ & Çiftçi, 2017). In another study examining the digital citizenship levels of classroom teachers, it was found that there was a difference in the level of digital citizenship among teacher candidates who had different perceptions of internet use skills and that the candidates with low perception had the lowest digital citizenship level, the candidates with medium perception had the highest level, and the candidates with the highest perception had the highest level of digital citizenship (Çiftci & Aladağ, 2018). Similarly, Sakallı and Çiftci (2016), who examined the digital citizenship levels of primary school teacher candidates, revealed that the digital citizenship levels of the candidates who perceived their internet usage skills as high were higher than those who perceived their skills as medium or low levels. Erdem and Koçyiğit (2019) examined the digital citizenship levels of undergraduate students and revealed that there was a difference between the digital citizenship levels of the participants who had different perceptions of internet usage skills. Since the definition of digital citizenship cannot be made without computer skills, the strong relationship between computer use skills and digital citizenship can be clearly observed (Frau-Meigs et al., 2017; Kim & Choi, 2018; Koltay, 2011; Simsek & Simsek, 2013). One of the most important parts of digital citizenship skills is a computer and internet-based technical skills (Kim & Choi, 2018). The relationship between digital citizenship and computer skills has also been demonstrated by various studies (Nascimbeni & Vosloo, 2019; Shelley et al., 2004). In light of these findings, it is thought that the reason why physical education teacher candidates with high perceived computer skills have a higher digital citizenship level compared to candidates with low computer skills is due to the positive relationship between these two variables.

The results obtained in this study revealed that there is no relationship between physical education teacher candidates' digital citizenship levels and daily hours of internet usage. When the relevant studies in the literature are examined, research findings are parallel to these research findings. In support of the findings of this research Erdem and Koçyiğit (2019) examined the digital citizenship levels of undergraduate students and revealed that there was no difference in terms of digital citizenship levels among students with different daily hours of internet usage (below 1 hour, 1 hour, 1-2 hours, 2-3 hours, 3-4 hours, 4-5 hours, and more than 5 hours). In another study, Kaya and Imer (2020) examined the digital citizenship levels of secondary education majors and reported that there was no difference between the digital citizenship levels of teacher candidates in terms of the daily hours of internet usage (less than 1 hour, 1-2 hours, 2-5 hours, more than 5 hours). Similarly, examining the digital citizenship levels of classroom teachers, it was reported that there was no difference in the digital citizenship levels of classroom teacher candidates whose daily hours of internet usage was different (less than 1 hour, 1-2 hours, 2-5 hours, more than 5 hours) (Çiftci & Aladağ, 2018). In addition, in the study examining the digital citizenship levels of the 1st and 2nd-grade students of the faculty of education, Ata and Yıldırım (2019) revealed that the digital citizenship levels of teacher candidates were higher than the average and did not differ according to the frequency of daily hours of internet usage (1-2 hours a week, 3-4 hours a week, 1-2 hours a day, 2-4 hours a day, more than 4 hours). In addition, Dere and Yavuzay (2019) also examined the digital citizenship levels of social studies teacher candidates and determined that the digital citizenship levels of teacher candidates according to different daily hours of internet usage (0-2 hours, 2-4 hours, 4-6 hours, and more than 6 hours) were similar. Yılmaz and Doğusoy (2020) compared the digital citizenship level of undergraduate students at the faculty of education according to the duration of connecting to the internet daily but revealed that there was no significant difference between the different durations in terms of digital citizenship level. In a study that did not support these research findings, researchers examining the level of digital citizenship in a sample of primary school teacher candidates revealed that there was a difference between the levels of digital citizenship level of prospective teachers according to different daily hours of internet usage (Aladağ & Çiftçi, 2017). In the same study, it was revealed that there is a difference between those who use the Internet for less than 1 hour a day and those who use the Internet for more than 5 hours, and it has been determined that the digital citizenship levels of those who use it for more than 5 hours a day were higher than those who use it for less than 1 hour a day. Similarly, Sakallı and Çiftci (2016) discovered that prospective classroom teachers who spend more than 5 hours on the internet daily have higher digital citizenship levels than those who spend 1-2 hours, 2-5 hours, and less than 1 hour on the internet. Çakmak and Aslan (2018) examined the digital citizenship levels of social studies teacher candidates and discovered that there was a difference in digital citizenship levels based on the amount of time spent on the internet daily (1-2 hours, 2-3 hours, more than 3 hours) and that the digital citizenship level of teacher candidates who spend 1-2 hours daily on the Internet is lower than those who spend 2-3 hours on the Internet and more than 3 hours. These research findings, as supported by some studies,

revealed that there was no significant relationship between digital citizenship and daily hours of internet usage. It is thought that the reason for these findings is that pre-service teachers do not take any steps toward accessing any information that will support the acquisition of competence for digital citizenship within the scope of their internet use (Richardson & Milovidov, 2019).

In this study, it was revealed that there is no relationship between digital citizenship levels and the age of physical education teacher candidates. In support of these findings, Erdem and Koçyigit (2019) examined the digital citizenship levels of undergraduate students and revealed that there was no difference between different age groups (18 years, 19 years, 20 years, 21 years, and 22 years and older). In a study examining the digital citizenship levels of 1st and 2nd-grade students of the Faculty of Education, Ata and Yıldırım (2019) reported that the digital citizenship levels of pre-service teachers were higher than the average and did not differ according to their ages (18 years, 19 years, 20 years, 21 years, and 22 years). Yılmaz and Doğusoy (2020) compared the digital citizenship levels among the undergraduate students of the faculty of education according to the age variable and revealed that there was no difference between the digital citizenship levels of teacher candidates in different age groups. Çakmak and Aslan (2018) also examined the digital citizenship levels of social studies teacher candidates and discovered that digital citizenship levels were higher than the average and that there was no difference between the digital citizenship levels of teacher candidates in different age groups (17-19 years, 20-22 years, 23 years and over). The main explanation for why there was no correlation between the levels of digital citizenship and the ages of the physical education teacher candidates who took part in this study may be that they represent a youthful population and their age range is too narrow, similar to other studies (Elcicek, Erdemci, & Karal, 2018; Sakallı & Çiftci, 2016).

Conclusion

This research contributes to the literature in various aspects. First of all, the research contributed to the literature by revealing the digital citizenship level of teacher candidates, especially in the fields of physical education and sports, in addition to studies focusing on the level of digital citizenship of teachers and teacher candidates in various fields in the field of education. These findings also provide information for the development of various strategies to increase the relevance of the current situation by revealing the digital citizenship level of physical education teacher candidates. The present study examined the factors associated with the digital citizenship level of physical education teacher candidates. Finally, the findings from this research revealed that the digital citizenship level of physical education teacher candidates did not differ according to their gender and grade level. However, the digital citizenship level of the pre-service teachers differed according to their perception of computer skill level. The digital citizenship level of the pre-service teachers who perceived their computer skills at a high level was found to be higher than the pre-service teachers who perceived their computer skills at a medium level. There was no significant relationship between the digital citizenship level of the physical education teacher candidates and their daily hours of internet usage. It has also been reported that there is no significant relationship between physical education teacher candidates' digital citizenship level and their age.

Recommendations

The current study has several limitations that must be considered when interpreting the results. One of the limitations of this study is the limited sample size, and because of the small sample size. Thus, the findings of this study should be replicated and confirmed in future studies including larger samples. Another limitation is that only participants from the field of physical education and sports were included in the study. For this reason, the findings of this study should be taken into account by physical education teacher candidates, teachers, and teacher trainers. Another limitation is that the data collected in this study was only analyzed using a descriptive method. Therefore, a qualitative study should be conducted in the future to deeply explore the issues that could influence digital citizenship. Since the results obtained in this research reveal the level of digital citizenship depending on the perceptions of the participants, it is recommended that future studies be designed in a way that reveals the level of digital citizenship independently of the participant's perception. In addition, the fact that the level of digital citizenship is high but that this level does not differ depending on the grade level can be interpreted as meaning that the teacher training program does not lead to a change in the increase in the level of digital citizenship. For this reason, it is recommended to add courses according to the acquisition of digital citizenship knowledge and skills to the teacher training program or to add sections to the content of related courses.

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GENİŞLETİLMİŞ ÖZET

İstatistikler 8 milyara yaklaşan dünya nüfusunun %62.5'inin internet kullandığını (4.95 milyar kişi) göstermektedir. İnternet dünyadaki herhangi bir bilgiye ulaşma, herhangi bir kişi ile iletişim kurma/tanışma/sohbet etme, haberleri takip etme, fatura ödeme, alışveriş yapma, banka hesaplarını yönetme, televizyon ve video izleme, müzik dinleme, oyun oynama, adres bulma/yol tarifi alma gibi çeşitli amaçlarla yaygın olarak kullanılmakta ve insanların günlük yaşamında giderek daha önemli bir yer edinmektedir. İnternetin bu yaygın kullanım durumu, beraberinde bireylerin, dijital teknolojilerle dolu bir dünyaya güvenli, etkili, eleştirel ve sorumlu bir şekilde katılmalarını sağlama sorununu getirmiştir. Bu sorun literatürde kısaca topluma çevrimiçi olarak katılma yeteneği olarak adlandırılan *dijital vatandaşlık* kavramı olarak ele alınmış ve bu kavram dijital teknolojinin kullanımı yoluyla toplumla olumlu etkileşim kurma, topluma aktif olarak katılma, toplumda uygun ve sorumlu davranma olarak açıklanmıştır. İnternetin olmayacağı bir dünyaya dönüş mümkün görünmediğinden, içinde yaşanılan dünyada meydana gelen gelişmelere açık ve bu gelişmelere adapte olan bireyler yetiştirilmesi gerekliliği tüm eğitim sistemlerinin önemli konuları listesinin ilk sıralarında yer almaktadır. Bugün gençler, dijital teknolojiler tarafından dönüştürülen, sosyal medya aracılığıyla bağlantı kurmayı ve çok büyük miktarda bilgiye erişmeyi zahmetsizce sağlayan bir dünyada yaşamaktadır. Bu yoğun ve zengin bilgiyi anlamlandırmak ve etkin ve sorumlu bir şekilde bu ortama dahil olmak, gençleri vatandaş olarak hazırlamaya, haklarını kullanmaya ve topluluk işlerine etkin bir şekilde katılmaya çalışan eğitimciler için bir dizi yeni zorluk teşkil etmektedir. Yetişkin bireyler için de sorunlar yaratmasına rağmen özellikle çocuk ve gençlerin internet ortamındaki zararlı içerik ve davranışlardan korunması eğitim yetkililerinin sorumlulukları arasında da yerini almıştır. Eğitim alanında ele alındığında da öğrencilerine rol model olma sorumluluğu taşıyan eğitimcilerin dijital vatandaşlık düzeylerinin ortaya konması önem taşımaktadır.

Bu araştırmanın örneklemini de oluşturan öğretmen adaylarının dijital vatandaşlık düzeyleri çeşitli ulusal ve uluslararası araştırmalarda incelenmiş ve dijital vatandaşlık düzeyinin cinsiyet, yaş, öğrenim görülen bölüm, sınıf düzeyi gibi değişkenlerle ilişkisi ortaya konmuştur. Alan fark etmeksizin, tüm öğretmenlerin dijital eğitim konusunda kendilerini geliştirmeleri gerekliliği konusuna yönelik, Millî Eğitim Bakanlığı'nın ev, sokak, dijital ortamlar ve okulu bir bütün olarak kabul ettiği 2023 Eğitim Vizyonu belgesinde vurgu yapılmaktadır. Bu nedenle, beden eğitimi öğretmenlerinin de dijital vatandaşlık düzeyinin belirlenmesi önem taşımaktadır. Literatürde, beden eğitimi öğretmenliği alanı dışındaki öğretmenlik alanlarında (sınıf öğretmenliği, okul öncesi öğretmenliği, fen bilgisi öğretmenliği vb.) dijital vatandaşlık düzeylerinin incelendiği; cinsiyet, yaş, internet kullanma süresi, bilgisayar kullanma yetkinliğine göre karşılaştırıldığı araştırmalara rastlanmıştır, ancak bu değişkenlere yönelik elde edilen bulguların netlik kazanmadığı göze çarpmıştır. Bunun yanında beden eğitimi öğretmen adaylarının dijital vatandaşlık düzeylerini inceleyen çalışmaların yok denecek kadar az olduğu gözlenmiştir. Bu nedenle bu araştırmanın amacı beden eğitimi öğretmen adaylarının dijital vatandaşlık düzeylerinin cinsiyet, öğrenim görülen sınıf ve algılanan dijital teknolojileri kullanma beceri düzeyi değişkenlerine göre farklılaşıp farklılaşmadığını ve dijital vatandaşlık düzeyinin ile yaş ve günlük internet kullanım süresi arasında istatistiksel olarak anlamlı bir ilişki olup olmadığını ortaya koymak olarak belirlenmiştir.

Araştırmada, ilişkisel tarama modeli kullanılmıştır. Araştırmaya, beden eğitimi ve spor öğretmenliği bölümünün 1., 2., 3. ve 4. sınıflarında öğrenim gören ve yaş ortalaması 21.96 olan 171 öğretmen adayı katılmıştır. Araştırmada veri toplamak amacı ile katılımcıların cinsiyet (kadın, erkek), yaş (doğum yılı), öğrenim gördükleri sınıf (1. sınıf, 2. sınıf, 3. sınıf, 4. sınıf), dijital teknolojileri kullanma beceri düzeyleri (zayıf, orta, yüksek) ve günlük internet kullanım sürelerine (saat cinsinden) yönelik soruların yer aldığı Kişisel Bilgi Formu ve Dijital Vatandaşlık Ölçeği kullanılmıştır. Araştırmada, bireylerin dijital vatandaşlık düzeyini ortaya koymak amacı ile Choi, Glassman ve Cristol (2017) tarafından geliştirilen ve Erdem ve Koçyiğit (2019) tarafından Türkçeye çevrilen *Dijital Vatandaşlık Ölçeği* kullanılmıştır. Verilerin analizinde bağımsız *t*-testi, ANOVA ve Pearson's korelasyon testi kullanılmıştır. Veriler IBS SPSS 23 ile analiz edilmiştir.

Araştırma bulguları, öğretmen adaylarının dijital vatandaşlık düzeyinin cinsiyet ve öğrenim görülen sınıf değişkenlerine göre farklılaşmadığını ortaya koymuştur. Ancak araştırmada, bilgisayar beceri düzeyini orta ve ileri düzeyde algılayan beden eğitimi öğretmen adaylarının dijital vatandaşlık düzeyleri arasında anlamlı bir fark olduğu ve beceri düzeyini yüksek olarak algılayan adayların dijital vatandaşlık puanlarının, beceri düzeyini orta olarak algılayan öğretmen adaylarından daha yüksek olduğunu ortaya koyulmuştur. Ek olarak bilgisayar beceri

düzeşini yüksek ve orta düzeyde algılayan beden eğitimi öğretmen adaylarının dijital vatandaşlık düzeyleri ile yaşları ve günlük bilgisayar kullanım süreleri arasında da anlamlı bir ilişki olmadığı görülmüştür.

Bu araştırma bulgularını destekleyen ve desteklemeyen, öğretmen adaylarının katılımı ile yapılmış çeşitli araştırmalara literatürde rastlanmıştır. Bu durum, bu araştırmada ele alınan değişkenlere yönelik bulguların netlik kazanmadığının ve ileri araştırmalara ihtiyaç duyulduğunun göstergesi olarak yorumlanabilir. Bu araştırma literatüre çeşitli açılardan katkı sağlamıştır. Araştırma öncelikle beden eğitimi ve spor alanında öğretmen adaylarının dijital vatandaşlık düzeylerini ortaya inceleyerek literatüre bu konudaki sınırlı literatüre katkı sağlamıştır. Bu bulgular aynı zamanda beden eğitimi öğretmeni adaylarının mevcut dijital vatandaşlık düzeylerinin yükseltilmesi adına, öğretmen yetiştiren kurumlara bilgi sunmuştur. Bu çalışmada beden eğitimi öğretmen adaylarının dijital vatandaşlık düzeyleri ile ilişkili faktörler incelenmiştir. Bu araştırmada elde edilen sonuçlar, katılımcıların algılarına bağlı olarak dijital vatandaşlık düzeyini ortaya koyduğundan, bundan sonraki çalışmaların katılımcının algısından bağımsız olarak dijital vatandaşlık düzeyini ortaya çıkaracak şekilde tasarlanması önerilmektedir. Ayrıca dijital vatandaşlık düzeyinin ortalamasının üzerinde olmasına rağmen bu düzeyin sınıf düzeyine göre farklılık göstermemesi öğretmen yetiştirme programının dijital vatandaşlık düzeyinde artışa yol açmadığı şeklinde yorumlanabilir. Bu nedenle öğretmen yetiştirme programına dijital vatandaşlığa yönelik kazanım sağlanması amacı ile derslerin eklenmesi veya ilgili derslerin içeriğine bölümlerin eklenmesi önerilmektedir.