

The Integration of 21st Century Skills into Secondary School English Classes and the Challenges Faced by Teachers¹

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Abstract

The aim of this study is to examine the utilization of 21st century skills by secondary school English language teachers and to investigate whether their background has a role in using these skills. The study also aims to shed light on the challenges teachers face when integrating these skills into their teaching practices. A mixed-methods research design, which incorporates the scale and an online survey with open-ended questions, was used to accomplish the aims of the study. The data were obtained online using 21st century teaching and learning scale developed by Hixson et al. (2012) and an online survey. A total of 119 teachers were reached using convenience and snowball sampling methods, with 26 of them participating in the online survey. The quantitative findings of the study showed that teachers used 21st century skills approximately once or three times a month, and the most used skill was using technology as a tool for learning, while local connections were the least. According to the t-test results, a significant difference was found in the use of these skills between private and public school teachers, with private school teachers employing these skills more frequently than their public school counterparts. Furthermore, it was revealed that teachers who received 21st century skills training integrated some of the 21st century skills into their lessons more often than those who did not. In addition, it was found that years of experience played a role in the implementation of these skills. According to the post-hoc test, less experienced teachers integrated 21st century skills more frequently than more experienced teachers. On the other hand, the teachers' educational background did not show any significant difference in using these skills. According to the findings obtained from the content analysis of the online survey, the lack of qualified in-service and pre-service training on 21st century skills, poor curricula, lack of required materials and infrastructure, and unsupportive attitudes of the administrators were the challenges encountered by teachers.

Keywords: 21st century skills, 21st century teaching skills, 21st century skills in English language teaching, the challenges of the teachers, secondary school English language teachers

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Introduction

In the preceding century, the foundational skills of reading, writing, and arithmetic, collectively known as the 3Rs, were considered essential for success in both the workplace and in society (Wang, 2012). Individuals were expected to apply these skills to enhance the economic prosperity of the nation. Education at that time was shaped around the expectations of the world of work; in this respect, the curriculum was based on equipping students with digested facts and arithmetic calculations, and accordingly, teachers' role was to disseminate the knowledge (Dede, 2007, 2010; Prensky, 2014; Trilling & Fadel, 2009; Voogt & Roblin, 2010; Wang, 2012). However, as technology advanced, a shift in education became necessary, as computers began to take on, replace, or supplement a significant portion of tasks previously performed by individuals (Levy & Murnane, 2004). The transition from human labor to computers and other technological devices has reduced the number of workers in low-skill jobs such as assembly line work and rule-based tasks. Supporting this view, a report by Drucker (2001) revealed that between 1960 and 1999, the number of manufacturing workers fell by half. In contrast to this decline, physical output in the manufacturing sector doubled or tripled. Due to the major shift in the economy along with globalization and ICT, some higher skills called 21st century skills, have become necessary for people to function well in society, get employment, and participate productively in the world of work (Care et al., 2012; Greenhill, 2010; Trilling & Fadel, 2009; Voogt, 2008; Wang, 2012). As a result, having people with 21st century skills is now the hallmark of a functioning economy and society, and nations with individuals with these skills have paved the way for economic progress (Reich, 1992, as cited in Voogt, 2010). Although having 21st century skills is now required in all spheres of life, particularly the workplace, some studies (e.g., Casner-Lotto & Barrington, 2006, Microsoft, 2011) have revealed that employers are still unsatisfied with employees who do not have these skills. As a result of the aforementioned shifts in the 21st century, a change in education has been regarded as essential for a well-functioning society and economy (Care et al., 2012). It is well known that education and economic development are closely related and that education is essential to ensuring national prosperity and fostering economic growth (Stevens & Weale, 2003; Trilling & Fadel, 2009). Many frameworks have been developed to close the gap between real-world demands and education, including P21 (Partnership for 21st Century Skills), ATC21S (The Assessment and Teaching of 21st Century Skills Framework), and Cambridge Life Competencies and Framework. Because teachers are at the forefront of the change in 21st century education, they need to know what 21st century skills entail and integrate them into their teaching practices. Each of the frameworks defines 21st century skills in various ways. In this study, eight skills compiled by Hixson et al. (2012) were used to more effectively measure educators' teaching practices. The definitions of these skills are given below.

Critical thinking skills: These skills encompass learners' capacity to analyze intricate problems, investigate inquiries lacking straightforward solutions, assess diverse viewpoints or information sources, and arrive at well-founded conclusions rooted in data and logical reasoning.

Collaboration skills: They refer to learners being able to collaborate with one another to solve problems or find answers, to work efficiently and courteously in teams to achieve a common objective, to accept shared responsibility for finishing a task.

Communication skills: They refer to learners being able to organize their ideas, data, and findings and communicate these successfully through a number of mediums, in addition to orally and in writing.

Creativity and innovation skills: These skills refer to learners who are capable of developing and improving answers to complex issues or tasks based on synthesis, analysis, and finally merging or presenting what they have learnt in novel and creative ways.

Self-direction skills: They refer to learners being able to take ownership of their own learning by choosing their own topics and developing their own learning strategies, and being able to evaluate their own work and respond to their own work (Hixson et al., 2012, p.1)

Global connections: It refers to learners being able to comprehend global, geopolitical issues, including awareness of other culture's geography, culture, language, history, and literature.

Local connections: It refers to learners being able to apply their knowledge to situations and problems in their communities.

Using technology as a tool for learning: It refers to learners being able to use appropriate information and communication technology to manage their learning and produce things.

Unlike in the past, when a teacher-led approach was prevalent, the role of the teacher has fundamentally evolved in the 21st century. They are now expected to contribute to course content, facilitate learning, serve as coaches, promote 21st century skills, and inspire learners to explore diverse applications of their acquired competencies and knowledge (Scott, 2015; Wang, 2012). This shift in educators' roles is deemed necessary in English language teaching because English has become widely used in many aspects of life over recent decades, including global forums, media, science, ICT, finance, diplomacy, sports, and entertainment (Pardede, 2012). English is therefore not simply a language used in the USA and UK but also the language of communication on a global scale (Goldfus,

2011). As a result of developments and changes in the 21st century, the way English is used has changed and speakers of other languages are expected to use English for more complicated tasks such as communicating complex ideas, cooperating internationally, and analyzing information that is changing quickly (Pardede, 2012; Warschauer, 2000). The key here is to actively use language by utilizing 21st century skills in the globalizing and digitalized world, rather than just using language to understand the messages. Therefore, the emphasis of English language teaching in the 21st century needs to shift from that of earlier times, when grammar, memorization of words, and mastery of language were the main foci of English language education, and deviate from conventional approaches in favor of integrating 21st century skills (Altan, 2017; Çınar, 2021; Pardede, 2020; Warschauer, 2000). As Fandiño Parra (2013) emphasized, teaching English and 21st century skills must coexist. Hence, English language teaching has gained significant ground lately (Goldfus, 2011). In line with this trend, MoNE (the Ministry of National Education of Turkey) introduced the most recent curriculum reform in 2017 across all academic areas, including English, to adapt to the 21st century (Altan, 2017). According to this reform, in order for English language learners to succeed in their future careers and everyday lives, they must be equipped with the skills that are essential in this era. As architects of tomorrow's world, teachers, especially teachers of English, are accountable for bringing these skills to their classes.

While it is highly crucial to begin promoting 21st century skills before university education (Demirkol-Orak & İnözü, 2021; Zivkoviç, 2016), to the best of researchers' knowledge, there have been no studies specifically investigating the integration of 21st century skills into secondary school lessons, particularly English lessons. Existing studies investigating 21st century skills in the field of English language teaching have focused on either the books if they include these skills (Akçay, 2019; Elgün, 2021) or the lecturers at university (Demirkol-Orak & İnözü, 2021; Ekinçi, 2019;). Others have investigated teachers' 21st century skills practices at all levels, not specifically secondary school English language teachers (Eker, 2020; Kaçar, 2020; Otlı, 2020; Şahin, 2021; Yeni, 2018). In addition, although MoNE has made some adjustments to the curriculum and the qualifications of teachers to keep up with the age, there is not enough evidence on teachers' current practices. As Kirkgoz (2005) argues, there is usually a substantial gap between language policies and teaching methods, and hence, in this context, it is important to investigate teachers' current 21st century skills teaching practices. In order to shed light on teachers' practices, the challenges they experience were attempted to unveil based on the existing literature that has revealed some challenges when implementing 21st century skills (Anderson, 2020; Eker, 2020; Ekinçi, 2019; Hardiman, 2020; Kaçar, 2020; Korkmazgil, 2015; Demirkol-Orak & İnözü, 2021; Pilpe, 2020; Rice, 2017; Stover, 2018; Wattanavorakijkul, 2019; Wilcox, Liu, Thall, & Howley, 2017). In this regard, the findings of the present study aim to address a gap in the literature by providing more details on the use of 21st century skills by secondary school English language teachers and the challenges they face when employing these skills in their teaching practices. In line with the aims of the present study, answers to the following research questions were attempted to seek:

1. Do English language teachers integrate 21st century skills into their teaching practices?
 - a) Do they face any challenges as they do so? If yes, what?
2. Do secondary school English language teachers' 21st century skills teaching practices significantly differ based on their years of experience, the type of school they work in, their level of education, and whether they have received training on 21st century skills?

Method

Research Design

A mixed-methods design was employed in this study. In this design, both quantitative and qualitative methods are used in a single study (Fraenkel et al., 2012), thus providing the researchers more reliable data and giving more insight into the study's findings (Dörnyei, 2007).

Single survey and comparative survey models were utilized for the quantitative part of the current study. A single survey model comprises the determination of the variables in the research separately as type or amount (Karasar, 2015). In this model, variables are handled separately, and the obtained data can be evaluated by performing statistical analysis such as percentage, frequency, mean, and median. Through this model, teachers' average scores for the scale and subscale (eight 21st century skills) were illustrated. On the other hand, a comparative survey model is employed when the differences between two or more variables are investigated (Karasar, 2015). A comparative survey model was used in order to determine whether the use of 21st century skills differed significantly according to teachers' background variables.

A qualitative research model was carried out for the second part of the study, which includes an online survey with open-ended questions. Qualitative research model employs various data collection tools, such as interviews, observations, and documents, to present events in a realistic manner (Yıldırım & Şimşek, 2013). The present study employed an online survey to further the investigation and provide additional information and details complementing the quantitative data.

Participants

The present study was carried out with the participation of 119 secondary school English language teachers in Istanbul in the second semester of the 2020-2021 academic years. The participants were recruited using convenience sampling and snowball sampling methods. In convenience sampling, individuals who are easily accessible and available for the study are selected (Fraenkel et al., 2012). In snowball sampling, existing participants recommend others with suitable characteristics for the study, resulting in an increase in the number of participants required for the study (Fraenkel et al., 2012). The researcher used convenience sampling at first, then snowball sampling to include the rest of the participants. Table 1 shows the demographic profile of the participants.

Table 1. Demographic Characteristics of the Participants

		<i>n</i>
Years of experience	0-5	40
	6-11	34
	11-15	24
	15+	21
Training on 21st Century Skills	Yes	69
	No	50
School Type	Public	76
	Private	43
Level of Education	BA	102
	MA/PhD	17

For the second phase of the study, 26 teachers from the initial pool of 119 teachers voluntarily participated in the online survey. Eight of these teachers work in private schools, while the rest work in public schools. As this study was conducted during COVID-19, it made face-to-face interviews impossible. At this point, the online survey was implemented using Google Forms. Conducting online surveys offers various advantages. They can be seen as non-intrusive since participants are not required to travel to meet with a researcher or accommodate them at their home (Braun et al., 2021; Tracy, 2019). Moreover, without the societal influence that comes from a researcher being present in front of them, respondents in the online surveys have the flexibility to determine the duration, timing, and method of completing the survey (Braun et al., 2021).

Data Collection Tools

The research data were collected using the personal information form, 21st Teaching and Learning Scale, and an online survey. Detailed descriptions of these instruments are expounded upon in the subsequent sections.

Personal information form: This form was developed by the researchers. It includes four questions and aims to provide information about teachers' years of experience, their training on 21st century skills, the type of school they work in, and their level of education.

21st century teaching and learning scale: It was developed by Hixson et al. (2012). The scale has a high level of reliability (std. alpha > .90, inter-item correlations > .58). It is a five-point Likert scale, with 1 =Almost never, 2=A few times a semester, 3=1-3 times per month, 4=1-3 times per week, and 5=Almost daily. The scale contains eight factors and 48 items measuring teachers' 21st century teaching practices. There are two parts in the scale; in the first part of each subscale, the definition of the relevant 21st century skill is given, and the scale items come right after the definition. Providing definitions, according to Hixson et al. (2012), contributes to extremely reliable overall measures for each 21st century skill. The reliability of the scale was tested for this study. The Cronbach's alpha coefficient was found to be 0.97, which indicates that the reliability of the present study is very high (Kılıç, 2016).

The online survey: To answer the sub-question of the first research question, which investigates the challenges teachers encounter when implementing 21st century skills, an online survey was conducted with the participation of 26 secondary school English language teachers via Google Forms. The online survey was conducted in the

native language of the respondents to make them feel comfortable while writing their answers and to avoid misunderstandings. The questions of the online survey were prepared by the first researcher based on the existing literature (Anderson, 2020; Eker, 2020; Ekinci, 2019; Güvendir, 2017; Hardiman, 2020; Kaçar, 2020; Korkmazgil, 2015; Demirkol-Orak & İnözü, 2021; Pilpe, 2020; Rice, 2017; Stover, 2018; Wattanavorakijkul, 2019; Wilcox, Liu, Thall, & Howley, 2017). A pilot study was conducted with three teachers to assess the intelligibility of the questions. After the pilot study and expert view, the online open-ended survey questions were revised and conducted.

Data Collection Procedure and Analysis

Research data were collected in the second semester of the 2020-2021 academic year and lasted for three months. All necessary permissions were obtained from the Provincial Directorate of National Education. Both the scale and online survey were conducted through Google Forms due to COVID-19. The data were collected in two phases. Initially, the first researcher distributed the forms to the teachers she could contact directly. Subsequently, these teachers, in turn, forwarded the forms to their colleagues whom they knew. Thus, 119 secondary teachers were included in the study. 26 participants out of 119 teachers were recruited for the online survey by the first researcher. In the data collection tools, no information was requested from the participants that would reveal their identities.

Quantitative and qualitative analyses were performed on the data collected from teachers. SPSS 22 was utilized for the analysis of the quantitative data. Descriptive statistics were run to reveal if secondary school English language teachers integrate 21st century skills into their teaching practices. Besides, independent samples t-test and a one-way ANOVA were used to determine whether teachers' background variables have a role in the use of 21st century skills. Before performing relevant tests, Kolmogorov-Smirnov normality test, which is used for data above 50 (Büyükoztürk, 2005), was run to see if the data had a normal distribution. The normality test showed that ($p=0.200$, $p>0.05$) the data had a normal distribution.

Content analysis was used to analyze the responses to the online survey. During analyzing the data, Elo and Kyngäs's (2008) steps were utilized. In this approach, the preparation phase comes first, and in this phase, the researcher selects a unit of analysis and familiarizes herself with the data until she is able to make sense of it as a whole. In the second phase, the data are coded according to emerging (inductive) or existing categories (deductive) in the current literature. Both deductive and inductive methods were used in the categorization of the codes. Categories are created in the deductive content analysis approach based on the existing literature or a theory, whereas in inductive, categories are created by the researcher based on the text, not the existing literature (Elo & Kyngäs, 2008). While forming the deductive data, the researcher kept various previously conducted studies (Anderson, 2020; Eker, 2020; Ekinci, 2019; Güvendir, 2017; Hardiman, 2020; Kaçar, 2020; Korkmazgil, 2015; Demirkol-Orak & İnözü, 2021; Pilpe, 2020; Rice, 2017; Stover, 2018; Wattanavorakijkul, 2019; Wilcox, Liu et al., 2017) in mind and categorized the data. Besides, the inductive approach was employed to create categories for the different points of view in the text. Table 2 shows which categories are deductive and which are inductive. To ascertain the reliability of the identified categories, the first researcher conducted a second round of data coding at a later time and utilized Cohen's Kappa analysis to assess the consistency between the two sets of codes. The achieved value is 0.89, indicating a high level of agreement between the codings and affirming the reliability of the coding process (Altman, 1999). In the final stage, the analysis of the data was presented in tables with frequencies and percentages of the categories.

Table 2. Deductive and inductive categories

Deductive categories	Inductive categories
Those who need and do not need in-service training	Activities for 21st century skills
Insufficient curriculum	Up-to-date information on 21st century skills
Rote-based curriculum	Lesson planning with 21st century skills
Exam-oriented curriculum	Curriculum covering some 21st century skills
Adequate university education	Lack of practical knowledge
Partially adequate university education	Traditional row seating arrangements
Completely adequate university education	Large class size
University education that does not fit the real condition	Mixed-level students
Poor infrastructure	Support of MoNE
Lack of technological tools and materials	

Inadequate class hours
Supportive and unsupportive school administrators

Findings

The first research question investigated whether teachers integrate 21st century skills into their teaching practices. Descriptive statistics were employed to answer this question. The results were examined under eight 21st century skills, as shown in Table 3.

Table 3: The use of 21st century skills by teachers

	<i>M</i>	<i>S.D.</i>
The mean score of the whole scale	2.86	0.07
Sub-skills of the scale		
Using technology as a tool for learning	3.23	1.14
Collaboration	3.01	0.91
Creativity and innovation	2.85	1.00
Communication	2.79	0.89
Critical thinking	2.77	0.98
Self-direction	2.76	0.87
Global connections	2.65	0.98
Local connections	2.57	1.00

As Table 3 indicates, teachers employ 21st century skills approximately once or three times a month. When the use of sub-skills is examined, it is seen that the most addressed skill is using technology as a tool for learning ($M=3.23$), followed by collaboration skills ($M=3.01$). On the other hand, local connections are the least used skills ($M= 2.57$), and global connections are close to this result ($M=2.65$). Furthermore, the proximity of each sub-skill's standard deviation to 1 indicates significant variability in participants' responses.

As indicated by the descriptive results, the participants utilize 21st century skills with various frequencies. At this point, 26 teachers, chosen from the scale respondents, were asked if they encountered any challenges when integrating these skills into their teaching practices. The result of the sub-question related to the first research question is presented below.

Challenges Teachers Face in the Implementation of 21st Century Skills

As noted earlier, the existing literature reveals some challenges faced by teachers. In order to shed light on these challenges, the first researcher conducted an online survey with the participation of eight secondary private school teachers and eighteen secondary public school teachers of English. Teachers' names are presented as P1, P2, P3, etc. due to confidentiality.

In order to determine if they see any relationship between language teaching and 21st century skills, teachers were asked whether 21st century skills have importance in English language teaching. All of the teachers affirmed that 21st century skills teaching practices are of great importance in language lessons. The reasons for this are presented in Table 4.

Table 4. Reasons to integrate 21st century skills

Categories	<i>f</i>	%
Effective teaching	24	72.7
Keeping up with the age	9	27.3
Total	33	100

As evident from the table, educators perceive 21st century skills as vital for two distinct purposes; enhancing pedagogical effectiveness and keeping up with contemporary times.

"The integration of these skills is very important for the permanence of learning." (P8-Effective teaching)

"21st century skills are very important for the effective implementation of educational activities. Language is a form of communication, and keeping it up-to-date is essential for learning. Therefore, if we remove these skills, we lose the language." (P12-Effective teaching)

“With the effective use of 21st century skills, individuals who speak English gain significant advantages in their professional and daily lives in following the developments both in our country and in the world. In the 21st century, individuals need more than just language skills to advance in their education and professional lives. They need to be collaborative, able to handle complex situations, think creatively and critically, and appear confident.” (P2- Keeping up with the age)

Teachers were asked if they needed in-service training on 21st century skill teaching practices and, if so, in which areas. Except for the nine teachers who did not respond, the answers of the rest are presented in Table 5.

Table 5. Teachers’ in-service training needs

Categories	f	%
Those who need in-service training	15	88.2
Those who do not need in-service training	2	11.8
Total	17	100
Areas where teachers need in-service training		
Activities for 21 st century skills	6	46.1
Up-to-date information on 21 st century skills	5	38.5
Lesson planning with 21 st century skills	2	15.4
Total	13	100

Most of the participants (88.2%) stated that they needed in-service trainings on 21st century skills. Additionally, some of the respondents identified the areas in which they demand in-service training. Excerpts from the participants are as follows:

“As a teacher, I think we need in-service training in every field. It could be in terms of lesson planning and effective activities for 21st century skills.” P6

“I prefer to receive in-service training on 21st century activities and skills and to update my knowledge.” P7

“I would like to receive in-service training on up-to-date information on 21st century skills.” P9

“I definitely need in-service training. Although I scanned foreign sources on this subject, time constraints, increased workload during COVID-19, etc. I couldn't even get online in-service training. I need training on lesson planning, which topics are chosen for which age group, and how to apply them in the lessons.” P20

The teachers were also asked to evaluate the curriculum they teach in terms of its comprehensiveness in 21st century skills. The responses are illustrated in Table 6.

Table 6: Curriculum challenges

Categories	f	%
Insufficient curriculum	11	32.4
Rote-based curriculum	7	20.6
Curriculum covering some of 21 st century skills	6	17.6
Exam-oriented curriculum	5	14.7
Curriculum covering all 21 st century skills	5	14.7
Total	34	100

Only five of the teachers stated that the curriculum covers all of the 21st century skills. It is important to note that four of these teachers are from private schools and have the freedom to select the curriculum they would like to teach. An absence of 21st century skills in the curriculum refers to the curriculum that does not include any of these skills. A root-based curriculum means that the curriculum requires students to memorize the target words and grammar rules. Some teachers, on the other hand, pointed out that the curriculum includes some 21st century skills, but not all of them. Participants also indicated that the curriculum is exam-oriented and its only goal is to have students choose the best answer in the exam. Teachers’ own responses are as follows:

“In particular, I think our books and units are definitely not sufficient for 21st century skills. Books are inadequate in terms of the information they provide.” (P15-Insufficient curriculum)

“I don't think the curricula or textbooks on which we depend are inclusive of 21st century skills. I think it is based on rote learning and grammar, and I do not think it directs students to think critically, and even students find the curriculum boring.” (P7-insufficient – rote-based curriculum)

“The curriculum supports greater use of communication and technology skills. However, I think that critical thinking and creativity are lacking in the curriculum.” (P13-curriculum covering some 21st century skills)

“Unfortunately, since the curriculum is exam-oriented, I can't see much in terms of 21st century skills. In fact, I can say that there is nothing left in the name of critical and creative thinking among students. The questions are supposedly thought-provoking, but it seems impossible for learners to use their thinking skills unless they memorize certain patterns”. (P19-exam-oriented and rote-based curriculum)

“We try to keep our curriculum as up-to-date as possible and it is designed to prioritize guiding our students to obtain information from reliable sources in a foreign language and to put collaboration and creative thinking at the center of the classroom.” (P1-curriculum covering all 21st century skills)

Participants were asked to assess the teaching practices related to 21st century skills in university education. The responses are listed in Table 7.

Table 7. The effectiveness of university education on 21st century skills

Categories	<i>f</i>	%
Adequate university education	13	48.2
Partially adequate university education	4	14.8
Completely inadequate university education	4	14.8
Education that does not fit the real conditions	3	11.1
Lack of practical knowledge	3	11.1
Total	27	100

The majority of the teachers stated that university education was satisfactory in terms of including 21st century skills. In addition, some of the participants pointed out that university education partially included these skills. On the other hand, some of the teachers indicated that university education was completely inadequate and did not include any 21st century skills. From a different angle, another quarter of the participants articulated that university education did not reflect the real condition of their present teaching situation. The rest of them stated that university education was theory-based and did not include any practical knowledge. The teachers' statements are as follows:

“In university education, our professors tried to teach us 21st century skills, and we were shown what kind of activities we could do for our students.” (P20- Adequate university education)

“I have seen the positive effect of learning communication skills practices from 21st century skills, but I have not seen activities that support technology and creativity skills during my university education.” (P18- Partially adequate university education)

“I did not receive any training in 21st century skills at university.” (P7- Completely inadequate university education)

“We learned a lot about the teaching of 21st century skills in the courses at the university, but when the curriculum was insufficient in this regard, there were problems in the applications.” (P13- Education that does not fit the real conditions):

“Frankly, the education you have received so far after graduation is generally theoretical, but with the in-service training we receive, you learn different methods, different techniques, and different activities.” (P3- Lack of practical knowledge)

The participants were asked to indicate if they encountered any difficulties arising from classroom conditions during the implementation of 21st century skills. The categories are shown in Table 8.

Table 8. Conditions of classrooms

Categories	<i>f</i>	%
Poor infrastructure	8	29.7

Lack of technological tools and materials	5	18.5
Traditional row seating arrangements	4	14.8
No challenges	4	14.8
Large class size	3	11.1
Mixed-level students	2	7.4
Inadequate class hours	1	3.7
Total	27	100

The most stated problem was poor infrastructure for the internet and electricity. Lack of technological tools and materials was the second-most-mentioned problem. Teachers stated that they did not have the necessary teaching materials. Another problem, as stated by the teachers, is the widespread use of traditional row seating arrangements in schools. Only four of the participants stated there was no challenge arising from the classroom environment, and three of them were from private schools. Large class size, referring to crowded classrooms, is another issue raised by teachers. In addition, a small portion of the participants mentioned mixed-level students and inadequate class hours as challenges. The excerpts are presented below:

“Since cable, signal, etc. failures due to internet and technological disconnections take a lot of time and disrupt the motivation of children, there were times when I could not open the smart board, and I used communication and sharing skills with classical methods many times.” (P18- Poor infrastructure)

“Unfortunately, our school does not have smart boards and computers for students. The use of projections and laptops is also restricted to the teacher. Activities and materials that develop 21st century skills are not available. Teaching these skills is restricted to teachers' personal interests.” (P20-Lack of technological tools and materials)

“My main problem is that although the classrooms are equipped with all technological and student-oriented facilities, the classroom row seating arrangement still continues in the old way. I think that a classroom environment that fully supports 21st century skills should be arranged in such a way that students can communicate comfortably with each other, not classrooms that make students turn their backs on each other.” (P1- Traditional row seating arrangements)

“Since I work in a private institution, I have no problem with this. In some of my classes, I even ask students to bring a phone or tablet to play games like Kahoot.” (P2-No Problem)

“As a different example, the large number of classes in some classes can turn into a disadvantage when including collaboration skills.” (P17- Large class size)

“Language teaching should be according to the language level (A1 etc.), not according to the grade level. This should be fixed.” (P5- Mixed-level students)

“Sometimes the inadequate class hours can negatively affect our communication, critical thinking, and discussion skills.” (P17- Inadequate class hours)

Teachers were asked about their institutions' attitudes towards integrating 21st century skills into lessons. The responses are presented in Table 9.

Table 9. School administrators' attitudes towards 21st century skills

Categories	f	%
Supportive school administration	15	60
Unsupportive school administration	7	28
Support of MoNE	3	12
Total	25	100

The majority of the participants stated that school administrators' attitudes are favorable, and they support teachers in terms of integrating 21st century skills into lessons. Conversely, seven of the participants claimed that the school administration is unaware of these skills and tends to favor the more conventional approach, which prevented teachers from bringing 21st century skills into their lessons. The rest of the participants, on the other hand, made reference to the Ministry of National Education support rather than the school administrators. Teachers' statements are presented below:

“My school has always supported me in this area and tried to help me financially and morally.” (P9- Supportive school administration)

“It cannot be said that the school administration supports this. There are more traditional methods of rote-learning.” (P10- Unsupportive school administration):

“National education has been providing in-service training on this subject recently. I think 21st century skills are on the agenda.” (P13- Support of MoNE).

The Role of the Participants’ Demographic Profile

A one-way ANOVA test was conducted for each sub-skill to determine whether or not teachers’ 21st century skills teaching practices differ significantly according to their years of teaching experience. Table 10 illustrates the findings. According to the analysis, teachers’ years of experience do not play a significant role in their use of creativity and innovation skills, self-direction, global connections, and local connections ($p>0.05$). On the other hand, teachers’ use of critical thinking, collaboration, communication, and using technology as a tool for learning teaching practices differs significantly according to teachers’ years of experience.

In order to find out which groups caused a significant difference in the use of critical thinking skills in teaching practices, an LSD post-hoc test was run. The analysis showed that 6-10 years, 11-15 years, and 15+ years caused this difference. It has been uncovered that teachers with 6-10 years of experience ($M=3.14$) employ critical thinking skills more than those with 11-15 ($M=2.42$) and 15+ ($M=2.42$) years of experience.

Considering that homogeneity variances were significant at the 0.05 level, the results of the Dunnett T3 post-hoc test were analyzed to identify the groups that make the difference in the use of collaboration skills in teaching practices. The analysis indicated that this difference is due to those teachers with 6-10, 11-15, and 15+ years of experience. The mean scores of those teachers illustrate that teachers with 6-10 years of experience ($M=3.15$) integrate these skills more frequently than those with 11-15 ($M=2.66$) and 15+ years of experience ($M=2.67$).

Since the homogeneity of variances was significant at the level of 0.05, a Dunnett T3 post-hoc test was run to determine which group caused the difference in the use of communication skills in teaching practices. According to the results, teachers with 6-10 and 11-15 years of experience make the difference. Teachers with 6-10 years of experience ($M=3.32$) employ communication skills more than those with 11-15 years of experience ($M=2.45$).

Lastly, the LSD post-hoc test revealed that those with 6-10 and 15+ years of experience make the difference in using technology as a tool for learning. The mean scores of the participants point out that teachers with 6-10 years of experience ($M=3.60$) infuse technology as a tool for learning into their teaching practices more than those with 15+ years of experience ($M=2.73$).

Table 10. ANOVA findings regarding teachers’ years of experience

	Years of experience	N	M	S.D.	F	p	Significant Difference
Critical Thinking	0-5years	40	2.85	1.018	3.887	.011	6-10>11-15, 6-10>15+
	6-10 years	34	3.14	.96			
	11-15 years	24	2.42	.73			
	15+ years	21	2.42	1.01			
Collaboration	0-5 years	40	3.15	.99	4.032	.009	6-10>11-15 6-10>15+
	6-10 years	34	3.23	.95			
	11-15 years	24	2.66	.66			
	15+ years	21	2.67	.71			
Communication	0-5 years	40	2.75	.89	4.767	.004	6-10>11-15
	6-10 years	34	3.23	.92			
	11-15 years	24	2.45	.54			
	15+ years	21	2.56	.96			
Creativity and Innovation	0-5 years	40	2.94	.92	1.567	.201	
	6-10 years	34	3.07	1.13			
	11-15 years	24	2.58	.85			
	15+ years	21	2.63	1.05			
Self-Direction	0-5 years	40	2.79	.87	1.621	.188	
	6-10 years	34	2.99	.96			
	11-15 years	24	2.59	.66			

	15+ years	21	2.53	.87		
Global Connections	0-5 years	40	2.70	.96	1.607	.192
	6-10 years	34	2.88	1.03		
	11-15 years	24	2.33	.72		
	15+ years	21	2.53	1.14		
Local Connections	0-5 years	40	2.64	.97	1.393	.248
	6-10 years	34	2.78	1.10		
	11-15 years	24	2.35	.84		
	15+ years	21	2.33	.96		
Using Technology	0-5 years	40	3.28	1.17	2.810	.043
	6-10 years	34	3.60	1.14		
	11-15 years	24	3.08	.87		
	15+ years	21	2.73	1.21		

An independent t-test was conducted to explore the potential influence of teachers' background variables, including the type of school they are employed in, their level of education, and 21st century skills training, on the utilization of these skills.

Table 11 illustrates that the use of critical thinking, communication, creativity and innovation, self-direction, global connections, and using technology as a tool for learning differ significantly by the type of school teachers work in ($p < 0.05$). On the other hand, the type of school teachers work in is not of significant value in the teaching practices of collaboration skills and local connections ($p > 0.05$). Teachers' mean scores indicate that those working in private schools integrate critical thinking ($M_{pr}=3.06$, $M_{pub}=2.61$), communication ($M_{pr}=3.20$, $M_{pub}=2.56$), creativity and innovation ($M_{pr}=3.32$, $M_{pub}=2.58$), self-direction ($M_{pr}=3.00$, $M_{pub}=2.67$), global connections ($M_{pr}=2.93$, $M_{pub}=2.49$), and using technology as a tool for learning ($M_{pr}=3.64$, $M_{pub}=3.01$) skills into their lessons more than those working in public schools.

Table 11. T-test results regarding types of school

21 st century skills	Types of School	N	M	S.D.	df	t	p
Critical Thinking	Public	76	2.61	.95	117	-2.427	.017
	Private	43	3.06	.98			
Collaboration	Public	76	2.90	.93	117	-1.792	.076
	Private	43	3.21	.85			
Communication	Public	76	2.56	.87	117	-3.936	.000
	Private	43	3.20	.79			
Creativity and Innovation	Public	76	2.58	.89	117	-4.085	.000
	Private	43	3.32	1.03			
Self-Direction	Public	76	2.67	.88	117	-2.322	.022
	Private	43	3.00	.80			
Global Connections	Public	76	2.49	.93	117	-2.366	.020
	Private	43	2.93	1.01			
Local Connections	Public	76	2.46	.99	117	-1.634	.105
	Private	43	2.76	.96			
Using Technology	Public	76	3.01	1.13	117	-2.988	.003
	Private	43	3.64	1.06			

According to the t-test results shown in Table 12, the use of critical thinking, communication, creativity and innovation, self-direction, global connections, and local connections skills in teaching practices differ significantly based on the training teachers received on 21st century skills ($p < 0.05$). Besides, no significant difference was detected in the use of collaboration skills and using technology as a tool for learning teaching practices ($p > 0.05$). Teachers' mean scores show that those receiving training use critical thinking ($M_{yes}=2.98$, $M_{no}=2.49$), communication ($M_{yes}=2.96$, $M_{no}=2.57$), creativity and innovation ($M_{yes}=3.02$, $M_{no}=2.61$), self-direction

($M_{yes}=2.97$, $M_{no}=2.48$), global connections ($M_{yes}=2.81$, $M_{no}=2.42$), and local connections ($M_{yes}=2.73$, $M_{no}=2.35$) more often than those who did not.

Table 12. T-test results regarding 21st century skills training

21 st century skills	Training	<i>N</i>	<i>M</i>	<i>S.D.</i>	<i>df</i>	<i>t</i>	<i>p</i>
Critical Thinking	Yes	69	2.98	1.01	113.785	2.835	.005
	No	50	2.49	.87			
Collaboration	Yes	69	3.13	.90	117	1.635	.105
	No	50	2.86	.90			
Communication	Yes	69	2.96	.97	116.971	2.505	.014
	No	50	2.57	.71			
Creativity and Innovation	Yes	69	3.02	1.03	117	2.225	.028
	No	50	2.61	.94			
Self-Direction	Yes	69	2.97	.86	117	3.148	.002
	No	50	2.48	.80			
Global Connections	Yes	69	2.81	1.00	117	2.180	.031
	No	50	2.42	.91			
Local Connections	Yes	69	2.73	.98	117	2.085	.039
	No	50	2.35	.96			
Using Technology	Yes	69	3.37	1.18	117	1.549	.124
	No	50	3.05	1.06			

As seen in Table 13, there is no significant difference in employing 21st century skill teaching practices according to the education level of the participants ($p>0.05$).

Table 13. T-test results regarding the education level of teachers

21 st century skills	Education Level	<i>N</i>	<i>M</i>	<i>S.D.</i>	<i>df</i>	<i>t</i>	<i>p</i>
Critical Thinking	BA	102	2.71	.93	19.276	-1.285	.214
	MA/PhD	17	3.11	1.22			
Collaboration	BA	102	2.98	.87	19.482	-.973	.343
	MA/PhD	17	3.25	1.10			
Communication	BA	102	2.78	.87	117	-.357	.722
	MA/PhD	17	2.87	1.02			
Creativity and Innovation	BA	102	2.82	.98	117	-.748	.456
	MA/PhD	17	3.02	1.14			
Self-Direction	BA	102	2.72	.86	117	-1.249	.214
	MA/PhD	17	3.00	.91			
Global Connections	BA	102	2.60	.98	117	-1.134	.259
	MA/PhD	17	2.90	.99			
Local Connections	BA	102	2.53	.96	117	-.921	.359
	MA/PhD	17	2.77	1.16			
Using Technology	BA	102	3.21	1.13	117	-.612	.542
	MA/PhD	17	3.39	1.19			

Discussion and Conclusion

The present study primarily investigates whether secondary school English language teachers integrate 21st century skills into their teaching practices and, if so, what challenges they face. Additionally, how teachers' demographic variables play a role in their use of these skills was unveiled.

The descriptive statistics were run to answer the first research question, which sought to investigate if the participants employ these skills in their lessons, and it was concluded that teachers integrate 21st century skills into their lessons approximately once or three times per month. In her study with vocational high school teachers, Erten (2022) also stated that teachers usually use 21st century skills in their lessons. Besides, it was revealed that

using technology as a tool for learning is the most addressed 21st century skill by the participants. There are other studies with similar findings in the literature (Ekinci, 2019; Gürültü et al., 2019; Otlu, 2020; Şahin, 2021). These findings are not surprising because ICT advances have altered how people work and learn, and integrating technology into teaching practices has become a fundamental tool for 21st century teaching and learning (Trilling & Fadel, 2009; Voogt et al., 2013). Despite the widespread use of technology, there are some studies with conflicting results (Ahmad et al., 2019; Ghamrawi et al., 2017; Hardiman, 2020; Tindowen et al., 2017; Wattanavorakijkul, 2019; Wilcox et al., 2017). The study by Hardiman (2020) showed that despite the fact that all schools have access to technology, primary and secondary school teachers do not instruct students on how to develop 21st century technological skills. These conflicting results in the literature might be caused by the fact that, as Hardiman (2020) points out, teachers lack the in-service training they need to use technology effectively in the classroom. According to the qualitative data findings of the present study and the study by Anderson (2020), there may be additional causes for this, such as inadequate infrastructures and the inability to access technology. Unlike the use of technology, the findings showed that local connections represent the least utilized 21st century skill. Similarly, Otlu (2020), in her study of 181 teachers of English, revealed that local connections were the least employed skills. Ghamrawi et al. (2017) also found that local connections are one of the rarely used 21st century skills by Lebanese secondary school teachers. There are other studies in the literature that support these findings (Gürültü et al., 2019; Hardiman, 2020; Rice, 2017; Tindowen et al., 2017; Wattanavorakijkul, 2019). On the other hand, Yang (2019) asserts that it is essential to practice local connections in lessons since familiarity with the subjects in the local environments increases learners' engagements. Supporting Yang's view, Cheng (2002) suggested that when teaching a particular subject, teachers should highlight the importance of content that is rooted in a cultural or regional setting. Local connections can be integrated into lessons through the cooperation of schools and the community to achieve specific objectives (Rice, 2017).

In addition to the 21st century skill teaching practices, the challenges encountered by teachers in employing these skills were also investigated as a sub-component of the first question within the scope of this study. For language teaching to remain relevant or be effective, all teachers agreed that 21st century skills must be included. Similar findings have been seen in the literature regarding the fact that teachers of English accept the importance of 21st century skills in language teaching (Demirkol-Orak & İnözü, 2021; Eker, 2020; Ekinci, 2019; Kaçar, 2020). Although teachers of English acknowledge the importance of using these skills in lessons, they also reported some challenges that prevented them from integrating these skills. One of these challenges, as stated by the majority of participants, is the lack of in-service training, and they especially need activities and up-to-date information about 21st century skills. Studies in the literature also support this finding (Anderson, 2020; Eker, 2020; Hardiman, 2020; Kaçar, 2020; Korkmazgil, 2015; Pilpe, 2020; Stover, 2018). Eker's (2020) study revealed that despite achieving high average scores in knowledge and awareness of 21st century learning and innovation skills, teachers emphasized their lack of experience and training to enhance their understanding and practical application of these skills. These findings may be due to the insufficient number of in-service training offered to the teachers of English by the MoNE. According to Korkmazgil (2015), out of a total of 6516 training programs in the last ten years, MoNE has only created 127 ELT (English Language Teaching)-specific in-service training program. Undoubtedly, effective professional development is essential to ensuring that teachers have the tools they need to modify their teaching practices (Tour, 2017).

Another challenge voiced by teachers is that 21st century skills are not sufficiently covered in the curriculum. Only five teachers, four of whom work in private schools, stated that the curriculum sufficiently covered these skills. Additionally, participants reported that the curriculum and books are exam-oriented and centered on rote-based learning. Similar findings are also found in other studies in the literature (Demirkol-Orak & İnözü, 2021; Erten, 2022; Güvendir, 2017; Hardiman, 2020; Kaçar, 2020; Korkmazgil, 2015). Confirming the views of teachers, Elgün's (2021) research indicates that 8th grade English books only cover a very small portion of 21st century skills. Therefore, there is a need for curriculum development, with greater inclusion of 21st century skills in textbooks. In addition, in his study, Bedir (2017) noted that despite teachers' willingness and interest in incorporating 21st century skills into their teaching practices, constraints imposed by curriculum requirements and a strict culture of test-based assessment have hindered the integration of these skills into lessons. There is a consistent pattern suggesting that the insufficient emphasis on 21st century skills within the curriculum leads to inadequate incorporation of these skills by teachers in their lessons (Voogt et al., 2013).

Participants also mentioned some challenges stemming from their university education, including the following: inadequate preparation for employing 21st century skills; university programs that do not align with real-world conditions; and instructions guided by theory. A similar finding is found in Güvendir's (2017) study, which indicated that a university degree falls short of meeting teachers' actual needs. Besides, the participants of the current study stated that the university education did not provide them with any training in 21st century skills.

According to Wagner (2008), the majority of college students need remedial courses in 21st century skills because the curriculum in college is information-based and the emphasis is placed on knowledge acquisition. Ghamrawi et al. (2017) and Pilpe (2020) also revealed in their studies that since teachers are educated using 20th century teaching paradigms, teacher training programs need reform in terms of 21st century skills. Consistent with the literature, the inadequate curriculum and 20th century teaching paradigm may explain why teachers were not adequately trained in 21st century skills at the university level. This lack of training obviously makes it difficult to current teachers to employ these skills in their teaching practices.

The majority of the participants also mentioned various challenges related to the classroom setting, including poor infrastructure, a lack of technological tools and equipment, and a large class size. Kaçar (2020) also found that English language teachers struggle with inadequate infrastructure and internet connection, which has an impact on their ability to teach effectively. Another study conducted by Korkmazgil (2015) suggested that English language teachers who work in public schools struggle with a lack of necessary supplies and overcrowded classrooms. These results are supported by other studies in the literature (Anderson, 2020; Rice, 2017; Şahin, 2021). As Khawaji (2016) noted, there is a strong relationship between technology integration and teachers' access to computers and resources, the stage of the implementation process, their use of technology, and their level of competence. Consequently, it is crucial that the necessary technological tools and infrastructure be made available for teachers to effectively employ 21st century skills.

Whereas more than half of the teachers stated that their administrators supported the teaching of 21st century skills, the rest emphasized that their administrators were less inclined to support teaching 21st century skills and were more in favor of traditional teaching. In a similar vein, Hardiman's (2020) study on middle school teachers revealed that administrators were unaware of 21st century skills and were not sure that these skills were being used on all of their campuses. Demirkol-Orak and İnözü (2021) also asserted in their study that English language lecturers are ready to practice and increase the implementation of 21st century skills in their classes when they have administrative support in terms of organizing professional development to bridge the knowledge gap about these skills. It is a fact that teachers are challenged by the unsupportive attitude of administrators and their lack of knowledge about 21st century skills.

When it was investigated if teachers' demographic variables played a role in 21st century skills teaching practices, it was found that the use of these skills significantly differed according to the years of experience of the teachers. Post-hoc tests showed that teachers with 6-10 years of experience employ these skills more frequently than those with 11-15 and 15+ years of experience. In a similar vein, Şahin (2021) found that English language teachers with more years of experience reported more problems with using technology in the classroom. According to Embi (2007), older teachers are the ones who regard themselves as being less inclined to use information technologies, and he attributed this situation to their avoidance of age-related technology. On the other hand, Kavukçu's (2021) study uncovered that teachers with 16 years and more years of experience have higher-level media and technology knowledge and skills than those with 6-10 years of experience. In addition to these studies, there are also studies in the literature that revealed that there is no difference between 21st century skills teaching practices and the length of service of teachers (Erten, 2022; Gürültü et al., 2019; Kaçar, 2020; Otlı, 2020). It can be concluded that the age of teachers may be a factor in the use of 21st century skills, and while planning the integration of these skills into language lessons, this factor should be taken into account.

The present study also revealed that there was a noticeable difference in the use of 21st century skills depending on whether teachers were in public or private school. Post-hoc tests indicated that, apart from collaboration skills and local connections, private school teachers employed 21st century skills more often than public school teachers. Otlı (2020) also obtained the same results in her study with teachers of English. There are some reasons behind these findings. One of the reasons for this situation, as revealed in Babanoğlu and Yardımcı's (2017) study, is that private school teachers tend to engage more in their professional development compared to their counterparts in public schools. This disparity arises because private schools often encourage their staff to be creative, responsible, and to employ advanced language teaching methods. This is largely driven by the competitive and profit-driven nature of private schools. Also, they use student success as a tool to promote themselves. Other studies in the literature also found that private school teachers use more differentiated instructions (Butt & Kausar, 2010) and have a higher quality of teaching than public school teachers (Rahimi & Nabilou, 2011). These reasons may stem from challenges commonly encountered in public schools, including overcrowded classrooms, teacher training deficiencies, extensive syllabi, limited access to technology resources, and insufficient class hours (Butt & Kausar, 2010; Rahimi & Nabilou, 2011). The result of the online survey also indicated that, unlike public school teachers, private school teachers reported no issues regarding the learning environment and curriculum, and private school teachers stated that they had freedom in choosing their own curriculum and books.

When investigating the role of training in 21st century skills on teachers' teaching practices, the findings of the current study showed that, apart from collaboration skills and using technology as a tool for learning, teachers who have received training integrate 21st century skills into their teaching practices more often than those who have not. Kaçar (2020) also, in his study with 190 teachers of English, revealed that teachers who participated in a training on 21st century skills had a more positive perception of 21st century innovation skills than those who did not. Furthermore, an experimental study conducted by Yeni (2018) with the participation of 33 teachers of English showed that teachers' practices and perceptions of the 21st century changed positively after they received training on 21st century skills. The results are not unexpected because professional development, as noted by Jackson and Andrew (2000), is a crucial tool that teachers can engage in both inside and outside of the school setting to expand their knowledge, understanding, and practice of these skills. Also, according to Chai and Kong (2017), the professional development of teachers is an important component for 21st century education.

The findings also revealed that there was no significant difference in the skill teaching practices of 21st century teachers based on their educational backgrounds. There are studies in the literature suggesting that teachers' educational background does not play a role in 21st century teaching (Anderson, 2021; Cemaloğlu, Arslangil, Üstündağ, Bilasa, 2019; Kavukçu, 2021; Şahin, 2021). On the other hand, Otlu's (2020) study indicated that English language teachers with postgraduate degrees employ global connections more than those with undergraduate degrees. Another study by Çelebi and Sevinç (2019) with 130 secondary school teachers revealed that teachers with postgraduate degrees have higher efficacy perceptions of 21st century skills. It is seen that there are different results between teachers' 21st century skill teaching practices and perceptions and their educational background. The disparity in participant qualifications among post graduate teachers in the present study may explain this result. While 86% of the participants have undergraduate degrees, only 14% of them hold postgraduate degrees.

Based on the results, it can be concluded that teachers integrate 21st century skills to some extent and, they are aware of the importance of these skills in the contemporary era. However, it is also revealed that teachers face some challenges when integrating these skills. These challenges prevent them from using these skills in their lessons. It is reasonable to suggest that the policy of the MoNE and teachers' actual practices are not compatible for a number of pragmatic reasons. Although MoNE (2013, 2018) encourages the incorporation of 21st century skills in some way, teachers do not spend enough time or attention to integrate these skills into their teaching practices.

Suggestions

As stated earlier, for nations to function and thrive successfully in the 21st century, 21st century skills must be integrated into education. The use of these skills by teachers can be determined by investigating their current teaching practices. In this regard, the findings of the present study shed light on this issue and have some suggestions for practice and further studies.

First of all, as the majority of the teachers emphasized in the online survey, in-service training should be offered to teachers of English in secondary schools in order to raise their knowledge and integrate 21st century skills. In this study and in the literature, it was revealed that teachers who received in-service training employed these skills more frequently than those who did not. In this regard, in-service training is the backbone for better implementation of these skills.

As P21 (2017) suggests, the curriculum should also be modified according to 21st century skills, and curriculum designers should develop objectives that reflect a more comprehensive and intensive inclusion of these skills in the curriculum. Relatedly, teachers also voiced concerns about the curriculum's and books' emphasis on exams. The foundation of 21st century skills, according to Wagner (2008), is assessment, and you get what you test. In this regard, exams should focus more on 21st century skills and place more emphasis on the process.

As both quantitative and qualitative data findings indicate, private school English language teachers use 21st century skills more frequently and have better conditions than public school teachers. Accordingly, in terms of the setting and resources used in the classroom, public school teachers should have equal working conditions with their private school counterparts in order to employ 21st century skills in the best way. It is necessary to conduct a needs analysis and provide the necessary resources and infrastructure.

Some of the participants also made reference to how inadequate their university education had been in terms of gaining 21st century skills. The faculty of education has a significant role in introducing 21st century skills and teaching how to integrate these skills into lessons. Pilpe (2020) also highlighted that teachers who were educated using the paradigm of the 20th century themselves can not effectively teach these skills.

In addition to teachers, school administrators should also become more informed and have their attitude changed through the professional development offered by MoNE. It should be ensured that they support teachers in implementing 21st century skills.

Convenience and snowball sampling methods were used in the current study and were conducted with the participation of a limited number of teachers; therefore, future studies should use one of the probability sampling methods and reach a wider group of teachers in order to decrease the probability and increase the generalizability of the findings.

Although this study utilized an online survey due to the pandemic, which has certain advantages, future researchers should use face-to-face interviews to obtain more thorough responses and ask participants more follow-up questions.

In this study, teachers' 21st century skill teaching practices were investigated. Hence, further research can be conducted on the students' side, and classroom observations can be used to deepen the study. Additionally, as mentioned earlier, it is crucial that teaching 21st century skills be integrated into lessons from the early years of education; therefore, the quality of 21st century skills teaching in primary schools should also be investigated.

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Author (s) Contribution Rate

The first author wrote the thesis from which this article was produced under the supervision of the second author. During the article preparation process, the second author reviewed the entire manuscript, making necessary additions and corrections to prepare it for submission.

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Ethical permission (13.01.2021-2021/01) was obtained from Trakya University for this research.

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