Prospective Social Studies Teachers' Perceptions of 21st Century Skills Efficacy

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Abstract: The aim of this study was to examine prospective social studies teachers' efficacy perceptions of 21st century skills based on gender, grade, academic success and mastery of information-communication technologies. Descriptive survey model was adopted in the study. The sample of the study consisted of a total of 257 prospective social studies teachers, 175 females and 82 males, from two different state universities in Türkiye. The participation was on a voluntary basis. The findings revealed that the participants had a high level of 21st century skills perceptions. It was also found that the participants' efficacy perceptions of 21st century skills differed significantly by gender in favor of female participants in the total scale and life and career skills sub-dimension. However, there was no significant difference in the sub-dimensions of learning and regeneration skills and information, media and technology skills in terms of gender. In addition, it was found that the participants' efficacy perceptions of 21st century skills and sub-dimensions differed significantly in favor of those thinking that they had mastery of information and communication technologies in the total scale and in the sub-dimensions of life and career skills and information, media and technology skills. However, no significant difference was found in learning and regeneration skills sub-dimension in terms of mastery of information and communication technologies. Finally, it was found that the participants' 21st century skills perceptions did not differ by grade and academic success.

Keywords: 21st century skills, social studies, prospective teachers, efficacy

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Introduction

Education plays a significant role in raising individuals with the skills appropriate to the requirements of the age in order to increase the welfare of societies. A number of issues such as globalization, technology, migration, international competition and political changes have paved the way for social order and individual needs to

change and as a result, a number of innovations have taken place in the field of education (Aydemir, Karalı, & Coşanay, 2020; Saavedra & Opfer, 2012; Tican & Deniz, 2019). In order to keep up with these changes and be more productive, students are required to develop skills called 21st century skills (Anagün, Atalay, Kılıç, & Yaşar, 2016). In addition, individuals need to have the basic and high-level skills essential to respond changes in social life in a negative or positive way, to be able to have a mastery of technology, to select, analyze and evaluate the appropriate information among the masses of information, and to transform the information they have obtained into practice and product in their daily lives (Anagün et al., 2016). These skills cover basic skills such as critical thinking, effective communication, problem solving, flexibility, cooperation, creativity, communication, innovation, teamwork, decision making, leadership, applying knowledge, global awareness, self-management and learning to learn, which should be gained through education (Partnership for 21st Century Skills, 2009; Russell, 2010, p. 66). 21st century skills refer to skills that are different from the previous century and are necessary for students to cope with the demands of the age (Anagün, 2018). In the literature, 21st century skills have been defined differently by researchers and educators. Also some reports have been published by many organizations in order to establish a standard in 21st century skills. These reports include classifications of central international organizations such as Partnership for 21st Century Skills (2019), Organization for Economic Cooperation and Development (OECD) (Ananiadou & Claro, 2009), European Union (2007), World Economic Forum (2015) and International Society for Technology in Education National Educational Technology Standards (2022). Among these classifications, the most widely accepted one was proposed by the Partnership for 21st Century Skills (2019). The Framework for 21st Century Learning was developed by experts to help students acquire the knowledge and skills they need to be successful in business, life and citizenship (Partnership for 21st Century Skills, 2019).

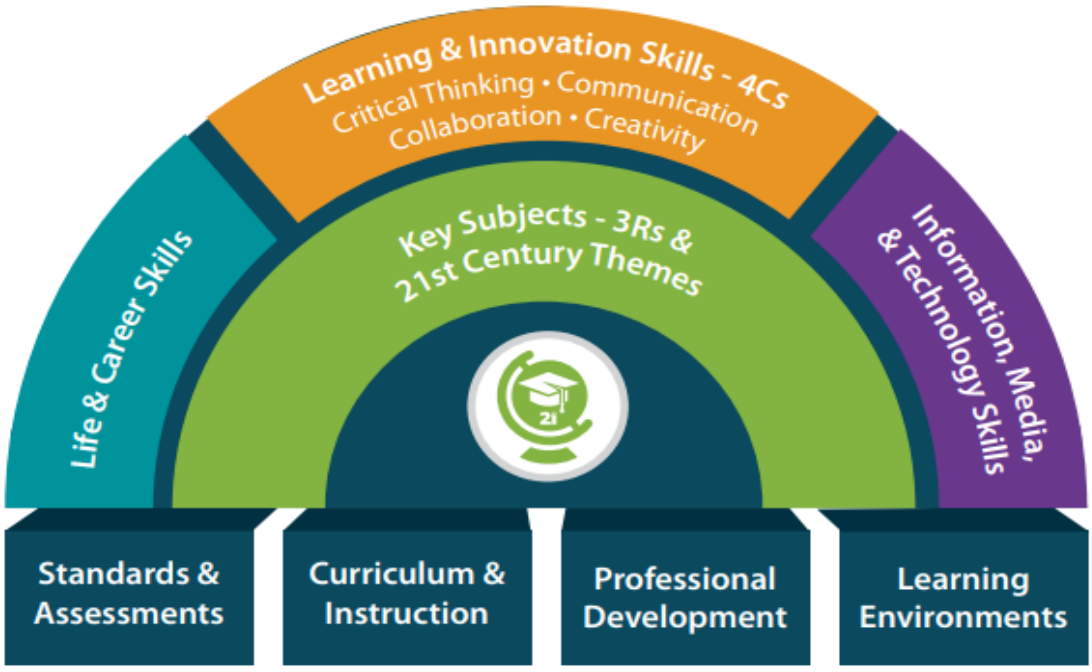

Figure 1. Framework for 21st century learning (Partnership for 21st Century Skills, 2019. Used with permission)

As shown in Figure 1, the skills that individuals should possess are categorized under three headings: learning and innovation skills, life and career skills, knowledge, media and technology skills. Learning and innovation skills consist of creativity and innovation, critical thinking and problem solving, and communication and collaboration skills needed by students to prepare for a more complex life and work environment. Life and career skills refer to the competences of students to be flexible and adaptable, initiative and self-directed, engage in social and intercultural interactions, be productive and accountable, and have the potential to lead and manage responsibilities. Information, media and technology skills include the ability of students to produce, evaluate and effectively use information, media and technology in the 21st century, where people are guided by technology and media. Therefore, individuals need to possess information literacy, media literacy, information and communication technology literacy skills (Gelen, 2017; Partnership for 21st Century Skills, 2019). Teachers should develop creative ideas, attract students' attention (Karakaş, 2015), improve their teaching skills, and follow innovations by integrating technology into their lessons in order to develop 21st century skills in students. In addition, 21st century teachers should be competent in pedagogy and communication as well as using technology (Ainley & Luntley, 2007), use basic and high-level skills, teach how to learn, and link knowledge with students' lives by making use of various disciplines (Saavedra & Opfer, 2012) and should support students' creativity and development. (Valtonen et al., 2021).

Students can only develop these skills required by the new century if their teachers possess them. Especially, social studies teachers, who are expected to provide students with 21st century skills such as critical thinking, decision making, problem solving, communication, entrepreneurship, research, innovative thinking, digital literacy, and media literacy (Ministry of National Education, 2018), should have 21st century competencies. In addition, the key topics defined as 3Rs in the framework for 21st century learning framework in Figure 1 cover contents of social studies courses such as history, geography, state and citizenship are among. Accordingly, a number of studies in the literature have emphasized the importance of social studies lesson and social studies teachers in the transmission of 21st century skills (Çiftçi & Bakar, 2020; Erol, 2021; Kubow, 1997; Ministry of National Education, 2018; Peker, 2019). Social studies teachers are expected to train learners with 21st century skills as a result of the personal, professional and practical training they receive in their education process (Urbani, Roshandel, Michaels, & Truesdell, 2017). Therefore, examining prospective social studies teachers' 21st century skills level is of great importance.

A brief literature review shows that there are numerous studies on 21st century skills. In this sense, there are studies focusing on the importance of 21st century skills in education (Coşkun, 2022; Engin & Korucuk, 2021; Lai & Viering, 2012; Larson & Miller, 2011; Pheeraphan, 2013; Saavedra & Opfer, 2012; Yalçın, 2018) and examine the 21st century skills of teachers in different disciplines with various variables (Uyar & Çiçek, 2021). These studies focused on classroom teachers' perceptions of 21st century skills competence and managing constructivist learning environments (Anagün, 2018), the predictive power of teachers' 21st century teacher skills on their skills in applying reflective thinking (Cemaloğlu, Arslangiy, Üstündağ, & Bilasa, 2019), 21st century skills self-efficacy perceptions and stem attitudes of teachers from different disciplines (Yaşar, 2021), and teachers' perceptions of 21st century skills efficacy (Çelebi & Sevinç, 2019; Dağhan, Nuhoğlu Kibar, Menzi

Çetin, Telli & Akkoyunlu, 2017; Gürültü, Aslan, & Alcı, 2019; Tunagür & Aydın, 2021). There are also studies examining the 21st century skills of pre-service teachers using several variables (Akcay, Semercioglu, & Güllü, 2022; Karatepe & Karakuş, 2021; Li, Lemieux, Vandermeiden, & Nathoo, 2013). These studies focused on pre-service teachers' 21st century skills levels (Aktaş, 2022; Sural, 2017; Valtonen, et al., 2021), development of 21st century skills (Chai, Tan, Deng, & Koh, 2017; Lambert & Gong, 2010; Urbani et al., 2017; Williams, Foulger, & Wetzel, 2009), pre-service teachers' views on 21st century learner and teacher skills (Aydemir & Karalı, 2020; Orhan Göksün & Kurt, 2017; Bakir, 2019; Tican & Deniz, 2019) perceptions of competence (Dokumacı Sütçü & Sütçü, 2022; Erten, 2020; Karatepe, 2021; Kozikoğlu & Altunova, 2018; Özdemir Özden, Karakuş Tayşi, Kılıç Şahin, Demir Kaya, & Bayram, 2018) pre-service teachers' motivation and adaptation of 21st century skills (Hoon, Muthukrishnan, Choo, Kam, & Singh, 2022), metaphorical perceptions (Selçuk, 2020), emotional intelligence levels (Canpolat, 2021) and educational beliefs (Gökbulut, 2020).

Particularly in the field of the social studies, the studies examined the importance of social studies education in the 21st century (Aslamiah, Abbas, & Mutiani, 2021; Crisolo, Camposano, & Rogayan Jr., 2021; Gallavan & Kottler, 2012; Garcia, 2021; Kubey, 2004; Kubow, 1997; Mestiola, Naquita, & Tantengco, 2018; Rogayan Jr., Gallardo, Lacaste, & Roque, 2021; Şengüleç, 2021; Widodo, Indraswat, Sutisna, Nursaptini, & Anar, 2020), the curriculum (Erol, 2021; Gari, 2000) and undergraduate programs (Bozkurt, 2021), the teaching methods and practices of social studies teachers in the 21st century (Farisi, 2016; Russel, 2010). In addition, some studies investigated the prospective social studies teacher' levels of 21st century skills use (Ablak, 2020; Peker, 2019), the effect of 21st century skills on their democratic tendencies (Bakar, 2020), their expectations of undergraduate education in the 21st century (Ersoy & Yağcıoğlu, 2019). However, there are limited number of studies investigating the level of 21st century efficacy perceptions of prospective social studies teachers (Çiftçi & Bakar, 2020). Thus, in order to bridge this gap in the literature, this study aimed at examining the proficiency perceptions of prospective social studies teachers towards 21st century skills and whether these perceptions differ by gender, grade, grade point average, and knowledge of information and communication technologies.

Method

The study is descriptive in nature since the prospective social studies teachers' efficacy perceptions of 21st century skills were examined based on various variables. Descriptive research aims to characterize a past and present situation as it is, in other words, it evaluates the nature of current conditions (McMillan & Schumacher, 2014).

Sample

The sample consisted of 257 prospective social studies teachers in two state universities in Türkiye. Demographic features of the participants are shown in Table 1.

Table 1. Demographic Features of the Participants

	f	%
Gender		
Female	175	68.1
Male	82	31.9
Grade		
1st Grade	49	19.1
2nd Grade	69	26.8
3rd Grade	65	25.3
4th Grade	74	28.8
Grade Point Average (GPA)		
0-2.70 (low)	36	14
2.71-3.35 (moderate)	144	56
3.36 and above (high)	37	14.4
Not specified	40	15.6
Mastery of Information and Communication Technologies		
Yes	214	83.3
No	41	16
Not specified	2	.7

As seen in Table 1, the majority of the participants were female (68.1%), and were studying in the 4th grade (28.8%), had a moderate grade point average (56%), and had a mastery of information and communication technologies (83.3%).

Data Collection and Analysis

The data were collected using the "Personal Information Form" and the "21st Century Skills and Competences Scale Directed at Teaching Candidates" through Google Forms. The personal information form, consisted of questions regarding a number of demographic information (gender, grade, grade point average and mastery of information and communication technologies) in order to obtain detailed information about prospective teachers. The 21st Century Skills and Competences Scale Directed at Teaching Candidates used in the study was developed by Anagün et al. (2016) and consists of 42 items and 3 factors (Learning and Innovation Skills, Life and Career Skills and Information, Media and Technology Skills). The Cronbach's alpha was calculated as 0.88 for the total scale, and 0.84, 0.82 and 0.81 for the factors, respectively. The internal consistency coefficients of the scale were found as .87 in the learning and innovation skills, .84 in the life and career skills, .82 in the information, media and technology skills, and .91 for the total scale.

Prior to the data analysis, whether there was missing data in the data set was examined and it was found that there

was no missing data. Then, the z-value of the scale's factor and total scale scores was calculated to examine outliers. Since the z-value of 8 participants was beyond the ±3 limits, they were removed (Tabachnick & Fidell, 2013). In order to examine the data distribution, the kurtosis-skewness values were investigated and it was found that the values were within ±1 value range. Therefore, the data were considered to have a normal distribution and parametric tests were used.

An independent sample t-test was performed to examine whether the participants' perceptions in the total scale and in the learning and innovation skills, life and career skills, and knowledge, media and technology skills proficiency dimensions differ by gender and mastery of information and communication technologies. One-way analysis of variance (ANOVA) was employed for grade and grade point average variables. All statistical tests were performed using the SPSS. Statistical significance was accepted as $p<0.05$. In the interpretation of the scale scores, the following range was used: "1.00-1.80 very low", "1.81-2.60 low", "2.61-3.40 moderate", "3.41-4.20 high", "4.21- 5.00 "very high".

Results

This section presents the findings of the study. Table 2 shows the descriptive statistics of the participants' 21st century skills and sub-dimensions.

Table 2. Descriptive Statistics of the Participants' Efficacy Perceptions for 21st Century Skills and Sub-Dimensions

	N	$\bar{x}$	Ss
Learning and Innovation Skills	257	3.89	0.49
Life and Career Skills	257	4.09	0.47
Information, Media and Technology Skills	257	4.23	0.56
Total	257	4.05	0.42

Table 2 revealed that the participants had a high level of perceptions in 21st century skills ($\bar{x}$=4.05) and in learning and innovation skills ($\bar{x}$=3.89) and life and career skills ($\bar{x}$=4.09) sub-dimension and a very high level of perceptions in information, media and technology skills ($\bar{x}$=4.23).

Table 3 shows the t-test results regarding whether the participants' efficacy perceptions of 21st century skills differed by gender. As seen in Table 3, the participants' efficacy perceptions of for 21st century skills (t_{255}=1.984, $p<0.05$) and life and career skills dimension (t_{255}=3.241, $p<0.05$) differed by gender in favor of female participants. However, there was no significant difference in the efficacy perceptions of learning and innovation skills (t_{255}=.687, $p>0.05$) and information, media and technology skills (t_{255}=.272, $p>0.05$) with regard to gender.

Table 3. T-test Results on the Participants' Perceptions of 21st Century Skills and Sub-Dimensions by Gender

	Gender	N	x̄	Sd	t	p
Learning and Innovation Skills	Female	175	3.91	0.48	.687	.49
	Male	82	3.86	0.52		
Life and Career Skills	Female	175	4.15	0.43	3.241	.00*
	Male	82	3.95	0.53		
Information, Media and Technology Skills	Female	175	4.22	0.57	.272	.78
	Male	82	4.25	0.55		
Total	Female	175	4.09	0.40	1.984	.04*
	Male	82	3.97	0.45		

*$p<0.05$

Table 4 shows the t-test results regarding whether the participants' efficacy perceptions of 21st century skills differed by mastery of information and communication technologies.

Table 4. T-test Results on the Participants' Perceptions of 21st Century Skills and Sub-Dimensions by Mastery of Information and Communication Technologies

	Mastery of information and communication technologies	N	x̄	Sd	t	p
Learning and Innovation Skills	Yes	214	3.90	0.48	.617	.53
	No	41	3.85	0.58		
Life and Career Skills	Yes	112	4.12	0.47	2.106	.03*
	No	51	3.95	0.47		
Information, Media and Technology Skills	Yes	112	4.27	0.56	2.124	.03*
	No	51	4.06	0.58		
Total	Yes	112	4.07	0.42	2.007	.04*
	No	51	3.93	0.38		

*$p<0.05$

As seen in Table 4, the participants who considered that they had a mastery of information and communication technologies had significantly higher scores in the total scale (t_{253}=2.007, $p<0.05$) and life and career skills (t_{253}=2.106, $p<0.05$) and information, media and technology dimensions (t_{253}=2.124, $p<0.05$). It was also found that the participants did not differ by mastery of information and communication technologies in learning and innovation dimension (t_{253}=2.124, $p<0.05$).

The results of the one-way analysis of variance (ANOVA) performed to examine whether the participants' efficacy perceptions of 21st century skills differed by grade are given in Table 5.

Table 5. ANOVA Results on the Participants' Perceptions of 21st Century Skills and Sub-Dimensions by Grade

	Grade	N	x̄	Ss	Sd	F	p
Learning and Innovation Skills	1. Grade	49	4.00	.36	3/253	1.395	.24
	2. Grade	69	3.93	.60			
	3. Grade	65	3.83	.50			
	4. Grade	74	3.86	.44			
Life and Career Skills	1. Grade	49	4.13	41	3/253	.406	.74
	2. Grade	69	4.09	.49			
	3. Grade	65	4.11	.47			
	4. Grade	74	4.04	.50			
Information, Media and Technology Skills	1. Grade	49	4.19	.57	3/253	.707	.54
	2. Grade	69	4.26	.56			
	3. Grade	65	4.30	.52			
	4. Grade	74	4.17	.59			
Total	1. Grade	49	4.10	.33	3/253	.429	.73
	2. Grade	69	4.06	.48			
	3. Grade	65	4.05	.41			
	4. Grade	74	4.01	.41			

Table 5 revealed that the participants' efficacy perceptions of 21st century skills did not differ by grade level in the total scale (F_{253}=.429, p>0.05), learning and innovation skills dimension (F_{253}=1.395, p>0.05), life and career skills (F_{253}= .406, p>0.05) and information, media and technology skills (F_{253}=.707, p>0.05). Therefore, it can be concluded that the grade did not have a significant effect on the participants' 21st century skills perceptions.

Table 6 presents the results of the one-way analysis of variance (ANOVA) regarding whether the participants' efficacy perceptions of 21st century skills differed by grade point average.

Table 6. ANOVA Results on the Participants' Perceptions of 21st Century Skills and Sub-Dimensions by Grade Point Average

	Grade Point Average	N	x̄	Ss	Sd	F	p
Learning and Innovation Skills	Low	36	3.86	.49	2/214	.859	.42
	Moderate	144	3.88	.50			
	High	37	3.99	.55			
Life and Career	Low	36	3.96	.54	2/214	2.364	.09

Skills	Moderate	144	4.12	.44			
	High	37	4.18	.45			
Information, Media and Technology Skills	Low	36	4.37	.52	2/214	2.014	.13
	Moderate	144	4.21	.54			
	High	37	4.35	.53			
Total	Low	36	4.00	.44	2/214	1.384	.25
	Moderate	144	4.05	.39			
	High	37	4.15	.45			

As shown in Table 6, there was no significant difference between the participants' efficacy perceptions and the total scale (F_{214}=1.384, p>0.05), learning and innovation skills dimension (F_{214}=.859, p>0.05), life and career skills dimension (F_{214}) =2.364, p>0.05) and information, media and technology skills dimension (F_{214}=2.014, p>0.05) with regard to grade point average. As a result, it can be put forward that the grade point average did not have a significant effect on the proficiency perceptions of the participants.

Conclusion, Discussion, and Recommendations

This study aimed to investigate the efficacy perceptions of prospective social studies teachers' towards 21st century skills and to examine whether these perceptions differ by gender, grade, grade point average and mastery of information and communication technologies. It was found that the participants a high level of perception in the total scale and learning and innovation skills, and life and career skills dimensions, and a very high level of perception in the information, media and technology skills. The reason for this finding may be due to the fact that the social studies education undergraduate curriculum and course contents were developed in line with the needs of the age and were successful in developing 21st century skills (Bozkurt, 2021; Sütçü & Sütçü, 2022). Similar to the results of the present study, many studies in the literature reported that teachers (Eğmir & Çengelci, 2020), elementary school students (Rogayan Jr. et al., 2021), vocational school students (Engin & Korucuk, 2021) and pre-service teachers (Ablak, 2020; Akcay, Semercioğlu, & Güllü, 2022; Aktaş, 2022; Canpolat, 2021; Donmuş Kaya & Akpunar, 2018; Erten, 2020; Gökbulut, 2020; Karatepe, 2021; Kozikoğlu & Altunova, 2018; Özdemir Özden et al., 2018; Peker, 2019; Sütçü & Sütçü, 2022; Tican & Deniz, 2019) had moderate and high level of 21st century skills efficacy perceptions. Pre-service teachers with high efficacy perceptions towards 21st century skills may contribute to the training of learners having 21st century skills in their future career.

In the study, a significant difference was found in favor of female participants in the total scale and life and career skills dimensions. However, the participants' perceptions of learning and innovation skills and information, media and technology skills did not differ by gender. There are numerous studies in the literature indicating that there was no significant difference between efficacy perceptions and all dimensions of 21st century with regard to gender (Ablak, 2020; Akcay et al., 2022; Aydemir et al., 2020; Canpolat, 2021; Donmuş Kaya & Akpunar, 2018; Erten, 2020; Gökbulut, 2020; Gömleksiz, Sinan, & Doğan, 2019). On the contrary, some

studies revealed that male pre-service teachers had significantly higher levels of "entrepreneurship and innovation" (Aktaş, 2022), "learning and innovation" (Çolak, 2019) and "autonomous" skills (Peker, 2019) perceptions that female pre-service teachers. In addition, there are studies reporting that pre-service teachers' 21st century skills efficacy perceptions (Başar, 2018) and life and career skills differed significantly in favor of females (Kan & Murat, 2018; Karatepe, 2021; Özdemir Özden et al., 2018). In line with the findings of the present study, Çiftçi and Bakar (2020) found that that pre-service social studies teachers' perceptions of 21st century skills and life and career skills differed significantly in favor of female pre-service teachers. Based on these findings, it can be concluded that female pre-service social studies teachers adapt better to complex daily life and work environments, and make career plans for their future.

It was also revealed in the present study that the participants' efficacy perceptions differed significantly in favor of those having mastery of information-communication technologies in the total scale and life and career skills and information, media and technology skills dimension. However, no significant difference was found with regard to mastery of information and communication technologies in the learning and innovation skills dimension. Similar to the results of this study, examining pre-service teachers' efficacy perceptions, Erten (2020) found a significant difference in "information, media and technology" dimension with regard to mastery of information-communication technologies. Accordingly, it can be said that pre-service teachers consider themselves sufficient in information and communication technologies. Similarly, in a study on 21st century skills and digital competencies in the context of lifelong learning, teachers regarded themselves competent (Keskin & Yazar, 2015). In addition, Aktaş (2022) and Sang, Liang, Chai, Dong, and Tsai (2018) also reported findings that support the findings of the present study. In contrast, some studies found that pre-service teachers did not consider themselves competent in the use of ICT (Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010; Tondeur et al., 2012). However, most of the studies in the literature reported similar results with the present study (Akgün, 2020; Aktaş, 2022; Erten, 2020; Karatepe & Karakuş, 2021; Keskin & Yazar, 2015; Sang et al., 2018; Şad & Nalçacı, 2015; Williams et al., 2009). Therefore, it can be said that mastering information and communication technologies play a significant role in the pre-service teachers' 21st century skills, life and career skills, and knowledge, media and technology skills perceptions.

It was also found in the present study that the efficacy perceptions of the participants regarding 21st century skills did differ by grade in the total scale and its dimensions. Thus, it can be said that grade level does not have a significant effect on pre-service teachers' 21st century skills perceptions. Although pre-service teachers take several courses on 21st century skills during their undergraduate education, it was an unexpected result. In the literature, there are many studies revealing that pre-service teachers' efficacy perceptions for 21st century skills did not differ by grade level (Akcay et al., 2022; Başar, 2018; Çiftçi & Bakar, 2020; Karatepe, 2021; Sural, 2017). Similar to the present study, Valtonen et al. (2021) found in their longitudinal study on 21st century skills and tendencies of pre-service teachers that the participants 21st century skills levels remained at the same level during the 3-year undergraduate education. On the other hand, Ablak (2020) concluded that pre-service social studies teacher' grade level was effective in their 21st century skills perceptions. Similarly, Bakır (2019) found that pre-service teachers' level of 21st century learner skills use increased with the increase in the grade level.

Özdemir Özden et al. (2018) found that the efficacy perceptions of the 3rd grade pre-service teachers towards life and career skills were significantly higher than 2nd grade pre-service teachers.

Finally, it was found that the efficacy perceptions of the participants regarding 21st century skills did not differ significantly by grade point average in the total scale and its dimensions. In other words, grade point average did not have a significant effect on the participants' 21st century skills efficacy perceptions. Although there are studies supporting the findings of the present study (Başar, 2018; Erdoğan & Eker, 2020; Güler, 2019), most of the studies in the literature reported a positive relationship between academic achievement and 21st century skills (Aktaş, 2022; Anwar, Khizar, & Naseer, 2012; Canpolat, 2021; Doğanay & Demir, 2011; Engin & Korucuk, 2021; Erbek, 2021; Eryılmaz & Uluyol, 2015; Orhan Göksün & Kurt, 2017; Özdemir Özden et. al., 2018; Pagani, Argentin, Gui & Stanca, 2016; Soh, Arsad & Osman, 2010; Sütçü & Sütçü, 2022; Şahin et. al, 2016; Tican & Deniz, 2019). Engin and Korucuk (2021) found that students with high grade point average had higher information and technology literacy, critical thinking and problem solving, social responsibility and leadership skills than students with low grade point average. The difference between these studies may be due to the sample and data collection tools.

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