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EXPLORING THE RELATIONSHIP BETWEEN 21ST CENTURY SKILLS AND UNCERTAINTY MANAGEMENT SKILLS OF EFL LEARNERS

THESIS BY
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MASTER THESIS

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APPROVAL

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DEDICATION

To my dear mother and father…

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I hereby declare that;

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I prepared this thesis within the framework of academic and ethics rules,
I presented all information, documents, evaluations and findings in accordance with scientific ethical and moral principles,
I cited all sources to which I made reference in my thesis,
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Dilara GÜN

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ABSTRACT

EXPLORING THE RELATIONSHIP BETWEEN 21ST CENTURY SKILLS AND UNCERTAINTY MANAGEMENT SKILLS OF EFL LEARNERS

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21st century's arrival has made important changes and necessitated the competency in new skills for everyone. In order to equip the students with 21st century skills, foreign language curriculum has been adjusted in the recent years. These skills have also caused a major uncertainty among the learners and teachers. Uncertain situations in foreign language classrooms may be interpreted differently by some students and sometimes these interpretations may be positive or negative. Emotions caused as a result of uncertain situations can support or hinder the language learning process and the development of 21st century skills unless they are managed properly. The goal of this study was to investigate relationship between the skill levels of 21st century and uncertainty management levels of high school foreign language learners in a school located in southeast region of Turkey. The data was collected with the application of two separate surveys and analyzed through descriptive, inferential and correlational tests. The results of these tests indicated that age is one of the key factors to determine the students' levels of 21st century skills and uncertainty management. It was also revealed that gender was not a determining factor in the students' 21st century skills. However, it affected the uncertainty management levels and frequency of the students managing their experiences of uncertainty greatly. The study also shed light upon the link between 21st century skills and uncertainty and showed that these two variables have a strong relationship and affected one another greatly.

Keywords: 21st century skills, 4c skills, uncertainty management theory, uncertainty reduction theory

ÖZET

YABANCI DİL OLARAK İNGİLİZCE ÖĞRENENLERDE 21. YÜZYIL BECERİLERİ VE BELİRSİZLİK YÖNETİMİ BECERİLERİ ARASINDAKİ İLİŞKİNİN ARAŞTIRILMASI

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21. yüzyılın gelişi herkes için yeni beceriler için uzmanlık gerektirdi. Öğrencilere bu becerileri kazandırabilmemiz için yabancı dil müfredatı geçen senelerde değiştirilmiştir. Bu beceriler ayrıca hem öğretmenlerde hem de öğrencilerde belirsizliğe sebep olmuştur. Yabancı dil derslerinde yaşanan belirsizlikler bazı öğrenciler tarafından farklı yorumlanabileceği gibi bu yorumlamalar olumlu veya olumsuz olabilmektedir. Belirsiz durumların sonucunda yaşanan hisler bazen 21. yüzyıl becerilerinin gelişimini destekleyebilir veya önleyebilir. Bu çalışmanın amacı Türkiye'nin güneydoğu bölgesinde bulunan bir lisedeki öğrencilerin 21. yüzyıl becerileri ve belirsizlik yönetimi becerileri arasındaki ilişkinin incelenmesidir. Veriler iki farklı anketin uygulanması ile toplanmış ve betimsel, çıkarımsal ve korelasyon testleriyle analiz edilmiştir. Bu testlerin sonuçları, yaşın öğrencilerin 21. yüzyıl becerileri ve belirsizlik yönetimi becerilerinin belirlenmesinde temel bir faktör olduğunu göstermiştir. Testler ayrıca cinsiyetin 21. yüzyıl becerileri seviyesinde belirleyici bir faktör olmadığını, ancak öğrencilerin belirsizlik yönetimi seviyesi ve ne sıklıkla belirsizliği yönetmeye çalıştıklarını büyük ölçüde belirleyen bir faktör olduğu ortaya çıkmıştır. Bu çalışma ayrıca 21. yüzyıl becerileri ve belirsizlik arasındaki bağlantının altını çizmiş ve bu iki değişkenin arasında güçlü bir ilişki olup birbirlerinden etkilendiklerini de göstermiştir.

Anahtar Kelimeler: 21. yüzyıl becerileri, 4c becerileri, belirsizlik yönetimi teorisi, belirsizliği azaltma teorisi

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ABBREVIATIONS

UMT **:** Uncertainty Management Theory

URT **:** Uncertainty Reduction Theory

SPSS **:** Statistical Package for the Social Sciences

ANOVA **:** Analysis of variance

LGS **:** Liselere Giriş Sınavı (High School Entrance Exam)

4Cs **:** Critical thinking, Creativity, Collaboration, Communication

EFL **:** English as a Foreign Language

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CHAPTER I

1. INTRODUCTION

1.1. Background of the Study

A lot of major changes happened in our world with the arrival of 21st century. With the technology and globalization making this shift more widespread, it has necessitated a different set of skills that are required to live in this century. 21st century skills have emerged from modern knowledge and communicative technologies. These skills are vastly different from 20th century skills due to the changing requirements for job opportunities, citizenship and self-actualization (Dede, 2009). Currently, there is a greater need for these "soft skills" which form the basis of 21st century skills. These soft skills such as technological literacy, interpersonal and intercultural relationships and adaptability are included in the 21st century skills. Contrary to the previous centuries, there is a great importance given to soft skills such as time management, teamwork, creative thinking and empathy within the workforce rather than the "hard skills" that are more focused on physical strength. 21st century skills are especially important in the modern world because in order to foster a competitive and collaborative work environment, new members of the workforce are currently being hired with regards to their soft skills even in technical professions like engineering (Cimatti, 2016). 4Cs (Communication, Creativity Critical thinking and Collaboration) form the basis of 21st century skills (Stauffer, 2022). These skills help the students become better learners by producing their own unique approaches to language learning. The students who can navigate the new technology and information brought by 21st century with these skills can have more opportunities to reach their full potential and become better learners in the classroom and better citizens in their future lives.

Uncertainty, which is another major factor in language learning, also affects the learners when they are navigating their learning in the classroom. Learners often face uncertainty when they are making decisions in the classroom. According to Mushtaq et al. (2011), uncertainty occurs when people realize that they cannot foresee the upcoming developments around them with their own mental representations of the world. People experience different emotions during uncertain moments. They often feel threatened by uncertain situations as they want to be aware of the possibilities and outcome of their

decisions, especially in risky situations. “The concept of uncertainty involves something being known or unknown by an individual or by a social group.” (Abbott, 2005, p. 238). If a situation is unknown and thus uncertain to a person or a group, the process of decision making can become more stressful. But if uncertainty is managed carefully, such situations can encourage learners to explore different techniques to reduce the uncertainty experienced in the learning situation (Jordan & McDaniel, 2014).

Understanding and application of 21st century and 4C skills in foreign language lessons can help the students and teachers manage uncertainty in the learning situation through the application of critical thinking, communication, creativity and collaborating with their peers. However, since these skills are still new to the learners who have been previously taught foreign language in teacher-centered classrooms, most learners experience confusion and feel uneasy when they are expected to participate in certain tasks that require communication and collaboration with their teachers and peers. Therefore, it is important for both the teachers and the students to not only find the causes of the uncertainty in these situations to manage these situations, but also to be able to improve 21st century skills through the application of 4Cs.

1.2. Statement of the Problem

Although there is a substantial amount of information about the 21st century skills, there is still more research required in order to determine learners’ 21st century skill levels. There is also a great need of more extensive research conducted on students from different regions and age groups and the relationship of these factors to different topics such as the learners’ uncertainty management levels. In Turkish high school curriculum for English lessons provided by the Ministry of Education, the content of the classroom activities consists of tasks in accordance with the 4Cs and the other 21st century skills such as leadership and technological literacy. Although the classroom activities aim to develop 4C skills and other vital 21st century competencies in the learners, the 21st century skill levels in a classroom may vary from one learner to another. This can be not only due to different developmental or readiness levels of the learners, but also due to how crowded the classrooms are in most schools. Most high school classrooms in Turkey consist of at least 30 students and this situation causes difficulty for classroom activities that aim to develop and evaluate 21st century skills in the learners. Thus, there can be huge discrepancies among the learners’ 21st century skill levels in the learners and the

teachers cannot always evaluate and adjust their teaching depending on their learners' skill levels.

The varying levels of 21st century skill levels can also cause uncertainty and unease in the learners. Uncertainty during the learning process is not a negative experience for every learner. However, for most learners, if their uncertainty levels are unmanaged, the experiences of uncertainty may result in undesired outcomes such as avoidance to participate in the classroom and communicate with their peers, in return hindering the development of their 21st century skill levels.

Communication and cooperation are the key components of the development of 21st century skills. They also assist the management of uncertainty as they uncover different information about the situation and make it possible for the learners to navigate through their experiences of uncertainty with the light of this newly gained information. However, in such crowded classrooms, the learners may become hesitant or lack the adequate time to ask questions or participate in the classroom activities that can help them uncover new information.

Uncertainty management may not only be affected by 21st century skills, but it may also affect 21st century skills in return. Due to the fact that communication and cooperation during the classroom activities can uncover unknown information and aid the management of uncertainty; encouraging and enabling the students to interact in the classroom more frequently and effectively, the students' uncertainty management skills can also affect the development of their 4C skills. There is more research needed in order to evaluate the 21st century and uncertainty skill levels of the learners and understand the relationship between the learners' 21st century skill and uncertainty management levels more extensively. Thus, the results of this study can show whether both of these skills are dependent on each other.

1.3. Purpose of the Research

As 21st century learners are overwhelmed with a vast array of options and information (Devkota et al., 2017), they are facing different situations of uncertainty that they must adapt and manage than the learners in the previous decades. Thus, it requires both the teachers and the learners to employ new strategies to not only become aware and improve their 21st century skills, but also to manage and overcome uncertainty that results from these new requirements and situations in the classroom.

This study was conducted in order to investigate relationship between the students' awareness and competence levels of 21st century skills and the management of uncertainty in a high school located in southeast region of Turkey.

The study aims to answer the following questions:

1) What are the high school students' awareness and competence levels of 21st century skills and uncertainty management levels?
2) What are the high school students' awareness and competence levels uncertainty management?
3) Is there a significant difference in students' 21st century competencies depending on their demographic variables (school grades and genders)?
4) Is there a significant difference in students' uncertainty management skills depending on their demographic variables (school grades and genders)?
5) Is there a significant relationship between the 21st century skill levels and uncertainty management skill levels of the high school students?

1.4. Significance of the Study

Previous studies that have focused on 21st century skills in Turkish and global context have mainly focused on higher educational levels such as university students and pre-service English teachers. Although our educational curriculum for foreign language lessons is prepared in accordance with the 21st century skills, the evaluation of these skills is limited within the scope of current examination and evaluation system for the students. Thus, there is a need for more research in different educational levels and regions of Turkey regarding the awareness and application of 21st century skills of the learners.

Similarly, previous research on uncertainty in English language classrooms have also been conducted in different contexts such as secondary school and university level students. The focus of those studies has also been on uncertainty as a concept in general with the causes and effects of uncertainty in the classroom and not the management of uncertainty in the classroom. Also, the previous literature did not focus on investigating the relationship between 21st century skills and uncertainty management levels and strategies in foreign language classrooms. Therefore, the results of this study will provide

insight on the relationship between 21st century and uncertainty management skills of foreign language learners in high schools.

1.5. Definitions

21st Century Skills: An array of skills that are crucial for the success of students in their school lives and future careers (Stauffer, 2022). These skills can be categorized into learning skills (4Cs), literacy skills (media, information and technology literacy), and life skills (flexibility, leadership, initiative, productivity and social skills).

4Cs: The skills that are essential for learning in 21st century. 4C skills, namely critical thinking, problem solving, communication, and collaboration, are included in 21st century skills (Framework for 21st Century learning definitions - Battelle for Kids., 2019).

Uncertainty: The state of being unsure and uncertain about a situation. The state of uncertainty can result from a situation being unknown fully or partially to the individual (Anderson & Hattis, 2006).

Uncertainty Management Theory (UMT): A theory that has a neutral view to uncertainty. As opposed to the uncertainty reductionist theories, UMT does not assume uncertainty will directly produce anxiety and aims to explain the sources of uncertainty and meanings of the responses to uncertainty in order to process and manage the experiences of uncertainty (Brashers, 2001).

Uncertainty Reduction Theory (URT): A theory with the assumption that people prefer to employ certain kinds of methods to reduce uncertainty passively, actively, and interactively to avoid and reduce the feelings of uncertainty (Berger, 1995).

1.6. Literature Review

In this section, the literature regarding 21st century skills and uncertainty management is reviewed in detail. Additionally, comparison between uncertainty management theory and certain theories regarding uncertainty such as uncertainty reduction theory are also presented in this section.

1.6.1. Introduction

21st century skills are vital for the students in their future lives as there has been a major shift in requirements of the work industry throughout the centuries. Unless the

students are informed of their 21st century skills and the expertise the century requires from them, they will not be ready to confront the challenges in the society they live in and their work lives (Erdoğan, 2019). Currently, most jobs require important competencies such as communication, time management, problem-solving, empathy, and leadership skills which are also covered in the Partnership for 21st Century Learning Framework (Battelle for Kids, 2019) and 4Cs that are also defined within the framework. 4C is a skillset that includes critical thinking, creativity, communication and collaboration skills. 4Cs and the other 21st century skills aim to improve academic knowledge and success of the learners in order to develop their other vital skills such as information, media and technology skills, life and career skills and the ability to take initiative, leadership roles and responsibility. Along with the other 21st century skills such as media literacy and leadership, 4Cs are crucial for students to become self-sufficient individuals that are active citizens in the contemporary world.

1.6.2. 21st Skills and Globalization

21st century skills and 4Cs are some of the most crucial skills for students in the modern world. If the students are unable to develop the skills to think critically and creatively, cooperate with their peers and communicate their ideas effectively, they will only be able to understand basic concepts that they acquire at school and cannot face globalization (Khoiri et al., 2021). Due to the combination of globalization of political and socioeconomic systems and a competition-driven market, a major expansion happened in the production of knowledge, management industry and information communication technologies (Chalkiadaki, 2018). Globalization has also increased the need for such skills as cultural awareness, leadership, communication and technology literacy in the recent years. Globalization became one of the most important factors that affected the development of education in 21st century.

In foreign language classrooms, the students are often exposed to certain tasks that can help them improve their 21st century skills that foster the skills of leadership, communication and cooperation, and also increase their awareness and knowledge of cultural diversity and cultural literacy. For this reason, foreign language classrooms are often recognized as the ideal environment for the development of these skills of the students and help them become global citizens. Globalization makes it almost mandatory for the students and the teachers to raise their awareness of the rules and application of

21st century skills. Therefore, this situation requires all actors in the education field around the world to investigate new techniques and approaches to solve the issues arising from the needs of the 21st century learners and teachers in language classrooms (Orak & Al-khresheh, 2021).

21st century skills have become necessary for the students to suit the requirements of enlightened citizens in the modern world. Foreign language teachers must be open to changes in education that result from the globalization of education and the new developments that emerge faster than the previous centuries to contribute to the development of their students' 21st century skills. "English teachers must accept the changing and flexible nature of literacies that address areas as diverse as technology, multimedia, relationships and culture" (Fandiño, 2013, p. 193).

1.6.3. 21st Century Skills and 4Cs in Education

4C skills, which are included in the P21's Frameworks for 21st Century Learning (Battelle for Kids, 2019), are the most important skills for the students to become active citizens in the modern world. Currently, 4C skills (critical thinking, creativity, collaboration and communication) are incorporated in the language teaching curriculum through classroom activities. However, the application and evaluation of these skills through classroom activities and examination system is still a complicated process. Therefore, we must define these skills and their possible application and evaluation individually in the classroom.

a. Critical Thinking

Critical thinking has many definitions which can vary from one individual to another. In a general sense, critical thinking skill can be defined as the ability to competently apply, analyze and integrate the knowledge gained or formed through observing and reflecting on evidence (The Foundation of Critical Thinking, 2019). Another term that is used with critical thinking interchangeably is the term "reflective thinking". Developed by John Dewey (1933), reflective thinking is a problem-solving process. "A reflective thinker compares different ideas, ask questions, questions himself/ herself and events, can think critically, solve problems, and make decisions independently" (Kuş, 2017). In order to think reflectively or critically, learners must not only be able to gain knowledge through the main sources or their teachers, but they must also be able to analyze the

knowledge provided to them and synthesize their own knowledge and come to conclusions in the light of the basic knowledge provided.

The teachers must also be aware of their own education and training to contribute to the development of critical thinking skills in their learners. If the "...teachers are inadequately trained; the teaching of critical thinking is not sufficiently based on the social sciences and philosophy; and the critical, creative, and caring dimensions of thinking are not properly connected in the teaching and the curriculum" (Gratton, 2004, p.105). Only teaching the curriculum and information from the books will not be enough for the development of this skill and improvement of the students' knowledge. The teachers also need to provide the students a monitored and responsible liberty to investigate the content, examine the materials and exercise the knowledge (Snyder & Snyder, 2008).

b. Creativity

Creativity involves the ability to produce new ideas and solutions to possible problems. The most important aspect of creativity is the innovativeness of the solutions. Although this definition is similar to critical thinking, creativity or creative thinking highlights the importance of innovation and product more than thinking critically during the problem-solving process. While critical thinking includes analysis of the information, creativity skill incorporates producing new and unique solutions to the problems with the carefully gained knowledge. It also involves taking a risk to express the individual's own ideas in a new and unique way. The key components of creativity are originality and efficacy linked with principals, which connect creativity with learning through the constructivist theory and highlight the importance of producing information through previous encounters and reflection on these encounters (Pardede, 2020). Creativity in the learning process should be encouraged through activities. Plucker et al. (2011) argue that the learners will want to participate in the classroom activities and tasks that require creative thinking when the teachers prepare activities that involve and engage the students' curiosity about their environment. The teachers must therefore motivate the learners to form and express their own ideas in the classroom environment without prejudice or negative judgment.

c. Collaboration

Collaboration is a skill that involves working together with other people in harmony. This skill involves cooperation of two or more parties in order to make a product or solve

a problem. A fruitful outcome from a collaboration can only be achieved when cooperation spirit is involved, and respect is reciprocated among everyone (Priyatni & As'ari, 2019). The importance of collaboration skill is growing every day because the world is becoming more and more interconnected and working with everyone in-tune for a common goal rather than competing has become a vital skill (Cho, 2023). In a sense, collaboration skill also involves empathy, working with a group and solving interpersonal problems that may arise during the event of collaboration.

In order to develop the collaboration skills in learners, the teachers can assign students with tasks that involve groupwork. However, Chidiac and Ajaka (2018) argue that these tasks should be open to communication and the groups formed by the teacher should allow the students to put their own strength onto one another's to compensate each other's shortcomings. Thus, the groups in such collaborative tasks that are formed during the classroom activities should consist of students from every skill level and highlight the strength of each member of the group.

d. Communication

Communication involves the process of trading information to expand and diversify the beliefs and perspectives of ourselves and other people (Thornhill-Miller et al., 2023). In the modern world, communication is not only conducted in-person, but it is also enhanced through technologic developments. As a skill, communication requires the capability to listen and comprehend proficiently and inquiring about solutions to resolve a problem cooperatively (Tohani & Aulia, 2022). Communication skill also includes the ability to receive and analyze any given information to produce one's own opinions about the situation. When learners develop their communication skills, they will be able to correct or ignore misinformation (Saimon et al., 2022). Effective communicators can also avoid causing any possible misunderstandings and resolve miscommunications between the parties of communication process (Putri et al., 2021).

Currently, communication processes are not only conducted in face-to-face environments, but there are many ways such as internet through the means of telecommunications. Learners can share their ideas and develop their communication skills through social media and online forums. In order to develop the learners' communication skills, Kivunja (2014) argues that the learners must first be able to express their opinions through any means of communication in accordance with the given context. They must then become active and effective listeners and learn how to use

communication for different goals. Finally, the learners should also be instructed to learn how to communicate in various domains such as different environments and languages.

1.6.3.1. 4Cs and Agency of the Learner

21st century requires individuals to think critically and make autonomous decisions. The main focus of the 21st century skills is to raise individuals who can not only make decisions autonomously but take into consideration the goals of the group members individually and collectively. Currently, the learners both aim to empower themselves and to empower others through learning foreign languages (Eaton, 2010).

The education curriculum in Turkish high schools aims to nurture students who are autonomous learners that can produce their own opinions, ways of learning and study cooperatively rather than competitively. According to English Language Teaching Program of the Ministry of Education (2018), "In the curriculum students of English are intended to get support and guidance from their teachers, peers, learning materials, and learning tasks so that there is a gradual increase in learner autonomy through collaboration, interaction, and communication in a safe learning environment." The autonomy of learners can support the development and improvement of their own and the other learners' 21st century skills.

According to Holec (1981) autonomous learners are aware that they must take responsibility of their own learning. However, this definition of learner's autonomy can be interpreted as a one-dimensional situation. This definition, in a sense, implies only the learner himself or herself is active and responsible in their own learning process. Little (2007) argues that the teachers must craft a multifaceted, interactive system that is dynamic and able to improve the communicative competence of the learners as "autonomy in language learning and language use are two sides of the same coin" (p. 26). When the learners take a large part in the decision-making process in the classroom, they will become critical thinkers who can produce their own ideas creatively. They can also support the other learners within and out of their classroom environment when they are effective communicators. Thus, if the learners can become autonomous language users and implement their foreign language knowledge into their daily life, they will also improve their 21st century skills at the same time.

This double view on autonomy that not only supports the learners themselves but also the students around them through cooperation is also the root of the OECD Learning

Compass 2030 (OECD Future of Education and Skills 2030, 2019). Rather than the perspective that embraces autonomy as a single-sided, self-centered skill, student agency is viewed as the collective agency of the students. This belief defines student agency as the learners' "...will and the ability to positively influence their own lives and the world around them as well as the capacity to set a goal, reflect and act responsibly to effect change" (OECD Future of Education and Skills 2030, 2019, p. 16). The student's agency or co-agency directly associates the students' personal goals to the collective goals of their group. In an interactive environment where the individuals help each other reach their personal goals, the learners will not only be able to become successful members of the society on their own, but they can also support the collective goals of the group members and the group as a whole.

Collaboration skill and the student agency view the students as citizens and future members of the workforce. According to Klemenčič (2015), "All these roles presume student agency as something students can develop – individually and collectively – through self-reflective and intentional action and through interaction with the environment in which they are embedded" (p.2). As the students apply their agency, they will also be able to affect their own lives and the lives of people around them.

1.6.3.2. Evaluation and Development of 21st Century Skills

4Cs include some of the most important skills for the learners' future lives. Through critical thinking, the learners will be able to differentiate between the incorrect knowledge from the correct information and reject the wrong information with their own judgement. The term "correct" knowledge is also open to change due to the vast amount of research done on different topics every day. The validity of any information can change with the light of every new research. So, critical thinking is an ongoing process that must be applied at each newly faced information.

With the personal knowledge gained via the critical thinking process through the analysis of any given information, the learners can formulate new and unique solutions to the problems. Sharing the information and contributing to the knowledge of others is also vital in the context of education. Thus, communication and collaboration skills contribute to knowledge gaining and problem solving. Through conscious inquiry and group work, the learners can learn new information and solve problems that they cannot otherwise solve on their own. Creative thinking also contributes to the problem-solving

process. During certain tasks in the classroom and issues in daily life, the learners may have to produce practical solutions to their issues. However, evaluation of creativity just like the other 21st century competencies in education is still a difficult subject.

Although the new century has highlighted the need for 21st century skills, these skills are not brand new in the education. When we look at the changes in the teaching and evaluation of 21st century skills in Turkish context, Oral (2006) states that before the 70s, the main goal of teacher training was to raise teachers who were capable of teaching and having the skills to become innovative leaders. However, due to the growing population of the country and shortcomings in resources, the education and evaluation procedure of the teachers has changed tremendously. Today, the learners and prospective teachers are evaluated based on their knowledge on the school subjects using standardized tests rather than their ability to produce innovative methods to solve the problems and their ability to communicate and cooperate to solve these problems with others.

In conclusion, although there are many ways to apply the 4C skills and contribute to the development of those skills in the classroom, there is still an ongoing issue with the examination and evaluation of the levels of those skills and the other important 21st century skills such as life and career skills and information, media and technology skills. Thus, there is a substantial need for more research on the analysis of the levels of those skills in the learners of the 21st century.

1.6.3.3. Studies regarding 21st Century Skills

Several studies have been conducted on the awareness and the levels of students and teachers of 21st century skills both in global and Turkish context. A study by Saleh (2019) investigates the Libyan EFL instructors' opinions of critical thinking skills of their students and application of critical thinking in their lessons. Contrary to the previous studies, the findings of this study indicate a more pessimistic outlook from some of the instructors and it also highlights the difficulties experienced in the teaching context of the participants. The participants expressed doubts about application of critical thinking due to the administrational and cultural obstacles they have been experiencing in foreign language education and their daily lives. Although this study is comparatively small in terms of its sample size, it is possible to see that there is still a lack of awareness and

prejudice on the application and improvement of 21st century skills, especially critical thinking, in some contexts around the world.

When we look at the studies conducted on the students' 21st century competencies, it is possible to see that the students' skill levels and awareness of 21st century skills also require more research and development. There is also a substantial amount of planning and improvement needed for the classroom activities that are aimed at improving students' 21st century skills and the facilities of the schools. A study by Mahmud and Wong (2022) reveals that undergraduate students in Malaysian context agree that data literacy is a vital skill in order to deal with possible problems that can arise in their future careers. The authors suggest that, in order to effectively raise the problem-solving skills in the learners, the students must be actively encouraged to learn programming and creative thinking through the activities in the school curriculum by the teachers. It is also suggested that the teachers should research methods to engage the learners through activities that can connect 21st century skills with their real-life experiences. Another study by Azhary and Ratmanida (2021) on English learners' 4C skills in Indonesia indicate that, while the students were able to apply and improve their communication, creativity and creative thinking skills through the carefully crafted activities by their teachers, there were several difficulties during collaborative activities due to school facilities and tight schedule. Thus, the authors suggest that there should be more time provided for these activities and better school facilities such as smartboards or projections in the classrooms. The authors also suggest that the teachers should also improve their 21st century skills in order to apply the activities to improve their students' 4C skills.

In the Turkish foreign language learning context, the studies on the students' awareness of 21st century skills have been mostly done on students in higher education. A study by Irgatoğlu and Pakkan (2020) on ELL students and instructors in two state universities reveal that, although the students were aware of 21st century skills and 4Cs, and have claimed to have been using their 21st century skills in the classrooms effectively, the lecturers disagreed with the students and stated that the students were not applying those skills effectively. Similar to the previous studies, in order to develop these skills in the students, the authors suggest that the students should be assigned with tasks that can help them solve their real-life problems using 4C skills and the classroom environment should be prepared in order to encourage collaborative work with critical and creative discussions to solve these problems.

A study by Bedir (2019) investigates the preservice teachers' opinions and awareness of 4Cs of 21st century skills. This study reveals that, initially, the pre-service English teachers had some misconceptions about 21st century skills as they mainly considered these skills with the perspective of technology usage in their classrooms rather than 4Cs. The author also suggests that education programs in the universities should have activities for the professional development of pre-service teachers in order to improve their 4C skills. Another study by Ataberk and Mirici (2022) has revealed similar results. This study investigates the English language teacher training programs in Turkey with regards to their effectiveness of developing 21st century skills of the students of ELT departments. The results of this study indicate that the scope of ELT curriculum of universities is limited in developing the 21st century skills of the pre-service teachers.

The research of Şahin and Han (2020) on the EFL teachers' attitudes towards 21st century skills and the effectiveness of the teachers' methodology in terms of developing the 21st century skills of their students. This study highlights the positive attitude of the teachers towards the development of 21st century skills and the importance of collaboration among the students and the use of technology in foreign language learning. Çakır and Güngör (2017) investigate the curriculum of preservice teachers' English teaching for young learners with regards to 21st century skills. The research reveals that most of the preservice teachers who participated in this study are unprepared for teaching 21st century skills to their students due to the heavy focus on theoretical education in ELT programs in universities. In order to develop the 21st century skills of both the students and the teachers, the authors highlight the necessity of a curriculum based on observation and technology through practice rather than a theoretical focus.

In most contexts, even though the teachers and students have a positive attitude towards the development of 21st century skills, there are still some doubts and misconceptions about these skills regarding their scope and applicability in classrooms and real life. There are also issues with the evaluation of these skills in the students. Previous literature also reveals that most of the studies on 21st century skills have mainly focused on teachers and students from higher education rather than primary and secondary education. Raising the awareness and skill levels of the teachers' 21st century competencies is also as important as developing those skills in the learners as the teachers must also become enlightened and capable in terms of 21st century skills in order to reinforce the 21st century skills in their learners. Thus, there is more research needed in

order to investigate the awareness and literacy of both the teachers and the students from different educational levels and backgrounds.

1.6.4. Uncertainty and Uncertainty Management in Education

Uncertainty is a part of everyday life. It is also a concept that has been researched and defined by the researchers from different fields. Psychology defines uncertainty with regards to the affective feelings and reactions experienced by people as a result of an unknown situation (Anderson et al., 2019). It is strongly linked with the emotions experienced by humans as a result of an unknown or uninformed situations regarding the possibilities in the future (Morriss et al., 2019). These affective feelings that result from uncertainty can be perceived both as negative emotions such as fear and anxiety or positive emotions such as pleasure and excitement as a result of the person's expectations about the future.

1.6.4.1. Theories of Uncertainty

There are two main theories that have made attempts at the explanation of uncertainty and methods to manage or reduce the experiences of uncertainty. Uncertainty reduction theory (URT) focuses on resolving the experiences of uncertainty through a search for more information. Uncertainty management theory (UMT) on the other hand, focuses on understanding the perspectives

a. Uncertainty Reduction Theory (URT)

The first theory, uncertainty reduction theory (URT) was developed by Berger and Calabrese (1975) in order to explain the experiences of uncertainty throughout the interpersonal relationships. This theory asserts that the more information speakers are provided before the interaction, the more at ease and less uncertain they will feel during the communication process. The focus of uncertainty reduction theory is more focused on the first interaction between two people prior to the process of communication and their intentions to start the conversation. This theory assumes that the unknown information about the other participant in the communication process guides the communicator to reduce uncertainty through a search for further information (Kellermann & Reynolds, 1990). The reason for the desire to reduce uncertainty is to reduce anxiety and develop relationships as this theory assumes that the relationships can continue when "... participants are able to reduce uncertainty about each other and

disintegrate when participants are unable to reduce uncertainty about each other" (Parks & Adelman, 1983, p.56). Through the process of uncertainty reduction, people can strive to acknowledge the current condition with regards to projections about their own and other people's feelings, perspectives, actions and ethics to assume reasonable explanations about the past behaviors of themselves and the others (Hammer et al., 1998).

People feel inclined make attempts at reduction of the uncertainty when they expect to interact with one another in the future and when they sense that the other participant in the conversation process will fulfil their needs or act unpredictably (Berger, 1979). Reductionist theory assumes that there are two kinds of uncertainties: namely behavioral and cognitive. Behavioral uncertainty focuses on the appraisal of uncertainty depending on the actions of other people; while cognitive uncertainty assumes the level of uncertainty depending on the assumptions and judgement about the others (Saylor Academy, 2020).

b. Uncertainty Management Theory (UMT)

Brashers (2001) defines uncertainty as a state of ambiguity. This state of ambiguity can sometimes be resolved by knowing more about the situation that causes the uncertainty and the type of uncertainty experienced. Reductionist theory believes that if we have more information about the situation, we can develop better strategies to reduce feelings of uncertainty. However, we must also keep in mind that in some situations, individuals may not desire to know more about a situation to reduce the feelings of uncertainty. Each individual may have his or her own way of appraisals in uncertain situation. Some individuals may consider uncertainty as a negative experience and may not feel motivated to seek out any further information to resolve the uncertainty. Uncertainty in those moments may give them a feeling of hope and relief if they fear the new information could possibly cause more negative experiences and more uncertainty. While others may think of uncertainty as a motivating factor to learn new information and make attempts at learning more about a situation. Therefore, in education, it is important to focus on managing the experiences of uncertainty of our learners through encouraging communication and consciously motivating the learners to actively seek out further information rather than attempting at reducing the feelings of uncertainty through providing them information directly.

Communicative definitions focus on the management of experiences of uncertainties rather than reducing or removing uncertainty completely. Uncertainty management

theory (UMT) by Gudykunst (1998) highlights the importance of managing the feelings of uncertainty and anxiety through being mindful in the communication process by making attempts at recognizing and understanding different perspectives and opinions about a situation. This process of mindfulness is a conscious decision. Individuals must therefore feel inclined to seek ways to manage uncertainty through raising their awareness of a certain situation rather than seeking out new information to reduce uncertainty.

Uncertainty management theory highlights the importance of navigating through the experiences of uncertainty. This theory recognizes that removing or reducing the feeling of uncertainty may not be easily applicable in every context. Because the main problem with uncertainty reduction is the fact that the more an individual uncovers about an uncertain situation to reduce their feelings of uncertainty, the more questions could arise that can cause larger and more complicated uncertainties (Babrow & Matthias, 2009). Uncertainty management theory mainly focuses on communicating and interpersonal relationships through the uncertainty to manage the experiences and emotions raised due to uncertainty rather than seeking out new information that may cause new uncertainties.

The findings of the studies by Brashers et al. (2000), and Barbour et al. (2012) also indicate that people may avoid making an attempt at reducing uncertainty if they feel the experience of uncertainty gives them hope in an otherwise negative situation. Especially in risky situations such as diseases or a moment when negative outcome is highly possible, the individuals may believe that uncovering the information to reduce the feelings of uncertainty cannot resolve their negative experiences and they may not desire for any further information to reduce their feelings of uncertainty. For example, in the classroom when a student experiences uncertainty due to an unknown information, it may not be beneficial to directly provide him or her with the new information that may cause further uncertainty. However, through classroom activities and rehearsing scenarios that are based on contexts that the students can experience in their real life through the application 21st century skills and 4Cs, the students can feel more motivated to manage their experiences of uncertainty and help their peers' management of uncertainty.

1.6.4.2. Studies of Uncertainty in Education

In educational settings, uncertainty can be as a result of classroom situations experienced by the students. A study by Lamnina and Chase (2019) highlights the importance of

curiosity in the learning process in science education. The authors of the study have found out that uncertainty can be beneficial in terms of increasing curiosity and anticipation in the students, thus having a positive effect in the learning process. The study also states that the ways in which uncertainty is raised in the students is also a key factor in the management and application of uncertainty in the education process. Therefore, the approaches taken in terms of addressing the experiences of uncertainty in classroom are also vital, as these approaches have a key role in determining the appraisal of uncertainty by the students throughout their future experiences of uncertainty.

A study by Atkins (2000) focuses on uncertainty avoidance in the classroom. This study also focuses on differences between two cultures about the students' reactions to uncertain situations. The author suggests that the teachers should become aware of cultural differences between their own and their students' cultures in order to manage uncertain situations and ensure a more pleasant teaching and learning environment. The author also claims that rather than attempting to avoid uncertainty, the students and teachers must focus on managing the experiences of uncertainty in a healthy manner to conduct the lessons.

Another study by Messeguer et al. (2010) utilize Computer Supported Collaborative Learning (CSCL) for context awareness and collaborative learning to manage uncertainties. The authors discovered that through the use of computer programs and groupwork in face-to-face classroom activities, when the students were able to work within a group consistently and communicated through the computer-assisted activities, they were able to effectively manage the uncertainties that arose during the activities. The study by Divjak and Milin (2020) focus on the types of uncertainty experienced by the students during the classroom activities. In this research, uncertainty is regarded as the factor that helps the investigation of the students' learning patterns. The results of this study indicate that the students who focus more on the tasks and directions have difficulty managing uncertainties that emerge due to the sentence structures. On the other hand, the students who focus on context rather than directions of the tasks manage their uncertainty easier thanks to their ability to gather information from the contextual clues of the texts.

A study by Dağtaş (2018) explores uncertainty in foreign language learners at university level. The results of this study reveal that, depending on their opinions on uncertain situations, the learners' feelings change. For example, if the learners have

negative opinions about the uncertain situations, they also experience negative emotions in these situations such as fear, anxiety or confusion. On the other hand, if the learners have a positive outlook on uncertain situations, they were enthusiastic about such situations. This research also indicates that the physical conditions of learners (such as hunger and sleep deprivation) and their learning environment also have a direct effect on uncertainties experienced by them in the classroom. In addition, another study by Dağtaş and Şahinkarakaş (2019) also reveal that the students experience uncertainty in collaborative tasks that require groupwork and brainstorming. The students' appraisal of uncertainty also varies from each other and thus they experience different emotions. The students who have a positive view on uncertainty have a better learning experience in uncertain situations. However, the authors also mention that the students' perspective on uncertainty may change from context to context and over time. Thus, more detailed research could be helpful to determine strategies to prepare the students for uncertain situations.

Beyce (2020) explores the relationship between uncertainty and anxiety in secondary school learners. This study reveals a strong link between the uncertainty and anxiety levels of the learners. As the learners experience more uncertainty in classroom activities, their levels of anxiety also increase during these tasks. Similar to the previous studies in this field, this research highlights the link between the kind of emotions experienced by the learners and their outlook on uncertain situations in the classroom. The study also reveals that the students experienced uncertainty during certain tasks such as group or pair work where the teacher's instructions and feedback were not as frequent as the other activities.

Effective management of uncertainty is also extremely challenging in certain educational settings (Jordan, 2010). In the language classroom, learners are often faced with uncertain situations. For both the teachers and the learners, it can be difficult to manage uncertainty not only emotionally but also cognitively. For example, the students may become confused and feel frustrated when they are exposed to an unfamiliar cultural environment, an unknown set of linguistic structures and rules of a language due to the fact that they may not be able to comprehend such rules easily at the first glance. There is also the fear of peer pressure and the feeling of inadequacy due to being unable to gain the approval of their teachers when the students are uncertain of their answers to the problems and questions in the classroom. The students may also feel discouraged to

participate in the classroom activities if the uncertainty levels are too high as this may result in pressure, anxiety or fear when uncertainty is not processed properly. If the students and the teachers cannot manage the uncertainty arising from unknown or unfamiliar situation effectively, this may lead to ineffective teaching and learning. Therefore, although uncertainty is not always a negative factor in education and daily life, the effects of uncertainty in decision making can certainly impair the learning process if they are unmanaged. In such cases, the students and teachers' management of uncertainty in the classroom is vital in the learning process. Previous literature shows that the way in which the students deal with uncertainty will also affect their learning tremendously (Dağtaş, 2018).

1.6.5. Relationship between 21st Century Skills and Uncertainty Management

Investigation of previous literature reveals that if the students believe they can resolve and manage uncertainty in the classroom by exploration and questioning, they will be more willing to participate in the classroom activities and do research on various topics. Since the management of uncertainty also entails adaptability, it is highly likely for learners with a positive outlook on uncertainty to become successful in setting and reaching their goals both in their academic and daily lives (Martin et al., 2013). As 21st century skills also require a level of flexibility, awareness, and the desire for knowledge, the learners who can improve their 21st century competencies can also manage their uncertainty experiences. Uncertainty management can encourage the students to develop their 21st century and 4C skills.

For the future educational and career objectives, the importance of effective management of uncertainty in the learning process is highlighted, especially for the learners who come from less advantageous backgrounds (Schoon et al., 2012). It is crucial for the learners to aim for career choices that are attainable and rewarding to the learners is also included within the 21st century skills. Uncertainty is also a risky situation for the learners and teachers in the classroom. However, through the continuous development of information literacy and communication skills and the rest of the 4Cs, the learners can reduce their avoidance of uncertainty and develop different strategies to manage their experiences of uncertainty more effectively. Communication is a key skill in the management of uncertainty. In a dialogue-centered classroom, teachers should encourage the learners to take certain risks to uncover unknown and unclear situations

and develop new understandings of the world based on the knowledge revealed through communication (Fecho, 2013). Therefore, it is crucial for the learners to develop their 21st century skills to manage their experiences of uncertainty.

CHAPTER II

2. METHODOLOGY

This chapter aims to describe the methodology of this study and the reasons for the chosen methodological structures. In this study, quantitative method was employed in order to collect data from the participants. First, research questions and the reasoning behind those questions are explained. Then, the participants and the sampling method are provided. Finally, the context, the data collection tools are revealed.

2.1. Research Design

This study was conducted in order to explore the relationship between 21st century skills and uncertainty management skills in foreign language education. A quantitative method with appropriate data collection tools with questionnaires was followed. During the analysis of the data, a descriptive method was used in order to provide information about the two main variables of 21st century skills and uncertainty management skills of the participants. Then, a correlational method was applied in order to analyze the relationship between these two variables. The research questions also aim to explain whether there are any differences between the students' awareness and competence of 21st century and uncertainty management skills depending on their genders and grades.

2.2. Setting and Participants

The study was conducted in the fall semester of 2023-2024 educational year in Cumhuriyet Anatolian High School, a state school in Kızıltepe province of Mardin, a school located in the southeast region of Turkey. Convenience sampling method was used for the selection of the participants. All of the participants were the students that were studying at the same school that the researcher serves as an English teacher. A total of 400 participants were selected among the students of Cumhuriyet Anatolian High school. The participants were all from varying grades from 9th, 10th, 11th and 12th grades. Prior to the application of questionnaires in the classroom, the participants were handed parental consent forms.

Due to recent changes to high school placement system, the students are often placed in the nearest high schools in the neighborhood or city. Although there is still a high

school placement exam in Turkey, the students are often placed to the high schools nearby if they cannot acquire a score that is high enough for certain high schools that pay attention to academic levels of the students more than the others. This system usually disregards the students' school grades and high school entrance exam scores unless they are applying to certain high schools that still prioritize the exam scores of the students such as science high schools that aim to raise the students who can gain higher scores in the university entrance exam. Thus, the participants of the study are mostly students who reside in neighborhoods and villages close to the school and similar sociocultural backgrounds. But they also have vastly different academic levels.

Except for the language classrooms, which consist of around 15 to 20 students, the classrooms of the high school that this research was conducted usually have around 36 students. Due to the crowded classrooms and varying academic levels of the students, there can be some obstacles in the language learning process in the classrooms. Thus, evaluation and development of the students' uncertainty management and 21st century skills are also a difficult process. Because certain tasks that involve groupwork and highlight the higher thinking skills such as problem solving through critical thinking and creativity may sometimes be simplified or omitted in order to conduct the lesson effectively. The study was conducted on 400 students. However, due to some participants answering the questions with "1" or "5" consecutively, 6 of the data were omitted to have more reliable results from the study.

Table 1

Participants' Demographic Information

		F	%
Gender	Female	224	56,9
	Male	170	43,1
	Total	**394**	**100**
		F	%
School Grade	9th Grade	86	21,8
	10th Grade	180	45,7
	11th Grade	61	15,5
	12th Grade	67	17,0
	Total	**394**	**100**

In total, this study was conducted on 394 students, 224 (56,9 %) of whom were female students and 170 (43,1 %) were male. The study was mostly conducted on 10th grade

students, who formed 45,7 % of the study with 180 participants and then the 9th grade students with 21,8 % of the participants with 86 students participating in this study. The rest of the participants were 11th graders (n=61, 15,5%) and 12th graders (n= 67, 17,0 %), who were studying at the same high school.

2.3. Data Collection Tools

Two different questionnaires were employed to gather the data for this study. These questionnaires are the "Multidimensional 21st century skills scale" by Çevik and Şentürk (2019) and the section related to classroom uncertainty and uncertainty management from Uncertainty Questionnaire by Dağtaş (2018). Although there is an English version of the Uncertainty Questionnaire available, the researcher decided to apply the Turkish versions of both of these questionnaires in order to help the students read and answer the items in the questionnaire more effectively. Prior to answering the questions in these questionnaires, a demographic information form had been filled out by the students in order to gather information about their school grade and gender distributions and analyze the data emerging from both of these questionnaires accordingly.

Multidimensional 21st century skills scale consists of 41 questions. In this scale, there are certain subcategories with questions to determine the participants' evaluation of their own 21st century skill levels and 4Cs. These subcategories are 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 Skills (6 items). The classroom uncertainty section related to uncertainty management of the Uncertainty Questionnaire aims to determine the methods the students apply in order to manage their experiences of uncertainty in the classroom or how they avoid the uncertainty in the classroom in case they cannot manage them successfully. This section of the questionnaire consists of 13 items.

Multidimensional 21st century skills scale is a 5-point Likert-type scale which has answers that correspond to numbers from 1 to 5 with answers about agreeing or disagreeing the items in the questionnaire; number 5 corresponding to the answer "strongly agree", 4 "agree", 3 "undecided", 2 "disagree" and finally 1 "strongly disagree". Therefore, the highest score an item can be evaluated in this questionnaire starts from 1 and ranges from that point to the lowest score of 5. There are a total of seven

reversed items in the questionnaire; six of which form the “Critical Thinking and Problem-Solving Skills” section and another reversed item in the “Social Responsibility and Leadership Skills” section labeled “I think group projects are a waste of time.”

Classroom Uncertainty section of the Uncertainty Questionnaire, which is the other questionnaire used to collect the data from the participants about their uncertainty experiences in the classroom, consists of 13 items. Similar to the first scale applied for the study, this questionnaire is also a 5-point Likert scale with answers from numbers 1 to 5 that correspond to answers to determine the frequency of the application of each item such as number 1 corresponding to “Always”, 2 “Usually”, 3 “Sometimes”, 4 “Rarely” and 5 “Never”. The highest frequency score in this questionnaire is thus 1 and the lowest score an item could be evaluated is 5. Some of the items in this questionnaire such as “I ask my teacher when I do not know how to complete a task,” and “If the topic is vague to me, I search for more information from various sources such as Internet.” aim to find answers to the frequency of the students who apply different methods to manage their experiences of uncertainty, while the other items such as “When I experience an uncertain situation, I must immediately get away from that uncertain situation,” and “I tend to give up easily when I do not clearly understand what to do.” aim to determine the frequency at which the students make an attempt to manage their experiences of uncertainty or ignore these uncertainty experiences completely.

2.4. Data Collection

Prior to collection of data, necessary permissions had been requested from ethics committee of Çağ University and Mardin Provincial Directorate of National Education to conduct the study in the fall semester of 2023-2024 educational year. After the permissions were granted, the administration of Cumhuriyet Anatolian High School, the school where the study took place, was informed about the study by the Kızıltepe District Directorate of National Education. The participants were handed the parental consent forms before the study took place and they were informed about the procedure and the aims of this study. The data was collected through on-paper surveys during one of their lessons. Therefore, each data collection session lasted 40 minutes.

2.5. Data Analysis

The quantitative data that emerged from the survey and recorded on excel sheets was then moved to SPSS program in order to analyze them. A data screening was applied in order to detect the missing values and reverse items. A total of 7 items from the Multidimensional 21st Century Skills Scale were reversed in order to analyze the data correctly. Descriptive statistics method was applied to analyze the data that emerged as a result of both of the questionnaires. First, the reliability of the study was tested through Cronbach's alpha. Then, Kolmogorov Smirnov Test was applied to the variables to test the normality of the variables. After the verification of the data, descriptive statistics was applied to detect the statistics of mean, standard deviation and standard error of the data. Afterwards, correlational statistics through the application of were applied to detect whether there is a significant correlation between the students' uncertainty management skill levels and their 21st century skill levels. Additionally, inferential statistics was employed to see whether there is a significant difference between each grade level and gender regarding their uncertainty management and 21st century skill levels separately.

2.6. Validity and Reliability

Cronbach's alpha score of the Uncertainty Management Questionnaire and Multidimensional 21st Century Questionnaire were 0,750 and 0,849 respectively. Previous literature agrees that Cronbach's Alpha score of 0,70 or above is enough to satisfy the requirements of reliability (Bland & Altman, 1997; Taber, 2017). Upon evaluation of the validity and reliability of these questionnaires, the total Cronbach's alpha score of both of these scales along with their own subcategories was found to be 0,849, thus informing us that the results of the scales were reliable. Since there were more than 300 participants in the study, the results from Kolmogorov-Smirnov test would not be applicable to test the normality of this study. The reliability scores in the original study done to confirm the reliability of the Multidimensional 21st century skills scale, which was applied to less than 250 students, were 0,860 for the whole scale, 0,840 for the first subscale, 0,790 for the second subscale, 0,760 for the third subscale, 0,730 for the fourth and 0,750 for the fifth subscales (Çevik and Şengül, 2019). The original study conducted by Dağtaş (2018) which has formed and applied Uncertainty Questionnaire and the classroom uncertainty section that is related to uncertainty management had reliability

scores of 0,870 and 0,830 respectively. Thus, both questionnaires and their subscales have been proved to be reliable in this study and their original studies.

Table 2

Reliability Scores of the Questionnaires

Scale	Cronbach's Alpha	Number of Items
1. **Uncertainty Management Questionnaire**	0,750	13
2. **Multidimensional 21st Century Questionnaire**	0,849	41
Total	**0,849**	**54**

CHAPTER III

3. RESULTS

The research aims to examine the high school students' levels of 21st century competencies and their uncertainty management skills, and the correlation between these two variables. With its subcategories of the questions, the research also aims to answer these whether there is a significant difference between the competence levels of these skills depending on the students' grade levels and genders. The data for this research was collected with the application of a demographic information form and two questionnaires: "Multidimensional 21st century skills scale" by Çevik and Şentürk (2019) and the uncertainty management portion of Uncertainty Questionnaire by Dağtaş (2018). The Multidimensional 21st century skills scale was utilized to gain insight on the students' 21st century competency levels, and the uncertainty management portion of Uncertainty Questionnaire was applied to evaluate the students' uncertainty management levels during their daily lives and the classroom activities. A quantitative method was utilized with the application of descriptive statistics, independent sample t-test, one-way ANOVA and correlation analysis of the data.

3.1. Descriptive and Inferential Statistics of the High School Students' of 21st Century Skill Levels

In order to answer the first question, the 21st century skill levels of the high school students were examined through descriptive statistics. Means and standard deviations for each item within their own subscales were analyzed separately.

Table 3

Descriptive Statistics for Subscales of Multidimensional 21st Century Skills Scale

Subscales	N	Mean	SD
Information and Technology Literacy Skills	394	2,15	0,537
Critical Thinking and Problem-Solving Skills	394	2,31	0,799
Entrepreneurship and Innovation Skills	394	2,52	0,649
Social Responsibility and Leadership Skills	394	2,47	0,750
Career Awareness Skills	394	1,65	0,749
Total	394	2,22	0,442

In Table 3, the participants' scores of the Multidimensional 21st century skills scale reveals that the mean score of the whole scale (M=2,22, SD=0,537) is lower than 3 "undecided", which means that participants mostly agree with the items in the scale and therefore have a high level of competency in 21st century skills. Career Awareness Skills subscale (M=1,65, SD=0,749) has the lowest mean score, therefore the participants are most competent in their career awareness skills. Although the score of this subscale is still lower than 3, the Entrepreneurship and Innovation Skills subscale (M=2,52, SD=0,649) has the highest mean score and therefore the participants have a lower level of competency in this subscale.

Table 4

Descriptive Statistics for Information and Technology Literacy Skills Subscale

Items		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean	SD
1. I am curious about learning.	*f*	220	129	21	9	15	1,65	0,964
	%	55,8	32,7	5,3	2,3	3,8		
2. I enjoy listening to new and different ideas	*f*	229	116	32	3	14	1,62	0,934
	%	58,1	29,4	8,1	0,8	3,6		
3. I make an effort to learn new knowledge besides the information that is available.	*f*	155	163	58	13	5	1,86	0,877
	%	39,3	41,4	14,7	3,3	1,3		
4. I am up to date with the innovations in our country and around the world.	*f*	92	120	115	47	20	2,45	1,123
	%	23,4	30,5	29,2	11,9	5,1		
5. I am aware of the changes and innovations around the world.	*f*	62	108	137	54	33	2,72	1,139
	%	15,7	27,4	34,8	13,7	8,4		
6. I keep up with different resources to gain different information.	*f*	112	140	91	34	17	2,25	1,091
	%	28,4	35,5	23,1	8,6	4,3		
7. I enjoy doing research using reputable sources to gain new information.	*f*	161	144	53	28	8	1,93	1,004
	%	40,9	36,5	13,5	7,1	2,0		
8. I am aware of what kind of information I need in my daily life.	*f*	165	137	62	16	14	2,08	1,049
	%	41,9	34,8	15,7	4,1	3,6		
9. I reach the knowledge I need	*f*	104	145	92	29	24	1,93	1,027
	%	26,4	36,8	23,4	7,4	6,1		

through correct resources.								
10. I confirm the validity of the knowledge I need through different resources.	*f*	115	163	58	13	5	2,30	1,120
	%	39,3	41,4	14,7	3,3	1,3		
11. I apply the knowledge I have gained and confirmed in my daily life effectively.	*f*	142	141	76	19	16	2,05	1,054
	%	36,0	35,8	19,3	4,8	4,1		
12. I share the knowledge that I have confirmed with the others.	*f*	170	130	58	25	11	1,93	1,040
	%	43,1	33,0	14,7	6,3	2,8		
13. I regularly follow the updates on the written, audial and visual sources.	*f*	66	118	108	63	39	2,72	1,205
	%	16,8	29,9	27,4	16,0	9,9		
14. I know the meanings of the smart symbols on TV that indicate the suitable audience of the program.	*f*	133	88	83	48	42	2,44	1,345
	%	33,8	22,3	21,1	12,2	10,7		
15. I am up to date with the recent technological developments.	*f*	100	120	96	44	34	2,47	1,225
	%	25,4	30,5	24,4	11,2	8,6		

When the Information and Technology Literacy subscale is investigated, most of the items had lower mean score than 2,5. As the scale was a 5-likert scale that has ranking 1 “strongly agree” to 5 “strongly disagree”, a lower mean score means that the participants had higher information and technological literacy skills. While the Item 2 “I enjoy listening to new and different ideas.” had the lowest mean score (M= 1,62, SD=0,934), Items 5 “I am aware of the changes and innovations around the world.” (M= 2,72, SD=1,139) and 13 “I regularly follow the updates on the written, audial and visual sources.” (M= 2,72, SD= 1,205) had the highest mean scores. This indicates that, although the participants are open to listening and learning new ideas, they do not actively seek out information as much as they enjoy learning them. Moreover, the participants mostly answered Item 1 and Item 2 as “strongly agree” and “agree”. Item 1 “I am curious about learning.” was answered “1= strongly agree” by 220 (55,8%) participants and “2= agree” by 129 (32,7%) participants. Similarly, Item 2 “I enjoy listening to new and different ideas.” was answered “1= strongly agree” by 229 (58,1%)

participants and “2= agree” by 116 (29,4%) participants. These results indicate that the participants are interested in learning new ideas through listening to others.

Table 5

Descriptive Statistics for Critical Thinking and Problem-Solving Skills Subscale

Items		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean	SD
16. I believe that everything that I am told is correct.	*f*	188	95	54	30	27	2,02	1,241
	%	47,7	24,1	13,7	7,6	6,9		
17. I do not want to be friends with those who do not think the same way as I do.	*f*	146	80	73	44	51	2,43	1,411
	%	37,1	20,3	1,5	11,2	12,9		
18. I do not like those who criticize me.	*f*	83	70	52	74	115	3,17	1,534
	%	21,1	17,8	13,2	18,8	29,2		
19. I accept that everything I read is true.	*f*	177	98	69	30	20	2,03	1,178
	%	44,9	24,9	17,5	7,6	5,1		
20. I talk about the topics that I have learned without thinking about them	*f*	171	92	61	48	22	2,13	1,251
	%	43,4	23,4	15,5	12,2	5,6		
21. I ignore the problems that I face instead of challenging with them.	*f*	181	93	45	50	25	2,10	1,283
	%	45,9	23,6	11,4	12,7	6,3		

The items in Critical Thinking and Problem-Solving Skills subscale were reverse items. Therefore, the answers to these items in the 5-likert scale will be analyzed reversely. Thus, the scores will be graded from 1 “strongly disagree” to 5 “strongly agree. All of the items except for Item 18 “I do not like those who criticize me” (M=3,17, SD=1,534) had lower mean scores than M=2,5. While the Item 16 “I believe that everything that I am told is correct.” had the lowest mean score (M=2,02, SD=1,241), followed by the second lowest item that is Item 19 “I accept that everything I read is true.” (M=2,03, SD= 1,178). These results indicate that a majority of the participants are sceptic of the information provided to them and do not accept the information they read and learn from others as truth without thinking critically. However, their answers to the Item 18 “I do not like those who criticize me” (M=3,17, SD=1,534) also reveal that a great portion of the participants (n=115) do not enjoy receiving criticism.

Table 6

Descriptive Statistics for Entrepreneurship and Innovation Skills Subscale

Items		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean	SD
22. I usually maintain my projects with enthusiasm and drive.	*f*	145	133	57	33	26	2,14	1,194
	%	36,8	33,8	14,5	8,4	6,6		
23. I turn the negative situations into opportunities.	*f*	88	105	98	57	52	2,73	1,304
	%	20,8	26,6	24,9	14,5	13,2		
24. I plan and manage my time effectively.	*f*	124	132	81	37	20	2,23	1,141
	%	31,5	33,5	20,6	9,4	5,1		
25. I create different products with my work.	*f*	89	121	106	54	24	2,50	1,160
	%	22,6	30,7	26,9	13,7	6,1		
26. I enjoy dealing with complicated and difficult tasks.	*f*	122	110	69	49	44	2,45	1,338
	%	31,0	27,9	17,5	12,4	11,2		
27. I observe and analyze everything with an intense curiosity.	*f*	147	115	74	38	20	2,16	1,175
	%	37,3	29,2	18,8	9,6	5,1		
28. I think about the methods and techniques that can make people's lives easier.	*f*	87	112	119	47	29	2,54	1,172
	%	22,1	28,4	30,2	11,9	7,4		
29. I produce and apply unusual, new and useful ideas.	*f*	73	112	122	66	21	2,62	1,124
	%	18,5	28,4	31,0	16,8	5,3		
30. I think about the possible needs in future and do research about those needs.	*f*	63	77	120	66	68	3,00	1,303
	%	16,0	19,5	30,5	16,8	17,3		
31. I present the products that I create to those around me with ease.	*f*	60	105	116	64	49	2,84	1,230
	%	15,2	26,6	29,4	16,2	12,4		

The analysis of Entrepreneurship and Innovation Skills Subscale reveals that most of the items had a score lower than the medium point of 3 “undecided” in terms of ranking, but none of the items’ mean scores was around the value of 1 “Strongly Agree”. When the ranking of the items’ overall means of this subscale (M=2,52, SD=1,214) is compared to the previous subscales, it can be assumed that the participants have a slightly lower competency levels in terms of their Entrepreneurship and Innovation Skills than their Information and Technology Literacy Skills (M=1,97, SD=1,079) and Critical Thinking and Problem-Solving Skills (M=2,31, SD=1,316). The item that has the lowest mean is Item 22 “I usually maintain my projects with enthusiasm and drive.” (M=2,14, SD= 1,194), while the item that has the highest mean in terms of ranking is Item 30 “I think about the possible needs in future and do research about those needs.” (M=3,00, SD=1,303).

Table 7

Descriptive Statistics for Social Responsibility and Leadership Skills Subscale

Items		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean	SD
32. I try to communicate with people from different cultures.	*f*	127	108	72	47	40	2,40	1,318
	%	32,2	27,4	18,3	11,9	10,2		
33. I usually take the leadership position in group projects.	*f*	70	107	105	64	48	2,78	1,260
	%	17,8	27i2	26,6	16,2	12,2		
34. I contribute to the development of the skills of those around me along with the development of my own skills.	*f*	101	129	93	40	31	2,42	1,198
	%	25,6	32,7	23,6	10,2	7,9		
35. I think group projects are a waste of time.	*f*	165	82	66	29	52	2,29	1,410
	%	41,9	20,8	16,8	7,4	13,2		

When the Social Responsibility and Leadership Skills Subscale is analyzed, it was revealed that the item with the lowest mean score is Item 35 “I think group projects are a waste of time” (M=2,29, SD=1,410). This item is the only reverse item in this subscale. A great number of the participants selected the option 1 “Strongly Agree” (n=165) and 2 “Agree” (n=82) for this item. Majority of the participants agree that the group projects are not worth participating. The item with the highest ranking is Item 33 “I usually take

the leadership position in group projects." (M=2,78, SD=1,260). Although this score still reveals that most of the participants still agree that they would like to take leadership positions in their groups, their opinion is slightly closer to score 3 "undecided" than the other items. Therefore, although the participants' Social Responsibility and Leadership skills are still higher than the average score of "3" (M=2,47, SD= 1,296), and they agree with most of the items, there are still certain items in this subscale that they do not fully agree.

Table 8

Descriptive Statistics for Career Awareness Skill Subscale

Items		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean	SD
36. I make an effort to complete the assignments given to me successfully.	*f*	252	93	18	14	17	1,61	1,031
	%	64,0	23,6	4,6	3,6	4,3		
37. I have an idea about the job I want to do in the future	*f*	241	67	48	14	24	1,76	1,171
	%	61,2	17,0	12,2	3,6	6,1		
38. I try to select the most suitable job for myself through researching the qualifications of the job.	*f*	247	89	31	12	15	1,63	1,017
	%	62,7	22,6	7,9	3,0	3,8		
39. I would like to be successful in my future job.	*f*	318	41	12	11	12	1,37	0,911
	%	80,7	10,4	3,0	2,8	3,0		
40. I am aware that the decisions I make at this stage of my life will change the direction of my future.	*f*	244	101	30	8	11	1,58	0,925
	%	61,9	25,6	7,6	2,0	2,8		
41. I use the opportunities that can contribute to my personal development and my future career (internship, courses, seminars, educations etc.)	*f*	191	94	60	18	31	1,99	1,238
	%	48,5	23,9	15,2	4,6	7,9		

Career Awareness Skill Subscale has the lowest mean value compared to the rest of the subscales (M= 1,65, SD=1,048). This means that the students have a high career awareness level. None of the items in this scale are valued higher than M=2 and the item with the highest value is Item 41 "I use the opportunities that can contribute to my

personal development and my future career (internship, courses, seminars, educations etc.)" while the item with the lowest value is Item 39 "I would like to be successful in my future job" (M=1,37, SD=0,911).

In conclusion, the high school students who have participated in this study have a high 21st century skillset. While the highest level can be seen in the Career Awareness Skill Subscale, the lowest value is at the Entrepreneurship and Innovation Skills Subscale.

a. Inferential Analysis: 21st Century Skill Levels Regarding School Grades

In this section, the data emerging from Multidimensional 21st Century Skills Scale was analyzed through inferential statistics to investigate whether there was a significant difference between 21st century skill levels depending on the participants' school grades. After the analysis of each item within every subscale, the 21st century skill levels of the students were analyzed through inferential statistics (ANOVA, independent sample t-test) regarding their genders and grade levels to investigate the differences between each variable.

Table 9

ANOVA Results for Multidimensional 21st Century Skills Scale

	School Grades	N	Mean	SD	F	P
Information and Technology Literacy	9th Grade	86	2,32	0,577	3,752	0,056
	10th Grade	180	2,10	0,461		
	11th Grade	61	2,10	0,607		
	12th Grade	67	2,13	0,575		
Critical Thinking and Problem Solving	9th Grade	86	2,46	0,742	5,715	**0,007***
	10th Grade	180	2,13	0,714		
	11th Grade	61	2,50	0,848		
	12th Grade	67	2,41	0,946		
Entrepreneurship and Innovation	9th Grade	86	2,75	0,674	5,376	**0,042***
	10th Grade	180	2,44	0,547		
	11th Grade	61	2,39	0,740		
	12th Grade	67	2,53	0,716		
Social Responsibility and Leadership	9th Grade	86	2,64	0,787	2,431	0,261
	10th Grade	180	2,38	0,748		
	11th Grade	61	2,50	0,779		
	12th Grade	67	2,46	0,649		
Career Awareness	9th Grade	86	1,82	0,783	3,003	**0,022***
	10th Grade	180	1,54	0,697		
	11th Grade	61	1,67	0,856		
	12th Grade	67	1,73	0,701		
Total	9th Grade	86	2,40	0,464	7,649	**0,026***
	10th Grade	180	2,13	0,371		
	11th Grade	61	2,20	0,504		
	12th Grade	67	2,24	0,465		

Note: * p <0.05

One-way ANOVA test was conducted to determine the if there was a significant difference between their 21st century skill levels based on the participants' grade levels. The investigation of the data reveal that, while the results of students from each grade level showed no significant difference within the Information and Technology Literacy Skills and Social Responsibility and Leadership Skills subscales, the rest of the subscales and the total results of the students showed significant differences depending on each grade level.

b. Inferential Analysis: 21st Century Skill Levels Regarding Gender

This portion of the study revealed whether there is a significant difference between the 21st century skills depending on the participants' genders. Independent sample t-test was conducted on the overall scores and the subscales of the Multidimensional 21st Century Skills Scale of each gender to investigate whether the gender of the participants was an important factor with regards to their 21st century skill levels.

Table 10

Independent Sample T-test Results Multidimensional 21st Century Skills Scale and Gender

	Gender	N	Mean	SD	t	P
Information and Technology Literacy	Female	224	2,16	0,520	0,205	0,886
	Male	170	2,15	0,561		
Critical Thinking and Problem Solving	Female	224	2,31	0,801	-0,079	0,849
	Male	170	2,57	0,799		
Entrepreneurship and Innovation	Female	224	2,57	0,638	1,932	0,747
	Male	170	2,44	0,658		
Social Responsibility and Leadership	Female	224	2,42	0,739	-1,327	0,920
	Male	170	2,53	0,763		
Career Awareness	Female	224	1,54	0,709	-3,356	0,072
	Male	170	1,80	0,778		
Total	Female	224	2,22	0,418	-0,280	0,161
	Male	170	2,23	0,473		

Note: *p <0.05

When the independent sample t-test was conducted on the data, it was found out that there was no significant difference between the uncertainty management skill levels of both genders (p=0,886, p=0,849, p=0,747, p=0,920, p=0,072, p=0,161, p>0.05). However, it can also be observed that female participants had slightly higher mean scores

than their male peers in the overall scale and each of the subscales except for information and technology subscale.

3.2. Descriptive and Inferential Statistics of the High School Students' Uncertainty Management Levels

Participants' uncertainty management levels were examined through descriptive statistics. Then, inferential statistics was utilized to analyze the uncertainty management skills of the students depending on the demographic variables (school grade levels and gender) to determine whether there is a significant difference between those variables.

Table 11

Descriptive Statistics for Uncertainty Management Questionnaire

	N	**Mean**	**SD**
Uncertainty Management	394	2,56	1,174

The answers in the scale that evaluated the uncertainty management levels and frequencies of the students ranged from 1 "Always" to 5 "Never." Thus, when the mean scores and total results of the Uncertainty Management Questionnaire were analyzed, it was revealed that the participants had a high tendency to make an attempt at managing the uncertainty emerging during their learning experiences (M=2,56, SD=1,174).

Table 12

Descriptive Statistics for Uncertainty Management Questionnaire

Items		**Always**	**Usually**	**Sometimes**	**Rarely**	**Never**	**Mean**	**SD**
1. I ask my teacher when I do not know how to complete a task.	*f*	76	119	115	63	21	2,58	1,128
	%	19,3	30,2	29,2	16,0	5,3		
2. When I feel uncertain, I act immediately to clarify the situation.	*f*	115	130	98	42	9	2,24	1,058
	%	29,2	33,0	24,9	10,7	2,3		
3. I tend to give up easily when I do not clearly understand what to do.	*f*	20	57	75	99	143	3,73	1,233
	%	5,1	14,5	19,0	25,1	36,3		
4. When I experience an uncertain situation, I must immediately get away from that uncertain situation.	*f*	150	108	71	40	25	2,19	1,227
	%	38,1	27,4	18,0	10,2	6,3		

5. I ask my friends when I do not know how to complete a task.	*f*	119	121	90	34	30	2,33	1,207
	%	30,2	30,7	22,8	8,6	7,6		
6. I make assumptions when I am uncertain.	*f*	80	135	89	62	28	2,55	1,182
	%	20,3	34,3	22,6	15,7	7,1		
7. If I do not understand how to do a task, I wait for the others to start.	*f*	49	94	96	80	75	3,10	1,302
	%	12,4	23,9	24,4	20,3	19,0		
8. When I cannot decide what to do about a given assignment or a task, I consider all the alternatives.	*f*	150	130	63	30	21	2,15	1,112
	%	34,3	32,7	20,3	8,6	4,1		
9. When I do not know how to do a task, I try to find the answer on my own and try to do it.	*f*	104	145	92	29	24	2,09	1,149
	%	38,1	33,0	16,0	7,6	5,3		
10. If the topic is vague to me, I search for more information from various sources such as Internet.	*f*	212	105	46	23	8	1,76	1,007
	%	53,8	26,6	11,7	5,8	2,0		
11. If I do not understand the content of the lesson, I pretend that I understand.	*f*	35	47	87	95	130	3,60	1,294
	%	8,9	11,9	22,1	24,1	33,0		
12. When I cannot decide what to do, I criticize myself.	*f*	53	111	111	71	48	2,87	1,214
	%	13,5	28,2	28,2	18,0	12,2		
13. If I am confused about how to complete a task, I feel that I have to study more.	*f*	149	126	64	35	20	2,11	1,159
	%	37,8	32,0	16,2	8,9	5,1		

Upon the analysis of data from Uncertainty Management Questionnaire, the item with the lowest mean score was found out to be Item 10 “If the topic is vague to me, I search for more information from various sources such as Internet” (M=1,76, SD=1,007). This question also correlates to the information and technology skills subsection discussed in the previous portion of the research. It could be assumed that the participants tended to make an attempt at managing their uncertainty through technology usage. The item with the highest mean score was Item 3 “I tend to give up easily when I do not clearly understand what to do” (M=3,73, SD=1,233). A great percentage of participants noted that they never (36,3%, n=143) or rarely (25,1%, n=99) give up to their feelings of uncertainty in vague situations. When the ways in which participants tried to resolve or manage uncertainty in classroom were compared, the mean scores of Item 9 “9. When I

do not know how to do a task, I try to find the answer on my own and try to do it" (M=2,09, SD=1,149), Item 5 "I ask my friends when I do not know how to complete a task" (M=2,33, SD=1,207), and Item 1 "I ask my teacher when I do not know how to complete a task" (M=2,58, SD=1,128) reveal that the participants had a preference over resolving any uncertainty arisen in the classroom on their own rather than asking for help from their peers and teachers.

a. Inferential Analysis: Uncertainty Management Levels Regarding School Grades

To answer the section related to uncertainty management within the second research question, the data acquired from the Uncertainty Management Questionnaire was analyzed through ANOVA to compare the results of each school grade.

Table 13

ANOVA Results for Uncertainty Management Questionnaire

	School Grades	**N**	**Mean**	**SD**	**F**	**P**
Uncertainty Management	9th Grade	86	2,72	0,509	4,826	**0,003***
	10th Grade	180	2,50	0,380		
	11th Grade	61	2,55	0,444		
	12th Grade	67	2,56	0,505		

One-way ANOVA test was conducted to determine the if there was a significant difference between their 21st century skill levels based on the participants' grade levels. Upon investigation of the results, it was revealed that there was a significant difference between the students' uncertainty management levels for each grade level (p=0,003 <0.05). The results also indicate that the 10th grade students (M=2,50, SD=0,380) had the highest frequency to attempt at managing their experiences of uncertainty during their learning experiences, while the 9th grade students had the lowest frequency to manage their uncertainty levels (M=2,72, SD=0,509).

b. Inferential analysis: Uncertainty Management Levels Regarding Gender

In order to answer the second portion of the second research question regarding the relationship of uncertainty management with gender, independent sample t-test results were investigated to find out whether there is a significant difference between the participants' uncertainty management levels based on their genders.

Table 14

Independent Sample T-test Results of Uncertainty Management Skills and Gender

	Gender	**N**	**Mean**	**SD**	**F**	**P**
Uncertainty Management	Female	224	2,47	0,401	4,782	**0,029***
	Male	170	2,67	0,484		

The results of t-test indicate that there was a significant difference between the participants of each gender regarding their uncertainty management skills (p=0,029 <0.05). The results also revealed that female high school students have a higher tendency to make an attempt at managing their experiences of uncertainty (M= 2,47, SD=0,401) than their male peers (M= 2,67, SD=0,484).

3.3. Correlational Analysis: Relationship Between the High School Students' 21st Century Skills and Uncertainty Management Levels

In order to answer the third research question, the relationship between the participants' 21st century skill levels and uncertainty management levels will be investigated. Pearson correlation was applied to the subscales and the total scores of Multidimensional 21st Century Scale and Uncertainty Management Questionnaire.

Table 15

Pearson Correlation Test of Uncertainty Management and Multidimensional 21st Century Skills Questionnaire

		Information and Technology Literacy	Critical Thinking and Problem-Solving	Entrepreneurship and Innovation	Social Responsibility and Leadership	Career Awareness	Multidimensional 21st Century Scale	Uncertainty Management Questionnaire
Information and Technology Literacy	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	394						
Critical Thinking and Problem-Solving	Pearson Correlation	,149**	1					
	Sig. (2-tailed)	,003						
	N	394	394					
Entrepreneurship and Innovation	Pearson Correlation	,529**	-,030	1				
	Sig. (2-tailed)	,000	,550					
	N	394	394	394				
Social Responsibility and Leadership	Pearson Correlation	,368**	,151**	,374**	1			
	Sig. (2-tailed)	,000	,003	,000	,000			
	N	394	394	394	394			
Career Awareness	Pearson Correlation	,503**	,120*	,288**	,349**	1		
	Sig. (2-tailed)	,000	,017	,000	,000	,000		
	N	394	394	394	394	394		
Multidimensional 21st Century Scale	Pearson Correlation	,859**	,375**	,718**	,589**	,664**	1	
	Sig. (2-tailed)	,000	,000	,000	,000	,000		
	N	394	394	394	394	394	394	
Uncertainty Management	Pearson Correlation	,375**	-,027	,298**	,298**	,337**	,395**	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000		
	N	394	394	394	394	394	394	394

**. Correlation is significant at the 0.05 level (2-tailed).

The results of the Pearson correlation reveal that there was a significant and positive correlation the 0.05 level and at the 0.01 level among each subscale except for Critical Thinking and Problem-Solving and Entrepreneurship and Innovation subscales (r=-,030,

p<.05). Therefore, the assumption that 21st century competencies were related to each other, and uncertainty management skills was confirmed. For example, it can be presumed that if a student has a higher level of information and technology literacy skill, he or she can solve problems through critical thinking and find innovative solutions to these problems.

It can also be seen that there is a positive significant relationship between uncertainty management and every subscale except for ritical Thinking and Problem-Solving subscale (r=-,027, p<.01). Therefore, it can be concluded that the students who can manage their experiences of uncertainty during classroom activities and other tasks have a higher level of information and technological literacy, social responsibility, entrepreneurship and career awareness skills. These skills can correlate each other during the students' learning experiences through certain ways. Through taking responsibilities and leadership positions, the students can also help manage their own uncertainty experiences and their peers by participating in the classroom activities and asking questions to those around them (p=,298**, p >.05). The students who have a higher level of career awareness skill can also benefit from this skill during their uncertainty management process (p=,337**, p >.05). If the students are aware of their career choices, they will also have less anxiety and uncertainty about their decisions related to their future lives. When the students Information and Technology Literacy skills are high, they could also manage their experiences of uncertainty more effectively (p=,375**, p >.05). As the previous section of the research revealed, most of the students prefer to manage their experiences of uncertainty through searching on the internet (M=1,76, SD=1,007). Thus, it is possible for the students who can manage their experiences of uncertainty more effectively to gain further information through researching the topics vague to them through searching on the internet. Finally, the correlation of the overall scores of both questionnaires also revealed a similar result. It can be assumed that the students who have a higher frequency to manage their uncertainty experiences would most likely have a higher tendency to have higher 21st century skills (p=,395**, p >.05). A post hoc test also revealed that the 10th grade students had the highest overall competence and frequency levels in terms of uncertainty management skills, overall 21st century skills and also in most subscales except for Entrepreneurship and Innovation subscale. While the 9th graders had the lowest overall competency and frequency levels in terms of their 21st century skills and uncertainty management skills.

In conclusion, the analysis of Pearson correlation tests revealed that there is a significant relationship between the participants' 21st century skills and uncertainty management skills. Except for critical thinking and problem-solving skills section, the results of the Pearson correlation test indicate a significant relationship among each subscale of the Multidimensional 21st Century Scale and Uncertainty Management Questionnaire.

CHAPTER IV

4. DISCUSSION AND CONCLUSION

4.1. Introduction

This study was conducted to find out whether there was any relationship between 21st century skills and uncertainty management levels of high school students in the context of language learning. In the light of the quantitative data based on research questions, the goal of this portion of the study is to provide a summary of the study and explore the research questions.

4.2. Summary of the Study

The goal of this study was to investigate the competence levels of high school language learners regarding their 21st century skills and uncertainty management levels and the relationship between these two variables. Multidimensional 21st Century Skills Scale and Uncertainty Management section of the Uncertainty Questionnaire were applied to high school students. In order to analyze the 21st century skill levels of the students, results of the Multidimensional 21st Century Skills Scale were analyzed using descriptive statistics. Then, the demographic variables of the participants were analyzed inferentially using ANOVA for the grade levels of the students and independent sample t-test for the gender of the students. The same process was applied to the results of the Uncertainty Management questionnaire. Finally, the overall results of both of these questionnaires were investigated through Pearson Correlation to confirm whether there was a relationship between these two questionnaires.

4.3. Discussion of the Research Questions

This section aims to discuss each research question in detail to explore the relationship between the variables. The first research question with its sub-questions will be investigated using the analysis of the results of Multidimensional 21st Century Questionnaire and the demographic information of the participants. Then the second research question with its sub-questions will be investigated utilizing the results of Uncertainty Management survey and the demographic information of the participants. After the discussion of the first and second research questions, the third research question

will be discussed in order to investigate the relationship between these two questionnaires. Lastly, the chapter will be concluded with the limitations of the study and suggestions for further research.

4.3.1. Discussion of the First Research Question: What are the high school students' awareness and competence levels of 21st century skills and uncertainty management levels?

The first research question sought to find out the 21st century competency levels and uncertainty management skill levels of the students in an Anatolian high school. The results of the Multidimensional 21st century skills scale by Çevik and Şentürk (2019) and Uncertainty Management Questionnaire by Dağtaş (2018) were analyzed descriptively. The results of the analysis revealed that the students had high levels of 21st century skills and uncertainty management levels and frequencies.

Results of the analysis of 21st century skills of the students revealed that mean scores of the students regarding their 21st century skills and the subsections of the scales were high, with their Career Awareness Skill having the highest overall score. This means that most of the students are aware of their current choices affecting their future career. One reason why the students have such a high career awareness skill score compared to the rest of the questionnaire can be due to the fact that most of the students come from families that want them to study at a prestigious university or a department that will grant them more opportunities to have a better job after graduating from high school. Another reason could be the fact that most of the students have the opportunity to research the career opportunities they will have depending on which university or department they decide to study.

To compare the results of this study to the other research done on this topic; Can Göl (2023) applied the same scale and conducted a study to determine the 21st century skill levels and career skills among high school students from different types of high schools. The results of this study revealed that scores of the high school students from different types of schools regarding their 21st century skills did not show too much variation between every single school type. However, there were meaningful differences between some of the schools and the overall 21st century skills scores of the participants were above medium level. Another study done among high school students who were under state protection and care revealed that the students had high levels of 21st century

competencies and these results also indicated that the students who participated in extracurricular activities had higher 21st century skill levels than their peers (Tekin Bahrilli & Göloğlu Demir, 2024). Therefore, it can be assumed that the students who have more opportunities to socialize with their peers and develop a variety of skills besides their academic knowledge on school subjects can also develop their 21st century skills more effectively.

In higher education, the results were similar to this study. Geçgel et al. (2020) investigated the 21st century skills of the teacher candidates who are students of Turkish Teaching department and the results of this study also reveal that the teacher candidates had high levels of 21st century skills overall and within each of the subscales. The results of a study by Aydın (2021) that applied Multidimensional 21st century skills scale revealed that the preparatory school students in university also had the highest levels of Career Awareness Skills compared to the overall scores and the rest of the subscales.

4.3.2. Discussion of the Second Research Question: What are the high school students' awareness and competence levels uncertainty management?

Second research question aimed to investigate the high school students' uncertainty management levels. When the learners' frequency and skill levels of uncertainty management were analyzed descriptively, the mean score of the uncertainty management questionnaire revealed that the students had a high level of uncertainty management during their learning experiences. Participants tended to make an attempt at resolving their experiences of uncertainty in the lesson through various methods rather than giving up on understanding a topic. The analysis of individual items of the questionnaire also indicated the techniques participants prefer to apply when they try to manage their experiences of uncertainty. In order to answer a question or clarify a situation with further information, majority of the participants have chosen that they would rather use technology and internet to search the answers to their questions rather than asking others.

During the classroom activities, however, rather than asking their teachers, most participants have asserted that they would prefer to ask their peers and friends if they cannot understand how to complete a task. Sollitto et al. (2017) recommend that the teachers should learn more about their students. If they can help the learners resolve and manage their experiences of uncertainty through sharing of information and foster a classroom environment that allows sharing and looking for more information, the

learners would be able to manage their experiences of uncertainty more effectively. Majority of the participants answered that they would like to clarify an uncertain question and study more to answer the questions rather than giving up. Thus, uncertainty may become a motivating factor for the students to study and learn more in order to manage or minimize their experiences of uncertainty. Similar to the results of the original study that has developed and applied this survey by Dağtaş (2018), majority of the participants of this study also declared that they would rather avoid an uncertain situation temporarily to resolve it later through different methods if they cannot manage that situation immediately. It could thus be beneficial for the learners to learn and practice mindfulness when they come across uncertain situation to manage the emotions that arose due to uncertainty to resolve the uncertainty later more effectively.

Most of the participants also asserted that they would either rarely or never pretend that they understand a topic that they could not comprehend and rather than asking their teachers, they would rather try to resolve uncertainty by asking others or researching on their own. Previous literature also highlights the value of collaborative learning and working with peers to manage uncertainty during problem solving activities. Collaborative learning tasks that can form links between the tasks based on possible scenarios about future and decision-making can foster social learning and uncertainty management (Johnson et al., 2012). In language learning process, making mistakes is not only unavoidable but also desired. One of the most important factors that affects the students' strategies of managing uncertainty is the fear of failure and judgment. Although failure and uncertainty are often regarded as negative factors by the learners, through an effective management of these two, they support productivity in group projects and provide chances for discussion, different methods to manage uncertainty, forming an understanding of the topic, and expressing intangible ideas to form tangible results (Jordan & McDaniel, 2014).

4.3.3. Discussion of the Third Research Question: Is there a significant difference between students' 21st century competencies and uncertainty management skills depending on demographic variables of the participants (school grades and genders)?

To answer the question whether there were any significant differences between the 21st century skill levels of the students from each grade levels, the ANOVA results were

reviewed. The results revealed that there was a significant difference between the overall scores of each grade level and between Critical Thinking and Problem-Solving, Entrepreneurship and Innovation and Career Awareness subscales.

These results also revealed that age may be a contributing factor to the students' 21st century skill levels. However, there may be other factors with a larger role in shaping those results as it can be seen that 11th and 12th grade students had lower skill levels than 10th grade students. The 12th grade students had the second lowest score regarding their 21st century competencies and every subscale except for Critical Thinking and Problem-solving, and Entrepreneurship and Innovation subscales. Most of the 12th grade students have been studying for university entrance exam at least since they were in 11th grade. Thus, their experiences of 21st century skills and the skill levels regarding the particular subscales such as Innovation and Technology Literacy may have also been affected by their experiences as most of these students have had less screen time and opportunity to research to improve their skills.

9th grade students had the lowest scores in most of the subscales and the scale in general. They are younger than the rest of the participants in this study and they may not have had as much experience and opportunities to produce and take part in as many projects or initiate different tasks as the older students who are participants of this study. They have mostly been studying for high school entrance exam (LGS) throughout their middle school years and especially focused on the multiple-choice exam system in the 8th grade. The washback effect of the high school entrance exam appears to be an important factor for these results. For the older students, especially 12th graders, studying for the university entrance exam may be the reason why they have a lower score compared to the 10th grade students. The students often have less screen time to develop their 21st century skills related to information and technologic literacy and socialize with their friends through social media and face-to-face interactions. Similarly, in social responsibility and leadership subscale, the participants from 9th grade had the lowest score followed up by the 12th graders. When the study took place, the students were in the fall semester of this year. The younger participants, 9th graders, may have been affected by being in a new environment, as most of them had previously been studying at schools nearby and were mostly classmates with their friends from the same neighborhood. Having been introduced to a new school environment with new classmates, their skills and desire to take the leadership roles and social responsibility in

the classroom may have been affected negatively. Similarly, 11th grade students may also have the second lowest score for a similar reason; 10th grade and 12th grade students are better adapted at their surroundings and classrooms as they have been studying alongside their current classmates for around two years; thus, having known each other for a longer while than the 9th and 11th graders. But the 11th grade students have to select a certain division to study after they finish the 10th grade. Thus, most of them are placed in different classrooms with their peers that they have not been familiar with previously. Therefore, reasons such as being in an unfamiliar environment with new people and different teachers may have affected the results of those participants negatively. The scores of the final subscale, career awareness also have a significant difference between each grade level. 10th grade students had the highest scores among all of the participants while the 9th grade students had the lowest score, and the 12th grade students had the second lowest score.

When the similar studies that have used the Multidimensional 21st century scale were reviewed, the results of a study by Göztepe Yıldız (2020) revealed that the students had above median levels of 21st century skills. In this study, 9th and 10th grade students had lower scores regarding their Multidimensional 21st century skills compared to other grades. Çelik (2021) also agrees that the lower grade students had lower competency levels regarding their social responsibility and leadership and career awareness skills, while their critical thinking and problem-solving skills were higher. Similarly, the results of a study by Korkmaz and Yeşil (2009) on different education levels from primary school to university level students revealed that the higher education level students had lower critical thinking skills scores. The authors of the study attributed this to several factors such as information-heavy education in higher levels of education and the programs lacking or restricting activities that use the critical thinking skill to a great extent.

Independent sample t-test was conducted on the results of the 21st century skills scale. The results of the test revealed that there was no significant difference between the overall mean scores of the questionnaire and each subsection regarding gender. The results indicate that except for Information and Technology Literacy, and Entrepreneurship and Innovation subscales, the female students had higher 21st century skill competency levels in the rest of the subscales and the overall mean score of the questionnaire. The reason why male students showed a slightly higher competency level

on information and technology subscale can be due to the fact that male students often have more time and opportunities to use technological devices than their female peers. While female students in this region often have to take more responsibilities at home such as taking care of their younger siblings, having a bigger role in household chores than their male peers and more worries about their future goals and careers, male students often assume they have more career and job alternatives such as becoming a farmer or a driver. Female students are thus aware earlier on in their lives that their current choices will affect their future lives profoundly. They know that they need to be more qualified to become successful and have better lives in the future. When the gender variable is compared in other studies, most studies do not indicate a significant difference between genders (Demir, 2022; Engin & Korucuk, 2021; Can Göl, 2023; Varki, 2020). However, the results of this study and the previous literature indicate that female students often have a slightly higher levels of 21st century skills than their male peers, mostly except for the technology skills subscale.

4.3.4. Discussion of the Fourth Research Question: Is there a significant difference in students' uncertainty management skills depending on their demographic variables (school grades and genders)?

When the ANOVA test was applied to Uncertainty Management Questionnaire, it was revealed that the difference was significant among each grade level, with 10th grade students having higher levels of uncertainty management that is followed up by 11th graders and 12th graders and finally, and the 9th grade students having the lowest levels of uncertainty management among the participants of this study. Similar to the results of the 21st century skills scale, this may be due to the fact that 9th grade students had recently begun studying at a high school. After studying for the multiple-choice high school entrance exam (LGS), the differences and complexity of the curriculum may have affected the 9th grade students' appraisal and management of uncertain situations they experience in the classroom. Washback effect has a vital effect on the results of this study since the study was conducted in the first few months of the 2023-2024 educational year. Testing has negative effects on the students' language learning and more importantly their wellbeing due to the time and effort spent on preparation of the students to the high school and university entrance exams (Şenel & Tütüniş, 2011). The students may experience feelings of stress, anxiety, and competitiveness. Such feelings can have a

negative effect on their appraisal of uncertainty. The rest of the grades, 10th, 11th and 12th grade students had relatively similar mean scores based on their answers in the questionnaire. It is therefore crucial for not only the teachers but also school administration to develop and apply techniques to help their students manage their experiences of uncertainty through becoming more familiar with their environment.

Independent sample t-test results revealed that there was a significant difference between female and male students depending on their appraisal of uncertainty in the classroom. The results revealed that the female students were better at managing their experiences of uncertainty. It can also be interpreted that male students either do not want to manage or resolve the uncertainties or they may have a more optimistic outlook on uncertainty. The results indicate that, rather than resolving or avoiding uncertainty, male participants would be more likely to take risks in an uncertain situation. When the situation of the participants is taken into account, being uncertain for their future lives can be riskier for female students than their male peers. A wrong choice after a risky attempt may affect their exam scores and academic success. The results of a study by Gutman and Schoon (2012) indicate that the reaction of parents and social circle to male students with lower success levels can affect their future career choices, leading to the male students giving up on any prospect of academic and career success completely and not managing their uncertainty experiences. While the female students, regardless of their past success or failures, tended to have more motivation and possibility to maintain success and manage their experiences of uncertainty regardless of the outside sources.

The outcome of a study by Han et al., (2016) reveal that females had a higher chance of avoiding uncertainty than the males whether the uncertainty was appraised as a positive or negative factor by the participants. Another study by Balafoutas and Sutter (2019) highlight the difference between males and females on the risk and uncertainty avoidance in competition entries. According to this study, females tended to limit themselves in terms of participating in the competitions when they experienced more intense feelings of uncertainty while the males were more likely to ignore the feelings of uncertainty and possibility of any risky outcome. Therefore, these results indicate that the female students would be more likely to avoid or manage their experiences of uncertainty than their male peers.

4.3.5. Discussion of the Fifth Research Question: Is there a significant relationship between the 21st century skill levels and uncertainty management skill levels of the high school students?

Fifth research question aimed to investigate whether there was a significant relationship between the participants' levels of 21st century skills and uncertainty management. The results of correlation test revealed that there was a significant relationship between the results of Uncertainty Management questionnaire and Multidimensional 21st century skills scale, and among each subscale except for the relationship between Critical Thinking and Problem-Solving and the Entrepreneurship and Innovation subscales, and the Uncertainty Management questionnaire with Critical Thinking and Problem-Solving subscale. Thus, it can be concluded that uncertainty management and 21st century skill levels of the students are closely linked to one another other.

The students who have high levels of information and technology literacy, entrepreneurship and innovation, social responsibility and leadership, career awareness and overall 21st century skill levels can also manage their experiences of uncertainty in language learning classrooms more successfully. As most of the students pointed out that they would prefer to search the internet for information to clarify an uncertain situation rather than asking others for help, having higher skill levels of information and technology literacy skill can help the students manage their experiences of uncertainty in language learning process more effectively. Knowing the right ways to conduct research to fill in the gaps of the knowledge allows the students to reach the correct information and use the strategies to internalize the newly learned information more quickly. In the classroom, conditional and strategic uncertainty instead of providing complete information could allow the students and teachers apply mindful approaches to the learning process (Langer et al., 1989). Through mindful approaches to uncertainty, the learners can develop their information literacy and creative thinking skills to learn and produce new information and manage their experiences of uncertainty.

Entrepreneurship and innovation skill can allow students to produce innovative ideas to manage and reduce their own and other people's experiences of uncertainty. The learners who can find innovative solutions to the problems they face in their language learning process and make an attempt at overcoming and managing the uncertainty through enthusiasm and creativity. Higher levels of social responsibility and leadership

skills can not only allow the students to navigate through their own experiences of uncertainty, but also benefit others in their uncertainty experiences. The learners who consider themselves a part of the community in the classroom will strive to achieve a collective goal and encourage the other learners to engage in conscious activities to learn and share knowledge with the others in the community (Park & So, 2014).

High levels of career awareness skill can help the students manage their uncertainty and uneasiness about their future and thus help them manage their uncertainty levels about their future lives. Career awareness skill can contribute to both the learners' career choices and the development of their future careers depending on the path they have chosen for themselves. It is vital for the learners to not only find a job suitable for themselves, but also develop their skills and knowledge to adapt to the ever-changing requirements of every job and project that has been and will be affected by the recent developments through growing their skillset and knowledge (Trevor-Roberts, 2005).

The only subscale that has a negative relationship with uncertainty management was critical thinking and problem-solving scale. It can be assumed that critical thinking and problem-solving skill can give the students different perspectives about a situation. However, having more perspectives can also force the students to focus on their feelings that are a result of uncertainty more rather than managing their experiences of uncertainty.

In conclusion, uncertainty management and 21st century skills have a strong relationship. The learners who can successfully manage their experiences of uncertainty can develop their 21st century skills and the development of their 21st century skills can contribute to the uncertain management process in return.

4.4. Limitations

In this study, a quantitative method with surveys was followed to the high school students due to the large number of participants it aimed to collect data from. Thus, although the research was able to contain data from a great number of participants, the data was not able to show nuances or more detailed opinions from the participants. A qualitative or mixed method study with open-ended questions that employs interviews, focus groups or case studies could have been able to provide more in-depth data on the relationship between the students' 21st century skills and uncertainty management levels. Another limitation of this study was the sampling method. As convenience sampling was

used in this research, the participants mostly came from similar socioeconomic, geographical, ethnic and academic backgrounds. If the scope of this study could have been expanded to a more general audience, such as students from different schools in different regions, the answers and results of this study would have been more enriched in depicting the relation between the 21st century skills and management of uncertainty among the students.

4.5. Implications

The findings of this research can provide valuable insight on the uncertainty management and 21st century skills in education and the relationship between them. The research has shown the most frequent ways the learners decide to manage their uncertainty. The data also provides us with insight on the strategies learners apply when they are faced with uncertainty. Most learners do not shy away from uncertainty; in fact, the results indicate that they would rather develop various strategies to overcome uncertainty when they are faced with unfamiliar situations that they cannot resolve immediately. Through these strategies, the learners can manage their experiences of uncertainty in a more positive manner and learn more in the process. Through managing their experiences of uncertainty, the learners can improve their research skills and knowledge formation. This would in return help the development of their 21st century skills. The 21st century skills, especially the skills related to social lives of the students, and information and technology, can guide the students to seek out different methods when they are experiencing uncertainty and the feelings that result from the uncertainty. Those strategies can help them manage their experiences of uncertainty in a more effective and positive manner. Managing uncertainty, in return, can help the students become better citizens in the 21st century.

Socialization, entrepreneurship, teamwork and leadership are some of the key skills for the learners of the 21st century. Since the results highlighted that most learners would prefer to learn collaboratively and autonomously rather than simply asking for the answers to their questions to a teacher or an adult, these skills can also contribute to their management of uncertainty through cooperative efforts. Both the teachers and the administration of the schools can organize activities that can help the learners have higher 21st century competencies and uncertainty management skills. It was especially highlighted in the results of the younger students from 9th grade that they need an

orientation to their new school and environment due to the differences in the academic and school structures.

The research has shown that the older students could manage their experiences of uncertainty and improve their 21st century skills better than the younger participants due to their adaptation to the school and social circles. In primary and middle schools, the students are permitted to pass to the upper grades even though their grades are low. Thus, the students suddenly start experiencing negative emotions regarding their grades and uncertainty about their future academic success when they are faced with more strict rules and requirements at the beginning of high school education. This could only be avoided through a better adaptation to the new academic structure and school environment. The students should be encouraged to actively seek out for knowledge and guidance from the administration, teachers, and counsellors when they experience feelings of uncertainty regarding their academic and future success. It is vital for the students to become more familiar with their learning environments and social atmosphere to develop their 21st century skills and manage their uncertainty experiences.

The previous literature regarding 21st century competencies and uncertainty management skill have studied these two topics as separate aspects; without any consideration of their relationship with one another. The ways in which these two variables could contribute to the development of each other were not investigated previously. Therefore, the strong connection between these two skills proven by the results of this study and the ways in which they could foster and improve each other can guide the educators and administrators in terms of development and application of different methods to raise students who can manage their experiences of uncertainty and develop their 21st century skills successfully.

4.6. Recommendations for Further Research

This study was conducted in a high school located in the southeast region of Turkey. It was an Anatolian high school that has students with varying levels of academic levels. Although this allows the research to be generalized among students with varying success levels regarding their academic backgrounds, a more in-depth classification of the participant sample depending on their academic grades could have provided us with a more effective categorization and analysis regarding their 21st century and uncertainty management skills. This would allow the researchers to see whether the students who are

more successful in their lessons had higher levels of 21st century and uncertainty management skills.

Another point of the research was that the collection of the samples was done through convenience sampling method from a single school. For future studies that would aim to research the relationship between 21st century skills and uncertainty management or 21st century skills and other variables, it would be beneficial for the researchers to collect data from students that study at different types of schools or educational institutions such as science high schools, vocational high schools and BILSEM (special education institutions).

Finally, this study was done only quantitively. Further study to research the relationship between 21st century and uncertainty management can benefit tremendously from collecting qualitive data from a portion of the sample.

4.7. Conclusion

21st century skills are vital for the students to navigate through their learning experiences and future lives. Although the need for these skills is widely acknowledged by the educators and learners alike, it what those skills entail and how to help the learners gain and develop them. This situation causes confusion and thus turns into uncertainty. The strong relationship between 21st century skills and management of uncertainty was highlighted throughout the study. It was revealed that when the learners cannot manage their experiences of uncertainty effectively, this can hinder the development of the development of their 21st century skills. Similarly, the students who have higher levels of 21st century skills can also manage their experiences of uncertainty more effectively.

The research has highlighted an urgent need for an orientation program and better guidance for 9th grade students to overcome the exam period they have experienced in the past years. As these students have recently enrolled in high schools, it is crucial for not only the teachers but also the administration at school and their parents to guide them through their journey of overcoming the negative washback effect of the high school entrance exams for the development of the uncertainty management and 21st century skills. Female students were also affected greatly by uncertainty and made an attempt at resolving uncertainty more frequently due to the expectations on them, while the male students often needed more encouragement in order to overcome uncertainty. It is

therefore crucial to provide guidance on effective management of uncertainty based on the genders of the students.

Finally, the study has highlighted that there is a strong connection between uncertainty management and 21st century skills and managing uncertainty in learning process can provide students with more opportunities to develop their 21st century skills. So, the students must manage their experiences of uncertainty to develop their 21st century skills. In turn, these skills will help them develop more effective strategies to overcome uncertainty.

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APPENDICES

Appendix 1. Çağ University Ethics Committee Approval Documents

T.C	
ÇAĞ ÜNİVERSİTESİ	
SOSYAL BİLİMLER ENSTİTÜSÜ	
TEZ / ARAŞTIRMA / ANKET / ÇALIŞMA İZNİ / ETİK KURULU İZİNİ TALEP FORMU VE ONAY TUTANAK FORMU	
ÖĞRENCİ BİLGİLERİ	
T.C. NOSU	
ADI VE SOYADI	Dilara Gün
ÖĞRENCİ NO	2021008017
TEL. NO.	
E - MAİL ADRESLERİ	
ANA BİLİM DALI	İngiliz Dili Eğitimi
HANGİ AŞAMADA OLDUĞU (DERS / TEZ)	Tez
İSTEKDE BULUNDUĞU DÖNEME AİT DÖNEMLİK KAYDININ YAPILIP-YAPILMADIĞI	2023 / 2024- GÜZ / BAHAR DÖNEMİ KAYDINI YENİLEDİM.
ARAŞTIRMA/ANKET/ÇALIŞMA TALEBİ İLE İLGİLİ BİLGİLER	
TEZİN KONUSU	Yabancı Dil Olarak İngilizce Öğrenenlerde 21. Yüzyıl Becerileri ve Belirsizlik Yönetimi Arasındaki İlişkinin Araştırılması
TEZİN AMACI	Bu tezin amacı ülkemizin güneydoğu bölgesinde yer alan bir lisede eğitim görmekte olan lise öğrencilerinin 21. yüzyıl becerileri (21st century skills) ve belirsizlik durumu (uncertainty) ile baş edebilme becerilerini incelemek ve bu iki durumun arasındaki ilişkiyi incelemektir.
TEZİN TÜRKÇE ÖZETİ	21. yüzyıl becerileri konusunda büyük ölçüde araştırma yapılmasına rağmen hem bu becerileri derslerine entegre etmeye çalışan öğretmenler hem de günlük hayatında bunları kullanan öğrencilerde hala bazı konularda belirsizlik bulunmaktadır. Bu yüzden, 21. yüzyıl becerilerinin ve belirsizliğin farklı bağlamlarda İngilizce öğrenen öğrencilerdeki etkisi için daha fazla araştırma yapılması gerekmektedir ve bu araştırmanın literatüre bu bağlamda katkı sağlaması amaçlanmaktadır.
ARAŞTIRMA YAPILACAK OLAN SEKTÖRLER/ KURUMLARIN ADLARI	T.C. MİLLÎ EĞİTİM BAKANLIĞI MARDİN / KIZILTEPE - Cumhuriyet Anadolu Lisesi

İZİN ALINACAK OLAN KURUMA AİT BİLGİLER (KURUMUN ADI- ŞUBESİ/ MÜDÜRLÜĞÜ - İLİ - İLÇESİ)	Cumhuriyet Anadolu Lisesi Müdürlüğü - Kızıltepe İlçe Milli Eğitim Müdürlüğü- Mardin İl Milli Eğitim Müdürlüğü
YAPILMAK İSTENEN ÇALIŞMANIN İZİN ALINMAK İSTENEN KURUMUN HANGİ İLÇELERİNE/ HANGİ KURUMUNA/ HANGİ BÖLÜMÜNDE/ HANGİ ALANINA/ HANGİ KONULARDA/ HANGİ GRUBA/ KİMLERE/ NE UYGULANACAĞI GİBİ AYRINTILI BİLGİLER	Mardin ilinin Kızıltepe İçesinde yer alan Cumhuriyet Anadolu Lisesi öğrencilerine anket çalışması şeklinde ölçekler uygulanması amaçlamaktadır.
UYGULANACAK OLAN ÇALIŞMAYA AİT ANKETLERİN/ ÖLÇEKLERİN BAŞLIKLARI/ HANGİ ANKETLERİN - ÖLÇEKLERİN UYGULANACAĞI	**Sınıf İçi Belirsizlik Anketi:** Dağtaş (2018) tarafından doktora tezi kapsamında geliştirilmiş olup katılımcıların demografik özellikleri ve sınıf içinde yaşadıkları belirsizlikleri tespit etmek amacıyla kullanılacaktır. 44 maddeden oluşmaktadır. **Multidimensional 21st Century Skills Scale Ölçeği:** Çevik ve Şentürk (2019) tarafından geliştirilmiş olup 5 faktör altında toplanan 41 maddeden oluşmaktadır.
EKLER (ANKETLER, ÖLÇEKLER, FORMLAR, ... V.B. GİBİ EVRAKLARIN İSİMLERİYLE BİRLİKTE KAÇ ADET/SAYFA OLDUKLARINA AİT BİLGİLER İLE AYRINTILI YAZILACAKTIR)	1) Ek 1 (1) Sayfa 29 Tez Önerisi. 2) Ek 2 (1) Sayfa 1 Ölçek Kullanım İzinleri 3) Ek 3 (1) Sayfa 14 Kullanılacak Anketler, Ölçekler ve Veli Onam Formu. 4) Ek 4 (1) Sayfa 1 Uygulama İzin Taahhütnamesi 4) Ek 4 (1) Sayfa 1 Ayse.meb Dilekçe

ÖĞRENCİNİN ADI - SOYADI: Dilara GÜN	ÖĞRENCİNİN İMZASI: TARİH: .20../ 10 ./ 20..23

TEZ/ ARAŞTIRMA/ANKET/ÇALIŞMA TALEBİ İLE İLGİLİ DEĞERLENDİRME SONUCU

1. Seçilen konu Bilim ve İş Dünyasına katkı sağlayabilecektir.

2. Anılan konu Eğitim-Öğretim **faaliyet alanı içerisine girmektedir.**

1.TEZ DANIŞMANININ ONAYI	2.TEZ DANIŞMANININ ONAYI (VARSA)	ANA BİLİM DALI BAŞKANININ ONAYI	SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRÜNÜN ONAYI
Adı - Soyadı: Aynur Doğan	Adı - Soyadı:	Adı - Soyadı: Şehnaz Şahinkarakaş	Adı-Soyadı: Murat KOÇ Unvanı: Prof. Dr. İmzası: (Belgenin aslı Enstitüde İmzalıdır)
Unvanı: Dr. Öğr. Üyesi	Unvanı:	Unvanı: Prof. Dr.	
İmza: (Belgenin aslı Enstitüde İmzalıdır)	İmzası:	İmzası: (Belgenin aslı Enstitüde İmzalıdır)	
19/12/2023	... / ... / 20...	... / ... / 20...	... / ... / 20...

ETİK KURULU ASIL ÜYELERİNE AİT BİLGİLER

Adı - Soyadı: **Şehnaz ŞAHİNKARAKAŞ**	Adı - Soyadı: **Yücel ERTEKİN**	Adı - Soyadı: **Deniz Aynur GÜLER**	Adı - Soyadı: **Mustafa BAŞARAN**	Adı - Soyadı: **Mustafa Tevfik ODMAN**	Adı - Soyadı: **Hüseyin Mahir FİSUNOĞLU**	Adı - Soyadı: **Jülide İNÖZÜ**
Unvanı : Prof. Dr.	Unvanı : Prof. Dr.	Unvanı: Prof. Dr.	Unvanı : Prof. Dr.	Unvanı: Prof. Dr.	Unvanı : Prof. Dr.	Unvanı : Prof. Dr.
İmzası :	İmzası :	İmzası :	İmzası :	İmzası :	İmzası :	İmzası : .....
... / ... / 20...	... / ... / 20...	... / ... / 20...	... / ... / 20...	... / ... / 20...	... / ... / 20...	... / ... / 20...
Etik Kurulu Jüri Başkanı - Asıl Üye	**Etik Kurulu Jüri Asıl Üyesi**	**Etik Kurulu Jüri Asıl Üyesi**	**Etik Kurulu Jüri Asıl Üyesi**	**Etik Kurulu Jüri Asıl Üyesi**	**Etik Kurulu Jüri Asıl Üyesi**	**Etik Kurulu Jüri Asıl Üyesi**

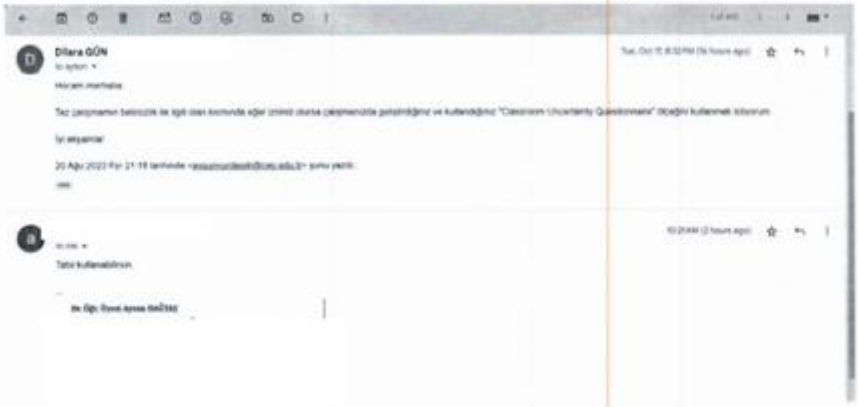
OY BİRLİĞİ İLE	✓	Çalışma yapılacak olan tez için uygulayacak olduğu Anketleri/Formları/Ölçekleri Çağ Üniversitesi Etik Kurulu Asıl Jüri Üyelerince İncelenmiş olup, ... / ..... / 20..... - ..... / ..... / 20..... tarihleri arasında uygulanmak üzere gerekli iznin verilmesi taraflarımızca uygundur.
OY ÇOKLUĞU İLE		

AÇIKLAMA: BU FORM ÖĞRENCİLER TARAFINDAN HAZIRLANDIKTAN SONRA ENSTİTÜ MÜDÜRLÜĞÜ SEKRETERLİĞİNE ONAYLAR ALINMAK ÜZERE TESLİM EDİLECEKTİR. AYRICA FORMDAKİ YAZI ON İKİ PUNTO OLACAK ŞEKİLDE YAZILACAKTIR.

Appendix 2. Permission to Use the Surveys

Ölçek Kullanım İzinleri (e-posta yazışmaları):

Classroom Uncertainty Questionnaire (Sınıf İçi Belirsizlik Anketi). Dağtaş (2018)



Dağtaş, A. & Şahinkarakaş, Ş. (2019). The Experience of Uncertainty in Foreign Language Learning within Dynamic Systems Framework. Validity and Reliability Study. *Folklor/Edebiyat ,folklor/edebiyat*, (280-293). https://doi:10.22559/folklor.943

Multidimensional 21st Century skills scale, Çevik M. & Şentürk C. (2019)

Çevik, M., & Şentürk, C. (2019). Multidimensional 21st Century skills scale: Validity and reliability study. *Cypriot Journal of Educational Sciences*, *14*(1), 11–28. https://doi.org/10.18844/cjes.v14i1.3506

Appendix 3. Parental Consent Form

Sayın Velimiz;

Öğrencimizin katılacağı bu çalışma, "Yabancı Dil Olarak İngilizce Öğrenenlerde 21. Yüzyıl Becerileri ve Belirsizlik Yönetimi Arasındaki İlişkinin Araştırılması" adıyla, 04/12/2023-08/12/2024 tarihleri arasında yapılacak bir yüksek lisans çalışması için anket uygulamasıdır.

Araştırmanın Hedefi: Öğrencilerin 21. yüzyıl becerileri ile yabancı dil derslerinde yaşadıkları belirsizlik durumu ve bu durumun sebepleri arasındaki ilişkinin incelenmesidir.

Araştırma Uygulaması: Anket şeklindedir.

Araştırma T.C. Milli Eğitim Bakanlığı'nın ve okul yönetiminin de izni ile gerçekleşmektedir. Araştırma uygulamasına katılım tamamıyla gönüllülük esasına dayalı olmaktadır. Çocuğunuz çalışmaya katılıp katılmamakta özgürdür. Araştırma çocuğunuz için herhangi bir istenmeyen etki ya da risk taşımamaktadır. Çocuğunuzun katılımı **tamamen sizin isteğinize bağlıdır**, reddedebilir ya da herhangi bir aşamasında ayrılabilirsiniz. Araştırmaya katılmamama veya araştırmadan ayrılma durumunda öğrencilerin akademik başarıları, okul ve öğretmenleriyle olan ilişkileri etkilemeyecektir.

Çalışmada öğrencilerden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplar tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir.

Uygulamalar, genel olarak kişisel rahatsızlık verecek sorular ve durumlar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden çocuğunuz kendisini rahatsız hissederse cevaplama işini yarıda bırakıp çıkmakta özgürdür. Bu durumda rahatsızlığın giderilmesi için gereken yardım sağlanacaktır. Çocuğunuz çalışmaya katıldıktan sonra istediği an vazgeçebilir. Böyle bir durumda veri toplama aracını uygulayan kişiye, çalışmayı tamamlamayacağını söylemesi yeterli olacaktır. Anket çalışmasına katılmamak ya da katıldıktan sonra vazgeçmek çocuğunuza hiçbir sorumluluk getirmeyecektir.

Onay vermeden önce sormak istediğiniz herhangi bir konu varsa sormaktan çekinmeyiniz.

Saygılarımla,

Dilara GÜN

Velisi bulunduğum ..... sınıfı ..... numaralı öğrencisi .... 'in yukarıda açıklanan araştırmaya katılmasına izin veriyorum.
(Lütfen formu imzaladıktan sonra çocuğunuzla okula geri gönderiniz*).

...../...../.....

İsim-Soyisim İmza:

Veli Adı-Soyadı :

Telefon Numarası :

Appendix 4. Demographic Information Form

Sınıf İçi Belirsizlik Anketi

---

1. Cinsiyet: A) Erkek B) Kız

2. Sınıfınız:

Bu anket sizin İngilizce öğrenirken sınıf içerisinde yaşadığınız belirsizlik durumlarını ve bu durumlara nasıl tepkiler verdiğinizi araştırmak amacıyla hazırlanmıştır. Anketi doldurduğunuz zaman lütfen öğretmeninize teslim ediniz.

Katıldığınız için teşekkür ederim.
Dilara Gün

Bu anketi doldurarak çalışmaya katılmayı kabul ediyorum.

Appendix 5. Uncertainty Management Questionnaire (Turkish)

Sınıf İçi Belirsizlik Ölçeği (Belirsizlik Yönetimi)

Aşağıda verilen ifadeler sınıfta öğrencilerin belirsizlik durumuna verdikleri tepkiler ve belirsizlik yönetimi becerileriyle ilgilidir. Bu ifadelerin her birini ne sıklıkta yaptığınızı belirtmek için size en uygun seçeneği işaretleyiniz.

1: HER ZAMAN 3: BAZEN 5: ASLA

2: GENELLİKLE 4: NADİREN

	Sorular	1 Her zaman	2 Genellikle	3 Bazen	4 Nadiren	5 Asla
1.	Bir çalışmayı nasıl yapacağımdan emin olamazsam öğretmenime sorarım.					
2.	Belirsiz durumda kaldığımı hissettiğim zaman durumu netleştirmek için hemen harekete geçerim.					
3.	Tam olarak ne yapacağımı anlamadığım zaman vazgeçme eğiliminde olurum.					
4.	Belirsiz bir durumla karşılaştığım zaman hemen bu durumdan kurtulmam gerektiğini düşünürüm.					
5.	Bir çalışmayı nasıl tamamlayacağımı bilemezsem arkadaşlarıma sorarım.					
6.	Belirsizlik içinde olduğumu hissettiğim durumlarda, durumla ilgili varsayımlarda bulunurum.					
7.	Bir çalışmayı nasıl yapacağımı bilemezsem diğerlerinin başlamasını beklerim.					
8.	Verilen bir ödev veya çalışmayı nasıl yapacağıma karar veremezsem bütün alternatifleri gözden geçiririm.					
9.	Bir çalışma kâğıdını yapmakta zorlanırsam kendi kendime bir yol bulup yapmaya çalışırım.					
10.	Ders konusu benim için yeterince açık değilse internet gibi farklı kaynaklardan araştırma yaparım.					
11.	Dersin içeriğini anlayamazsam anlamış gibi yaparım.					
12.	Verilen bir çalışmada ne yapacağıma ve nasıl yapacağımdan emin olamazsam özeleştiri yaparım.					
13.	Bir çalışmayı nasıl yapacağım konusunda aklım karışmışsa daha çok çalışmam gerektiğini düşünürüm.					

Appendix 6. Multidimensional 21st Century Skills Scale (Turkish)

Çokboyutlu 21. Yüzyıl Becerileri Ölçeği (Multidimensional 21st century skills scale)

1: TAMAMEN KATILIYORUM

2: KATILIYORUM

3: FİKRİM YOK

4: KATILMIYORUM

5: KESİNLİKLE KATILMIYORUM

Boyutlar	M. N.	Ölçek Maddeleri	1	2	3	4	5
Bilim ve Teknoloji Okuryazarlığı	1.	Öğrenmeye karşı meraklıyım.					
	2.	Yeni ve farklı fikirler dinlemeyi severim.					
	3.	Mevcut bilgiler dışında yeni bilgiler edinmeye yönelik çaba gösteririm.					
	4.	Ülkemizde ve dünyada meydana gelen yenilikleri takip ederim.					
	5.	Dünyadaki değişim ve yeniliklere yönelik fikir sahibiyim.					
	6.	Çeşitli kaynakları takip ederek farklı bilgiler edinirim.					
	7.	Güvenilir kaynaklardan araştırma yaparak yeni bilgiler edinmeyi severim.					
	8.	Günlük hayatta ne tür bilgilere ihtiyaç duyduğumu fark ederim.					
	9.	İhtiyaç duyduğum bilgiye doğru kaynaklardan ulaşırım.					
	10.	Elde ettiğim bilgilerin doğruluğunu farklı kaynaklardan araştırırım.					
	11.	Edindiğim ve doğruluğuna emin olduğum bilgileri günlük hayatımda etkili bir şekilde kullanırım.					
	12.	Doğruluğuna emin olduğum bilgileri çevremdekilere aktarırım.					
	13.	Yazılı, işitsel ve görsel kaynakları düzenli takip ederim.					
	14.	TV programlarının öncesinde programın hangi kitleye hitap ettiğini belirten akıllı işaret sembollerinin anlamlarını bilirim.					
	15.	Teknolojide meydana gelen gelişmeleri yakından takip ederim.					
Eleştirel Düşünme ve Problem Çözme Becerileri	16.	Bana anlatılan her bilginin doğru olduğuna inanırım.					
	17.	Benim gibi düşünmeyen kişilerle arkadaşlık yapmak istemem					
	18.	Beni eleştiren insanlardan hoşlanmam					
	19.	Okuduğum her bilginin doğru olduğunu kabul ederim.					

	19.	Okuduğum her bilginin doğru olduğunu kabul ederim.					
	20.	Öğrendiğim konular üzerinde hiç düşünmeden konuşurum.					
	21.	Karşılaştığım sorularla mücadele etmek yerine sorunu görmezden gelirim.					
Girişimcilik ve İnovasyon Becerileri	22.	Çalışmalarımı genellikle istekli, coşkulu ve enerjik bir şekilde sürdürürüm.					
	23.	Karşılaştığım olumsuz durumları fırsata dönüştürürüm.					
	24.	Zamanı iyi planlar ve yönetirim.					
	25.	Yaptığım çalışmalarda farklı ürünler ortaya koyarım.					
	26.	Karmaşık ve zor işlerle uğraşmayı severim.					
	27.	Yoğun bir merak duygusuyla her şeyi gözlemler ve incelerim					
	28.	İnsanların hayatını kolaylaştıracak yöntem ve teknikler üzerine düşünürüm.					
	29.	Alışılmışın dışında, yeni ve yararlı fikirler üretir ve uygularım.					
	30.	Gelecekte dünyada ortaya çıkabilecek ihtiyaçlar hakkında düşünür ve buna yönelik araştırma yaparım.					
	31.	Geliştirdiğim ürünleri çevremdekilere rahatlıkla sunarım.					
Sosyal Sorumluluk ve Liderlik Becerileri	32.	Farklı kültürlerden insanlarla iletişim kurmaya çalışırım.					
	33.	Grup çalışmalarında genellikle grubun lideri olarak görev yaparım.					
	34.	Kendimle birlikte çevremdeki kişilerin yeteneklerini geliştirmelerine katkıda bulurum.					
	35.	Grup çalışmalarının zaman kaybı olduğunu düşünürüm.					
Kariyer Bilinci	36.	Bana verilen görevi başarıyla yerine getirmek için gayret gösteririm.					

	37.	Gelecekte sahip olmak istediğim mesleğe ilişkin bir kararım vardır.					
	38.	Mesleklerin özelliklerini araştırarak kendime en uygun mesleği belirlemeye çalışırım.					
	39.	Gelecekte yapacağım meslekte başarılı olmayı isterim.					
	40.	Hayatımın bu evresinde aldığım kararların, geleceğime yön vereceğinin farkındayım.					
	41.	Kişisel gelişimime ve gelecekteki kariyerime katkı sağlayacak fırsatları değerlendiririm. (staj, kurs, kongre, seminer, eğitim vb.)					

Appendix 7. Social Sciences Institute Directorate Ethics Approval Request

T.C.
ÇAĞ ÜNİVERSİTESİ
Sosyal Bilimler Enstitüsü

Sayı : E-23867972-050.04.04-2300009766 19.10.2023
Konu : Bilimsel Araştırma ve Yayın Etiği
Kurulu Kararı Alınması Hk.

REKTÖRLÜK MAKAMINA

İlgi: Rektörlük Makamının 09.03.2021 tarih ve E-81570533-050.01.01-2100001828 sayılı Bilimsel Araştırma ve Yayın Etiği Kurulu konulu yazısı.

İlgi tarihli yazınız kapsamında Üniversitemiz Sosyal Bilimler Enstitüsü İngiliz Dili Eğitimi Tezli Yüksek Lisans Programında tez aşamasında kayıtlı olan **Dilara Gün** isimli öğrencimize ait tez evraklarının "Üniversitemiz Bilimsel Araştırma ve Yayın Etiği Kurulu Onayları" alınmak üzere Ek'te sunulmuş olduğunu arz ederim.

Prof. Dr. Murat KOÇ
Sosyal Bilimler Enstitüsü Müdürü

Ek : 1 Öğrenciye Ait Tez Etik Dosyası.

Appendix 8. Participants' Consent Form

ÇAĞ ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
ETİK KURULU

BİLGİLENDİRİLMİŞ ONAM FORMU

Bu formun amacı araştırma ile ilgili olarak sizi bilgilendirmek ve katılmanız ile ilgili izin almaktır.

Bukapsamda "YABANCI DİL OLARAK İNGİLİZCE ÖĞRENENLERDE 21.YÜZYIL BECERİLERİ VE BELİRSİZLİK YÖNETİMİ BECERİLERİ ARASINDAKİ İLİŞKİNİN ARAŞTIRILMASI" başlıklı araştırma "Dilara GÜN" tarafından **gönüllü katılımcılarla** yürütülmektedir. Araştırma sırasında sizden alınacak bilgiler gizli tutulacak ve sadece araştırma amaçlı kullanılacaktır. Araştırma sürecinde konu ile ilgili her türlü soru ve görüşleriniz için aşağıda iletişim bilgisi bulunan araştırmacıyla görüşebilirsiniz. Bu araştırmaya **katılmama** hakkınız bulunmaktadır. Aynı zamanda çalışmaya katıldıktan sonra çalışmadan **çıkabilirsiniz.** Bu formu onaylamanız**, araştırmaya katılım için onam verdiğiniz** anlamına gelecektir.

Araştırmayla İlgili Bilgiler:

Araştırmanın Amacı: Katılımcıların 21.yüzyıl becerileri ve belirsizlik yönetimi becerileri arasındaki ilişkinin araştırılması.

Araştırmanın Nedeni: Lise çağındaki öğrencilerin 21.yüzyıl becerileri ve belirsizlik yönetimi becerileri arasındaki ilişkiyi araştırmak

Araştırmanın Yürütüleceği Yer: Cumhuriyet Anadolu Lisesi

Çalışmaya Katılım Onayı:

Araştırmanın amacını, nedenini, yürütüleceğiyer ile ilgili bilgileri okudum ve gönüllü olarak üzerime düşen sorumlulukları anladım. Araştırma ile ilgili ayrıntılı açıklamalar yazılı ve sözlü olarak tarafıma sunuldu. Bu araştıma ile ilgili faydalar ve riskler ile ilgili bilgilendirildim.

Bu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum.

Katılımcının (Islak imzası ile***)

Adı-Soyadı:

İmzası***:

Araştırmacının

Adı-Soyadı: Dilara GÜN

e-posta: ·

İmzası:

***Onlineyapılacak uygulamalarda,ıslak imza yerine, bilgilendirilmiş onam formunun anketin ilk sayfasındaki en üst bölümüne yerleştirilerek katılımcılarınkabul ediyorum onay kutusunu işaretlemesinin istenilmesi gerekmektedir.

Appendix 9. Çağ University Rectorate Thesis Ethics Permission Request Form

T.C.
ÇAĞ ÜNİVERSİTESİ
Rektörlük

Sayı : E-81570533-044-2300010190 30.10.2023
Konu : Bilimsel Araştırma ve Yayın Etiği Kurul İzni Hk.

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : a) 18.10.2023 tarih ve E-23867972- 050.04.04-2300009653 sayılı yazınız.
b) 18.10.2023 tarih ve E-23867972- 050.04.04-2300009656 sayılı yazınız.
c) 19.10.2023 tarih ve E-23867972- 050.04.04-2300009766 sayılı yazınız.

İlgi yazılarda söz konusu edilen **Dilara Gün, Büşra Öner, Eren İlbey Şahin, Sevgi Tarhan** ve **Sevim İnceler** isimli öğrencilerimize ait tez evrakları Bilimsel Araştırma ve Yayın Etiği Kurulunda incelenerek uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

Prof. Dr. Ünal AY
Rektör

Appendix 10. Çağ University Rectorate Thesis Ethics Permission Request Letter

T.C.
ÇAĞ ÜNİVERSİTESİ
Sosyal Bilimler Enstitüsü

Sayı : E-23867972-044-2300010225 31.10.2023
Konu : Dilara Gün'ün Tez Anket İzni Hk.

DAĞITIM YERLERİNE

İngiliz Dili Eğitimi tezli yüksek lisans programında kayıtlı **Dilara Gün** isimli öğrencinin, **"Yabancı dil olarak İngilizce öğrenenlerde 21.Yüzyıl becerileri ve belirsizlik yönetimi arasındaki ilişkinin araştırılması"** başlıklı tez çalışması Üniversitemiz öğretim üyesi **Dr. Öğr. Üyesi Aysun Dağtaş**'ın danışmanlığında yürütülmektedir. Adı geçen öğrenci tez çalışmasında **Müdürlüğünüze bağlı Kızıltepe Cumhuriyet Anadolu Lisesinde halen okuyan öğrencileri** kapsamak üzere kopyası Ek'lerde sunulan anket uygulamasını yapmayı planlamaktadır. Üniversitemiz Etik Kurulunda yer alan üyelerin onayları alınmış olup, izin verilmesi hususunu bilgilerinize sunarım.

Prof. Dr. Ünal AY
Rektör

Ek : Öğrenciye ait tez anket evrakları dosyası.

Dağıtım:
Gereği:
Kızıltepe Cumhuriyet Anadolu Lisesi Müdürlüğüne
Kızıltepe İlçe Milli Eğitim Müdürlüğüne

Bilgi:
Mardin İl Milli Eğitim Müdürlüğüne
Mardin Valiliğine

Appendix 11. Mardin Municipality National Education Directorate Thesis Ethics Approval Documents

T.C.
MARDİN VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : E-63050228-605.01-90589707 27.11.2023
Konu : Araştırma Uygulama İzinleri

ÇAĞ ÜNİVERSİTESİ
(Sosyal Bilimler Enstitüsü)

İlgi : a) Milli Eğitim Bakanlığı Yenilik ve Eğitim Teknolojileri Genel Müdürlüğü'nün 21.01.2020 tarihli ve 81576613-10.06.02-E.1563890 sayılı yazısı (Genelge No: 2020/2).
b) Çağ Üniversitesi Sosyal Bilimler Enstitüsü'nün 31.10.2023 tarih ve E-23867972-044-2300010225 sayılı yazınız.
c) Valilik Makamının 21/11/2023 tarihli veE-63050228-605.01-90123593 sayılı Oluru. .

İlgi (b) yazıya istinaden; Çağ Üniversitesi Sosyal Bilimler Enstitüsü'nün Öğretim üyesi Dr. Öğr. Üyesi Aysun DAĞTAŞ' ın danışmanlığında yürüttüğü İngiliz Dili Eğitimi tezli yüksek lisans programında kayıtlı Dilara GÜN isimli öğrencinin ***"Yabancı dil olarak İngilizce öğrenenlerde 21. Yüzyıl beceri ve belirsizlik yöntemi arasındaki ilişkinin araştırılması"*** başlıklı 2023-2024 Eğitim ve Öğretim yılının 04/12/2023-08/12/2023 tarihleri arasında Müdürlüğümüze bağlı Mardin İli Kızıltepe Cumhuriyet Anadolu Lisesinde okuyan öğrencilere Anket Uygulama yapma talebi ile ilgili evrakları incelenmiştir.

İlgi (a) Genelgeye göre incelenmiş olup; Türkiye Cumhuriyeti Anayasası Millî Eğitim Temel Kanunu ile Türk Millî Eğitiminin genel amaçlarına uygun olarak, 6698 sayılı Kişisel Verilerin Korunması Kanununa, yürürlükteki diğer tüm düzenlemelerde belirtilen hüküm esas ve amaçlara aykırılık teşkil etmeyecek şekilde, denetimleri ilgili ilçe millî eğitim müdürlükleri ve okul/kurum idaresinde olmak üzere, kurum faaliyetlerini aksatmadan, gönüllülük esasına dayalı olarak yapması ilgi (c) yazıda uygun görülmüştür.

Bilgilerinizi arz ederim.

Murat DEMİR
Vali a.
İl Milli Eğitim Müdürü

Ekler :
-İlgi (a ve b) yazılar (... Sayfa)
-İlgi (c) Olur (1 Sayfa)

T.C.
MARDİN VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : E-63050228-605.01-90123593 21.11.2023
Konu : Araştırma Uygulama İzinleri

VALİLİK MAKAMINA

İlgi : a) Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 21.01.2020 tarih ve 81576613-10.06.02-E.1563890 sayılı yazısı (Genelge No: 2020/2).
b) Van Yüzüncü Yıl Üniversitesi Rektörlüğü Eğitim Bilimleri Enstitüsü Müdürlüğü'nün 03.11.2023 tarih ve E-75654547-605.01-440804 sayılı yazısı.
c) Çağ Üniversitesi Sosyal Bilimler Enstitüsü'nün 31.10.2023 tarih ve E-23867972-044-2300010225 sayılı yazısı.
d) Mardin Artuklu Üniversitesi Rektörlüğü Personel Daire Başkanlığı'nın 06.11.2023 tarih ve E-34233153-900-117885 sayılı yazısı.

İlgi (b) yazıya istinaden; Van Yüzüncü Yıl Üniversitesi Rektörlüğü Eğitim Bilimleri Enstitüsü, Bilgisayar ve Öğretim Teknolojileri Anabilim Dalı tezli yüksek lisans öğrencisi Maşallah DOĞAN' ın ***"Öğretmenlerin Dijital Öz Yeterliliklerinin İncelenmesi Mardin Örneği"*** başlıklı 2023-2024 Eğitim ve Öğretim yılının 27/11/2023-31/05/2024 tarihleri arasında Mardin İli ve tüm İlçelerinde kurumumuza bağlı ilgili kişinin evraklarında belirtilen okullarda çalışan öğretmenlerden ölçek aracılığıyla veri toplamak ve tez çalışması için veri toplama talebi ile ilgili evrakları incelenmiş olup

İlgi: (c) yazıya istinaden; Çağ Üniversitesi Sosyal Bilimler Enstitüsü'nün Öğretim üyesi Dr. Öğr. Üyesi Aysun DAĞTAŞ' ın danışmanlığında yürüttüğü İngiliz Dili Eğitimi tezli yüksek lisans programında kayıtlı Dilara GÜN isimli öğrencinin ***"Yabancı dil olarak İngilizce öğrenenlerde 21. Yüzyıl beceri ve belirsizlik yöntemi arasındaki ilişkinin araştırılması"*** başlıklı 2023-2024 Eğitim ve Öğretim yılının 04/12/2023-08/12/2023 tarihleri arasında Müdürlüğümüze bağlı Mardin İli Kızıltepe Cumhuriyet Anadolu Lisesinde okuyan öğrencilere Anket Uygulama yapma talebi ile ilgili evrakları incelenmiş olup;

İlgi: (d) Mardin Artuklu Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu Müdürlüğü bünyesinde görev yapmakta olan Öğr. Gör. Abdulbaki ERGEL'in ***"Okul Öncesi Öğretmenlerin Matematik Etkinliklerinde Teknoloji Kullanımına İlişkin Görüş ve Uygulamaları"*** başlıklı 2023-2024 Eğitim ve Öğretim yılının 13/11/2023-31/12/2023 tarihleri arasında Mardin İlinde Resmi Bağımsız Anaokulu Resmi Anasınıfı Okullarında Araştırma Uygulama yapma talebi ile ilgili evrakları incelenmiş olup;

İlgi (a) Genelge doğrultusunda, Türkiye Cumhuriyeti Anayasası Millî Eğitim Temel Kanunu ile Türk Millî Eğitiminin genel amaçlarına uygun olarak, 6698 sayılı Kişisel Verilerin Korunması Kanununa, yürürlükteki diğer tüm düzenlemelerde belirtilen hüküm esas ve amaçlara aykırılık teşkil etmeyecek şekilde, denetimleri ilgili ilçe millî eğitim müdürlükleri ve okul/kurum idaresinde olmak üzere, kurum faaliyetlerini aksatmadan, gönüllülük esasına dayalı olarak yapması Müdürlüğümüzce uygun görülmüştür.

Makamlarınızca da uygun görülmesi halinde olurlarınıza arz ederim.

Selim KARAHANLI
Müdür a.
İl Millî Eğitim Şube Müdürü

OLUR
Murat DEMİR
Vali a.
İl Millî Eğitim Müdürü