

## Aday Öğretmenlerin ve Öğretmen Adaylarının Öğretmenlik Mesleği Genel Yeterlikleri ile 21. Yüzyıl Becerileri Öz Yeterlikleri\*

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### The General Qualifications of the Teaching Profession antecherd the Self-Efficacy of 21st-Century Skills: Prospective and Novice Teachers

#### Abstract

The aim of this study is to explore the teaching competencies and 21st century skills self-efficacy among both novice teachers in public schools within Siirt Province of Turkey and prospective teachers enrolled in university teacher training programs. This study also seeks to understand the correlation between these competencies and 21st century skill self-efficacy. This study was conducted by using the correlational survey model. The sample group of the study consisted of 300 novice teachers working in public schools in Siirt province of Turkey in the 2020-2021 academic year and 325 prospective teachers studying in the 4th grade at the Faculty of Education and Theology and the School of Physical Education and Sports, where teaching programs were held, in the 2019-2020 and 2020-2021 academic years. The data of the study were collected by using the general qualifications of the teaching profession and the self-efficacy of 21st-century skills scales. In this study, the following findings were obtained: Novice teachers and prospective teachers found themselves very competent in the fields of professional skills, attitudes, and values in the sum of the general qualifications of the teaching profession scale while they considered themselves sufficient in the field of professional knowledge competence. Novice teachers and prospective teachers took the view that they had a very high level of 21st-century skills. There was a positive moderate level correlation between the general qualification levels of the novice teachers in the teaching profession and the self-efficacy of 21st-century skills whereas there was a positive and highly significant correlation between these competencies of prospective teachers. General qualifications in the teaching profession that novice teachers and prospective teachers were a significant predictor of their self-efficacy in 21st-century skills.

**Keywords:** Teacher, Novice Teacher, Prospective Teacher, 21st-Century Skills, Teaching Profession, Sufficiency, Self – Efficacy

#### Özet

Bu araştırmanın amacı, Siirt'te kamu okullarında görev yapan aday öğretmenlerin ve üniversitede öğrenimlerine devam eden öğretmen adaylarının öğretmenlik mesleği genel yeterlikleri ile 21. yüzyıl becerileri öz yeterliklerini ve bunlar arasındaki ilişkiyi belirlemektir. İlişkisel tarama modelindeki araştırmanın örneklem grubu, 2020-2021 eğitim- öğretim yılında Siirt'te kamu okullarında görev yapan 300 aday öğretmen ve 2019-2020 ve 2020-2021 eğitim-öğretim yıllarında öğretmenlik programlarının yer aldığı Eğitim ve İlahiyat Fakülteleri ile Beden Eğitimi ve Spor Yüksekokulunda 4. sınıfta öğrenim gören 325 öğretmen adayından oluşmaktadır. Araştırmanın verileri, öğretmenlik mesleği genel yeterlikleri ile 21. yüzyıl becerileri öz yeterlikleri ölçekleri kullanılarak toplanmıştır. Araştırmada şu temel bulgulara ulaşılmıştır: Aday öğretmenler ve öğretmen adayları öğretmenlik mesleği genel yeterlik ölçeğinin toplamında, mesleki beceri ile tutum ve değerler yeterlik alanlarında kendilerini çok yeterli; mesleki bilgi yeterlik alanında ise yeterli görmektedirler. Aday öğretmenler ve öğretmen adayları 21. yüzyıl becerilerine çok yüksek düzeyde sahip oldukları görüşündedirler. Aday öğretmenlerin öğretmenlik mesleği genel yeterlik düzeyleri ile 21. yüzyıl becerileri öz yeterlikleri arasında pozitif yönlü orta düzeyde; öğretmen adaylarının ise bu yeterlikleri arasında pozitif yönlü yüksek düzeyde anlamlı bir ilişki bulunmaktadır. Aday öğretmenlerin ve öğretmen adaylarının öğretmenlik mesleği genel yeterlikleri 21. yüzyıl becerileri öz yeterliklerinin anlamlı yordayıcısıdır.

**Anahtar Kelimeler:** Öğretmen, Aday Öğretmen, Öğretmen Adayı, 21. Yüzyıl Becerileri, Öğretmenlik Mesleği, Yeterlik, Öz Yeterlik

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## Introduction

Education continues to be among the indispensable areas of societies in the new century. Likewise, the fact that teachers, who are the subjects of education, have the competencies and skills required by the educational understanding of the new era also comes to the fore as one of the most vital problems of education. On the one hand, it is a necessity for today's teachers to have professional competencies that reflect the integrity of knowledge and skills required by the profession, and on the other hand, to have general skills imposed by the dynamic character of the new age that reflects continuous change.

There are various classifications in the literature regarding professional competencies and skills required by the new century. In having these competencies and skills, the quality of the pre-service education received by the prospective teachers, which is the most important stage of the teacher training process, is one of the most basic determinants. It is essential for prospective teachers to get prepared for the profession by carrying the competencies required by the teaching profession, to be subject to a functional and continuous training and development process in which teachers will acquire the new skills brought by the era in service, in terms of the quality of education and the development of the society.

## Common Teaching Profession Competencies

Professional teaching competencies refer to the knowledge, skills, and attitudes that teachers must have in order to fulfill their duties effectively (Ministry of National Education /MoNE, 2017). Today's teachers are to be people who can communicate effectively with the stakeholders of education, offer different learning methods to students, give them higher-level thinking skills, have basic human values based on active learning in classroom management, and make good evaluations, reviews, assessments and have professional competence (Saraçoğlu and Yenice, 2009).

According to Zeiger (2021), a teacher is someone who can interact well with his students, create a learning environment, develop an effective lesson plan, use various teaching strategies, fulfill evaluation criteria, meet student needs, communicate well, cooperate, and who is dedicated to his profession. Before beginning their careers, teachers are required to have a strong academic background, professional training, and subject-matter expertise. Learning is made simpler within the framework of these competencies, and success and professional development are also made possible (Rajić, Hoşgörür and Drvodelić, 2015). Many countries of the world are trying to establish standards to improve teachers' competencies in order to achieve success in education (Karakaya, Uzel, Gül, & Yılmaz, 2018). 25 OECD countries have developed regulations covering teacher admission requirements and accreditation (Organisation for Economic Co-operation and Development /OECD, 2012). The European Union has confirmed that it is important to establish a common standard in teacher qualifications and competencies, and within this framework, decisions to improve teacher education have been made (TED, 2009). In the USA, having social skills, being able to work in teams, being in continuous professional development, communicating well with students, and understanding them are accepted as basic competencies (Külekçi & Bulut, 2010).

Competencies related to the teaching profession in Turkey have always been the subject of discussion. MoNE (the Ministry of National Education) has made changes and updates on this subject from time to time. One of the first comprehensive regulations was made in 2002, and the general competencies of the teaching profession were gathered in three areas. These are teaching-training, general culture, and special field competencies. Among these, the main competence of teaching-training consists of 15 sub-competencies (recognition of the student, planning teaching, developing materials, teaching, managing teaching, measuring and evaluating success, guiding, developing basic skills, serving students in need of special education, educating adults, extracurricular activities, self-development, school improvement, and school-environment relations). These competencies were updated in 2006 and determined as 6 main and 31 sub-competencies. These six main competencies are; personal and professional values, getting to know the student, teaching and learning process, monitoring and evaluation of learning, development, school, family and community relations, and program and content information. These competencies were developed again in 2017 with the cooperation of MoNE and The council of higher education (CoHE) These competencies are shown in Table 1.

Table 1: *Teacher Competencies*

Professional Knowledge	Professional Skill	Attitudes and Values
Field knowledge (5 indicators)	Field knowledge (5 indicators)	National, spiritual and universal values (4 indicators)
Field education knowledge (6 indicators)	Field education knowledge (6 indicators)	Approach to the student (4 indicators)
Regulatory knowledge 5 indicators)	Regulatory knowledge (5 indicators)	Communication and collaboration (6 indicators)
		Personal and professional development (7 indicators)

Common competencies of the teaching profession were developed in cooperation with the Ministry of National Education and CoHE in 2017 and are still in effect. These are professional knowledge, professional skills, attitudes, and values. These three main competencies consist of 11 sub-competencies and 65 indicators. Our study was based on these core competencies.

## 21st Century Skills

Because of rapidly changing technology and information, it has become paramount to constantly update and use information, as well as to constantly improve one's own knowledge (Duymuş, 2019). The skills required by the rapidly changing age are also changing accordingly. In this sense, 21st century skills such as curiosity, creativity, innovation, global literacy, problem-solving, and communication skills are gaining more importance. 21st century skills are a skill set in which knowledge and skills are applied together, and the main theme is to be creative, to think critically, to cooperate in groups, and to solve problems. Naturally, 21st century skills that change the expected behavior and knowledge of students (Tutaysalgır, 2012) place emphasis on practicing instead of theoretical knowledge and the ability to adapt knowledge to life. Some scientists have stated that critical and problem-solving skills have existed since the past, suggesting that knowledge and global awareness are already well-established concepts and therefore, skills such as knowledge and global awareness are known, so, it is not correct to attribute to the 21st century (Ekici, Abide, Canbolat, & Öztürk, 2017). Although these skills were also present in previous societies, considering these skills in the context of the 21st century indicates the perspective of this century. An example of this is the rasping of individuality by prioritizing the understanding of society rather than the individual in industrial societies (Turkey Intelligence Foundation, 1995). There are definitions and classifications of 21st century skills in the form of hundreds of skill sets (Silva, 2009), including life, workforce, applied, interpersonal and non-cognitive skills.

While all frameworks that define 21st century skills seem largely consistent in what they are, each framework has a different focus on different skills and competencies. The OECD (Organization for Economic Cooperation and Development)-DeSeCo program, the EU and the P21 (21st Century Skills Partnership) framework can be considered as more general frameworks that enable the conceptualization of 21st century skills and competences compared to others. (Voogt, Roblin, 2012; as cited in Anagün et al., 2016).

There are institutions and organizations that classify 21st century skills in different ways. Table 2 presents the classification of 21st century skills according to P21 (2003), NCREL en Gauge, ATCS (Teaching and Evaluation of 21st Century Skills), EU, NETS/ISTE (International Society for Technology in Education) and OECD.

Table 2: *Various Classifications of 21st Century Skills (P21, NCREL en Gauge, ATCS, EU, NETS/ISTE, OECD)*

<b>P21</b>	<b>NCREL en Gauge</b>	<b>ATCS</b>
Learning and renewal skills	Creative thinking	Ways of thinking
Life and career skills	Effective communication	Ways of working
Information, media and technology skills	High productivity	Living in the world
	Digital age literacy	Study tools
<b>NETS/ISTE</b>	<b>EU</b>	<b>OECD</b>
Creativity and innovation	Learning to learn	Interaction with heterogeneous groups
Critical thinking	Communication	Use of technology tools
Problem solving and decision making	Cultural awareness	
Communication and collaboration	Social and civic competence	
Digital citizenship	Entrepreneurial sensitivity	
Technological applications and concepts	Digital competence	
Research and knowledge fluency		

As seen in Table 2, even if there are differences in the classification of 21st century skills, there are also common features. It is seen that these skills are mostly aimed at acquiring higher-level thinking skills of individuals. In general, 21st century skills emphasize critical thinking, problem solving, working collaboratively, and creativity. These skills include higher-level thinking skills such as learning to learn instead of learning information, and transferring what they have learned to real life. Respect for different cultures and coexistence with different cultures is also an issue that is emphasized. Especially with the outbreak of the COVID-19 pandemic in 2019, the importance of technology literacy (information, media, and digital) has increased even higher than ever.

## Aim

In an effort to adapt to the rapid changes experienced today, authorities need to constantly update their education systems

by bringing them into a dynamic structure in order to ensure their continuous development by equipping them with the skills required by the 21st century, in a way that secures the originality and values of the societies. In this sense, the purpose of the present study is to examine the teaching competencies and 21<sup>st</sup> century skills self-efficacy of novice teachers in public schools in Siirt Province, Turkey and prospective teachers in university teacher training programs as well as the correlation between teaching competencies and 21<sup>st</sup> century skills self-efficacy.

1. To what extent do prospective teachers and novice teachers possess professional common competencies?
2. To what extent do prospective teachers and novice teachers demonstrate 21<sup>st</sup> century skills self-efficacy?
3. Is there a significant relationship between the professional general proficiency levels of prospective teachers and novice teachers and their 21st century skills self-efficacy?
4. Do the professional general competencies of novice teachers and prospective teachers predict their 21st century skills self-efficacy?

### Significance

Undoubtedly, one of the most important components in raising individuals with the qualifications required by this age is teachers. Teacher competence is one of the determining elements of quality education. These competencies are shaped by teachers' beliefs, attitudes and different variables towards their profession. It is necessary that these competencies adapt to the ever-changing and developing information society in every sense and to change in this direction in accordance with the era. In other words, teachers are expected to improve themselves in every way considering the dizzying changes and developments in today's information society and new understandings about education. Because researches show that one of the most important determinants on students' learning is teacher competencies. In addition, professional general competencies are shown as a reference in the career development of teachers, strengthening their status, and evaluating their performance (MoNE, 2017). In this day and time, there is a need for teachers who have higher-level thinking skills, are open to innovation and development, can solve problems, follow current events, have technological literacy, have effective communication and cooperation skills, and can research and ask questions (Yüksel, 2015). Particularly in the current period, it is not possible for teachers who are far from scientific and technological developments, closed to criticism and innovations, who do not have the ability to think multiple times in the face of events, who have difficulties in adapting to the conditions and who do not take into account the needs of the age, to raise individuals who can catch up with the age. In light of these circumstances, equipping teachers with the right tools is crucial to developing students who have the skills necessary to carry out the teaching-training process successfully. In this respect, this study, which examines the general proficiency levels and self-efficacy perception levels of 21st century skills of prospective teachers who started to practice this profession at the beginning of the profession and pre-service teachers preparing for the profession, will provide important theoretical insight to policymakers, national and local decision makers, and practitioners on teacher and teacher education issues, and it is considered important in terms of its potential to make a practical contribution.

### Method

This study, which examines the relationship between the general competencies of the teaching profession and the self-efficacy levels of the prospective teachers and novice teachers, was designed in the correlational survey model

Table 3: *Research Design*

	Teaching Profession General Competence Levels	21st Century Skills Self- Efficacy Levels	The Relationship between General Competencies of Teaching Profession and 21st Century	Predicting 21st Century Skills Self-Efficacy of General Competencies of Teaching Profession
Prospective Teachers	✓	✓	✓	✓
Novice Teachers	✓	✓	✓	✓

As seen in Table 3, in the study, both the novice teachers' and prospective teachers' general proficiency in the teaching profession and self-efficacy levels of 21st century skills, their relationship, and prediction status were examined. Thus, it will be possible to make an inference regarding the overlap between the skills required by the new age and the competencies determined for teachers in Turkey.

Correlational survey model aims to determine the existence and degree of co-change between two or more variables (Karasar, 2018: 82). The survey model, which is among the quantitative research approaches, is the analysis of the participants' views on a subject or event, or their interests, skills, abilities, attitudes, etc. It covers research in which

characteristics are determined and usually carried out on large samples.

### Population and Sample

The population of the research consists of 987 novice teachers working in public schools in Siirt in the 2020-2021 academic year and 1935 senior students, who are called prospective teachers in this study, studying in the Faculty of Education, Theology Faculty and the School of Physical Education and Sports, which have teaching programs within Siirt University in the 2019-2020 and 2020-2021 academic years. The participants, who constitute the first part of the sample group of the research, consist of 300 teachers working in public schools in Siirt in the years mentioned above. This group was selected by simple random sampling method. The second part, 325 4th grade prospective teachers studying in different faculties in Siirt University, was determined by stratified sampling technique. Among the novice teachers, 194 were female and 106 were male; 221 of them are single, 79 of them are married; 31 of them work in pre-school, 73 in primary school, 129 in secondary school and 67 in high school. Majority of the novice teachers (278 people) have a bachelor's degree. On the other hand, 174 of the prospective teachers study at the Faculty of Education, 92 at the Faculty of Theology, and 59 at the School of Physical Education and Sports; 190 of them are women and 135 are men.

### Data Collection Tools and Implementation

Necessary permissions were obtained from the Siirt University Ethics Committee and the Siirt Provincial Directorate of National Education in order to apply the scales that were determined to be used within the scope of the research. The data, which was planned to be collected face-to-face as of the second week of March 2019, was collected through the link created in the electronic environment after face-to-face education was suspended throughout the country due to the global COVID-19 pandemic. In order to assess the likelihood that not enough students will graduate in the 2019–2020 academic year as well as the variations in the perceptions of the students who experienced the pandemic at various points during their education (roughly one semester of the first group's education and the second group's third semester) in the 2020–21 academic year, data was gathered from 4th grade novice teachers enrolled in programs at the faculties of education, theology, and physical education and sports. In addition, an application was made during the face-to-face trainings given to candidate teachers working in public schools in Siirt during the 2020-2021 academic year.

**Teaching Profession Common Competencies Scale.** The common competencies of teachers determined by the Ministry of National Education (2017) were taken as a basis in the collection of data. The performance indicators of the main and sub-competencies revealed in the study conducted by the Ministry of National Education in cooperation with the Council of Higher Education and with extensive stakeholder participation throughout the country were taken as items of the scale form in this study, since they are concrete measurement indicators of competencies with structure and expression. It has been concluded that such long-term, comprehensive, multi-participant competencies will be more appropriate for the purpose than other alternative competency scales that can be developed. These skills were defined with the assistance of expert academicians. Furthermore, the fact that the revealed competencies are classified as a group of sub-competencies that form an interrelated whole in accordance with the logic of sub-dimensions that measure separate phenomena in the scale logic can also be evaluated as contributing to the validity of the scale. The form pertaining to teacher competencies that was prepared accordingly consists of a total of 65 items, 3 competence areas and 11 sub-competencies. The Cronbach alpha internal consistency coefficient calculated for the *General Competencies of Teaching Profession Scale* for this study was .97 for the total scale; .92 for professional knowledge competency; .96 for professional skills proficiency, and .94 for attitude and values proficiency.

**21st Century Skills Self-Efficacy Scale.** The 21st Century Skills Self-Efficacy Scale developed by Anagün et al., (2016) was used to measure the 21st century skills self-efficacy perceptions of novice teachers and prospective teachers. The scale consists of 3 sub-dimensions and 42 items. The factor loading values of the scale vary between 0.355 and 0.803. The total variance explained by the scale with the items collected under three factors was determined as 51,301%. The Cronbach's alpha internal consistency coefficient, which was measured by the authors who developed the scale, was .86 for the total scale; .84 for learning and renewal skills; .83 for life and career skills; and .81 for information, media and technology skills. In this study, the recalculated Cronbach's alpha internal consistency coefficient was .96 for the total scale; .94 for learning and renewal skills; .92 for life and career skills and .89 for information, media and technology skills.

### Data Analysis

Descriptive analyzes, Pearson moments correlation, and regression analysis were used in the analysis of the data collected within the scope of the research. Correlation scores below 0.29 were considered as low, between 0.30-0.69 as medium and between 0.70-1.00 as high level (Büyüköztürk et al., 2020: 113). Simple linear regression analysis technique was used to determine the effect of the common competencies of the teaching profession on the 21st century skills self-efficacy of novice teachers and prospective teachers.

## Ethics Committee Approval

The research was conducted with the approval of the Scientific Research Ethics Committee, Siirt University (08/05/2020 -1809). In addition, the researchers obtained permission from the Ministry of National Education (MoNE) Siirt Provincial Directorate of National Education (Date of Approval: 28/10/2020, No: 10861109-774.01.01-E.15736626).

## Findings

### Findings Regarding Professional Competencies of Prospective Teachers and Novice Teachers

In Table 4 and Table 5, descriptive statistics regarding the professional competencies and areas of competence of prospective teachers and Novice Teachers are given.

Table 4. :Descriptive Statistics on General Competencies of Teaching Profession of Prospective Teachers and Novice Teachers

Participants	Qualification Area	$\bar{X}$	df	Level
Prospective Teachers	General Competencies (Total)	4,42	.26	Fair Enough
	Professional Knowledge	4,18	.31	Enough
	Professional Skill	4,42	.33	Fair Enough
	Attitudes and Values	4,60	.28	Fair Enough
Novice Teachers	General Competencies (Total)	4.26	.52	Fair Enough
	Professional Knowledge	3.96	.65	Enough
	Professional Skill	4.25	.61	Fair Enough
	Attitudes and Values	4.52	.50	Fair Enough

n(prospective teacher)=325, n(Novice Teachers)=300

As seen in Table 4, prospective teachers think that their general competencies of the teaching profession ( $\bar{X}$ =4.42) are very sufficient. It has been determined that their perception is sufficient in professional knowledge competency ( $\bar{X}$ =4.18). Also, professional skills ( $\bar{X}$ =4.42) and attitudes and values ( $\bar{X}$ =4.60) are very sufficient in competency areas in terms of novice teachers' perceptions. In addition, prospective teachers' professional general efficacy perceptions are ranked from the highest average to the lowest in the form of attitudes and values, professional skills and professional knowledge. Novice teachers think that the general competencies of the teaching profession ( $\bar{X}$ =4.26) are very sufficient. It has been determined that their perception is sufficient in the professional knowledge ( $\bar{X}$ =3.96) competence area, and very sufficient in the professional skills ( $\bar{X}$ =4.25) and attitudes and values ( $\bar{X}$ =4.52) competence area. In addition, the order of professional general efficacy perceptions of novice teachers from the highest average to the lowest is in the form of *attitudes and values*, *professional skills* and *professional knowledge*.

Table 5: Descriptive Statistics on General Sub-Competences of Teaching Profession of Prospective Teachers and Novice Teachers

Participants	Qualification Area	Sub-Qualifications	$\bar{X}$	df	Level
Prospective Teachers	Professional Knowledge	Field Information	4,30	.40	Fair Enough
		Field Education Information	4,22	.41	Fair Enough
		Regulatory Information	4,05	.43	Enough
	Professional Skill	Education Planning	4,40	.42	Fair Enough
		Creating Learning Environments	4,44	.41	Fair Enough
		Managing the Learning and Teaching Process	4,42	.36	Fair Enough
		Assessment and Evaluation	4,42	.43	Fair Enough
	Attitudes and Values	National, Spiritual and Universal Values	4,71	.37	Fair Enough
		Approach to the Student	4,58	.39	Fair Enough
		Communication and Cooperation	4,60	.36	Fair Enough
Novice Teachers	Professional Knowledge	Field Information	4.03	.69	Fair Enough
		Field Education Information	3.92	.77	Enough
		Regulatory Information	3.96	.76	Enough
	Professional Skill	Education Planning	4.16	.75	Enough
		Creating Learning Environments	4.26	.69	Fair Enough
		Managing the Learning and Teaching Process	4.27	.63	Fair Enough

	Assessment and Evaluation	4.27	.65	Fair Enough
Attitudes and Values	National, Spiritual and Universal Values	4.54	.60	Fair Enough
	Approach to the Student	4.56	.56	Fair Enough
	Communication and Cooperation	4.52	.59	Fair Enough
	Personal and Professional Development	4.49	.54	Fair Enough

As seen in Table 5, prospective teachers are self-sufficient in the sub-dimension of legislative knowledge; they see it very adequate in all other sub-dimensions. While the sub-dimensions that they have the highest perception of competence are *national, spiritual and universal values, communication and cooperation*, the dimensions that they consider themselves relatively least sufficient are *the knowledge of legislation and field education*. Novice teachers, on the other hand, find themselves sufficient in the sub-dimensions of *field education knowledge, legislative knowledge and education planning*. They consider themselves very sufficient in the sub-dimensions of *content knowledge, creating learning environments, managing the learning and teacher process, measurement and evaluation, national, spiritual and universal values, approach to students, communication and cooperation, and personal and professional development*. While the sub-dimensions that they have the highest perception of competence are *national, spiritual and universal values and approach to the student*, the dimensions that they consider themselves relatively least sufficient are *field education knowledge and legislative knowledge*.

### Findings on Perceptions of 21st Century Skills Self-Efficacy of Prospective Teachers and Novice Teachers

As seen below Table 6 presents the findings of prospective teachers' and novice teachers' perceptions of 21st century skills self-efficacy.

Table 6: *Descriptive Statistics on Perceptions of 21st Century Skills Self-Efficacy of Prospective Teachers and Novice Teachers*

Participants	Skills	$\bar{X}$	df	Level
Prospective Teachers	21st Century Skills Self-Efficacy (Total)	4.32	.34	Very High
	Learning and Renewal Skills	4.23	.46	Very High
	Life and Career Skills	4.36	.34	Very High
	Information, Media and Technology Skills	4.44	.48	Very High
Novice Teachers	21st Century Skills Self-efficacy (Total)	4.36	.63	Very High
	Learning and Renewal Skills	4.37	.51	Very High
	Life and Career Skills	4.35	.58	Very High
	Information, Media and Technology Skills	4.41	.52	Very High

n(Prospective Teacher)=325, n(Novice Teachers)=300

As seen in Table 6, it has been determined that the perceptions of the candidate teachers regarding their 21st century skills self-efficacy ( $\bar{X}$  =4.32) are very high. When the self-efficacy of 21st century skills is examined, prospective teachers think that they have skills in the sub-dimensions of learning and renewal skills ( $\bar{X}$  =4.23), life and career skills ( $\bar{X}$  =4.36) and knowledge, media and technology skills ( $\bar{X}$  =4.44) at a very high level. It was determined that novice teachers' perceptions of 21st century skills self-efficacy ( $\bar{X}$  =4.36) were very high. When 21st century skills self-efficacy is examined, novice teachers think that they have skills in the sub-dimensions of learning and renewal skills ( $\bar{X}$  =4.37), life and career skills ( $\bar{X}$  =4.35) and knowledge, media and technology skills ( $\bar{X}$  =4.41) at a very high level.

### Findings Regarding the Relationship between General Competence Levels of Teaching Profession and 21st Century Skills Self-Efficacy Levels of Prospective Teachers and Novice Teachers

Pearson product-moment correlation coefficients (r) were calculated to determine the relationship between the professional general proficiency levels of prospective teachers and novice teachers and their 21st century skills self-efficacy levels, and the results are presented in Table 7.

Table 7 : *Findings Related to Correlation Between General Competence Levels of Teaching Profession and 21st*

*Century Skills Self-Efficacy of Prospective Teachers and Novice Teachers*

		21st Century Skills Self-Efficacy	Learning and renewal skills	Life and career skills	Information, media and technology skills
Prospective Teachers	<b>General Competencies of the Teaching Profession</b>	<b>.669**</b>	.583**	.615**	.404**
	Professional Knowledge	.451**	.413**	.387**	.279**
	Professional Skill	.629**	.561**	.570**	.370**
	Attitudes and Values	.573**	.464**	.562**	.358**
Novice Teachers	<b>General Competencies of the Teaching Profession</b>	<b>.759**</b>	.772**	.672**	.537**
	Professional Knowledge	.601**	.634**	.509**	.429**
	Professional Skill	.708**	.720**	.627**	.502**
	Attitudes and Values	.722**	.714**	.662**	.507**

\*\*p < .01; n(Prospective Teacher)=325, n(Novice Teachers)=300

As seen in Table 7, the general proficiency levels of the teaching profession and the self-efficacy levels of 21st century skills according to the perceptions of the prospective teachers [ $r = .669$ ;  $p < .01$ ], there is a moderately significant positive correlation. In addition, according to the perceptions of the prospective teachers, the general proficiency levels of the teaching profession, the learning and renewal skills of the 21st century skills self-efficacy scale [ $r = .583$ ;  $p < .01$ ], life and career skills [ $r = .615$ ;  $p < .01$ ] and knowledge, media and technology skills [ $r = .404$ ;  $p < .01$ ], there is a moderately significant positive relationship between sub-dimensions. According to the perceptions of the Novice Teachers, the general proficiency levels of the teaching profession, and the self-efficacy levels of 21st century skills [ $r = .759$ ;  $p < .01$ ], there is a highly significant positive correlation. In addition, Novice Teachers' general competencies in the teaching profession and the learning and renewal skills of the 21st century skills self-efficacy scale [ $r = .772$ ;  $p < .01$ ] sub-dimension, there is a higher-level positive correlation. However, in life and career skills [ $r = .672$ ;  $p < .01$ ] and knowledge, media and technology skills [ $r = .537$ ;  $p < .01$ ] sub-dimensions, there is a positive and moderately significant relationship. Likewise, the relationship between the sub-dimensions of the general competencies of the teaching profession and the self-efficacy scale and sub-dimensions of 21st century skills shows parallelism.

### Findings Related to the Prediction of 21st Century Skills Self-Efficacy Perceptions of General Competencies of Teaching Profession of Prospective Teachers and Novice Teachers

The findings of the simple linear regression analysis regarding the prediction of 21st century skills self-efficacy levels by the general proficiency levels of the teaching profession of the novice and prospective teachers are presented in Table 8.

Table 8: Regression Analysis Results Regarding the Prediction of the General Competency Levels of the Novice Teachers and Prospective Teachers on their 21st Century Skills Self-Efficacy Levels

		B	Std. Error	$\beta$	t	p
Prospective Teachers	Constant	.560	.242		2.311	<b>.022*</b>
	Independent Variable (General Competencies for Teaching Profession)	.850	.055	.669	15.550	<b>.000*</b>
	R <sup>2</sup> (R Squared) = .575			<b>R= .669</b>		
	R <sup>2</sup> (Adjust R <sup>2</sup> ) = .574			<b>F= 241.787</b>		
Novice Teachers	Constant	1.265	.150		8.449	<b>.000*</b>
	Independent Variable (General Competencies for Teaching Profession)	.728	.035	.759	20.923	<b>.000*</b>
	R <sup>2</sup> (R Squared) = .575			<b>R= .759</b>		
	R <sup>2</sup> (Adjust R <sup>2</sup> ) = .574			<b>F= 437.773</b>		

\*p < .05 Dependent Variable: 21st Century Skills

As can be seen in Table 8, the general competencies of the prospective teachers in the teaching profession are a significant



predictor of their 21st century skills self-efficacy ( $F(3-296) = 241.787, p < 0.05$ ). Teaching profession general proficiency levels explain 44% of the variation in 21st century skills self-efficacy levels. The significance test of the coefficient of the predictor variable ( $B=0.850$ ) based on the regression equation also shows that it is a significant predictor of the general proficiency levels of the teaching profession ( $p < 0.01$ ). According to the results of the regression analysis, the regression equation that predicts 21st century skills self-efficacy levels is as follows:

$$21st\ Century\ Skills\ Self-Efficacy\ Levels = (0.850 \times Teaching\ Profession\ General\ Competence\ Levels) + 0.560$$

Novice Teachers' general competencies in the teaching profession are a significant predictor of their 21st century skills self-efficacy ( $F(3-321) = 437.773, p < 0.05$ ). Teaching profession general proficiency levels explain 57% of the variation in 21st century skills self-efficacy levels. The significance test of the coefficient of the predictor variable ( $B=1.265$ ) based on the regression equation also shows that the general proficiency levels of the teaching profession are a significant predictor ( $p < 0.01$ ). Based on the results of the regression analysis, the regression equation that predicts 21st century skills self-efficacy levels is as follows:

$$21st\ Century\ Skills\ Self-Efficacy\ Levels = (0.728 \times Teaching\ Profession\ General\ Competence\ Levels) + 1.265$$

## Conclusion and Discussion

In the study, it was concluded that novice teachers and prospective teachers generally see themselves as sufficient/very sufficient in terms of professional competencies. Novice teachers and prospective teachers, who consider themselves quite competent in matters such as valuing students as human beings and individuals, are of the opinion that they have sufficient knowledge to carry out their profession and for themselves, although they are relatively lower in matters such as legislation and curriculum. Prospective teachers saw themselves as sufficient in sub-competencies of field knowledge, knowledge of legislation and education-training planning, and very sufficient in other sub-competencies. Accordingly, it can be said that prospective teachers need to develop their competencies in order to be better in subjects such as the knowledge and concepts required by their profession, legal procedures, and planning of educational activities. However, it is understood that they generally have the belief that they have acquired the necessary professional competencies. As a result, prospective teachers who continue their pre-service university education and novice teachers who are still teaching have the belief that their professional competence is high or very high. On the one hand, they believe that the education they receive prepares them for the teaching profession and provides them with the necessary competencies to practice the profession. Although the practice, reality and perception in the field might change, these positive evaluations of the candidates preparing for teaching are pivotal. Some research results in the literature also overlap with the findings of the research. In the studies conducted by Kavramak and Bayrak (2016); Kahyaoğlu and Ateş (2007); Tilki (2014); Gelen and Özer (2008); Bulut, (2014); İyison and Onur-Sezer (2017); Yeşilyurt (2011); Kahramanoğlu and Ay (2013); Karakuş (2017); Çelik, Yorgun and İşbirlikçi (2019); Yıldırım (2020); Yenen and Kılınç (2018); Yenen and Durmaz (2019); Çetin and Sadık (2019); Öztürk (2020); Kahverengi (2005); Blomeke and Kaiser (2017); Kassaw and Astatke (2017) and Bizimana and Orodho (2014) it has been observed that teachers or prospective teachers have high perceptions of professional competence.

It was concluded that the self-efficacy perceptions of novice teachers and prospective teachers were very high in the sum and sub-dimensions of the 21st century skills self-efficacy scale. Correspondingly, it can be said that novice teachers have a very high level of skills in flexibility, effective communication, adaptability, taking responsibility, respecting different cultures, using technology effectively, using social networks effectively and so on. It can be said that prospective teachers' perceptions on developing original and creative ideas, trying a variety of ways to solve their problems, using technology while accessing information, using social networks effectively, and similar issues are at a very high level. It is considered important for the future that novice teachers have the skills required by the age. In this sense, the fact that novice teachers are people who are constantly learning and have ideas about renewed information, media and technology and have a lifelong learning habit will help the students who will receive education from them to acquire these skills. When the literature is examined, Saraçaloğlu, Yenice and Karasakaloğlu (2009); Anagün et al., (2016); Günuç, Odabaşı and Kuzu(2013); Ayra and Kösterelioğlu (2015); Çam and Üstün (2016); Ekşioğlu, Tarhan and Gündüz (2017); Kalyoncu (2012); Gencel(2013); Özçiftçi and Çakır (2015); Şahin and Arcagök (2014); Yaman and Yazar (2015); Ekinci et al., (2017); Güler(2019); Varki(2020); Uyar and Çiçek (2021) have found out similar results in studies investigating self-efficacy perceptions regarding 21st century skills.

It has been observed that there is a moderately significant positive relationship between the general proficiency levels of the novice teachers in the teaching profession and the self-efficacy levels of 21st century skills. On the other hand, it was determined that there is a positive and moderately significant relationship between the general proficiency levels of the novice teachers in the teaching profession and the sub-dimensions of the 21st century skills self-efficacy scale. Moreover, according to the perceptions of the novice teachers, it has been observed that there is a positive and highly significant relationship between the general proficiency levels of the teaching profession and the proficiency areas. In accordance

with these results, it can be said that as the level of having the competence areas of the general competences of the teaching profession scale increases, the perceptions of the self-efficacy of 21st century skills may also increase. Although there is a low correlation between the general proficiency levels of the teaching profession and the self-efficacy of 21st century skills, it can be said that this situation is at a moderate level in general.

In the literature review, no similar or different result could be reached for this result of the research, since no research was found to determine the relationship between the professional general proficiency levels and the self-efficacy of 21st century skills based on the perceptions of the novice teachers. However, Erol and Taş (2012) enabled students to have a high level of 21st century skills due to the development of communication, creative thinking, critical thinking, entrepreneurship, problem solving, scientific research, and using information and technologies skills. According to Tutkun and Aksoyalp (2010), the teacher of the 21st century should be open to development and innovation, and be able to fulfill the requirements of the age. According to Çınar (2019), nations/countries should be able to create their education systems and teacher training programs in line with the requirements of the 21st century. These results are similar to the results of this study.

The general proficiency levels of the novice teachers and prospective teachers in the teaching profession predict their 21st century skills self-efficacy levels. It can be said that the general competencies of the teaching profession 21st century skills pave the way for the increase of self-efficacy. For this reason, it can be recommended that teachers who are in the candidacy process participate in activities aimed at strengthening the professional competencies of teaching in professional development issues. Thus, it becomes easier for the age to have the necessary conditions.

In the literature review, no similar or different result could be reached regarding this result of the research, since no research was found on the prediction of professional general efficacy levels and self-efficacy perceptions of 21st century skills according to the perceptions of novice teachers. However, Kozikoğlu and Altunova (2018) investigated the predictive power of lifelong learning tendencies of self-efficacy perceptions. In the aforementioned study, they found that the 21st century self-efficacy perceptions of prospective teachers were high, and life and career skills and learning and renewal skills significantly predicted their lifelong learning tendencies. Başar (2018) found out that the 21st century skills self-efficacy perceptions of prospective science teachers had a significant effect on their self-efficacy perceptions regarding the use of mathematics in science. In their study, Erdoğan and Eker (2020) determined that the dimensions of 21st century skills such as learning and renewal skills and life and career skills are significant predictors of lifelong learning of Turkish novice teachers. These results are similar to the results of this study.

In compliance with the perceptions of the prospective teachers, there is a positive and highly significant relationship between the general proficiency levels of the teaching profession and the self-efficacy levels of 21st century skills. Furthermore, prospective teachers' general proficiency levels in the teaching profession predict their 21st century skills self-efficacy levels. This situation suggests the existence of an implicit/indirect relationship between 21st century skills and the competencies determined by the Ministry of National Education. The interdependency of the two is vital as any increase in either one positively impacts the other. It is thought that learning and renewal, life and career, knowledge, media, and technology skills can also increase the general competencies of the prospective teachers in the teaching profession. That this situation can be thought to be positive for prospective teachers who have not started teaching. In addition, it is considered important that prospective teachers have similar competencies in these two areas.

Teaching processes of novice teachers and prospective teachers can contribute to their development of positive perceptions regarding their professional efficacy beliefs. Accordingly, in order for novice teachers and prospective teachers to maintain these positive perceptions and to have them at a higher level, national education directorates can carry out activities that will improve their in-service education, and education faculties can carry out activities that will improve their pre-service education qualifications. More emphasis can be given to training on up-to-date basic legislation information during the nomination training periods and pre-service training of novice teachers. Prospective teachers and novice teachers might have more difficulties in adapting to new situations. More attention can be given to adaptation processes after the appointment of teachers and during the university period. Appropriate environments can be provided for novice teachers and prospective teachers to overcome these processes without difficulty. Activities such as culture, art, literature, theatre, cinema, excursions, picnics, conversations and experience meetings can be organized. Similar or qualitative studies can be conducted with different prospective teachers and novice teachers, and the results can be examined comparatively. Research can be conducted by associating common competencies in the teaching profession with different competencies (media literacy, information and communication, patience, lifelong learning, time management, etc.). Research can be conducted with more experienced teachers and pre-service teachers studying at different grade levels (1st, 2nd and 3rd grade). Finally, the general competencies of the teaching profession and the self-efficacy of 21st century skills can be investigated from the perspective of the administrators and the prospective teachers from the perspective of the academicians.

#### **Author's Contribution Statement**

Same each one.

#### **Conflict of interest**

The authors declare no competing interests.

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