AN ANALYSIS OF HIGH SCHOOL STUDENTS' READINESS FOR ONLINE LEARNING IN THE CONTEXT OF DIFFERENT VARIABLES

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ABSTRACT

In the first quarter of the 21st century, the interest and demand for online education continue to grow. The fact that online education is accessible without time and space constraints, enables lifelong learning, and is used in international emergencies such as Covid-19 are considered among the most critical factors in its increasing popularity worldwide. In addition, the recent COVID-19 and natural disasters have made it imperative that online education be utilized at all education levels, from higher to basic education. This study's objectives are to assess the demographic and technological readiness of Eskisehir Province high school students (grades 9–12) for online learning in the context of these characteristics. The study, which was constructed using the cross-sectional survey model, the study's link was distributed to all high school students enrolled in both public and private institutions during the fall semester of the 2022–2023 school year and the data were gathered from 507 (n=507) learners. According to the data obtained in the study, it was concluded that students' general readiness levels for online learning were high. When analyzed according to the sub-dimensions of the scale, it is seen that students' computer self-efficacy and self-learning levels are medium. In contrast, their internet use self-efficacy is high. In light of the preceding, it is determined that stronger technology usage abilities and increased technological integration into the classroom are necessary for students to be better equipped for online learning. It is believed that crucial data from this study was gathered to comprehend the readiness levels of pupils for online learning. However, it is advised that the study's shortcomings be taken into account and that in the future, more thorough research with larger sample sizes be done.

Keywords: Online learning, readiness, secondary education, open and distance learning, parametric tests.

INTRODUCTION

One may argue that the education industry is most impacted by technological advancements and digital change. In other words, as information and communication technology have advanced in recent years, so too has our understanding of education and training (Gulbahar, 2012). The fact that online education is accessible without regard to time or place restrictions, that it provides opportunities for lifelong learning, and that it is used in international emergencies like COVID-19 are thought to be among the most critical factors in its growing popularity worldwide. This reveals an educational paradigm that needs to be examined and developed. To better comprehend the effects of the quick development of information and communication technologies on online education, it is crucial to evaluate how, how much, and to what degree digital environments contribute to the act of permanent learning.

In recent years, internet-based online education has grown more commonplace in Turkiye as well as in many other nations throughout the world; nonetheless, both teachers and students must update their knowledge and abilities for online learning. Additionally, to reap the advantages of instructional practices, instructors and students must stay current with the fast-paced educational advances that characterize this century. This is because modern educational trends are supported by computers and the digital world (Richardson & Swan, 2003).

Online education is a form of learning that allows learners to work collaboratively by interacting with their instructors, and peers. The environment (Katz, 2002), provides opportunities to learn without time and space limits (Hill, 2000), provides convenience and flexibility (Poole, 2000), and allows learners to have more control over when and how they complete learning activities (Demir Ozturk & Eren, 2021). Therefore, online learning is a collection of systems in which teachers and students collaborate actively to learn, and as a result, the standard of education rises directly in correlation. However, a systematic method should be used in the appropriate planning, design, development, assessment, and implementation of e-learning environments if the whole thing is to be deemed effective (Mercado, 2008).

In the context of all these statements; it is an important issue for learners to acquire knowledge and skills in online learning environments. In addition, it is thought that the learners' readiness level should be determined for the learners' readiness for the relevant environments, ensuring their active participation and the continuity of the learning action.

Purpose and Importance of the Study

In this study, it was aimed to determine the readiness levels of high school students studying in the 2022-2023 academic year in online learning environments in terms of demographic variables, skills in using computer programs and applications, access to technology, etc. and obtaining information about the learners' readiness levels in online environments. It is thought that the related study will provide important findings in terms of providing information about the current program and practices of the institution according to the data from the learners in the online environments, which have become more widespread with the COVID-19 pandemic, and providing the opportunity to review the course designs and current practices and evaluations. In this context, it is thought that the study can contribute to the literature in determining the current state of the online distance education process from the learner's point of view and making suggestions to make it more effective. It is also important in terms of setting an example for researchers who want to work in the field.

Limitations of the Study

This study is limited to high school students who took online courses with distance education methods in the 2022-2023 academic year in Eskisehir Provincial Directorate of the Ministry of National Education.

RELATED LITERATURE

Overview of Online Learning

Online learning, which is explained with different concepts such as web-based education, internet-based education, and e-learning in the literature, is a version of the same concept named in different ways (Pala & Erdem, 2015). This learning style can also be defined as access to information independent of time and space through information and communication technologies and conducting teaching activities in online learning environments. The use of technology to access learning materials and interact with other students, instructors, and the environment, when students are away from their instructors, is the main concept of online learning across several definitions (Anderson, 2008, p. 16). Using technology to access learning activities is another description of online learning (Carliner, 2003).

Online learning is a form of learning that has become popular with computer networks. Thus, the 21st century begins with a paradigm shift in attitudes toward online learning, and a new understanding of

the nature of learning is influencing the definition, design, and delivery of education (Harasim, 2000). Online learning: In terms of *scope,* it refers specifically to the delivery of educational content and instruction through online platforms or the Internet. It often focuses on the use of digital technologies to facilitate distance learning. In terms of *interactivity,* it usually emphasizes the use of interactive technologies and communication tools to facilitate participation and collaboration between learners and instructors. It may include live virtual classrooms, discussion forums, instant messaging, video conferencing, and other interactive features. In terms of *context*, it is often associated with formal education, such as online courses offered by educational institutions or e-learning platforms dedicated to academic subjects. It is often used in the context of structured learning environments with defined objectives, assessments, and accreditation.

Comparing online learning to traditional classroom-based learning has many benefits. It offers learners ease and flexibility in their learning by enabling them to access learning resources and take part in activities at their own pace and from any location with an internet connection. Additionally, it makes it possible for students to learn on their schedules and with the topics and resources that best meet their requirements. In addition, online learning often includes multimedia elements such as videos, simulations, and interactive exercises, making the learning experience more engaging and interactive. Similarly, the advantages of online learning for tutorials are varied. For example, lessons can be held anytime, anywhere, online materials can be updated and learners can see changes instantly (Anderson, 2008). This form of learning is effective in supporting higher levels of cognition, promoting learner perception and knowledge (Westberry, 2009), as well as convenience, time savings, and cost savings (Aithal & Shubhrajyotsna, 2016). These elements can be listed as positive points that encourage the adoption and continued use of online learning.

Online learning includes certain disadvantages in addition to the previously listed advantages (Almosa, 2002). In contrast to conventional learners, online learners experience lower levels of success due to factors such as reduced interaction, weakened relationships, and faster disengagement from the information being taught. Other issues that severely affect online learning are plagiarism, fabrication, the distortion of the function of the instructor, and the inability to study strictly scientific subjects that require practice-based learning.

Online learning platforms can be found in a variety of educational settings, from K-12 schools to higher education institutions and professional development programs. They can also offer fully online courses, blended learning (combining online and face-to-face instruction), or supplementary materials to support traditional classroom learning. In general, online learning has the following characteristics due to its flexibility, accessibility, and potential for personalized learning experiences (Harasim, Hiltz, Teles, & Turoff, 1995):

- *Learning Networks:* In the context of online environments that facilitate collaborative learning and knowledge construction, they create interactive and participatory spaces where learners can engage in meaningful dialogues, share ideas, and co-create knowledge.
- *Social Construction of Knowledge:* Emphasizing the social aspect of learning, it is argued that knowledge is constructed through interaction and collaboration. In this context, online learning environments provide opportunities for students to engage in discourse, discussion, and knowledge construction.
- *Online Dialogue:* Dialogue is of great importance in online learning. Effective online learning experiences involve thoughtful and reflective conversations, questioning assumptions, and exploring different perspectives. In addition, online dialogue helps students develop critical thinking skills and deepen their understanding of the subject matter.
- *Facilitation and Moderation:* Tutors act as facilitators or moderators in online learning environments. They are responsible for creating a supportive and inclusive learning community, guiding discussions, providing feedback, and creating an environment conducive to collaborative learning.

Readiness for Online Learning

Online learning readiness goes beyond simply ticking off a list of skills. It's a dynamic spectrum, where individuals continuously adapt and develop to thrive in the online learning environment. Self-directed learning, which includes goal-setting, efficient time management, and autonomous exploration of a variety of learning resources, is a crucial component of this equation. Additionally, effective communication skills

are crucial for online collaboration, fostering engagement through virtual discussions and group projects. Furthermore, online learning readiness recognizes the importance of adaptability and resilience. Learners must feel at ease with the adaptable structure of online classes, embrace new technology, and overcome small obstacles without giving up. Finally, a crucial element is intrinsic motivation, the internal drive to learn and persevere through challenges. This strengthens the resolve required to finish online courses despite interruptions and outside pressures. The full potential of online learning can be realized by people who possess excellent technical skills, academic aptitude, and a growth mentality. Exploring the distinct difficulties and benefits of studying in a virtual environment, it's an ongoing process of learning.

Online education is very different from conventional face-to-face education. This learning style demonstrates that students are prepared, capable, and eager to use information and communication technology (Dada, 2006) since it allows them to manage their learning without having face-to-face meetings with teachers (Chung, Noor & Mathew, 2020). Online learning readiness is defined as "being mentally and physically prepared for some online learning experiences and actions" (Borotis & Poulymenakou, 2004). In this context, the ability to be ready to perform a behavior in an online environment can be seen as readiness for online learning. It is necessary to look into the key elements of ensuring the online learner's active participation in the course because students' readiness for online learning has a significant impact on both their willingness to participate in the course and the quality of online learning (Abuhassna, Awae, Bayoumi, Alzitawi, Alsharif, & Yahaya, 2022).

In this context, it is necessary to consider technological readiness as well as online readiness. Although they are two different ideas, technological readiness, and online learning readiness are related. The complexity of technological readiness extends beyond simple access to technology and includes the quality of that access, the reliability of internet connections, and the availability of technical support. In this connection, the definition of technological readiness and the measures of technology quality, reliability, and support should be made clear. Being prepared for online learning is important, but so is being technologically savvy. "Online learning readiness" encompasses more than just personal attributes and the ability to study well over the internet. The emphasis on technology readiness is more narrowly focused, focusing only on resources and infrastructure. Even while external factors may affect one's ability to utilize technology, support and training can help individuals become more prepared. Adequate technological resources are necessary for effective online learning, and making the most of those resources calls for motivation and personal skills.

Online learning success requires both individual readiness and access to technology. While technological readiness focuses on having the necessary devices, internet, software, and support, online learning readiness emphasizes the individual's skills and mindset. This includes self-directed learning, communication, technical literacy, adaptability, motivation, and self-discipline. Both aspects are crucial. Although technology offers the means, individuals must possess the necessary abilities and motivation to successfully navigate and acquire knowledge in the virtual world. Addressing both "human" and "hardware" elements ensures a well-prepared learning environment and a successful online learning experience. When seen along these axes, the following points can explain some crucial elements of preparation for online learning:

- *Technical Skills:* Online learning requires basic technical skills to navigate digital platforms, access online materials, and communicate effectively. Learners should be comfortable using computers, web browsers, e-mail, and online collaboration tools. They should also have the ability to troubleshoot common technical problems and be familiar with specific technologies used in online learning environments.
- *Self-Discipline and Time Management:* Online learning often offers flexibility in terms of when and where students can interact with course materials. To stay organized, create goals, and allot enough time to do assignments, one must possess self-discipline and proficient time management abilities. The ability to plan and adhere to a study routine is essential for success in online learning.
- *Motivation:* Online learning requires self-motivation and a sense of personal responsibility for learning. Learners should be motivated to actively participate, engage with the content and ask for clarification when needed. They should also be persistent in overcoming difficulties and maintaining their focus throughout the course.

- *Digital Literacy and Information Literacy:* Online learners need to possess digital literacy skills, which include the ability to search, evaluate and critically assess information found online. When using online resources to enhance their learning, they should be able to differentiate reputable from dubious sources. Conducting research, citing sources, and participating in academic discourse all require an understanding of information literacy.
- *Effective Communication Skills:* Online learning often involves communication through written text, discussion forums, and virtual interactions. Learners should have good written communication skills, including the ability to express themselves clearly, ask questions and engage in meaningful discussions. Active listening skills and the ability to interpret and respond to others' messages are also important.
- *Access to Technology and Resources:* Reliable access to a computer or mobile device with an internet connection is necessary for online learners. For the purpose of accessing course materials and taking part in online activities, they should be equipped with the required technology and software. Access to relevant resources such as textbooks, online libraries, and research databases is also crucial for online learning success.

The previously described features have clarified a few key considerations for being ready for online learning. It is crucial to remember that the rise of internet-based activities has also played a major role in making us realize how important it is to comprehend online learning environments. Effective online teaching practices foster the conditions in which online learning takes place. Such practices are strengthened by effective course design principles, structures, and practices. Learners' readiness for online learning is important in influencing the quality of online learning as well as their willingness to participate (Warner, Christie, & Choy, 1998). Readiness, which is defined as the learner's readiness in terms of time allocation, discipline, and interest in e-learning (Parlakkilic, 2015), additionally includes learners' ability to get used to technical difficulties, adapt to collaborative learning, and work at their own pace synchronously and/or asynchronously (Schreurs, Ehlers, & Sammour, 2008). Understanding and nurturing these various dimensions of readiness can ultimately enhance learner engagement, improve academic performance, and contribute to a more fulfilling e-learning experience.

METHODOLOGY

The research was designed in the cross-sectional survey model of the quantitative method (Buyukozturk, et al., 2012). The cross-sectional survey model aims to reveal the existing situation, variables, and relationships between variables by revealing the general situation by collecting data at a single time to illuminate a situation, variable, or phenomenon. The following queries are sought-after solutions by this study in this context.

What are the readiness levels of high school students in online learning according to the following variables:

1. Gender
2. Technology Use
3. School Type (Public-Private High School)
4. Class Level
5. Level of Use of Computer Programs and Applications
6. Type of High School and
7. Skill in using Web 2.0 tools.

Participants

The population of the study consists of high school students studying in Eskisehir province in the 2022-2023 academic year who take courses in online learning environments. While determining the study group, criterion sampling and convenience sampling methods were used as sampling methods. The reason for choosing these sampling methods is that the convenience sampling method makes it easier to reach the research sample in terms of time, labor, and money and provides fast data collection, while the criterion sampling method is chosen because it should consist of students who are in online learning environments

or taking courses (Buyukozturk et al., 2012). In this context, the sample of the study consists of high school students in Eskisehir, where ethics committee permission was obtained for the study. Within the scope of the study, data were collected from 507 (n=507) learners. Cresswell (2008) states that the data collected from 360 or more individuals in survey studies represent the population.

Data Collection

In the collection of data, the 'survey on the internet' method, which is a faster, more effective, and more economical method, is seen to be increasing in popularity in the literature (Shonlau et al., 2002 as cited in Avcioglu, 2014), was used (Arikan, 2018). The surveys were uploaded to the online survey platform called Google Forms, and the link to access the form was shared with the students.

Data Collection Tools

Participant Information Form

In this study, the Participant Information Form, which was prepared per the purpose of the research, included questions about gender, teaching level, skills in using computer programs and applications, major, years of experience, etcetera.

The Scale of the Sense of Community in an Online Distance Education Environment

The scale developed by Ramazanoglu, Gurel & Cetin (2022) is a 5-point Likert-type scale consisting of 3 sub-dimensions and 20 items, validity and reliability tests were applied and no obstacle was found in its application to high school students. As a result of the CFA, the scale showed a good fit [2 (7, N=571) = 24.76, p<.000, RMSEA= 0.052, S-RMR= 0.033, GFI= 0.99, AGFI= 0.96, CFI= 0.963, NNFI = 0.98, TLI = 0.956]. The Cronbach's alpha coefficient calculated for reliability analysis was found to be 0.83, 0.83, and 0.84 for the sub-dimensions and 0.88 for the total scale, respectively (Ramazanoglu, Gurel & Cetin, 2022). The validity and reliability results of the scale indicate that the scale can be applied to high school students participating in online distance education programs.

Data Analysis

The data obtained were analyzed with the help of the SPSS package program. The findings were evaluated at a 95% confidence interval and 5% significance level. The normality distribution of the data was tested, sub-factor averages and factor correlations were analyzed and diagnostic statistics related to the study group were included. In addition, in the comparison of quantitative data, a t-test was used for variables with two sublevels, and one-way ANOVA was used for variables with more than two sublevels. In case of a difference in the ANOVA test, Post-Hoc tests were used to determine binary differences.

FINDINGS

Confidence The skewness and kurtosis coefficients of the scores obtained from the online learning readiness scale of high school students were found to be between +1.5 and -1.5. According to the values obtained, it can be said that the data meet the normality assumption (De Carlo, 1997). Descriptive statistics of high school students' scores from the online learning readiness scale are presented in Table 1.

Table 1. Findings Related to the Scores of High School Students' Readiness Scale for Online Learning

Variable	n	Min.	Max.	Cover	S.D.	Skewness	Kurtosis
Online Learning Readiness	507	1,00	5,00	3,40	,873	-,455 ,109	-,553 , 218

Table 1 presents the arithmetic mean and standard deviation values of high school student's readiness for online learning scale. The score ranges of the data obtained in the Likert scale type should be considered equal and the average score range factor should be 0.79 (Cokluk, et al., 2010). In revealing the current score range; the lowest score value (1) is subtracted from the highest score value to be obtained from the scale item and this value is found by *dividing the total value by the number of degrees finally, the score ranges are determined (Erkus,* 2012). In this context, the evaluation ranges of the relevant scale are shown in Table 2.

Table 2. Item Rating Intervals of High School Students' Readiness for Online Learning Scale

Level	Item Value Ranges
1. Very Low	1,00 – 1,79
2. Low	
3. Medium	1,80 – 2,59
4. High	2,60 – 3,39
5. Very High	3,40 – 4,19
	4,20 – 5,00

In the context of all these statements in Table 2, it is seen that the average level of students' mathematics attitudes is at a "high" level of 3.40. Cronbach's Alpha value was examined to determine the reliability level of the scale used in the study. It was seen that Cronbach's Alpha internal reliability coefficient is .936 and the scale had a very high reliability.

Findings Concerning the Working Group

In this section, frequency, and percentage distributions of the data collected through the participant information form are shown in tables. Table 3 shows the distribution of students according to their gender.

Table 3. Distribution Table According to Gender of Students

Variable	Groups	Frequency	Percentage
Gender	Male	205	43,9
	Female	302	56,1
	Total	507	100

As seen in Table 3, it is understood that 56.1% of the study group who responded to the relevant scale within the scope of the study consisted of male participants and 43.9% of female participants. Table 4 shows the distribution of students according to school type.

Table 4. Distribution of Students by School Type

Variable	Groups	Frequency	Percentage
School Type	Private School	334	67,1
	Public School	163	32,9
	Total	507	100

As seen in Table 4, it is seen that 67.1% of the study group who responded to the relevant scale within the scope of the study consisted of participants studying in private schools and 32.9% in public schools. Table 5 shows the distribution of students according to their grade levels.

Table 5. Students' Grade Levels

Variable	Groups	Frequency	Percentage
Grade Level	9th grade	171	32,1
	10th grade	158	29,0
	11th grade	138	26,7
	12th grade	40	9,2
	Total	507	100

As seen in Table 5, when the participation status of the study group who responded to the relevant scale within the scope of the study was examined according to the grade levels, it was observed that the 9th grade with 32.1%, and the 10th grade with 29.0% participated the most in the study. It was also seen that the 12th graders participated the least with 9.2%. Table 6 shows the distribution of students according to the type of high school they attended.

Table 6. Students' Schools of Education

Variable	Groups	Frequency	Percentage
School Type	Anatolian High School	200	39,0
	Science High School	270	52,7
	Liberal arts	19	4,2
	Vocational and Technical High School	18	4,1
	Total	507	100

When the participation of high school students in the study was analyzed in terms of the types of schools they attend, it was seen that students studying in Anatolian and Science High Schools showed intense participation in the study and constituted nearly 90% of the participant group. It was seen that the lowest participation is from Vocational and Technical High Schools with 4.1%.

Findings Related to Problem Situations

Do Students' Readiness for Online Learning Differentiate According to Gender?

Table 7. T-test Table Related to Gender Variable

Variables	Groups	Cover	T	P	Cohen's
Online Learning Readiness	Woman	3,38	-1,150	,702	
	Male	3,44			

Independent samples t-test was conducted to test whether there was a statistically significant difference between the online learning readiness of high school students in different gender groups. As a result of the related analysis, no significant difference was found in the readiness of high school students for online learning in terms of gender variable (P=.702>.05).

Do Students' Readiness for Online Learning Differentiate According to the Status of Receiving Training on Technology Use?

Table 8. T-test Table Related to the Status of Receiving Training on Technology

Variables	Groups	Cover	T	P	Cohen's
Online Learning Readiness	Yes	3,58	4,018	,028*	,45
	No	3,35			

It was examined whether the readiness of high school students for online learning differed according to their previous education on educational technology and a statistically significant difference was found between the groups (P=.028<.05). Cohen's d values of the found difference were analyzed. It was seen that the relevant value for the sub-dimensions with a significant difference between them was 0.45 and has a medium effect size. It was also seen that the readiness level of the group who received training on technology was higher.

Do Students' Readiness for Online Learning Differentiate According to School Type (Public-Private High School)?

Table 9. T-test Table Related to School Type

Variables	Groups	Cover	T	P	Cohen's
Online Learning Readiness	Public	3,36	-,875	,793	
	Private	3,42			

Independent samples t-test was conducted to test whether there was a statistically significant difference between the online learning readiness of high school students in different school types. As a result of the related analysis, no significant difference was found in the readiness of high school students for online learning in terms of school type variable (P=.793>.05).

Do Students' Readiness for Online Learning Differentiate According to Class Level?

Table 10. One-way Anova Table according to the grade levels of the students participating in the study

Variables	Groups	Cover	F	P	Difference
Grade Level	9th grade	3,47	5,929	,001*	4-1
	10th grade	3,48			4-3
	11th grade	3,57			
	12th grade	3,83			

As a result of the ANOVA analysis, it was seen that the readiness of high school students studying in Eskisehir for online learning differs according to the grade levels they study (P<0.05). Post-Hoc tests were used to determine between which groups the differentiation occurred. Since the variances were homogeneous (P=,147>,05), Hochberg GT2 test was performed because the sample distribution was not equal.

According to the results of the Post Hoc test for grade levels, it was seen that the 12th-grade students differed from the other groups. It was also seen that as the grade level increases, the mean readiness for online learning also increases.

Do Students' Readiness for Online Learning Differ According to the Level of Use of Computer Programs and Applications?

Table 11. One-way ANOVA Table according to the level of computer programs and applications usage skills of the students participating in the research

Variables	Groups	Cover	F	P	Difference
PC Level	Low	3,42	,374	,000*	3-1
	Medium	3,55			3-2
	HIgh	4,05			

As a result of ANOVA analysis, it was seen that the readiness of high school students studying in Eskisehir for online learning differs according to the level of skill of using computer programs and applications (P<0,05). Post-Hoc tests were used to determine between which groups the differentiation occurred. Since the variances were homogeneous (P=,147>,05), Hochberg GT2 test was performed because the sample distribution was not equal.

According to the Post Hoc test results related to the skill levels of using computer programs and applications; it was seen that students with high skill levels differ from other groups. It was observed that as the skill level of using computer programs and applications increases, the mean readiness for online learning also increases.

Do Students' Readiness for Online Learning Differ According to the Type of High School They Attend?

Table 12. One-way Anova Table according to the type of high school of the students participating in the study

Variables	Groups	Cover	F	P	Difference
School Type	Anatolian High School	3,29	4,825	,003*	1-2
	Science High School	3,49			
	Liberal arts	3,50			
	Vocational and Technical High School	3,21			

As a result of the ANOVA analysis, it was seen that the readiness of high school students studying in Eskisehir for online learning differs according to the type of high school they study (P<0.05). Post-Hoc tests were used to determine between which groups the differentiation occurred. Since the variances were homogeneous (P=,127>,05), the Hochberg GT2 test was performed since the sample distribution was not equal.

According to the results of the Post Hoc test related to the high school types, it was seen that the students studying in Science High Schools differ from the students studying in Anatolian High Schools. It was also seen that the mean readiness for online learning of the students studying in science high school was higher than the students studying in other high school types.

Table 13. One-Way Anova Table according to the level of students' Web 2.0 Tools Usage Skills

Variable	Groups	Cover	F	P	Difference
Web 2.0 Usage Skills	Low	2,64	43,433	,000*	1-2
	Medium	3,22			1-3, 2-3
	High	3,61			

As a result of the ANOVA analysis, it was seen that the readiness of high school students studying in Eskisehir for online learning differs according to their skill levels in using web 2.0 tools (P<0.05). Post-Hoc tests were used to determine between which groups the differentiation occurred. Since the variances were homogeneous (P=,342>,05), Hochberg GT2 test was performed since the sample distribution was not equal.

According to the Post Hoc test results related to the skill level of using Web 2.0 tools; it was seen that students with high skill levels differ from all groups. It was also seen that as the skill level of using Web 2.0 tools increases, the mean readiness of students for online learning also increases.

CONCLUSION AND DISCUSSION

In this study, the readiness levels of high school students for online learning were examined in terms of different variables. There are different academic studies on the first sub-research question of the study, which is (1) whether middle school students' readiness for online learning differs according to **gender**. However, most of these studies do not cover middle school students. For example, in the studies conducted by Cakir and Horzum (2015), Pullu and Gomleksiz (2020), Baygeldi, Ozturk, and Dikkartin Ovez (2021), it was determined that the gender variable did not have a significant effect. Additionally, a study conducted by (Yu, 2021) revealed the impact of gender on online learning. According to the findings, gender does not affect online class participation; however, educational level and personality traits affect online class participation. Also, gender does not affect online exam results; however, educational level and personality traits affect online exam results. When evaluated in this context, the studies examined are similar to the data of this study and they prove that there is no significant difference in terms of the readiness of high school students for online learning regarding gender.

When the second sub-research question of the study, which is (2) whether middle school student's readiness for online learning differs according to the level of technology use training is examined, it can be argued that students who received technology use training had higher levels of readiness for online learning than those who did not (Martin, Stamper & Flowers, 2020). Students who received technology use training had higher scores in the sub-dimensions of adapting to the online learning environment, online communication, and online learning motivation than those who did not receive technology use training. There was no significant difference between the students who received and did not receive technology use training in the sub-dimension of online learning skills. This study shows that technology uses training plays an important role in increasing middle school students' readiness for online learning. Since there are not many studies on this topic, it is difficult to give a definitive answer to this question. However, some studies have found that students who are trained in the use of technology are more prepared for online learning and show higher academic performance. Therefore, it can be said that more research is needed to answer this question. Readiness for online learning includes various competencies, such as online learner attributes, time management, communication, and technical skills (Martin, Stamper & Flowers, 2020). Training in the use of technology to develop these competencies can help students adapt to the online learning environment and learn effectively (Vonderwell & Savery, 2004). When considered in the context of technology, the data obtained are similar to other studies in the literature and the readiness of the students receiving support within the scope of technology shows a difference at the same rate. In other words, students' readiness

for online learning differs according to their training in technology use; so, it can be concluded that the readiness level of the groups who received training on technology is found higher.

The third sub-research question of the study focuses on whether students' readiness for online learning differs according to school type (public-private high school). One study evaluated the readiness levels of school administrators in public and private high schools for online learning. The results revealed that the level of readiness of public high school administrators for online learning was significantly higher than that of private high school administrators. The study stated that the reason for this may be that public high school administrators can provide more resources and support (Bana, Basanes & Malabarbas, 2022). On the other hand, there have been studies showing the opposite data. For example, only 26% of public schools are online or have access to the internet, and over 5,000 of them are located in rural areas without electricity, according to DepEd's ICT Service Director Aida Yuvienco, as cited by Ilona (2021). In this study, in contrast to the above studies, no significant difference was found in terms of school-type in terms of middle school students' readiness for online learning.

The fourth sub-research question of the study focuses on whether students' readiness for online learning differs according to their class level. This finding is in parallel with the study conducted by Sakal (2017). According to the studies in the literature, readiness for online learning is a multifaceted concept that can vary depending on different student characteristics and environmental conditions. Therefore, educators and researchers must assess the readiness of high school students for online learning and provide the necessary support and guidance to improve this readiness before opening online courses. In this way, high school students will experience online learning more positively and successfully (Bhaumik & Priyadarshini, 2020).

The fifth sub-research question of the study peruses whether the students' readiness for online learning differs according to the level of use of computer programs and applications. The study conducted by Martin, Stamper and Flowers (2020) underlines the fact that in terms of self-directed learning, learner control, and online communication self-efficacy, students who used more computer programs and applications were more prepared for online learning. These studies did point out, however, that there may be additional variables that affect students' preparation for online learning, such as learning preferences, learning styles, and individual traits. As a result, based solely on the frequency of use of computer programs and applications, a firm judgment cannot be reached. The degree to which a student is prepared for online learning may rely on several variables that must be evaluated both separately and collectively (Chung, Subramaniam & Dass, 2020). According to the data gathered in this study, it is seen that the students with high skill levels differ from the other groups and as the skill level of using computer programs and applications increases, the average readiness for online learning also increases.

The sixth sub-research question of the study examines if the students' readiness for online learning differs according to the type of high school they attend. For Turkish high school pupils, an online learning readiness assessment was created in a study conducted by (Ramazanoglu, Gurel & Cetin, 2022). This scale has three components: self-learning, online self-efficacy, and computer self-efficacy. The study's findings indicate that high school students' levels of preparation for online learning were not significantly different depending on the kind of high school they attended. In other words, there was no statistically significant difference in students' preparation for online learning between Anatolian high schools, science high schools, social sciences high schools, and vocational high schools.

The seventh, and last sub-research question of the study scrutinizes if the students' readiness for online learning differs according to their skill levels in using Web 2.0 tools. According to the research conducted by (Geng, Law & Niu, 2019), students' technology competence and preparedness for e-learning had a beneficial impact on their ability to study independently, which is crucial for learning online. The level of comfort and confidence in using technology for educational reasons is referred to as technology-ready. According to the survey, more tech-savvy pupils were also more likely to use Web 2.0 applications for educational purposes. This finding is parallel to the results obtained in the study of Demir and Eren (2021). In this study, students with high skill levels stand out from all other groups, according to the Post Hoc test findings regarding the skill level of using Web 2.0 tools. It has been observed that as students' mean readiness for online learning grows, so does their proficiency with Web 2.0 tools. As a result, it appears from the findings that there is a correlation between students' preparation for online learning and their proficiency with Web 2.0 tools. To

validate this association and investigate additional variables that can influence the results of online learning, more research is necessary.

In the axis of all these statements, this study can be considered an important step in determining the readiness levels of high school students towards online learning and understanding the effect of various variables on this readiness. The study reveals the effect of students' attitudes and skills towards online learning, technological competencies, learning motivation, and self-efficacy perceptions on their readiness for online learning. Due to their exposure to technologically advanced surroundings, university students nowadays are typically skilled in using technology (Jones, 2012). Online information retrieval, basic Microsoft Word, PowerPoint, and Excel operations, and online learning software management are some of these skills. According to Hung et al. (2010), these are crucial abilities for students to possess to improve their preparation for online learning.

To improve online learning readiness and to help students become more capable of online learning, online communication self-efficacy, and learner control should be given priority. Thus, instructors should encourage students to express their thoughts and pose questions more often in online forums to increase their online communication self-efficacy (Chung, Noor & Mathew, 2020). For online learning to be successful, students must be prepared to take an online course. Furthermore, there is a consensus that students' academic progress is influenced differently depending on their readiness to engage in online learning (Gay, 2018). In conclusion, prioritizing online communication self-efficacy and learner control empowers students to become active participants in online learning environments, ultimately contributing to both individual academic success and the overall effectiveness of online learning experiences.

The findings of this study are especially important for educators, school administrators, and educational policymakers. In a period when online learning is becoming more and more widespread, developing and implementing effective online education strategies for students is vital to increasing their success and engagement levels. In this context, providing opportunities to improve students' technology skills, increasing their motivation to learn, and strengthening their self-efficacy perceptions can positively affect their online learning experiences.

As a result, it can guide educators and educational policymakers to develop various strategies to improve the online learning experience. For example, they can increase students' readiness for online learning by providing them with opportunities to develop their technology skills. At the same time, it is also important to strengthen students' self-efficacy perceptions and increase their motivation to learn. These strategies can contribute to the effective implementation of online learning.

Limitations and Recommendations for Future Research

While this study sheds light on Eskişehir high school students' online learning readiness, some limitations call for further exploration. Firstly, the study's geographical focus limits its applicability to other contexts, highlighting the need for broader, more diverse samples in future research. Additionally, concrete policy recommendations are needed to translate the findings into actionable steps for educational stakeholders. Lastly, including comparisons with other educational levels would contextualize the findings within the broader education landscape.

Addressing these limitations and incorporating the suggested future research avenues can significantly contribute to improving online learning readiness for high school students and beyond. By conducting studies with broader samples, establishing the predictive validity of employed measures, designing targeted skill development interventions, formulating concrete policy recommendations, and engaging in comparative analysis, subsequent research can build upon this work and provide even more valuable insights for effective online learning implementation.

While this study provides insight into the preparedness of Eskişehir high school pupils for online learning, its significance can be enhanced by converting results into practical policy suggestions. This entails encouraging educators to increase their technological skills through workshops, collaborating to obtain free software, and creating engaging lesson plans. While gamification, prizes, and a variety of learning methods can all help to increase student motivation, practice opportunities, and tailored feedback are necessary to build self-efficacy. It is recommended that school administrators allocate money toward teacher training, infrastructure, and

online learning integration. Safe and productive environments can also be promoted by creating regulations for online learning and collaborating with community organizations and parents. By standardizing readiness tests, including online education in teacher preparation programs, and providing funds for facilities, supplies, and professional development in schools and districts, policymakers may make a significant contribution. Regardless of location or prior preparedness, all stakeholders may collaborate to guarantee a positive and successful online learning experience for every high school student by putting these particular ideas into practice. Finally, it is suggested that this study should be extended to a larger sample group and more in-depth longitudinal studies should be conducted on high school students' readiness for online learning.

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