Akademik Hassasiyetler **The Academic Elegance**
Yıl/Year: 2023 **Sayı/Issue: 23**
Cilt/Volume: 10 **Sayfa/Page: 608-641**
Araştırma Makalesi
Makale Gönderim Tarihi: 01/11/2023 **Makale Kabul Tarihi: 12/11/2023**

RESEARCH ON 21ST-CENTURY SKILLS COMPETENCY PERCEPTIONS OF GENERATION Z[*]

Eray Rafet KARABAŞ[**] & Ebru YILDIZ[***]

Abstract

Nowadays, Generation Z is the most discussed generation both in the world and in Türkiye. With its unique aspects and skills, this generation is known to have a high potential to impact many areas of life, particularly education and work life. One way Generation Z representatives can be successful and maintain this success in a rapidly changing world is to empower themselves in a field of competency called 21st-century skills. This study aims to determine the level of 21st-century skills competency perceptions of Generation Z representatives (born between 2000-2018) and reveal whether these perceptions differ according to various demographic factors. The research covers a total of 402 Generation Z representatives who are mainly students in two foundation universities in Istanbul and one foundation university in Izmir and, other than the relevant universities, who are from the specified provinces. They were reached using the convenience sampling method. The data were collected by the survey method, and statistical analyses were conducted with the SPSS software. The research results indicate that the 21st-century skills competency perceptions of Generation Z representatives are quite high. Moreover, these perceptions of competency differ in some skill dimensions in terms of gender, age, and studied/graduated field variables. The study is expected to contribute to Generation Z representatives and individuals and institutions that assume the role of guiding these individuals. Furthermore, it is thought that the study will also be useful for the development of the literature covering a limited number of studies that have focused on Generation Z in the context of 21st-century skills.

Keywords: *Generation, Generation Z, 21st-Century Skills, Competency Perception.*

[*] This study was produced from the Master's Thesis prepared by Eray Rafet KARABAŞ under the supervision of Asst. Prof. Ebru YILDIZ and presented to Istanbul Beykent University Institute of Graduate Studies.

[**] Corresponding Author, Master of Science in Business Administration, Istanbul Beykent University, Institute of Graduate Studies, erayrafetkarabas@yahoo.com, https://orcid.org/0000-0002-9032-6391

[***] Asst. Prof., Istanbul Beykent University, Faculty of Economics and Administrative Sciences, Department of Business Administration (Turkish), ebruyildiz@beykent.edu.tr, https://orcid.org/0000-0001-8493-6479

Z KUŞAĞININ 21. YÜZYIL BECERİLERİ YETERLİK ALGILARI ÜZERİNE BİR ARAŞTIRMA

Öz

Günümüzde Z Kuşağı gerek dünyada gerekse ülkemizde üzerine en çok tartışılan kuşak olma özelliğini taşımaktadır. Kendilerine özgü yönleri ve becerileri ile bu kuşağın, eğitim ve iş hayatı başta olmak üzere yaşamın birçok alanında etki yaratma potansiyelinin yüksek olduğu bilinmektedir. Z Kuşağı temsilcilerinin, hızla değişen bir dünyada başarılı olması ve bunu sürdürebilmesinin bir yolu, 21. yüzyıl becerileri olarak adlandırılan yetkinlik alanında kendilerini güçlendirmekten geçmektedir. Çalışmanın amacı, Z Kuşağı temsilcilerinin (2000-2018 yılları arasında doğanlar) 21. yüzyıl becerileri yeterlik algılarının ne düzeyde olduğunu belirlemek ve bu algının çeşitli demografik faktörler itibariyle farklılık gösterip göstermediğini tespit etmektir. Araştırma, ağırlıklı olarak İstanbul'da 2, İzmir'de 1 vakıf üniversitesinin öğrencileri ve ilgili üniversiteler dışında, belirtilen illerden Z Kuşağı temsilcisi toplam 402 kişiyi kapsamaktadır. Katılımcılara, kolayda örnekleme yöntemi kullanılarak ulaşılmıştır. Veriler, anket yöntemi ile toplanmış; istatistiki analizler SPSS programı ile gerçekleştirilmiştir. Araştırmanın sonuçları, Z Kuşağı temsilcilerinin 21. yüzyıl becerileri yeterlik algılarının oldukça yüksek olduğunu göstermektedir. Ayrıca, bu yeterlik algısı, bazı beceri boyutlarında cinsiyet, yaş ve okunan/mezun olunan alan değişkenleri itibariyle farklılaşmaktadır. Çalışmanın Z Kuşağı temsilcilerine ve bu bireylere rehberlik etme rolünü üstlenen kişilere ve kurumlara katkı sunması beklenmektedir. Ayrıca, Z Kuşağını 21. yüzyıl becerileri bağlamında incelemiş sınırlı sayıda araştırmayı kapsayan literatürün gelişmesi açısından yararlı olacağı düşünülmektedir.

Anahtar Kelimeler: *Kuşak, Z Kuşağı, 21. Yüzyıl Becerileri, Yeterlik Algısı*.

Introduction

Nowadays, Generation Z is the most mentioned and discussed generation. The number of studies conducted in the field of social sciences to understand Generation Z, which has a significant percentage in the population of the world and Türkiye, is increasing. Generation Z plays a significant role in changing and shaping social dynamics with its unique characteristics and draws the attention of enterprises since it is the leading labor force source of the future in working environments. Therefore, one way to better understand this generation and make the most of its potential is to conduct research in this field.

Another phenomenon that is most mentioned and makes itself felt in almost every area of life nowadays is change. Adapting to change requires individuals to acquire and develop skills, which will ensure empowerment, by constantly evaluating themselves. This competency area, called 21st-century skills, which covers various skills such as information and technology literacy, critical thinking and problem-solving, entrepreneurship and innovation, social responsibility and leadership, and career awareness, is particularly important

for Generation Z, as it is important for all individuals. The 21st-century skills play a highly important role in the fact that representatives of this generation, whose characteristics different from those of the previous generations are constantly emphasized, can participate in society more actively and be successful in the education and business world.

The study aims to determine the level of 21st-century skills competency perceptions of Generation Z and reveal whether these perceptions differ in terms of various demographic factors. The results obtained from the research are expected to help Generation Z representatives plan and implement effective studies in terms of self-evaluation, recognizing their deficiencies, discovering whether there is a difference between perception and reality, and improving relevant skills. Likewise, it is believed that the study will contribute to individuals and institutions that this generation has been together with and that assume the role of guidance. On the other hand, considering that there are few studies on the 21st-century skills of Generation Z in the literature, the study can be said to be also important for the development of the literature.

The study reveals the 21st-century skills competency perceptions of Generation Z and whether these perceptions differ in terms of various demographic factors, with a research involving 402 Generation Z members mainly from two foundation universities in Istanbul, one foundation university in Izmir, and other than the relevant universities, individuals from the specified provinces. The research was conducted using the survey method, and the data were collected using the "Personal Information Form" prepared to learn some demographic characteristics and the "Multidimensional 21st-Century Skills Scale" developed by Çevik and Şentürk (2019) between 14/10/2021 and 14/03/2022. The questionnaire form was sent to the participants via electronic communication channels. Statistical analyses of the data were carried out with the SPSS software.

First, the concepts of generation and Generation Z are discussed in the study. Then, 21st-century skills are addressed. In the next section, the findings of some domestic and foreign studies on the 21st-century skills of Generation Z are stated. In the following sections, the research method, data analysis, and findings are mentioned. In the conclusion section, an evaluation is made in light of the findings obtained, and recommendations for research and implementation are given.

1. CONCEPTUAL FRAMEWORK

This section of the study includes the headings of the concept of generation and Generation Z, 21st-century skills and studies on 21st-century skills of Generation Z. Detailed explanations concerning each heading are given in the following sections.

1.1. The Concept of Generation and Generation Z

The phenomenon of generation refers to communities formed by individuals who are born in a similar period of time and are affected by the social, economic, cultural, and political events and existing values of the time they live in. It is known that generations are affected by the societies they live in and affect societies with their ideas and actions (Altuntuğ, 2012, p. 204). The Turkish Language Association defines the concept of generation as "the group of individuals who form the age clusters of about twenty-five to thirty years" and "the group of people who are born in about the same years, who share the conditions of the same period and therefore similar problems and fates, and who are obliged to do similar duties" (Turkish Language Association Dictionary, n.d.). Generational theory was first proposed by Karl Mannheim in the study titled "The Problem of Generations" in 1928. The study, which was updated in 1952, is considered the most comprehensive and systematic study on the subject since it addresses the concept of generation from a historical and sociological perspective. Mannheim describes the concept of generation as "a group of people of a certain age who have experienced major historical events in a certain period of time and share a similar worldview" (Bayramoğlu, 2018, pp. 15-16; Kavak & Şener, 2021, p. 2). Maurice Debesse defines the concept of generation as "individuals around the same age and not related to each other by kinship but with similarities in their ways of living and thinking" (Okur & Öz, 2021, p. 433). Scott and Marshall (2005) explain this concept as "an age group consisting of members of a society born in almost the same time period" (Kanbur & Şen, 2017, p. 120). Straus and Howe refer to it as "a community of individuals born and raised mostly in the same time period and whose lifestyles are similar" (Bayındır et al., 2020, p. 3952), and Kupperschmidt expresses it as "an identifiable group that shares their birth years, ages, places, and major life events in critical development stages" (Parry & Urwin, 2011, p. 79).

When the literature is reviewed, it is seen that there is no standard terminology used to classify generations, there is no consensus on the names and age boundaries used to define generations, and these issues are shaped according to the sources that researchers refer to. The common classification in the literature mentions five different generations: the Silent Generation (1925-1944), the Baby Boom Generation (1945-1964), Generation X (1965-1979), Generation Y (1980-1999), and Generation Z (2000-2018) (Yıldız, 2021, p. 218). The childhood and youth periods of the Silent Generation were spent during wars. This generation, which experienced the Great Depression/Economic Crisis in the world, the Second World War, and the first years of the establishment of the Republic in Türkiye, suffered from great economic difficulties. The unemployment and economic problems caused the members of this generation to save money, and the savings led to a decrease in the birth rate and a decline in the population growth rate (Mücevher & Erdem, 2018, p. 62; Gündüz & Pekçetaş, 2018, p. 92). Nowadays, the representatives of this generation, the majority of whom are retired and few of

whom are working, are also called "Traditionalists," "War Generation," and "Veterans" (Kuran, 2018, p. 42; Anbar & Anbar, 2020, p. 102). The Baby Boom Generation was given such a name since it was born in the years of the population boom called the Golden Age of Radio, when about 1 billion babies were born following the Second World War. The individuals of this generation took care of their own children and then their elderly parents under the same roof with their families (Kuyucu, 2014, p. 57). Due to the large number of individuals, this generation was seen as a demographic increase that played a significant role in the reshaping of society. The Baby Boom Generation was characteristically part of the counterculture of the 1960s during its youth and university years and highly committed to basic values such as racial equality, gender equality, and environmental awareness (Levickaite, 2010, p. 171). Generation X is also called "Bridge Generation," "Invisible Generation," "Lost Generation," "Survivor Generation," "Why Me?," "Slacker Generation," "MTV Generation," and "Boomerang." The individuals of this generation with divorced and/or two-income families are also called "Latchkey Children." This generation, which experienced the first color television, the first mobile phone, and the first e-mail writing in our country, forms approximately 20% of the country's population (Yıldız, 2021, p. 219; Çetin & Karalar, 2016, p. 160). Generation Y, named after "Why?" (Göncü, 2018, p. 594) that refers to investigation, is also called "Millennial Generation," "Internet Generation," "Lonely Generation," "Digital Generation," "Eco Explosion," and "Next Generation" (Onurlubaş & Öztürk, 2018, pp. 986-988). The representatives of this generation witnessed unforgettable events such as the fall of the Berlin wall separating East and West Germany in 1989, the dissolution of the Soviet Union in 1991, terrorism, natural disasters and armed school attacks, the Gulf wars and the obesity epidemic (Akgemci & Kalfaoğlu, 2018, p. 236; Bulgan & Göktaş, 2016, p. 27).

Generation Z, which was born between 2000 and 2018, is given many different names in the literature, referring to period events and developments like other generations. "The Internet Generation," "Next Generation," "Net Generation," and "The New Silent Generation" are some of the names given to this generation (Levickaite, 2010, p. 173). In some sources, Generation Z is named "Digital Natives" due to the integration of technology into every area of their lives, "The Homeland Generation" due to the September 11 events, "Post Millennials" for those born after the millennium, and "Founders" by MTV to reconstruct the footprints of Generation Y labeled as destructors (Seemiller & Grace, 2018, p. xx).

Deniz and Gemlik (2022, p. 4) state that some studies on Generation Z have obtained the following findings:

- Compared to previous generations, family ties of individuals are not strong.
- Despite their intelligence, their emotional intelligence is not developed much.

- They have narcissistic personalities; their main purpose is to leave their "digital footprint" only for others.
- Visual thinking is dominant, followed by imagination and creativity.
- Since they do not want to miss anything on social media, most Generation Z representatives complain about chronic sleep deprivation.

According to the Pew Research Center, Generation Z students spend an average of nine hours on their phones. Generation Z students learn not by reading and listening to PowerPoint presentations, but by observing and practicing more than the current generations. Their affinity to Google information is remarkable. However, they may lack the ability to fully criticize the validity of this information (Shatto & Erwin, 2016, p. 253). Mohr and Mohr (2017, p. 89) state that this generation can easily access news and music owing to technology in the information age when individuals of this generation were born, but they need guidance on how to classify and synthesize information, how to protect it from overload, and how to assess the accuracy of information.

As of 2021, Generation Z constitutes around 30% of Türkiye's population (TurkStat, 2022). According to the study titled "Türkiye'de Z Kuşağı" ("Generation Z in Türkiye") conducted by Twentify, a research company, on 1998 people between 15-24 years of age in 2021, the mood and expectations of Generation Z are summarized as follows (Twentify, 2021):

- Generation Z members are strong, determined, and eager. Although the degrees of satisfaction/dissatisfaction with their current lives seem to be equal, half of Generation Z state that they will be happy after a year.
- They do not attach importance to comparing their earnings with the earnings of other individuals. The first of their next five-year goals is to construct a solid career.
- Generation Z members, who are happy with themselves, know that they have the key to what they can achieve in their lives and that their efforts will bring profit, are determined for socialization.
- Although they do not consider themselves a definite part of society, they do not consider themselves excluded from society as well. More than half of them think that their dreams can come true.
- Generation Z members do not think that the young people they see on social and visual media resemble them.
- They expect trademarks to oppose violence against women, not to harm nature and to support education.

Generation Z representatives are individuals who can easily express themselves, like to act individually (Taş et al., 2017, p. 1033), use an informal and plain communication language, are more entrepreneurial, reliable, tolerant, more realistic about job expectations, less motivated by money, and optimistic about their future when compared to Generation Y (Singh & Dangmei, 2016, pp. 2-3). On the other hand, there are also evaluations

indicating that members of this generation may be a problem for enterprises since they are not loyal, they reverse their decisions quickly, and they exhibit individual-oriented behavior (Yıldırımalp & Güvenç, 2020, p. 62).

Generation Z's expectations from working life are expressed as flexibility, freedom, transparency, face-to-face communication, mentor-style communication, appreciation of their ideas, being informed and listened to, being provided with learning and development opportunities, being offered satisfactory wages and fringe benefits, management approach focusing on work outputs rather than working hours, efficiency of work results, being presented with tasks they find reasonable, being provided with a work environment where imagination is combined with technology, autonomy regarding working hours and environment, creation of work areas that allow individual work, and being shown that the enterprise has social responsibility. Generation Z members, who are born into a period when technology is used extensively, find a fair working environment where communication and projects are technology-based, where their thoughts are used due to their innovative, unique, collaborative, and entrepreneurial nature, where they can easily express themselves, and where horizontal relationships prevail, more motivating (Uğurbulduk & Efeoğlu, 2021, pp. 66-68; Kavak & Şener, 2021, pp. 30-31).

Due to the structure of social media that allows connection with people from different origins, cultures, and conditions, the concept of diversity in working life forms a characteristic value of Generation Z. Hence, this generation is the first generation that expects cultural, racial, and gender-based diversity in working life. Furthermore, this generation is driven by traditional opportunities for progress and development in working life; they like to feel a certain economic security and seek better opportunities. If managers and leaders present more frequent feedback on business results to create meaningful communication and relationships and encourage business goals by creating an environment that allows innovation and autonomy, it will be possible to benefit from employees of this generation in business life in a better way (Pauli et al., 2020, p. 11).

1.2. 21st-Century Skills

21st-century skills are a subject that has started to cover a wide place in the literature. Skills such as creative, critical, and analytical thinking were studied by countless educators and philosophers, from Socrates two thousand years ago to John Dewey in the 20th century. Therefore, it is assumed that these skills do not belong only to the 21st century. The real reason why these skills, which have been used for many years, are called 21st-century skills is that it has become necessary to make use of skills with advancing technology and teach them (Çelebi & Altuncu, 2019, p. 232).

The century we live in is characterized by an intense process of change in which business processes are globalized and the importance of knowledge,

mobility, and business partnership in the main professional competencies increases every day. For employees to integrate into this ongoing change, not only their technical preparations are inadequate, but many skills are also needed to fulfill the constantly changing demands of society and the labor market. "21st-Century Skills" describe high-level skills and learning tendencies, which should be strengthened and make the information transfer successful (Karadaş et al., 2021, p. 233). Many attributes such as being hardworking, fair and honest, establishing good relations with others, professionalism and expertise are crucial for today's working environments, but they are not adequate (Atik & Yetkiner, 2021, p. 747). Beyond the diplomas and skills they have acquired, individuals should also have the skills defined as 21st-century skills (Kurudayıoğlu & Temur, 2021, p. 4).

Nowadays, individuals are expected to be creative, reflective, critical, able to find solutions to the problems of daily living, produce, market what they produce, and make use of information technologies well. These skills are defined as "21st-Century Skills." Moreover, 21st-century skills are also considered the skills that children should have today and in the future, paying attention to the requirements of our age (Benek & Akcay, 2022, pp. 26-27). These skills include a lifelong learning environment in addition to a compulsory education period (Altınpulluk & Yıldırım, 2021, p. 440). 21st-century skills are also defined as a general concept that involves the knowledge, skills, mind and personality qualities needed by individuals to contribute to the information society (Çetin & Çetin, 2021, p. 236).

21st-century skills are classified in various ways by some institutions and organizations. For example, the OECD mentions issues such as interacting with heterogeneous groups, establishing good relations with others, working in teams in cooperation, managing and solving complex events, use of technological tools, language, symbol and text use, use of information and use of technology within the scope of 21st-century skills. On the other hand, the European Union considers aspects such as learning to learn, communication, communicating in the mother tongue and foreign language, cultural awareness, social and citizenship competence, entrepreneurial sensitivity and digital competence as 21st-century skills (Tuğluk & Özkan, 2019, pp. 31-32).

In the literature, mostly the Partnership for 21st Century Skills (P21) classification is mentioned. P21, which is a strategic educational design developed by institutions such as Apple, AOL (America Online), Microsoft, Cisco and NEA (National Education Association) in the United States, is an important example of teaching 21st-century skills (Altunkaya & Çelik, 2021, p. 814; Kurudayıoğlu & Soysal, 2019, p. 484). According to the P21 classification, 21st-century skills are gathered under three headings: learning and innovation skills, information, media and technological skills, and life and career skills. Learning and innovation skills are recognized as extremely important skills in today's living and working environments, which become more complex. These skills consist of creativity and innovation, critical

thinking and problem-solving, communication and collaboration. In the 21st century, individuals live in a technology and media-oriented world where information and communication technology develops rapidly, there is a lot of information, and the ability to collaborate and make individual contributions is improved. In this scope, it is critical for influential individuals of the 21st century to have functional and critical thinking skills regarding information, media, and technology. Information, media, and technology skills include information literacy, media literacy, and information and communication technologies literacy. Furthermore, more than content knowledge and thinking skills are required for today's living and business environments. The ability to be a part of a complex environment in a global information age, where there is intense competition, requires individuals to improve their life and career skills (flexibility and adaptability, taking initiative and self-management, social and intercultural skills, productivity and accountability, leadership and responsibility) (BattelleforKids, 2019).

Different institutions, organizations, and initiatives have also used 21st-century skills within the boundaries of education policies (Devrani, 2021, p. 7). In a study performed by TÜSİAD (1999) to identify the business requirements of the new age, 21st-century skills were referred to as "individual requirements of the new age" for the first time in Türkiye (Zeybek, 2019, p. 144). The Turkish Qualifications Framework (TQF), which shows all the qualification bases obtained through vocational, general, and academic education and training programs and other forms of learning in primary, secondary, and higher education institutions in our country, in integration with the European Qualifications Framework, can also be considered among the initiatives made within the framework of 21st-century skills in Türkiye. With the decision of the Council of Ministers numbered 2015/8213, it was decided to put into effect the "Regulation on the Procedures and Principles for the Implementation of the Turkish Qualifications Framework" in the Official Gazette No. 29537 on November 19, 2015 (Özmutlu & Özmutlu, 2021, p. 139). The teaching of 21st-century skills is frequently emphasized in the 2023 Vision Document of the Ministry of National Education, and it is stated that there is a need for support to develop these skills. Additionally, it was decided to open design and skill workshops in schools in order for schools to progress, particularly in terms of skills and practice. It is of extreme importance to identify whether 21st-century skills are included in the program achievements or how much they are included in programs (Dilekçi & Karatay, 2021, p. 1432).

1.3. Studies on 21st-Century Skills of Generation Z

When the literature is reviewed, it is seen that 21st-century skills are the subject of a limited number of studies in the Generation Z sample. These studies are mentioned in the following sections.

The study by Azizi-Fini et al. (2015) aimed to compare the critical thinking skills, which are among the 21st-century skills, of first-year and final-year nursing students. The study was conducted on 150 first-year and final-year nursing students studying at Kashan University of Medical Sciences in 2012. In the analyses carried out within the scope of the study, both first-year and final-year nursing students were revealed to have low levels of critical thinking skills. Moreover, no significant correlation was found between students' critical thinking skills scores and age, gender, high school grade point average, university entrance exam ranking, and their interest in the nursing profession.

The study by Turner et al. (2016) aimed to determine the level of competency perceptions of nursing students at Boromarajonani Nursing College in Chonburi regarding 21st-century skills. Seventy-five nursing students studying in the second year took part in the study. As a result of the analysis performed within the scope of the study, nursing students' competency perceptions regarding 21st-century skills were found to be at high levels.

A total of 272 students at the 1st, 2nd, 3rd, and 4th class levels participated in the study conducted by Chaikongkiat et al. (2019) to identify the level of 21st-century skills of nursing students. The results showed that nursing students' overall mean scores concerning 21st-century skills were high. In the study, the mean score of intercultural understanding was found to be at the highest level, whereas reading, writing, and arithmetic were found to be at the lowest level, particularly for reading and writing in English. The results also revealed a statistically significant correlation between the class level and the overall mean score of 21st-century skills.

The study by Suwannakeeree et al. (2019) aimed to examine and compare the 21st-century skills of nursing undergraduate students. The study sample consisted of 445 nursing students at all class levels receiving education at Naresuan University in 2017. The analyses carried out within the scope of the study revealed that the 21st-century skills of nursing students at all class levels were at high levels. Furthermore, it was determined that 21st-century skills differed significantly according to class level. Accordingly, it was concluded that the 21st-century skill levels of 4th-year students were higher than those of students at other class levels.

The results of the research conducted by Gökbulut (2020) on 233 preservice teachers from all class levels studying at the Faculty of Education of a state university in the 2018-2019 academic year indicate that the 21st-century skills of preservice teachers are at high levels. As a result of the analysis conducted to check whether 21st-century skill levels of preservice teachers differed significantly according to their gender, no significant difference was found. It was elucidated that the overall mean 21st-century skill levels of preservice teachers did not differ significantly according to the class level. However, it was determined that the level of information, media, and

technological skills differed significantly according to the class level. The study found that the level of information, media, and technological skills of 3rd-year students was higher than that of 1st- and 4th-year students.

The results of the study carried out by Özoğlu and Kaya (2021) on 397 preservice teachers studying in the first year at the Faculty of Education of a state university in the 2018-2019 academic year indicate that preservice teachers' lifelong learning tendencies and digital literacy are at high levels. The study found that the lifelong learning tendency differed significantly according to gender, and the lifelong learning tendency scores of female preservice teachers were higher than those of male preservice teachers. Moreover, it was observed that the digital literacy competencies of preservice teachers differed significantly in terms of gender, and the digital literacy scores of male preservice teachers were higher than those of female preservice teachers.

In the study conducted by Kayalı et al. (2021) on 150 Generation Z students who were receiving their undergraduate education at different state universities, the technology literacy scores of students were found to be "sufficient" with a value above the average.

The study by Karadaş et al. (2021) aimed to investigate the 21st-century skills of midwifery and nursing students in terms of various variables. The study participants consisted of 625 nursing and midwifery students studying at the Faculty of Health Sciences affiliated with a state university. In the study, students' critical thinking and problem-solving skills scores were found to be close to the average, whereas information and technology literacy, entrepreneurship and innovation, social responsibility and leadership skills, and career awareness scores were observed to be above the average. The study also revealed that the 21st-century skills of final-year students were higher compared to other class levels. Moreover, male students' mean scores of information and technology literacy, critical thinking and problem-solving, and 21st-century skills were higher than those of female students.

The study by Becel and Alptekin (2021) aimed to identify the information literacy levels of university students. The study group comprised 111 students studying at the Department of Turkish Language Teaching at the Faculty of Education of a state university in the 2020-2021 academic year. In the study, students' perceptions of information literacy level were found to be high. The study revealed that information literacy did not differ significantly according to gender and class level. On the other hand, information literacy was determined to differ significantly according to the type of school the participants graduated from. It was elucidated that accessing information, ethical and legal regulations in using information and scale total mean scores of students who graduated from Anatolian High School and other high schools (Science High School, Teacher High School, Imam Hatip High School, Vocational High School, and Open High School) were significantly higher than mean scores of students who graduated from regular high school.

The study by Kahraman (2021) aimed to determine whether the entrepreneurship and innovation skills of female students differed according to various sociodemographic factors. The study sample consisted of a total of 255 female students studying in the 9th, 10th, 11th, and 12th grades at Imam Hatip High School in Bursa province. In the study, the mean score of entrepreneurship and innovation skills of students was found to be high. In general, it was determined that the variables of age, father's educational status, and parents' employment status affected female students' entrepreneurship and innovation skills, whereas the variables of the number of siblings, birth order, mother's educational status, parents' marital status, and perceived socioeconomic level did not affect their entrepreneurship and innovation skills.

The study by Korkmaz (2022) aimed to identify the digital literacy levels of Generation Z university students. The study was conducted on a total of 872 associate and undergraduate students at 3 state and 6 foundation universities in Istanbul province during the 2020-2021 academic year. The study found that students considered themselves digitally literate at a high level. Within the scope of the difference analysis, a significant difference was determined between the general digital literacy levels of female and male students, and the digital literacy levels of male students were higher than those of female students. Moreover, students' general digital literacy levels differ significantly by age. Accordingly, students in the age group of 20 and below and students in the 21-25 age group consider themselves more competent in terms of digital literacy than students in the age group of 26 and above. The general digital literacy levels of students also differ significantly according to the university where they receive education. In the study, it was revealed that foundation university students considered themselves more competent than students studying at state universities in terms of digital literacy. The faculty where students studied also caused a significant difference in their general digital literacy levels. Accordingly, students studying in social sciences, life sciences, and vocational schools consider themselves more competent than students studying in health sciences in terms of digital literacy. The study also found that monthly expenditure levels caused a significant difference in general digital literacy levels. Students with an average monthly expenditure level of 4,001 TL and above consider themselves more competent than students with an average monthly expenditure of 1,001 TL and below in terms of digital literacy levels.

2. METHOD

This section of the study includes the headings of the purpose and importance of the study, conceptual model, questions, population and sample selection, data collection method, and tool. Detailed explanations concerning each heading are given in the following sections.

2.1. Purpose and Importance of the Study

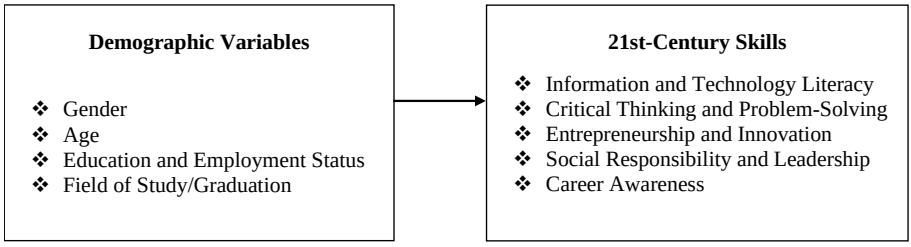
The purpose of this study is to determine the level of 21st-century skills competency perceptions of Generation Z representatives (born between 2000-2018) and reveal whether the competency perceptions regarding 21st-century skills differ according to various demographic factors.

Considering that Generation Z representatives correspond to approximately 30% of Türkiye's population, it is thought that investigating how the members of this generation, which has a high potential to impact almost every area of life, see themselves in terms of 21st-century skills, which make it possible to be successful in today's world, and whether their competency perceptions regarding these skills differ in terms of various variables, will primarily provide benefits to the members of this generation, their families, educators, managers, and what kind of studies should be carried out in the development of relevant skills along with the determination of the existing situation. Furthermore, based on the literature review, there are many studies on Generation Z, but it draws attention that the number of studies examining Generation Z in the context of 21st-century skills is low. In this respect, the study is expected to contribute significantly to the literature.

2.2. Conceptual Model of the Study

Figure 1 shows the conceptual model of the study.

Figure 1. Conceptual Model of the Study



2.3. Research Questions

In line with the purpose of the study, the research questions were determined as follows:

- What is the level of 21st-century skills competency perceptions of Generation Z participants?
- Are the mean values regarding 21st-century skills competency perceptions of Generation Z participants significantly different from the expected mean value?
- Do the 21st-century skills competency perceptions of Generation Z participants differ significantly in terms of demographic variables

(gender, age, education and employment status, field of study/graduation)?

- What is the relationship between the 21st-century skill dimensions of Generation Z participants?

2.4. Population and Sample Selection

The study population consists of Generation Z individuals from Istanbul and Izmir provinces. The research involved a total of 432 Generation Z members who were mainly students in two foundation universities in Istanbul and one foundation university in Izmir and, other than the relevant universities, who were from the specified provinces and could be reached using the convenient sampling method. Due to the participants' incomplete responses, 402 individuals were included in the data analysis. It is stated in the literature that if the population size is 10 million, the sample size should be at least 384 (Altunışık et al., 2002, p. 59). Based on this information, it can be said that the number of participants reached is quite sufficient.

2.5. Data Collection Method and Tool

A questionnaire was used as the method of data collection. The questionnaire consists of two parts. In the first part, there are questions to determine the participants' demographic characteristics (gender, age, education and employment status, and field of study/graduation). The second part involves the "Multidimensional 21st-Century Skills Scale." The scale developed by Çevik and Şentürk (2019) is a 5-dimensional, 41-item, and 5-point Likert scale, including Information and Technology Literacy Skills (15 items), Critical Thinking and Problem-Solving Skills (6 items), Entrepreneurship and Innovation Skills (10 items), Social Responsibility and Leadership Skills (4 items), and Career Awareness (6 items). Items 16, 17, 18, 19, 20, 21, and 35 are reversely scored on the scale. The score that can be received from the scale varies between 41 and 205. A score of 41-82 obtained from the scale is evaluated as low-level, 83-123 as moderate-level, 124-164 as good-level, and 165-205 as high-level 21st-century skills. Cronbach's alpha internal consistency coefficients were determined to be .84 for the Information and Technology Literacy Skills dimension, .79 for the Critical Thinking and Problem-Solving Skills dimension, .76 for the Entrepreneurship and Innovation Skills dimension, .73 for the Social Responsibility and Leadership Skills dimension, .75 for the Career Awareness dimension, and .86 for the overall scale. The participants received the questionnaire form in the form of an online questionnaire link.

3. DATA ANALYSIS AND FINDINGS

The research data were collected between 14/10/2021 and 14/03/2022. Four hundred thirty-two individuals participated in the study. However, 402

forms were included in the data analysis due to incomplete answers in 30 questionnaire forms. Statistical analyses of the data were performed with the SPSS 21 software.

Frequency and percentage analyses were carried out to determine the distribution related to the participants' demographic characteristics. Exploratory factor analysis was performed to identify the construct validity of the scale used in the study. The one-sample t-test was conducted to check whether the mean values of the participants' 21st-century skills differed significantly from the determined mean value (test value), the pairwise t-test for independent samples was conducted to make intergroup comparisons, the one-factor intergroup ANOVA test and Kruskal-Wallis test were carried out for three or more groups. Scheffe's test was used to reveal the source of the difference in the ANOVA test when variances were homogeneous and the sample sizes were not equal (Kayri, 2009, p. 56). In the Kruskal-Wallis test, the source of the difference was found by calculating the median values. Correlation analysis was performed to reveal the relationship between the variables. The data and findings of the analyses are presented in the following sections.

3.1. Descriptive Information

Table 1 contains descriptive information on the gender, age, education, and employment status of the participants, and the field they studied/graduated from. Of the participants, 55.5% were female, 44.5% were male, 51.2% were 19-20 years old, and 91.1% were university students. Among the participants continuing their education in different fields or at the graduate level, the two highest rates belonged to the participants of the Faculty of Engineering-Architecture with 30.6% and Vocational School with 29.8%, respectively.

Upon evaluating the findings together, it can be said that more than half of the sample comprised female and 19-20 years old, the majority were university students and more than 60% were participants who continued their education at the Faculty of Engineering-Architecture and Vocational School or graduated from these fields.

Table 1. Descriptive Information of the Participants

Gender	N	%
Female	223	55.5
Male	179	44.5
Total	402	100.0
Age	N	%
18 years old and younger	65	16.2
19-20	206	51.2
21-22	131	32.6

Total	402	100.0
Educational and Employment Status	N	%
High school student	15	3.7
High school graduate, employed	7	1.7
University student	366	91.1
University graduate, employed	14	3.5
Total	402	100.0
Field of Study/Graduation	N	%
Faculty of Dentistry	5	1.3
Faculty of Medicine	3	.8
Faculty of Science and Letters	32	8.4
Faculty of Fine Arts	22	5.8
Faculty of Law	32	8.4
Faculty of Economics and Administrative Sciences	32	8.4
Faculty of Communication	15	3.9
Faculty of Engineering-Architecture	116	30.6
Faculty of Health Sciences	8	2.1
School of Applied Sciences	2	.5
Vocational School	113	29.8
Total	380*	100.0

***** The number obtained by excluding a total of 22 participants in the positions of "high school student" and "high school graduate, employed" from the analysis.

3.2. Exploratory Factor and Reliability Analysis Regarding the Research Scale

The construct validity of the Multidimensional 21st-Century Skills Scale used in the study was examined by exploratory factor analysis, and the results are presented in Table 2.

In the literature (Hair et al., 2014; Pallant, 2017), a Kaiser-Meyer-Olkin (KMO) value higher than .6 and a significant Bartlett's test of sphericity value ($p<.05$) are the criteria showing the suitability of the data for factor analysis. As a result of the analysis, the KMO value was calculated as .875, and Bartlett's test of sphericity result was found to be significant ($p<0.01$). According to these results, the scale was suitable for exploratory factor analysis.

The research scale was first subjected to Direct Oblimin rotation with all 41 items. However, no solution could be reached, and the pattern matrix table was not formed. Afterward, the scale was subjected to Varimax rotation with 41 items. The scale exhibited a 30-item and 7-factor structure due to the overlapping items and the items removed since there was only one item under

one factor at various stages of the analysis. However, the solution obtained was not considered appropriate due to both the high number of items removed from the scale and the low reliability of some factors. On the other hand, each of the scale dimensions was analyzed separately in Direct Oblimin and Varimax rotation. However, it was concluded that this solution was also not appropriate due to the low values obtained from the reliability analysis. As a result, it was decided to analyze the scale by taking into account its original 5-factor structure in the Varimax rotation. In the analysis where the lower limit of factor load was taken as .40 (Gerek & Kurt, 2011, p. 66; Karadağ & Kapusızoğlu, 2022, p. 54), 4 items (information and technology literacy skills items 11, 12, 14, and critical thinking and problem-solving skills item 6) were excluded from the scale since they were below the relevant factor load. As is seen in Table 2, the five-factor structure explains 46.82% of the total variance. While Çevik and Şentürk (2019) found the total variance explained as 42.14% in their study, it can be said that the variance value obtained in this study is similar to the value found in the relevant study. The results show that the scale is a valid measurement tool.

Moreover, Cronbach's alpha (α) values calculated to examine the reliability of the research scale are presented in the table. In the literature, it is reported that Cronbach's alpha coefficient should ideally be above .70 for a scale to be considered reliable (Muchinsky, 2006, p. 91; Howitt & Cramer, 2011, p. 260). Upon examining the results, it is seen that the reliability coefficients of all dimensions are higher than .70. On the other hand, Cronbach's alpha coefficient of the overall scale, which included 37 items, was found to be .897. Accordingly, it is possible to say that the scale is reliable both in terms of dimensions and as a whole.

Table 2. Exploratory Factor and Reliability Analysis Results of the Multidimensional 21st-Century Skills Scale

Item	Initial Eigenvalue	Explained Variance	Cronbach's Alpha	Factor				
				1	2	3	4	5
EIS8	8.601	23.245	.838	.657				
EIS2				.653				
EIS5				.642				
EIS1				.611				
EIS9				.592				
EIS6				.573				
EIS7				.569				
EIS4				.547				
EIS3				.506				
EIS10				.480				

ITLS5				.670			
ITLS4				.662			
ITLS13				.604			
ITLS7				.603			
ITLS6				.594			
ITLS15	3.179	8.592	.845	.565			
ITLS3				.516			
ITLS9				.488			
ITLS2				.485			
ITLS10				.446			
ITLS1				.437			
ITLS8				.411			
CA4					.705		
CA2					.685		
CA5	2.132	5.762	.740		.678		
CA3					.662		
CA1					.538		
CA6					.472		
CTPSS4						.791	
CTPSS1						.773	
CTPSS5	1.786	4.826	.786			.741	
CTPSS3						.645	
CTPSS2						.631	
SRLS4							.799
SRLS3	1.625	4.391	.715				.798
SRLS2							.623
SRLS1							.576
Total Variance Explained: 46.816							
KMO: .875; Approx.Chi-Square: 5884.019; Sig: .000							

EIS: Entrepreneurship and Innovation Skills, ITLS: Information and Technology Literacy Skills, CA: Career Awareness, CTPSS: Critical Thinking and Problem-Solving Skills, SRLS: Social Responsibility and Leadership Skills

3.3. Research Scale Evaluation Criteria

Following the exploratory factor analysis, the criteria for the evaluation of the variables in the scale are presented in Table 3.

Table 3. Evaluation Criteria for the Multidimensional 21st-Century Skills Scale

Variable	Number of Items	Score Range	Result
Information and Technology Literacy Skills	12	12-24	Low-Level Skill
		25-36	Moderate-Level Skill
		37-48	Good-Level Skill
		49-60	High-Level Skill
Critical Thinking and Problem-Solving Skills	5	5-10	Low-Level Skill
		11-15	Moderate-Level Skill
		16-20	Good-Level Skill
		21-25	High-Level Skill
Entrepreneurship and Innovation Skills	10	10-20	Low-Level Skill
		21-30	Moderate-Level Skill
		31-40	Good-Level Skill
		41-50	High-Level Skill
Social Responsibility and Leadership Skills	4	4-8	Low-Level Skill
		9-12	Moderate-Level Skill
		13-16	Good-Level Skill
		17-20	High-Level Skill
Career Awareness	6	6-12	Low-Level Skill
		13-18	Moderate-Level Skill
		19-24	Good-Level Skill
		25-30	High-Level Skill
Overall Scale	37	37-74	Low-Level Skill
		75-111	Moderate-Level Skill
		112-148	Good-Level Skill
		149-185	High-Level Skill

3.4. Central Tendency and Distribution Measures Regarding the Variables

Table 4 contains the arithmetic mean and standard deviation values for the research scale. The mean value of information and technology literacy skills was 50.33±5.479 in the range of 12-60 points. The mean value of critical thinking and problem-solving skills was 20.30±3.768 in the range of 5-25 points. The mean value of entrepreneurship and innovation skills was 35.99±6.525 in the range of 10-50 points. The mean value of social responsibility and leadership skills was 16.40±2.032 in the range of 4-20 points. The mean value of career awareness was 26.86±3.117 in the range of

6-30 points, and the mean value of 21st-century skills was 149.87±14.888 in the range of 37-185 points.

In light of the findings, it can be said that the participants think they have a good level of competency in critical thinking and problem-solving, entrepreneurship and innovation, social responsibility and leadership skills and a high level of competency in information and technology literacy, career awareness, and 21st-century skills as a whole.

Table 4. Arithmetic Mean, Standard Deviation, Minimum and Maximum Values Regarding the Multidimensional 21st-Century Skills Scale

Variable	N	Mean	sd.	Min.	Max.
Information and Technology Literacy Skills	402	50.33	5.479	12	60
Critical Thinking and Problem-Solving Skills	402	20.30	3.768	5	25
Entrepreneurship and Innovation Skills	402	35.99	6.525	10	50
Social Responsibility and Leadership Skills	402	16.40	2.032	4	20
Career Awareness	402	26.86	3.117	6	30
Overall Scale	402	149.87	14.888	37	185

3.5. Normality Analysis of the Variables

In the study, it was checked whether the data were suitable for normal distribution to perform parametric tests, and the results related to the skewness and kurtosis values indicate that the skewness and kurtosis values of all variables were in the range of ±3 (between -1.469 and 2.891). Since there are studies asserting that these values meet the assumption of normality in the literature (Güneş & Ataç, 2022; Taşğın et al., 2021; Onurlubaş & Öztürk, 2020; Çuhadar et al., 2019; Güğerçin & Ay, 2017), it was accepted that the data in the study were normally distributed.

3.6. One-Sample T-Test Analysis of the Variables

The results of the one-sample t-test conducted to reveal whether the mean scores of the participants regarding 21st-century skills differed significantly from the determined mean value are presented in Table 5. According to the analysis results, it was determined that the mean score of the participants' information and technology literacy skills ($\bar{x}$=50.33; sd=5.479) was significantly higher than the test value of 36. The mean score of critical thinking and problem-solving skills ($\bar{x}$=20.30; sd=3.768) was significantly higher than the test value of 15. The mean score of entrepreneurship and innovation skills ($\bar{x}$=35.99; sd=6.525) was significantly higher than the test value of 30. The mean score of social responsibility and leadership skills ($\bar{x}$=16.40; sd=2.032) was significantly higher than the test value of 12. The mean score of career awareness ($\bar{x}$=26.86; sd=3.117) was significantly higher

than the test value of 18, and the mean score of 21st-century skills ($\bar{x}$=149.87; sd=14.888) was significantly higher than the test value of 111 ($p<0.05$).

Table 5. One-Sample T-Test Results

	Mean	sd.	Test Value	t	p	Mean Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Information and Technology Literacy Skills	50.33	5.479	36	52.423	.000*	14.326	13.79	14.86
Critical Thinking and Problem-Solving Skills	20.30	3.768	15	28.209	.000*	5.301	4.93	5.67
Entrepreneurship and Innovation Skills	35.99	6.525	30	18.390	.000*	5.985	5.35	6.62
Social Responsibility and Leadership Skills	16.40	2.032	12	43.410	.000*	4.400	4.20	4.60
Career Awareness	26.86	3.117	18	56.994	.000*	8.861	8.56	9.17
Overall Scale	149.87	14.888	111	52.352	.000*	38.873	37.41	40.33

*p<.05

3.7. Difference Analysis Regarding the Variables

In this section of the study, to examine whether the 21st-century skills perception levels of the participants differed according to demographic variables, of the parametric tests, the independent sample t-test was carried out for two groups, and the ANOVA test was carried out for more than two groups. On the other hand, the Kruskal-Wallis test, one of the non-parametric tests, was applied to the related variables since some subgroups included fewer than 30 participants in the variables of "education and employment status" and "field of study/graduation" and it was impossible to recode the groups.

Table 6 contains the results of the t-test performed to reveal whether the 21st-century skills perception levels of the participants differed by gender. According to the analysis results, it was determined that the entrepreneurship and innovation skills levels of the participants differed significantly according to their gender (t=-2.033; $p<0.05$). The entrepreneurship and innovation skills level of male participants ($\bar{x}$=36.72; sd=6.15) was significantly higher than that of female participants ($\bar{x}$=35.39; sd=6.77). In the study, the level of career awareness was also found to differ significantly according to gender (t=2.399; $p<0.05$). Accordingly, the career awareness level of female participants ($\bar{x}$=27.19; sd=2.86) was significantly higher than that of male participants ($\bar{x}$=26.45; sd=3.38). On the other hand, it was determined that the level of information and technology literacy, critical thinking and problem-solving,

social responsibility and leadership, and 21st-century skills in general did not differ significantly according to gender (p>0.05).

Table 6. Comparison of the Participants' 21st-Century Skills Perception Levels by Gender

Variable	Gender	N	Mean	sd.	t	p
Information and Technology Literacy Skills	Female	223	49.94	5.73	-1.590	.113
	Male	179	50.81	5.12		
Critical Thinking and Problem-Solving Skills	Female	223	20.40	3.29	.592	.554
	Male	179	20.17	4.29		
Entrepreneurship and Innovation Skills	Female	223	35.39	6.77	-2.033	.043*
	Male	179	36.72	6.15		
Social Responsibility and Leadership Skills	Female	223	16.26	2.16	-1.575	.116
	Male	179	16.58	1.85		
Career Awareness	Female	223	27.19	2.86	2.399	.017*
	Male	179	26.45	3.38		
Overall Scale	Female	223	149.19	15.14	-1.029	.304
	Male	179	150.73	14.57		

*p<.05

The results of the ANOVA test, which was conducted to determine whether the 21st-century skills perception levels of the participants differed according to age, are presented in Table 7. According to the analysis results, it was elucidated that the information and technology literacy skills levels of the participants differed significantly according to age (F=5.805; p<0.05). As a result of Scheffe's test performed to investigate between which groups the difference was, it was observed that the difference between the participants aged 18 years and below ($\bar{x}$=48.23; sd=6.22) and the participants aged 19-20 years ($\bar{x}$=50.72; sd=5.09), and 21-22 years ($\bar{x}$=50.74; sd=5.49) was significant. The level of information and technology literacy skills of the group aged 18 and below was significantly lower than those of the 19-20 and 21-22 age groups. On the other hand, it was found that the level of critical thinking and problem-solving, entrepreneurship and innovation, social responsibility and leadership, career awareness, and overall 21st-century skills did not differ significantly according to age (p>0.05).

Table 7. Comparison of the Participants' 21st-Century Skills Perception Levels by Their Age

Variable	Age	N	Mean	sd.	F	p	Different Groups
Information and Technology Literacy Skills	(1) 18 years old and younger	65	48.23	6.22	5.805	.003*	1<2 1<3
	(2) 19-20	206	50.72	5.09			
	(3) 21-22	131	50.74	5.49			
Critical Thinking and Problem-Solving Skills	(1) 18 years old and younger	65	19.82	4.56	.797	.451	-
	(2) 19-20	206	20.49	3.48			
	(3) 21-22	131	20.25	3.78			
Entrepreneurship and Innovation Skills	(1) 18 years old and younger	65	34.94	7.13	1.469	.231	-
	(2) 19-20	206	35.91	5.86			
	(3) 21-22	131	36.62	7.16			
Social Responsibility and Leadership Skills	(1) 18 years old and younger	65	16.31	2.07	.580	.561	-
	(2) 19-20	206	16.33	2.09			
	(3) 21-22	131	16.56	1.93			
Career Awareness	(1) 18 years old and younger	65	27.11	2.98	.540	.583	-
	(2) 19-20	206	26.92	3.30			
	(3) 21-22	131	26.65	2.89			
Overall Scale	(1) 18 years old and younger	65	146.40	16.51	2.159	.117	-
	(2) 19-20	206	150.37	14.01			
	(3) 21-22	131	150.82	15.26			

*p<.05

Table 8 contains the results of the Kruskal-Wallis test, which was conducted to determine whether the 21st-century skills perception levels of the participants differed according to the field they studied/graduated from. Due to the low number of participants, the participants within the Faculty of Medicine, Faculty of Dentistry, and Faculty of Health Sciences were combined under the title of "Field of Health Sciences," and the participants within the School of Applied Sciences were excluded from the analysis since it was not found appropriate to include them in other fields.

As is seen in Table 8, the career awareness level of the participants differed significantly according to the field they studied/graduated from ($p<0.05$). The median values calculated to identify between which groups there was a difference are presented in Table 9. Accordingly, the career awareness level of the participants in the Vocational School was significantly higher than that of students/graduates from other fields.

Table 8. Comparison of the Participants' 21st-Century Skills Perception Levels by Their Field of Study/Graduation

	Information and Technology Literacy Skills	Critical Thinking and Problem-Solving Skills	Entrepreneurship and Innovation Skills	Social Responsibility and Leadership Skills	Career Awareness	Overall Scale
Chi-Square	10.257	5.238	7.752	5.059	15.466	7.474
sd	7	7	7	7	7	7
Asymp. Sig.	.174	.631	.355	.653	.030*	.381

*p<.05

Table 9. Median Values Regarding the Career Awareness Level

Career Awareness Total Score		
Field of Study/Graduation	N	Median
Faculty of Science and Letters	32	27.00
Faculty of Fine Arts	22	28.50
Faculty of Law	32	27.00
Faculty of Economics and Administrative Sciences	32	27.00
Faculty of Communication	15	26.00
Faculty of Engineering-Architecture	116	27.00
Field of Health Sciences	16	26.00
Vocational School	113	29.00
Total	378	28.00

According to the results of the analysis conducted to identify whether the 21st-century skills perception levels of the participants differed according to their education and employment status, it was observed that the 21st-century skills levels of the participants did not differ significantly according to their education and employment status in terms of each dimension and overall scale.

3.8. Correlation Analysis of the Variables

The results of the correlation analysis performed to determine the relationships between the 21st-century skills dimensions are presented in Table 10.

The correlation coefficient (r) takes values between (-1) and (+1). Positive values indicate a linear correlation in the same direction, whereas negative values indicate a linear correlation in the opposite direction. If this

coefficient takes the value (0), it means that there is no linear correlation between the variables (Pallant, 2017, p. 138). Although there are different opinions in the literature about the strength of the correlation, Mohamad and Mustapha (2022, p. 57) state that the correlation coefficient represents the presence of a weak correlation between 0.01-0.29, a moderate correlation between 0.30-0.49, and a high-level correlation between 0.50-1.00.

Upon examining the correlation analysis results in Table 10, it is seen that there is a low-level positive correlation between information and technology literacy skills and critical thinking and problem-solving skills ($r=.205$; $p<0.01$), a high-level positive correlation between information and technology literacy skills and entrepreneurship and innovation skills ($r=.638$; $p<0.01$), a moderate positive correlation between information and technology literacy skills and social responsibility and leadership skills ($r=.414$; $p<0.01$), and a moderate positive correlation between information and technology literacy skills and career awareness ($r=.346$; $p<0.01$). A low-level positive correlation was found between critical thinking and problem-solving skills and entrepreneurship and innovation skills ($r=.120$; $p<0.01$), a low-level positive correlation was found between critical thinking and problem-solving skills and social responsibility and leadership skills ($r=.098$; $p<0.05$), and a low-level positive correlation was found between critical thinking and problem-solving skills and career awareness ($r=.296$; $p<0.01$). A moderate positive correlation was found between entrepreneurship and innovation skills and social responsibility and leadership skills ($r=.439$; $p<0.01$), and a moderate positive significant correlation was found between entrepreneurship and innovation skills and career awareness ($r=.409$; $p<0.01$). A low-level significant positive correlation was found between social responsibility and leadership skills and career awareness ($r=.258$; $p<0.01$).

Table 10. Correlation Analysis Results of 21st-Century Skills

Variable	(1)	(2)	(3)	(4)	(5)
Information and Technology Literacy Skills (1)	1				
Critical Thinking and Problem-Solving Skills (2)	.205**	1			
Entrepreneurship and Innovation Skills (3)	.638**	.120**	1		
Social Responsibility and Leadership Skills (4)	.414**	.098*	.439**	1	
Career Awareness (5)	.346**	.296**	.409**	.258**	1

** Correlation is significant at the 0.01 level (1-tailed).

* Correlation is significant at the 0.05 level (1-tailed).

Conclusion

Nowadays, a considerable change is experienced in all areas of life due to dynamics such as technological developments, escalating competition, and globalization. Being able to comply with this change requires the review and

development of competencies for all individuals. These skills, which are called 21st-century skills and assume an extremely important role in order to succeed in a rapidly changing world, are crucial for Generation Z. The competence of this generation, which constitutes a significant part of the population of the world and Türkiye, in relevant skills will bring about major achievements in terms of individual, organizational, and social aspects.

In this context, it is thought that the study, which aims to determine the level of 21st-century skills competency perceptions of Generation Z representatives and reveal whether these competency perceptions differ according to various demographic factors, will contribute to individuals and institutions in relation to these individuals, and particularly the members of this generation, in terms of conducting a situation analysis, recognizing which demographic variables are effective in the competency perception regarding the relevant skills, determining whether there is a difference between the competency perception regarding the skills and reality, and performing studies to improve these skills.

The scores obtained in the study regarding a good level of critical thinking and problem-solving, entrepreneurship and innovation, social responsibility and leadership skills and a high-level competence in information and technology literacy, career awareness and 21st-century skills as a whole show that Generation Z representatives perceive themselves as highly competent in relevant skills. Moreover, the study revealed that these skills were significantly higher than the value specified as the test value.

In the study, the perception of 21st-century skills competency differed in terms of some skill areas and demographic variables. Gender is one of these variables. The study determined that the entrepreneurship and innovation skills levels of the participants differed significantly according to their gender, and the entrepreneurship and innovation skills level of males was significantly higher than that of females. Another result related to this variable is that the level of career awareness was significantly higher in females than in males. Therefore, there was a significant difference according to gender in two skill areas, entrepreneurship and innovation skills and career awareness, but there was no significant difference in other skill areas. The difference in favor of male participants at the level of entrepreneurship and innovation skills can be explained by factors such as the risk-taking nature of men in general, the fact that they are more supported by their environment and families in their activities, and the existence of cultural codes that encourage entrepreneurship and assertiveness. An important reason for the difference in favor of female participants at the level of career awareness may be that the obstacles faced by women in working life lead them to look for ways to better structure their careers.

Age is another variable in which the difference was seen in the study. Accordingly, it was observed that the information and technology literacy skills levels of the participants differed significantly according to age, and the

level of information and technology literacy skills of the group aged 18 and below was significantly lower than that of other age groups. On the other hand, it was found that other skill areas did not differ significantly according to age.

Another result of the study was the significant difference in the 21st-century skills of the participants according to the field they studied/graduated from. In the career awareness dimension of 21st-century skills, it was revealed that the competency perception of the participants in the Vocational School was significantly higher than that of students/graduates from other fields. In this variable, no significant difference was observed in other skill areas. One of the reasons for the difference in the level of career awareness in favor of the participants in Vocational School may be the training programs of Vocational Schools designed to provide the skills needed in business life. In addition, Vocational Schools may make career development and planning issues a priority for individuals with their structure that covers graduation after two years of education and offers the opportunity to enter business life in a shorter period of time. All these explanations may help to understand the relevant result.

In light of the results above, it can be said that the variables of gender, age, and field of study/graduation differ significantly in terms of some dimensions of 21st-century skills. Education and employment status seem to be the only variables that do not differ significantly in the study.

The results of the correlation analysis conducted to identify the correlation between the 21st-century skill dimensions indicate that the skill areas are positively correlated with each other at low, medium, and high levels. When compared in terms of the relationships of other dimensions with each other, the low-level correlation of critical thinking and problem-solving skills with all dimensions is remarkable.

Some of the research results can be said to be similar to the results of the studies by Turner et al. (2016), Chaikongkiat et al. (2019), Suwannakeeree et al. (2019), Gökbulut (2020), Kayalı et al. (2021), Karadaş et al. (2021), Becel and Alptekin (2021), and Korkmaz (2022).

In light of the results, the study makes some recommendations to Generation Z, families involved in the upbringing and development of this generation, educational institutions, and current and/or potential managers. Generation Z representatives, who are born into a very different and rapidly changing world compared to previous periods, are essentially born with mechanisms facilitating their adaptation to change. However, there is always a need for the improvement of this potential and its effective use in various areas of life. Thus, representatives of this generation need to constantly update themselves on 21st-century skills and work in areas where they feel they have shortcomings. Generation Z representatives should benefit from more resources in the relevant fields, take part in activities that will enable improving their skills, and establish and strengthen relationship networks. Families, educational institutions, enterprises and, in a wider perspective,

administrations need to provide this generation with all the resources they need to make them stronger in individual, organizational, and social contexts and to be in closer contact with them. To improve the information and technology literacy skills of Generation Z representatives aged 18 and below, workshops equipped with the technology of today and the future should be established in educational institutions that can draw their attention, trips to places such as museums with technology content should be organized frequently, informative and entertaining seminars should be held by inviting experienced people to institutions, technological activities should be supported, and information and technology competitions should be organized. Institutions should attach more importance to Generation Z representatives. Changes should be made in the working environments in line with their wishes and needs. Generation Z representatives who support institutions with their ideas and practices should be rewarded financially and morally.

The study focuses on Generation Z's competency perception in 21st-century skills. However, self-perception and reality related to a particular issue may differ from each other. Due to their tendency to be self-serving, individuals often tend to see themselves and their competencies as greater than they are. Hence, it is thought that it will be useful to reach more concrete data by supporting the relevant skills with some questions about quantity and quality in areas such as following changes and innovations in the world, participation in group work, taking part in social responsibility projects, proposing different and useful suggestions and/or doing different and useful practices, conducting personal development and career-oriented activities in future studies. However, the level of competency of Generation Z in the relevant skills should be assessed from the perspective of the families, educators, and managers of this generation; these sample groups should also be involved in the research. Furthermore, it is assumed that conducting research with more variables (demographic, academic, etc.) will contribute to the understanding of the relevant skills of this generation. It is believed that using sampling methods that make generalization possible and conducting research that includes quantitative and qualitative studies together in this direction will also be useful in evaluating the subject from a broader perspective.

Hakem Değerlendirmesi: Dış Bağımsız

Yazar Katkısı: Eray Rafet Karabaş %50, Ebru Yıldız %50

Destek ve Teşekkür Beyanı: Çalışma için destek alınmamıştır.

Etik Onay: Bu çalışma etik onay gerektiren herhangi bir insan veya hayvan araştırması içermemektedir. / Bu çalışmanın gerçekleştirilmesi amacıyla, İstanbul Beykent Üniversitesi Sosyal ve Beşeri Bilimler için Bilimsel Araştırma ve Yayın Etiği Kurulu'ndan izin (08/10/2021 / 75) alınmıştır.

Çıkar Çatışması Beyanı: Çalışma ile ilgili herhangi bir kurum veya kişi ile çıkar çatışması bulunmamaktadır.

Peer Review: Independent double-blind

Author Contributions: Eray Rafet Karabaş 50%, Ebru Yıldız 50%

Funding and Acknowledgement: No support was received for the study.

Ethics Approval: This study does not contain any human or animal research that requires ethical approval. / Ethics committee approval (08/10/2021 / 75) was obtained from Istanbul Beykent University Social Sciences and Humanities Ethics Committee for the purpose of carrying out this study approval.

Conflict of Interest: There is no conflict of interest with any institution or person related to the study.

Önerilen Atıf: Karabaş, E. R. & Yıldız, E. (2023). Research on 21st-century skills competency perceptions of generation Z. *Akademik Hassasiyetler, 10*(23), 608-641, https://doi.org/10.58884/akademik-hassasiyetler.1384395

References

Akgemci, T. & Kalfaoğlu, S. (2018). X ve Y kuşaklarının kariyer uyum yetenek düzeylerini belirlemeye yönelik bir araştırma: Lise öğretmenleri örneği. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi, 8*(2), 231-247. https://doi.org/10.30783/nevsosbilen.470434

Altınpulluk, H. & Yıldırım, Y. (2021). 2010-2019 yılları arasında yayınlanan 21. yüzyıl becerileri araştırmalarının incelenmesi. *Anadolu Journal of Educational Sciences International, 11*(1), 438-461. https://doi.org/10.18039/ajesi.734426

Altunışık, R., Coşkun, R., Yıldırım, E. & Bayraktaroğlu, S. (2002). *Sosyal bilimlerde araştırma yöntemleri* (2nd Edition). Sakarya Kitabevi.

Altunkaya, H. & Çelik, M. E. (2021). Türkçeyi yabancı dil olarak öğretenlerin 21. yüzyıl becerileri yeterlikleri. *Türkiye Sosyal Araştırmalar Dergisi, 25*(3), 813-826.

Altuntuğ, N. (2012). Kuşaktan kuşağa tüketim olgusu ve geleceğin tüketici profili. *Organizasyon ve Yönetim Bilimleri Dergisi, 4*(1), 203-212.

Anbar, D. & Anbar, A. (2020). İş yaşamında kuşaklar ve kuşaklararası çatışmalar. In Y. Akçi (Ed.), *Yönetim ve işgücü* (pp. 99-124). İksad Yayınevi.

Atik, A. D. & Yetkiner, A. (2021). Biyoloji öğretim programı kazanımlarının 21. yüzyıl becerileri açısından incelenmesi. *Trakya Eğitim Dergisi*, *11*(2), 745-765. https://doi.org/10.24315/tred.707904

Azizi-Fini, I., Hajibagheri, A. & Adib-Hajbaghery, M. (2015). Critical thinking skills in nursing students: a comparison between freshmen and senior students. *Nursing and Midwifery Studies, 4*(1), 1-5. 10.17795/nmsjournal25721

BattelleforKids. (2019). *Frameworks & Resources*. Retrieved on 2022, March 3 from http://www.battelleforkids.org/networks/p21/frameworks-resources

Bayındır, M. S., Bayındır, B. & Önçel, S. (2020). X, Y ve Z kuşağı tüketicilerin kahve dükkanlarını tercih etme alışkanlıklarının incelenmesi. *Türk Turizm Araştırmaları Dergisi*, *4*(4), 3949-3963. https://doi.org/10.26677/TR1010.2020.600

Bayramoğlu, G. (2018). X ve Y kuşağının liderlik davranışı açısından karşılaştırılması. *Ege Akademik Bakış*, *18*(1), 15-29. 10.21121/eab.2018132202

Becel, A. & Alptekin, T. K. (2021). Türkçe öğretmeni adaylarının bilgi okuryazarlık düzeyinin belirlenmesi: Kilis 7 Aralık Üniversitesi örneği. *Uluslararası Türkçe Edebiyat Kültür Eğitim Dergisi*, *10*(4), 1493-1506.

Benek, I. & Akcay, B. (2022). The effects of socio-scientific STEM activities on 21st century skills of middle school students. *Participatory Educational Research*, *9*(2), 25-52. https://doi.org/10.17275/per.22.27.9.2

Bulgan, G. & Göktaş, P. (2016). X, Y ve Z kuşağı engellilerinin turizme erişebilirliğinin karşılaştırılması. *Ekonomi ve Yönetim Araştırmaları Dergisi*, *5*(1), 24-49.

Chaikongkiat, P., Niha, S. & Chantarasiripoot, B. (2019). 21st century learning skills of nursing students: A survey research in Yala. *The Southern College Network Journal of Nursing and Public Health*, *6*(1), 112-120.

Çelebi, M. & Altuncu, N. (2019). 21. yüzyıl becerilerinin İngilizce öğretim programındaki yeri. In M. Kılıç & M. Eraslan (Ed.), *6. Uluslararası Multidisipliner Çalışmaları Kongresi Eğitim Bilimleri Tam Metin Bildiri Kitabı* (pp. 231-244). Asos Yayınevi.

Çetin, C. & Karalar, S. (2016). X, Y ve Z kuşağı öğrencilerin çok yönlü ve sınırsız kariyer algıları üzerine bir araştırma. *Yönetim Bilimleri Dergisi*, *14*(28), 157-197.

Çetin, M. & Çetin, G. (2021). 21. yüzyıl becerileri açısından MEB okul öncesi eğitim programına eleştirel bir bakış. *Yaşadıkça Eğitim*, *35*(1), 235-255.

Çevik, M. & Şentürk C. (2019). Multidimensional 21th century skills scale: Validity and reliability study. *Cypriot Journal of Educational Science*, *14*(1), 11-28.

Çuhadar, A., Er, Y., Demirel, M. & Demirel, D. H. (2019). Bireyleri rekreasyonel amaçlı egzersize motive eden faktörlerin incelenmesi. *Spormetre*, *17*(3), 153-161. https://doi.org/10.33689/spormetre.562233

Deniz, D. & Gemlik, N. (2022). Z kuşağı öğrencilerinin kişilik özellikleri bağlamında iş hayatına yönelik görüşlerinin incelenmesi. *Sağlık ve Sosyal Refah Araştırmaları Dergisi*, *4*(1), 1-11.

Devrani, A. E. P. (2021). Gençler için 21. yüzyıl becerileri ve dijitalleşen dünyanın gereklilikleri: Yeni okuryazarlıklar. *Gençlik Araştırmaları Dergisi, 9(24),* 5-24.

Dilekçi, A. & Karatay, H. (2021). Türkçe dersi öğretim programlarında 21. yüzyıl becerileri. *Uluslararası Türkçe Edebiyat Kültür Eğitim (TEKE) Dergisi*, *10*(4), 1430-1444.

Gerek, S. & Kurt, A. A. (2011). Ekonomi okuryazarlığı ölçeğinin geçerlik ve güvenirlik çalışması. *Uludağ Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 30*(1), 59-73.

Gökbulut, B. (2020). Öğretmen adaylarının eğitim inançları ile 21. yüzyıl becerileri arasındaki ilişki. *Turkish Studies*, *15*(1), 127-141. https://dx.doi.org/10.29228/TurkishStudies.40164

Göncü, S. (2018). Kullanımlar ve doyumlar yaklaşımı çerçevesinde Y kuşağının Whatsapp kullanımı üzerine bir inceleme. *TRT Akademi*, *3*(6), 590-612.

Güğerçin, U. & Ay, Ü. (2017). Etik konum ölçeği'nin faktör analitik yapısı: Banka çalışanları üzerine bir araştırma. *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, *35*(4), 53-78. https://doi.org/10.17065/huniibf.372386

Gündüz, Ş. & Pekçetaş, T. (2018). Kuşaklar ve örgütsel sessizlik/seslilik. *İşletme Bilimi Dergisi*, *6*(1), 89-115. https://doi.org/10.22139/jobs.399952

Güneş, H. N. & Ataç, L. O. (2022). Kariyer tatmini ile işe adanmışlık ilişkisi: Kamu çalışanları üzerine bir araştırma. *Manisa Celal Bayar Üniversitesi Sosyal Bilimler Dergisi*, *20*(Özel Sayı), 109-122. https://doi.org/10.18026/cbayarsos.1081570

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2014). *Multivariate data analysis* (7th Edition). Pearson Education Limited, Pearson New International Edition.

Howitt, D. & Cramer, D. (2011). *Introduction to research methods in psychology* (3th Edition). Pearson Education Limited.

Kahraman, S. N. (2021). *21. yüzyıl becerileri bağlamında kız çocuklarının girişimcilik ve inovasyon becerilerinin incelenmesi* [master's thesis]. Bursa Teknik Üniversitesi.

Kanbur, E. & Şen, S. (2017). X ve Y kuşağı çalışanlarının kariyer uyum yetenekleri ve kariyer tatmini açısından karşılaştırılması. *Turkish Studies*, *12*(12), 115-134. http://dx.doi.org/10.7827/TurkishStudies.12008

Karadağ, A. & Kapusızoğlu, M. (2022). Vatandaşlık okuryazarlığı ölçeği: Geliştirme, geçerlilik ve güvenilirlik çalışması. *Dicle Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, (30), 37-71.

Karadaş, A., Kaynak, S., Ergün, S. & Karaca, P. P. (2021). Hemşirelik ve ebelik öğrencilerinin 21. yüzyıl becerilerinin bazı değişkenlere göre incelenmesi. *Ordu Üniversitesi Hemşirelik Çalışmaları Dergisi*, *4*(2), 232-239. https://doi.org/10.38108/ouhcd.906190

Kavak, A. B. & Şener, İ. (2021). *İşte Z kuşağı* (1st Edition). Nobel Yayın.

Kayalı, B., Balat, Ş. & Yavuz, M. (2021). Üniversite öğrencilerinin teknoloji okuryazarlığı düzeylerinin salgın dönemi uzaktan eğitim faaliyetlerine yönelik tutumlarına etkisi [Paper presentation]. *Uluslararası Covid-19 Kongresi Eğitimde Yeni Normlar-II*, 687-693.

Kayri, M. (2009). Araştırmalarda gruplar arası farkın belirlenmesine yönelik çoklu karşılaştırma (post-hoc) teknikleri. *Fırat Üniversitesi Sosyal Bilimler Dergisi*, *19*(1), 51-64.

Korkmaz, D. (2022). *Postmodern tüketim kültüründe Z kuşağı üniversite öğrencilerinin dijital okuryazarlık alışkanlıkları sorunu* [doctoral thesis]. Maltepe Üniversitesi.

Kuran, E. (2018). *Telgraftan tablete* (1st Edition). Destek Yayınları.

Kurudayıoğlu, M. & Soysal, T. (2019). 2018 Türkçe dersi öğretim programı kazanımlarının 21. yüzyıl becerileri açısından incelenmesi. *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *5*(2), 483-496. https://doi.org/10.31592/aeusbed.621132

Kurudayıoğlu, M. & Temur, N. (2021). 21. yüzyıl becerileri çerçevesinden Türk atasözlerine bir bakış. *Bilig*, (99), 1-24. https://doi.org/10.12995/bilig.9900

Kuyucu, M. (2014). Y kuşağı ve Facebook: Y kuşağının Facebook kullanım alışkanlıkları üzerine bir inceleme. *Elektronik Sosyal Bilimler Dergisi*, *13*(49), 55-83. https://doi.org/10.17755/esosder.75785

Levickaite, R. (2010). Generations X, Y, Z: How social networks form the concept of the world without borders (the case of Lithuania). *LIMES: Cultural Regionalistics*, *3*(2), 170-183. https://doi.org/10.3846/limes.2010.17

Mohamad, N. H. & Mustapha, R. (2022). Relationship between 21st century learning understanding toward teaching practice among teachers trainee in Eastern Zone: The IPGM trainee perspectives. *Journal of Contemporary Social Science and Education Studies (JOCSSES)*, *2*(1), 52-59.

Mohr, K. A. & Mohr, E. S. (2017). Understanding generation Z students to promote a contemporary learning environment. *Journal on Empowering Teaching Excellence*, *1*(1), 84-94. https://doi.org/10.15142/T3M05T

Muchinsky, P. M. (2006). *Psychology applied to work: An introduction to industrial and organizational psychology* (8th Edition). Thomson/Wadsworth.

Mücevher, M. H. & Erdem, R. (2018). X kuşağı akademisyenler ile Y kuşağı öğrencilerin birbirlerine karşı algıları. *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, *9*(22), 60-74. https://doi.org/10.21076/vizyoner.391745

Okur, M. E. & Öz, Y. (2021). Y kuşağı davranışlarının kariyer yönetimi üzerindeki etkisi: İstanbul Avrupa yakasında golf sektöründe bir araştırma. *İşletme Araştırmaları Dergisi*, *13*(1), 430-449. https://doi.org/10.20491/isarder.2021.1143

Onurlubaş, E. & Öztürk, D. (2020). Hizmet kalitesinin müşteri memnuniyeti üzerindeki etkisi: Butik oteller üzerine bir uygulama. *Gümüşhane Üniversitesi Sosyal Bilimler Enstitüsü Elektronik Dergisi*, *11*(3), 756-766.

Onurlubaş, E. & Öztürk, D. (2018). Sosyal medya uygulamalarının Y kuşağı satın alma davranışı üzerine etkisi: Instagram örneği. *OPUS Uluslararası Toplum Araştırmaları Dergisi*, *9*(16), 984-1016. https://doi.org/10.26466/opus.471771

Özmutlu, A. & Özmutlu, E. B. (2021). Grafik tasarımı bölümü öğrenme çıktılarının 21. yüzyıl becerileri temelinde incelenmesi. *Atatürk Üniversitesi Güzel Sanatlar Enstitüsü Dergisi*, *27*(46), 138-152. https://doi.org/10.32547/ataunigsed.844115

Özoğlu, C. & Kaya, E. (2021). Z kuşağı öğretmen adaylarının yaşam boyu öğrenmeleri ve dijital okuryazarlıkları arasındaki ilişki. *Anadolu Journal of Educational Sciences International*, *11*(1), 415-437. https://doi.org/10.18039/ajesi.824040

Pallant, J. (2017). *SPSS kullanma kılavuzu: SPSS ile adım adım veri analizi* (trans. S. Balcı & B. Ahi). Anı Yayıncılık.

Parry, E. & Urwin, P. (2011). Generational differences in work values: A review of theory and evidence. *International Journal of Management Reviews*, *13*(1), 79-96. https://doi.org/10.1111/j.1468-2370.2010.00285.x

Pauli, J., Guadagnin, A. & Ruffatto, J. (2020). Values relating to work and future perspective for generation Z. *Revista de Ciências da Administração*, *22*(57), 8-21.

Seemiller, C. & Grace, M. (2018). *Generation Z: A century in the making*. Routledge.

Shatto, B. & Erwin, K. (2016). Moving on from millennials: Preparing for generation Z. *The Journal of Continuing Education in Nursing*, *47*(6), 253-254. https://doi.org/10.3928/00220124-20160518-05

Singh, A. P. & Dangmei, J. (2016). Understanding the generation Z: The future workforce. *South-Asian Journal of Multidisciplinary Studies*, *3*(3), 1-5.

Suwannakeeree, W., Suwannaosod, S., Chairat, R., Chaiem, O. & Tongsaard, T. (2019). Exploring 21st century learning skills of nursing students, Naresuan University. *Journal of Nursing and Health Sciences, 13*(1), 89-98.

Taş, H. Y., Demirdöğmez, M. & Küçükoğlu, M. (2017). Geleceğimiz olan Z kuşağının çalışma hayatına muhtemel etkileri. *OPUS Uluslararası Toplum Araştırmaları Dergisi*, *7*(13), 1031-1048. https://doi.org/10.26466/opus.370345

Taşğın, Ö., Uzun, S., Demir, B. & Kaya, A. (2021). Pedagojik formasyon öğrencilerinin öğretmenlik mesleğine yönelik akademik öz yeterlikleri ve gelecek beklentilerinin incelenmesi. *Sportive*, *4*(1), 30-42.

Tuğluk, M. N. & Özkan, B. (2019). MEB 2013 okul öncesi eğitim programının 21. yüzyıl becerileri açısından analizi. *Temel Eğitim Dergisi*, *1*(4), 29-38.

Turkish Language Association Dictionary. (n.d.). "kuşak". Retrieved on 2022, January 22 from https://sozluk.gov.tr/

TurkStat. (2022). *Adrese Dayalı Nüfus Kayıt Sistemi Sonuçları, 2021.* Retrieved on 2022, April 10 from https://data.tuik.gov.tr/

Turner, K., Rakkwamsuk, S. & Leungratanamart, L. (2016). The perception on 21st century skills of nursing instructors and nursing students at Boromarajonani College of Nursing, Chonburi. *International Journal of Nursing and Health Sciences*, *10*(6), 1935-1938. doi.org/10.5281/zenodo.1124781

Twentify. (2021). *Türkiye'de Z Kuşağı.* Retrieved on 2022, March 2 from https://www.twentify.com/

Uğurbulduk, H. & Efeoğlu, İ. E. (2021). Z kuşağı, değerleri ve çalışma hayatından beklentileri. In V. Temel (Ed.), *INSAC academic developments on social and education sciences* (pp. 55-73). Duvar Kitabevi.

Yıldırımalp, S. & Güvenç, D. (2020). "Z kuşağı"nın çalışma ortamı beklentilerine ilişkin bir araştırma. *Düzce Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *10*(1), 57-76.

Yıldız, E. (2021). Çalışma yaşamında X ve Y kuşağının motivasyonunu etkileyen faktörler üzerine nitel bir araştırma. *İşletme Araştırmaları Dergisi*, *13*(1), 216-234. https://doi.org/10.20491/isarder.2021.1130

Zeybek, G. (2019). Lise öğrencilerinin 21. yüzyıl öğrenme becerileri kullanım düzeylerinin belirlenmesi. *International Journal of Social Sciences and Education Research*, *5*(2), 142-156. https://doi.org/10.24289/ijsser.505263