Digital Literacy Level and Career Satisfaction of Academics

Şayan BERBER[1]   Meri TAKSİ DEVECİYAN[2]   Hazal Koray ALAY[3]

Abstract

Technology affects educational institutions like every other field. Higher education institutions, which are the main source of new knowledge creation and dissemination, are now dominated by digital technologies. The acquisition of digital literacy skills, which is among the 21st-century competencies, is possible with the positive attitudes and skills of academics, who are instructors in higher education institutions, towards the use of digital technologies. As role models in strengthening digital literacy, academics should develop themselves in line with strategies that include elements of the digital age and more active learning, and be able to transfer these strategies to educational practices. Otherwise, it will not be possible to increase the quality of education and it is inevitable for academicians to experience career dissatisfaction with the feeling of failure. Despite the importance of the subject, digital literacy of academicians has not been adequately addressed in the literature and the relationship between academics' digital literacy levels and career satisfaction has not been focused. Based on this gap, in this study, the concept of "digital literacy" is handled specifically for academics working in universities operating in Istanbul, Türkiye, and it is aimed to contribute to the literature by revealing the relationship between academics' digital literacy and career satisfaction. The cross-sectional survey method, a quantitative research technique, was utilized in the research as a data collection and analysis tool. For this purpose, the data collected through questionnaires from 304 academics with a simple random sampling method were analyzed. As a result of the analysis, it was found that academics' digital literacy explained the career satisfaction variable by 28.1% at a 0.01 significance level. Finally, the significant positive relationship between academics' digital literacy and career satisfaction can be interpreted as that academics who cannot develop digital literacy skills and transfer these skills to teaching environments will not be able to achieve career satisfaction by experiencing a sense of failure because they cannot provide an education in line with the expectations of the digital age. In addition, according to the research findings, it was found that the digital literacy and career satisfaction levels of the academicians differ according to age, working time, academic title, and having a personal web page.

Keywords: Digital Literacy, Academics, Digital Literacy in Academia, Career Satisfaction, Digital Literacy Level of Academics

[1]RA, Izmir Economy University Vocatıonal School Foreign Trade Program, İzmir, Türkiye, sayanberber@gmail.com, ORCID: 0000-0002-7897-7335

[2]RA. Istanbul Cultural University, Faculty of Economics and Administrative Sciences, Department of Entrepreneurship, İstanbul, Türkiye m.taksideveciyan@iku.edu.tr, ORCID: 0000-0001-9206-0315

[3]Asst. Prof., Batman University, Vocational School of Health Services, Yönetim ve Organizasyon Bölümü, Batman, Türkiye, hazalkoray.alay@batman.edu.tr, ORCID: 0000-0002-6638-3089

Akademisyenlerin Dijital Okuryazarlik Düzeyi ve Kariyer Tatmini

Şayan BERBER[1]   **Meri TAKSİ DEVECİYAN[2]**   **Hazal Koray ALAY[3]**

Öz

Teknoloji, her alan gibi eğitim kurumlarını da etkilemektedir. Yeni bilgi yaratımının ve yayımının temel kaynağı olan yükseköğretim kurumları artık dijital teknolojilerin hakimiyetindedir. 21. yüzyıl yetkinlikleri arasında yer alan dijital okuryazarlık becerisinin bireylere kazandırılması ise öncelikle yükseköğretim kurumlarında eğitmen olan akademisyenlerin dijital teknolojilerin kullanımına yönelik tutum ve becerilerinin olumlu olması ile mümkündür. Dijital okuryazarlığın güçlendirilmesinde rol model olarak akademisyenler, dijital çağın unsurlarını içeren ve daha aktif öğrenmeyi barındıran stratejiler doğrultusunda kendini geliştirmeli ve bu stratejileri eğitim uygulamalarına aktarabilmelidir. Aksi halde eğitim kalitesinin artması mümkün olamayacağı gibi akademisyenlerin başarısızlık hissi ile kariyer tatminsizliği yaşamaları da kaçınılmazdır. Konunun önemine rağmen, alan yazında akademisyenlerin dijital okuryazarlığı yeterince ele alınmamış ve akademisyenlerin dijital okur yazarlık düzeyleri ile kariyer tatminleri arasındaki ilişkiye odaklanılmamıştır. Bu boşluktan yola çıkılarak bu çalışma ile "dijital okuryazarlık" kavramı, Türkiye'nin İstanbul ilinde faaliyet gösteren üniversitelerde görev yapan akademisyenler özelinde ele alınmakta, akademisyenlerin dijital okuryazarlıkları ile kariyer tatminleri arasındaki ilişki ortaya konularak literatüre katkı sağlamak amaçlanmaktadır. Araştırmada veri toplama ve analiz yöntemi olarak nicel araştırma tekniklerinden kesitsel tarama yöntemi kullanılmıştır. Bu amaçla, basit tesadüfi örneklem belirleme yöntemi ile 304 akademisyenden anketler aracılığıyla toplanan veriler analiz edilmiştir. Analiz sonucunda, akademisyenlerin dijital okuryazarlığının kariyer tatmini değişkenini % 28,1 oranında açıkladığı 0.01 anlamlılık seviyesinde bulunmuştur. Akademisyenlerin dijital okuryazarlığı ve kariyer tatmini arasında bulunan pozitif yönlü anlamlı ilişki, dijital okuryazarlık becerisini geliştiremeyen ve bu becerileri öğretim ortamlarına aktaramayan akademisyenlerin, dijital çağın beklentileri doğrultusunda bir eğitim sunamadıkları için başarısızlık hissi yaşayarak kariyer tatminine ulaşamayacakları şeklinde yorumlanmaktadır. Ayrıca araştırma bulgularına göre, akademisyenlerin dijital okuryazarlık ve kariyer tatmin düzeyi yaşa, çalışma süresine, akademik ünvana ve kişisel web sayfasının olma durumuna göre farklılaştığı da bulunmuştur.

Anahtar Kelimeler: Dijital okuryazarlık, Akademisyenler, Akademide Dijital Okuryazarlık, Kariyer Tatmini, Akademisyenlerin Dijital Okuryazarlık Düzeyi

[1] Dr. Öğr. Gör., İzmir Ekonomi Üniversitesi Meslek Yüksekokulu Dış Ticaret Programı, İzmir, Türkiye, sayanberber@gmail.com, ORCID: 0000-0002-7897-7335

[2] Dr. Öğr. Gör. İstanbul Kültür Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, Girişimcilik Bölümü, İstanbul, Türkiye m.taksideveciyan@iku.edu.tr, ORCID: 0000-0001-9206-0315

[3] Dr. Öğr. Üyesi, Batman Üniversitesi, Sağlık Hizmetleri Meslek Yüksekokulu, Yönetim ve Organizasyon Bölümü, Batman, Türkiye, hazalkoray.alay@batman.edu.tr, ORCID: 0000-0002-6638-3089

Introduction

In the 21st century, it is known that education and training are changing rapidly with the effect of technology, and this change affects the trainer/teacher/academics. Traditional literacy education covers essential reading, writing, listening, and speaking skills. However, today's digital echo requires these skills to have a broader meaning. Therefore, it is not sufficient for academics who train the workforce of the future to have only basic literacy skills; they also need high-level technology skills. In other words, academics are expected to make effective use of information and communication technologies by having 21st-century skills. For academics, digital literacy means understanding the content better and accelerating technological learning processes using data analysis tools. In addition, using technology in educational environments enables the development of digital literacy information, media, and technology skills (Holum & Gahala, 2001, p.4). In today's highly competitive markets, digital literacy is a life skill everyone should have. Digital literacy means that a person can create, manage, and collect information in digital environments and transform this information into a usable form.

On the other hand, it is not easy to be sure that students, academics, and university administrative staff are digitally literate in higher education institutions, which are the primary source of new knowledge production today. Therefore, research to determine the digital literacy levels of academics is necessary to plan applications for the technology development of digital literacy skills in higher education institutions. The more positive the attitudes of academics working in universities, which are the primary producers and disseminators of knowledge, towards the use of ICT (information communication technologies), the more efficient the use of such technologies in their teaching will be (Guillén-Gámez&Mayorga-Fernández, 2020, p.3). On the other hand, academics who cannot develop digital literacy skills in line with the expectations of the digital age and cannot transfer these skills to teaching environments will not be able to provide an education that meets the requirements of the age and will not reach career satisfaction by experiencing a feeling of inadequacy.

Based on these predictions, the study aims to determine the digital literacy levels of academics and to examine the relationship between digital literacy levels and career satisfaction variables. In this study, the effects of digital literacy of academicians on career satisfaction are examined by considering the variables of "digital literacy" and "career satisfaction", which have been little studied in the literature. The absence of a study that focused directly on the relationship between digital literacy of academics and career satisfaction in previous studies makes this study rare and important. The following part of the study is organized: First, the concept of digital literacy is framed, and the dimensions identified in the technology on digital literacy are discussed. Then, the related technology on digital literacy in higher education institutions, digital literacy of academics, and career satisfaction is reviewed. Then, the study's methodology and findings are given, and the study ends with discussion, practical implications, limitations and future studies, and conclusion.

Literature Review

Digital Literacy: Development and Dimensions

The capacity to use information and technology obtained via digital technologies is known as digital literacy. People who are digitally literate exhibit advanced critical thinking abilities, including investigating, speculating, solving problems, and making decisions (Yildiz, 2020, p.470). Digital literacy is the ability of individuals to use digital tools and resources effectively, evaluate, analyze, create knowledge, and communicate with others. This ability is based on using digital tools and understanding how to evaluate digital data. The ability to read and write through digital tools is also part of the definition of digital literacy (Maden et al., 2018, p.686).

Although the concept of digital literacy has gradually started to enter human life as personal products with the invention of the telegraph, telephone, radio, television, ENIAC, the first computer, and the first mobile phone, which are known as the ancestors of digital tools, the first known definition was made by Gilster in 1997. This definition defines digital literacy as "the ability of individuals to understand, interpret, and evaluate information in digital environments." Although the concept of digital literacy has not emerged suddenly, Gilster's definition is the most widely accepted one (Ozden, 2018, p. 27). Moreover, over time, digital transformation, such as digital use, innovation, and creativity, which includes technologies and disciplined practices, as well as digital competence, has been added to the definition of digital literacy (Gunay & Ozden, 2022, p.166).

On the other hand, using technology at the highest level cannot be defined as digital literacy. High-level critical thinking skills, such as research, questioning, and problem-solving skills, are required to be digitally literate. In technology, it is stated that digital literacy is a more comprehensive concept beyond using devices such as computers and tablets, mastering the software on these devices, and being a practical user (Karabacak & Sezgin, 2019, p.327). With digital literacy, people also gain the skills of using and transferring the information they have acquired and critically evaluating the information they have gained. People with these skills become more advantageous than others over time. For example, when we look at job postings in different sectors, expressions such as perfectly executed office programs, analytical thinking, etc., indicate digital literacy (Yildiz, 2020, p.470). Today, digital literacy includes making sense of digital activities by including social, cultural, and political contexts. In this direction, the concept of digital literacy consists of three levels (Gunay&Ozden, 2022, p.166):

* Digital Competence (skills, concepts, approaches, attitudes),

* Digital Usage (technologies/discipline applications),

* Digital Transformation (innovation, creativity).

"Digital competence" at the first level does not replace traditional forms of literacy; it represents only one of the new forms of contemporary literacy in the 21st century. The concept of digital competence has emerged in the last decade. It is the ability to read and understand digital, hypertext, and multimedia texts and use information technologies (Selimi&Useini, 2019). The second level, "digital use," is related to applying digital skills in a technological context. Finally, at the third level, "digital transformation" is a concept that refers to the process of developing and changing workflows and culture by finding solutions to social and sectoral requirements through the addition of digital technologies. Innovation and creativity are at the center of digital transformation (Gunay&Ozden, 2022, p.166).

In the European Commission's "Framework for Digital Competence and New Models," digital literacy is organized into different dimensions, which encompass various knowledge, skills, and attributes. These dimensions include the 'components of 'digital competence,' 'information and data literacy,' 'communication and collaboration,' 'digital content creation,' and 'security and problem-solving' (Yildiz, 2020, p.470). Another categorization by Payton & Hague (2010, p.6) presents eight headings that represent the dimensions of digital literacy, as depicted in Figure 1.

Figure 1. Dimensions of Digital Literacy
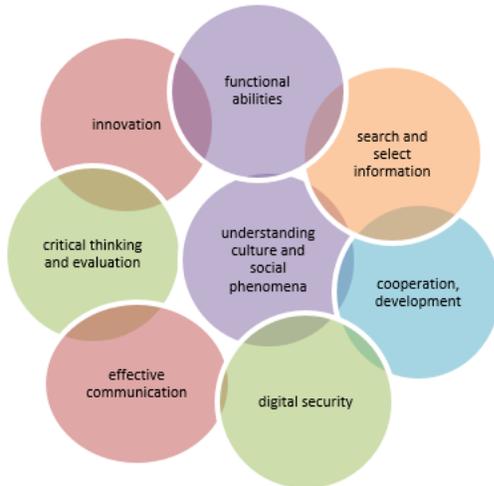
Source: Payton, S., & Hague, C. (2010). *Digital literacy in practice: case studies of primary and secondary classrooms*. Futurelab.

First and foremost, creativity includes inventive and creative thinking as well as the capacity to use technology to produce outputs and portray data in many kinds and formats.The critical thinking and evaluation dimension refers to using reasoning skills to engage with, question, analyze, examine, and evaluate digital media and content and formulate and support arguments about its use. The cultural and social understanding dimension refers to the ability to recognize social and cultural influences in the creation of digital content, while the collaboration dimension focuses on the ability to create shared meaning and understanding by collaborating with others.The skill of locating and choosing information involves recognizing the specific information required for a task or activity, understanding the methods and locations for accessing information, engaging in a critical evaluation of sources to determine their relevance, credibility, and worth, and demonstrating awareness of issues related to plagiarism, copyright, and intellectual property.Effective communication means expressing ideas and feelings clearly in a way that others can comprehend them. The e-safety dimension involves ensuring safety while using digital technologies such as the internet and mobile phones, as well as understanding appropriate usage and content. Lastly, the functional abilities dimension refers to possessing the knowledge and competence to proficiently utilize various technologies, as well as the flexibility to adapt this knowledge to learn new Technologies (Payton & Hague, 2010, p.6). Increasing the digital literacy skill level of the person

towards these dimensions will positively contribute to the gain and impact that the person will create in return for the time spent on digital platforms.

Academics, like many other professional organizations, place a high value on digital literacy. Considering that academics are expected to be digitally literate and to teach their students these abilities both formally and informally. Teachers and academics should be capable of instructing students on why and how to use technology through the usage of technology in the classroom (Gulay et al., 2022, p.238).

Digital Literacy in Higher Education and Academics

By manifesting its influence in education as well as in many other disciplines, digitalization brings about substantial changes. The Covid-19 pandemic in recent years, along with the capabilities provided by information and communication technologies and the distant learning system, have rearranged daily habits, making the incorporation of digitalization into education the center of attention (Sezgin&Karabacak, 2020, p.19). The ways of teaching and learning in traditional educational settings have changed, and today's education demands to focus on developing social skills, communication, creative thinking, and adaptability rather than just "knowing" (Khan et al., 2022, p.47). Transition to contemporary learning environments in higher education institutions, which are the greatest creators and spreaders of knowledge, is characterized by the following changes in the education system's learning, teaching, and management (Dinevski&Kokol, 2004):

- From the trainer who is the transmitter to the trainer who is the facilitator,

- From uniform teaching to personalized teaching,

- From instructions to building and exploring,

- From school to lifelong learning,

- From linear to hyperlearning,

- From content adoption to learning how to manage and learn content,

- The transition from forced learning to learning as fun.

For universities to fulfill their duties in the new age, academics are expected to keep up with these changes and, even more so, to foresee the future (Ayyildiz et al., 2021, p.17). As the transition to student-centered learning requires academics to act as guides and facilitators, there is an "evolution in learning" through the rise of competency-based education that tailors the academic experience to students' needs (Becker et al., 2018).

Every stakeholder, including students, academic institutions, and industry actors, must be ready to tackle constantly evolving technologies and ways of doing things with a strong willingness to learn and relearn due to the rapid pace of the digital age(Khuraisah et al., 2020). In the 21st century, the ability to interpret digital, visual, and audio media has become a primary type of literacy for all segments (Khan et al., 2022, p.56). In today's digital information societies, digital literacy skills are necessary for almost every line of work(Khuraisah et al., 2020). Future demand projections for general digital skills for business environments point to the significance of 21st-century talents, especially "interpersonal skills," "cognitive competencies," and "learning strategies," is growing(Kispeter, 2018). The digital literacy skill, which is required in the business environments of our age, appears as a type of skill that should be taught to students in

higher education institutions. However, no appropriate framework or guideline can be used as a blueprint for higher education institutions to prepare their graduates for the 21st-century workforce (Khan et al., 2022, p.46). On the other hand, it has been understood how necessary it is for all educators/academics who take part in all stages from early childhood to postgraduate education to have digital literacy skills during the Covid-19 pandemic. In distance education processes and face-to-face education periods, digital literacy creates almost unlimited options for alternative education approaches and resources that can be used to achieve the educational goals aimed at students (Gulay et al., 2022, p.245).

Having a different mindset that can adjust to new requirements with ever-changing technologies can help acquire digital literacy abilities(Coiro et al., 2008). Having this mentality makes it essential for academics who set out with the vision of raising qualified individuals, to have digital literacy and to be able to use this qualification for both learning and teaching. For academics to be digitally literate has deep meanings, such as having digital self-confidence, being competent users of digital technologies inside and outside the classroom, contributing to the development of workspaces by researching in digital environments, and being a role model for students, most of whom are digital natives (Ayyildiz et al., 2021, p.17). In other words, as role models in empowering digital literacy, academics should be able to teach their students such skills and acquire the basic literacy necessary to access, critically manage and evaluate information, create and share digital content (Esteve-Mon et al., 2020). Today, only academics with digital literacy can act as successful leaders, freeing their classes from being confined to a narrow space and motivating students toward the lesson (Gulay et al., 2022, p.238). In addition, they can train students to help them build the capacity to benefit from digital resources and information in safe, secure, and sustainable ways (Falloon, 2020).

Although there are some studies in the literature on the use of technology in education and academics' digital literacy abilities(Saeed et al., 2022; Cote&Milliner, 2018; Keles et al.,2018; Falloon, 2020; Guillén-Gámez&Mayorga-Fernández,2020;Isik et al., 2021; Gunay&Ozden, 2022), understanding of the various skills that include digital literacy and how to apply them to higher education settings (Kispeter, 2018), how to design a learning environment to improve students' digital literacy (Kaeophanuek et al., 2018) more research needs to have been done. Although academics are aware of the importance of using ICT in every aspect of university education, they still cannot use it adequately (Gunay&Ozden, 2022; Guillén-Gámez&Mayorga-Fernández, 2020). However, academics should adopt the most appropriate techniques, teaching methods, and assessments that encourage students to develop their thinking processes and question, discuss and create projects using proper digital tools (Kaeophanuek et al., 2018). From this perspective, it becomes necessary to make studies on how academics might improve their digital literacy skills(Goodwin-Jones, 2016; Santiago Campión&Sánchez-Compaña, 2021).

Academics Career Satisfaction and Digital Literacy

Career satisfaction is the positive emotions and attitudes that individuals have and express as a result of improving their professional skills and contributing to the development of their institutions and professions (Shawer, 2010). Factors such as salary, promotion, and growth expectations for an individual's career constitute career satisfaction (Kocoglu, 2012; Vatansever, 2008).On the other hand, technological changes

in the organization and its environment affect career satisfaction by affecting people's attitudes and causing career changes (Kocoğlu, 2012).

Developing technology is rapidly transforming the academic profession, like all occupations. Today, academics are expected to employ a variety of technological tools, including digital learning resources and courseware, as well as active learning techniques like project- and problem-based learning (Khan et al., 2022, p.47). However, academics, who cannot improve themselves in line with strategies that include the elements of the digital age and include more active learning, cannot transfer these strategies to educational practices, will not be able to improve the quality of education, and will inevitably experience professional dissatisfaction with a sense of failure (Kılınc et al., 2021). This situation can be explained by "Role Theory." According to the Role Theory, if the employees do not have sufficient knowledge and experience required by their position, this situation will bring dissatisfaction, increase anxiety, and decrease their performance (Rizzo et al., 1970).

Academics are not usually properly motivated or compensated to improve their teaching abilities since higher education institutions are frequently structured in ways that favor research above teaching (Becker et al., 2018). However, training and development opportunities offered to individuals and institutional support are essential factors affecting their career satisfaction (Armstrong-Stassen&Ursel, 2009; Kocoğlu, 2012). Furthermore, studies focusing on career satisfaction reflect that organizational support motivates individuals to reach their career goals and increases their career satisfaction (Alay, 2020). Conversely, lack of administrative support is associated with negative variables such as stress, burnout syndrome, and increased intention to leave (Aarons et al., 2009). In addition, it is known that employees with low career satisfaction mostly experience the feeling of burnout (Shanafelt et al., 2009).

Programs that recognize effective teaching approaches are becoming more and more vital as higher education shifts away from the conventional lecture-based structure and toward hands-on activities (Becker et al., 2018).Therefore, academics should engage in ongoing professional development in this area with the help of their institutions, just as there is a need to increase digital literacy among students(Becker et al., 2018). In this direction, Guillén-Gámez and Mayorga-Fernández (2020)'s study emphasizes that academics working at universities in Spain need to be motivated to increase their attitudes toward the use of ICT (Guillén-Gámez&Mayorga-Fernández, 2020).

Although numerous research has been conducted to disclose the levels of digital literacy among educators in the literature, it is evident that these studies often only analyze the levels of digital literacy among teacher candidates(Surjono et al., 2021; Yazıcıoglu et al., 2020; Rusydiyah et al., 2020; Kozan, &BulutOzek, 2019; Ocak&Karakus, 2019; Yontar, 2019). On the other hand, studies conducted on academics working at universities, which are the primary source of new knowledge creation, are limited (Dogan, 2022), and no study has been found in these studies that deal with the relationship between digital literacy and the career satisfaction of academics. In this respect, the study is believed to contribute to the literature.

In the current study, answers are sought for the following questions in line with the predictions made from the gap in the relevant literature:

● What is the digital literacy level of academics?

● Do digital literacy levels of academics show a significant difference according to gender, field of study, age, and academic titles?

● Is there a significant relationship between academics' digital literacy and career satisfaction?

Method

Model of the Research

The quantitative research methodologies relationship survey model was employed in the study.The screening model is the method used to reveal the situation of the problem to be investigated. Descriptive data is obtained through surveys, interviews, or observation (Fraenkel&Wallen, 2006). The research described digital literacy levels and academic career satisfaction with the single scanning model. With the relational scanning model, the differences in digital literacy levels and career satisfaction of academics in terms of gender, age, title, working time as academic staff, daily internet connection time, and having a personal web page were examined. Models for relational screening assess the relationship between two or more variables(Karasar, 2017). This study also examined the existence of a relationship between academics' digital literacy and career satisfaction.

Universe and Sample

The research universe consists of academics working at universities in Istanbul, Türkiye. Istanbul is home to 57 universities, 44 of which are foundation universities and 13 of which are governmental institutions. In the 2022-2023 academic year, the total number of academics working at state universities is 19539, while in foundation universities, 20462(https://istatistik.yok.gov.tr/). Survey data was collected online via Google Forms between November 2022—March 2023 using simple random sampling. While deciding on the sample size, the required sample size was determined as 381, and the number of people invited as 1905 by using the sample calculation formula in cases where the number of individuals in the population was known. The questionnaire form was sent to 2930 academics; 304 participants that answered the questionnaire and whose answers were considered valid were included in the analysis. The socio-demographic characteristics and other information of the academics participating in the research are given in Table 1.

Table 1. Socio-Demographical Characteristics of Academics

Socio-Demographic Variables		Frequency	Percent %
Gender	Male	173	56,9
	Female	131	43,1
	22-27	50	16,4
	28-33	32	10,5

Age	34-39	56	18,4
	40-45	88	28,9
	46-51	43	14,1
	52 and over	35	11,5
Title	Research Assistant	56	18,4
	Lecturer	16	5,3
	Specialist	12	3,9
	Lecturer (Ph.D.)	56	18,4
	Asst.Prof.	77	25,3
	Assoc. Prof.	54	17,8
	Prof.	33	10,9
Working time as an academic staff	1 month-2 years	25	8,2
	3-6 years	61	20,1
	7-10 years	111	36,5
	11-14 years	45	14,8
	15+ years	62	20,4
Daily internet connection time	up to 1 hour	26	8,6
	1-3 hours	66	21,7
	3-5 hours	129	42,4
	5+	83	27,3
Personal web page ownership	Yes	76	25,0
	No	228	75,0
Total		304	100

Data Collection Tools

Within the scope of the study, two measurement tools were used, the "Digital Literacy Scale" and the "Career Assessment Scale." The Digital Literacy Scale used in the research to determine the digital literacy levels of academics was developed by Ng (2012) and adapted into Turkish by Hamutoglu and colleagues (2017). The scale consists of 17 items and four factors (attitude, technical, cognitive, and social) and has a 5-point Likert-type rating as Strongly Agree (5), Strongly Disagree (1). As a result of the factor and reliability analyses, the questions related to the social dimension with low factor load were excluded from the analysis, and the digital literacy scale was handled as three sub-dimensions.

The second measurement tool used in the study is the "Career Satisfaction Scale," developed by Greenhaus et al. (1990). The scale consists of 5 items and has a 5-point Likert-type rating.

Analysis of Data

Descriptive statistics were used for the digital literacy levels and career satisfaction of the academics participating in the research. Kolmogorov-Smirnov test results were examined to decide whether the data were normally distributed. In the Kolmogorov-Smirnov test results obtained from both measurement tools, it was observed that the significance value was $p<0.05$. In order to decide the normal distribution of the data, the Skewness-Kurtosis test results were examined, and it was seen that Skewness=-0.14 and Kurtosis=-0.47 on the digital literacy scale, and Skewness=0.83 and Kurtosis=1.09 on the career satisfaction scale. According to Tabachnick and Fidell (2013), it is believed that the data are regularly distributed when the Skewness and Kurtosis values are between -1.5 and +1.5. In light of this, it was decided to use parametric tests, presuming that the data used in the studies were normally distributed.

Digital literacy levels and career satisfaction of academics; independent samples t-test and one-way analysis of variance (ANOVA) were applied to determine the differences between the variables of gender, age, title, working time as academic staff, and having a personal web page. The relationship between academics' digital literacy levels and career satisfaction was determined by the Pearson Correlation Coefficient (r). SPSS.21 package program was used in the analysis of the data. Research hypotheses were interpreted with a confidence interval of 0.95 (p=.05).

Findings

In the study, firstly, factor analysis was applied to the variables to test the construct validity. Kaiser-Meyer-Olkin (KMO) test was used to measure sample adequacy in factor distribution. The KMO ratio above 0.5 indicates that the data set is suitable for factor analysis (Cinko et al.,2012:54). The alpha model was used for reliability analysis. A Cronbach Alpha value of 0.70 and above indicates that the scale is reliable. In this study, the Cronbach alpha value was 0.911 for digital literacy and 0.918 for career satisfaction.

The descriptive statistics of the digital literacy levels and career satisfaction perceptions of the academics participating in the research are given in Table 2.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Digital Literacy Scale	304	2,53	5,00	4,0274	,53695	,288
Attitude	304	1,60	5,00	4,0178	,62623	,392
Technical	304	1,57	5,00	3,9751	,67296	,453
Cognitive	304	2,67	5,00	4,1656	,57128	,326
Career Satisfaction Scale	304	1,20	5,00	3,7947	,68494	,469
Valid N (listwise)	304					

Table 2 explains that attitude (=4.01), technical (=3.97), cognitive (=4.16), and digital literacy-general (=4.02) based on the average of the overall and sub-dimension scores obtained from the Digital Literacy scale are seen to have an average. Furthermore, according to the general average obtained from the Career Satisfaction Scale, it is seen that career satisfaction has an average of (=3.97).

To ascertain the distinctive impact of the academics' gender on the variables, an independent sample t-test was used. Table 3 below shows the results that were achieved.

Table 3. The Differential Effect of Academics' Gender and Web Page Ownership on Variables

Gender		N	Mean	Std. Dev.		t	p
Digital Literacy	**Women**	173	4,0451	,53993	≠Variance	0,659	0,510
	Men	131	4,0041	,53415			
Career Satisfaction	**Women**	173	3,7387	,69563	≠ Variance	-869	0,099
	Men	131	3,8687	,66600			
Web Page Ownership		N	Mean	Std. Dev.		t	p
Cognitive Digital Literacy	**Yes**	76	4,2807	,59143	≠Variance	2,039	0,042
	No	228	4,1272	,56049			
Career Satisfaction	**Yes**	76	3,9474	,76480	=Variance	2,258	0,025
	No	228	3,7439	,65005			

As seen in Table 3, the gender of academics does not have any differentiating effect on digital literacy and career satisfaction. On the other hand, cognitive digital literacy and career satisfaction differ according to the academics having a personal web page. Cognitive digital literacy and career satisfaction levels of academics with a personal web page are higher than those without.

ANOVA was applied to determine the differential effect of academics' age on digital literacy and career satisfaction levels. The results obtained are shown in Table 4 below.

Table 4. Differentiating Effect of Academics' Age on Variables

	Age	N	Mean	Std.Dev	F	Sig.
Digital Literacy	21-27	50	4,2587	,35113	4,231	0,001
	28-33	32	4,0229	,47823		
	34-39	56	4,1262	,58792		
	40-45	88	3,9561	,50579		
	46-51	43	3,9736	,58953		
	52+	35	3,7886	,60811		
Career Satisfaction	21-27	50	3,9840	,43301	3,25	0,007
	28-33	32	3,6438	1,09041		
	34-39	56	3,7429	,68619		
	40-45	88	3,6295	,61066		
	46-51	43	3,9163	,69588		
	52+	35	4,0114	,54437		

As seen in Table 4, academics' digital literacy and career satisfaction levels differ according to age. Tukey and Scheffe tests from Post Hoc tests were used to determine the difference between age groups. Academics aged 21-27 have a higher digital literacy than academics aged 52 and over. However, it was found that career satisfaction levels were higher in academics aged 52 and over. This situation is related to the perceived satisfaction level with increased titles in higher education institutions.

ANOVA was applied to determine the differential effect of academics' titles on digital literacy and career satisfaction levels. The results obtained are shown in Table 5.

Table 5. Differentiating Effect of Academics' Titles on Variables

	Title	N	Mean	Std.Dev	F	Sig.
Digital Literacy	Research Assist.	56	4,3036	,38663	3,648	0,002
	Lecturer	16	3,9875	,64370		
	Expert	12	4,2000	,62732		
	Dr lecturer	56	3,9560	,57914		

	Asist. Prof.Dr.	77	3,9359	,46232		
	Associate Prof.	54	3,9716	,51909		
	Professor	33	3,9414	,65251		
Career Satisfaction	Research Assist.	56	3,8107	,71800	7,915	0.000
	Lecturer	16	3,1750	,94057		
	Expert	12	3,5333	,76436		
	Dr. lecturer	56	3,7607	,69849		
	Asist. Prof.Dr.	77	3,6260	,58790		
	Associate Prof.	54	3,9889	,51310		
	Professor	33	4,2970	,48250		

satisfaction levels of academics differ according to the title. Tukey and Scheffe tests from Post Hoc tests were conducted to determine which titles differed. According to the findings, academics with the title of research assistant have a higher level of digital literacy than academics with the title of Professor. However, it has been found that the level of career satisfaction is higher in academics with the title of Professor. It was observed that the lowest career satisfaction was among the lecturers.

ANOVA was applied to determine the differential effect of working time as academic staff on digital literacy and career satisfaction levels. The results obtained are shown in Table 6.

Table 6. Differential Effect of Working Time as Academic Staff on Variables

	Working Time as Academic Staff	**N**	**Mean**	**Std.Dev**	**F**	**Sig.**
Digital Literacy	1 month-2years	25	4,3867	,22852	3.750	0,005
	3-6 years	61	4,0863	,53143		
	7-10 years	111	3,9682	,56888		
	11-14 years	45	3,9822	,48145		
	15+ years	62	3,9634	,56086		
Career Satisfaction	1 month-2years	25	4,0080	,43390	2,087	0.082
	3-6 years	61	3,6361	,82745		
	7-10 years	111	3,7459	,67794		
	11-14 years	45	3,9067	,63332		
	15+ years	62	3,8710	,63359		

As seen in Table 6, the digital literacy level of academics differs according to working time, but there is no difference in the level of career satisfaction. The digital literacy level of academics with a working period of 1 month and 2 years is higher than those with a working period of 15 years or more.

The research model's hypotheses were put to the test using correlation and regression analyses. Correlation is the coefficient showing the strength of the linear relationship between two variables. If the correlation coefficient is statistically significant, it is said that there is a linear relationship between the two variables. The strength of the association between the variables increases with the absolute magnitude of the correlation coefficient (Newbold, 2009:321). Regression analysis, on the other hand, tries to determine how one variable (dependent) is explained by another variable(s) (independent). Obtained regression models show the direction and effect level of the relationship for the variables (Durmus et al., 2012: 154). The correlation coefficients and statistics between the research variables are shown in Table 7.

Table 7. Results of correlation coefficients between variables

		Digital Literacy	Attitude	Technical	Cognitive	Career Satisfaction
Digital Literacy	Pearson correlation	1				
	Sig. (2-tailed)					
	N	304				
Attitude	Pearson correlation	,807**	1			
	Sig. (2-tailed)	,000				
	N	304	304			
Technical	Pearson correlation	,909**	,535**	1		
	Sig. (2-tailed)	,000	,000			
	N	304	304	304		
Cognitive	Pearson correlation	,725**	,495**	,547**	1	
	Sig. (2-tailed)	,000	,000	,000		
	N	304	304	304	304	
Career Satisfaction	Pearson correlation	,361**	,324**	,339**	,302**	1
	Sig. (2-tailed)	,000	,000	,000	,002	
	N	304	304	304	304	304
**. Correlation is significant at the 0.01 level (2-tailed).						

Table 7 shows the results of the correlation analysis applied to the digital literacy and career satisfaction variables in the research model. The results show a significant positive correlation between digital literacy and career satisfaction. Considering the absolute values of the correlation coefficients, it has been determined that academic career satisfaction is associated with digital literacy and its sub-dimensions at a low level. After the correlation analysis, multiple regression analysis was conducted to determine the effect of digital literacy on career satisfaction. Summary analysis results are given in Table 8.

Table 8. Regression Analysis Results Regarding the Research Model

	Digital Literacy		Technical Digital Literacy	
	Beta	t (p-value)	Beta	t (p-value)
Career Satisfaction	0.361	0.00	0.339	0.00
F	27.453		23.234	
R²	0.281		0.212	
Adjusted R²	0.264		0.188	
Standard Error	0.726		0.742	

As seen in Table 8, it was found at 0.01 significance level that the digital literacy of academics explained the career satisfaction variable by 28.1%. On the other hand, technical digital literacy explains career satisfaction by 21%. In other words, provided that other conditions remain constant, the academics' digital literacy level directly affects their career satisfaction.

Discussion and Conclusion

This study, which focuses on the digital literacy levels and career satisfaction of academics, revealed interesting and important findings. The study seeks to examine the digital literacy levels of academics and understand how it affects career satisfaction. For this purpose, the data collected through the scales were interpreted by subjecting them to statistical analysis. The findings showed that the digital literacy of academics is effective in career satisfaction. Furthermore, it has been determined that academic staff also include information and communication technologies in their professional life and care about digital literacy. In this context, academics with digital literacy skills experience more career satisfaction thanks to their ability to use digital technologies effectively. In today's world, where digital technologies are advancing rapidly, having digital literacy skills also increases the quality of education in higher education institutions (Karabacak&Sezgin, 2019, p.329). As a result, higher education institutions should prioritize digital literacy and provide opportunities for their employees to develop digital skills.

The results of this study indicate a positive relationship between digital literacy and career satisfaction. Nevertheless, it was determined that academics' career satisfaction was associated with digital literacy and its sub-dimensions at a low level (0.361). This is likely due to the fact that the factors affecting the career satisfaction of individuals are not limited to one dimension. In addition, the findings provide various evidence on the relationship between the socio-demographic characteristics of academics and digital literacy and career satisfaction.

According to the findings regarding the career satisfaction of academics, it is seen that the "age" factor affects career satisfaction among academics. People often go through different age periods throughout their careers and may have different expectations, goals, and priorities for each period. Therefore, career advancement can be a source of high motivation and satisfaction for a young person, while work-life balance and retirement plans can be necessary for an older person. Indeed, the existing literature supports this result(Judge & Higgins, 1999;Rasdi et al. 2011). With this viewpoint, the higher career satisfaction levels of experienced academics are related to the success and satisfaction they have achieved throughout their careers. In addition, young academics with low career satisfaction levels should be supported in terms of career satisfaction. At this point, universities can develop career support-mentoring programs that support young academics in planning their careers and determining their goals and opportunities for advancement.

As stated by Alay (2020), organizational support affects the career satisfaction level of employees. In addition, experienced, career-satisfied academics can share experience and knowledge by mentoring their young colleagues. Providing mentoring to young academics can increase their career satisfaction levels and help them steer their careers more effectively. Universities can develop practices that encourage cooperation and communication between academics of different age groups. These practices can benefit young academics' career satisfaction by facilitating the guidance and knowledge sharing of experienced academics with their young colleagues. However, contradictory findings have yet to be reached in the literature. Although a previous study revealed that young employees' career satisfaction levels are high (Yap et al., 2010), in a later study, it is stated that career satisfaction levels decrease in middle ages and increase again with age (Peluchette, 1993). In our study, the finding that the career satisfaction of academics with the title of professor is high is supported by the literature. However, studies also show that age is unrelated to career satisfaction (Ng et al., 2005; Punnett et al., 2007).

On the other hand, our research found that the digital literacy of young academics (research assistants between the ages of 21-27) is higher than that of experienced (52 and over Professors) academics. Considering the fact that the younger generation, which was emphasized in previous studies, follows the digitalization process and technological developments closely and is more open to learning, it is thought that the generation gap is a determining factor (Ivanova et al., 2020; Brink et al., 2020; Henderson et al., 2017).

There was no relationship between the gender of the academics and career satisfaction. When the literature is examined, the findings obtained in studies examining the relationship between career satisfaction and gender differ due to the selected sample. For example, while it was found that the career satisfaction of those working in the public sector differs according to gender (Rasdi et al., 2011), the career satisfaction of women working in banking and finance is higher than men (Yap et al., 2010), in another study examining workaholism and career satisfaction, no relationship was found between gender and career satisfaction (Ulukok &Akın, 2016). A similar result is valid for digital literacy. The gender of academics does not have a differentiating effect on digital literacy.

The interesting finding of the study is that lecturers exhibit the lowest career satisfaction. This result may be related to the importance of the lecturer position in higher education institutions and the particular expertise of the person working in this title. Therefore, this

finding we obtained for lecturers is interpreted as a detailed examination of factors (workload, limited advancement opportunities, or other contextual factors specific to the lecturer role) that can contribute to career satisfaction for lecturers.

Within the scope of the research, it has been found that those with the highest career satisfaction are the academics with the title of professor. On the other hand, when the differentiating effect of academic titles on digital literacy was examined, it was found that academics with the title of research assistant had the highest digital literacy level. In contrast, those with the title of professor had the lowest level of digital literacy. As educators, academics must closely follow technological advances with the use of ICT, which is necessary for the digital age (Triana & Nugroho, 2021)—adopting lifelong learning as a philosophy, which are the primary conditions of digital literacy, knowing where, when, how to use and how to obtain information are essential for academics to keep up with the rapid development of science and technology (Tezer & Aynas, 2018; Fauzan et al., 2022). However, according to Günay and Özden's research from 2022, academics at different state universities in Türkiye perceive distance learning and digital literacy as being closely related, and some of the academics feel lacking in functional skills. They also perceive the boundaries of digital literacy to be ambiguous. In addition, it has been determined that the digital literacy level of academics with shorter working hours is higher. This conclusion might be explained by the fact that young academics who have just entered the academic world tend to be more familiar with digital technology. Also, our research findings revealed that academics with a personal web page exhibited higher cognitive digital literacy and career satisfaction than those without a personal web page. Therefore, this finding can be interpreted as having a personal web page and actively interacting with online platforms can increase both digital literacy skills and career satisfaction among academics.

As a result, the digital literacy of academics impacts their career satisfaction. This finding also coincides with the results of a rare number of previous studies conducted in this context. For example, a study conducted with academic library staff in Nigeria discovered that digital literacy skills, which are vital for employees, increase individual job satisfaction and career progression (Adekola, 2011). Same results have been obtained in a study conducted with the instructors of a university in Indonesia. In addition to the willingness of the instructors to adapt to the e-learning system, policymakers' attitudes at the university level are also effective in the high level of digital literacy (Ninaus et al., 2021).

Practical Implications

Our research findings add to the existing literature on digital literacy and career satisfaction among academics and provide a basis for practical implications in this field. In addition, it aims to examine the relationship between the digital literacy of academics and career satisfaction and offers various suggestions to policymakers in universities.

The capacity to access, organize, analyze, create new information, and use digital technology to communicate in digital literacy is considered one of the 21st-century abilities. There is no doubt that technology has come under the dominance of digital technologies by causing significant changes in educational institutions as well as in every field. These conditions require higher education institutions, the primary source of new

knowledge creation and dissemination, to complete their digital transformation quickly. Achieving this transformation is possible with the positive attitudes and skills of academics as instructors in higher education institutions towards the use of digital technologies. The more positive the academics' attitudes toward adopting digital technologies and using them in their teaching, the more efficient the educational environments will become (Zhao et al., 2021). On the other hand, academics who cannot develop their digital competencies in line with the expectations of the 21st century will be in the position of individuals who cannot satisfy their digital native students and cannot achieve career satisfaction due to the feeling of inadequacy they experience.

Since employees with career satisfaction feel optimistic about their careers, they can reflect these feelings into practice and develop their careers. Therefore, it may be possible for academics with good digital literacy to reach career satisfaction faster in the digital age and transfer these positive attitudes and skills to the teaching environment. Organizational support emerges at the point of gaining this competence in academics. Since organizational support is seen as one of the essential precursors of career satisfaction and positively related to career satisfaction, training, and development practices adapted to the needs of employees are essential for perceptions of organizational support and career satisfaction (Armstrong-Stassen &Ursel, 2009). In this direction, higher education institutions are expected to support academics by presenting a development map so that they can integrate technology into their teaching approaches in the digital age. Furthermore, continuous in-service training activities can be organized through cooperation with expert institutions to raise the awareness of digital literacy among academics and increase their skills on this subject. These educational activities can be designed for both learning and teaching.

Limitations And Future Studies

The current research has some limitations. First of all, the scope of the research is limited to foundation universities in Istanbul, Türkiye. Future research in different regions and countries may enable us to evaluate the impact of contextual factors on our results. Moreover, in future studies, examining the key factors that lead to lower career satisfaction among lecturers with a qualitative study will provide a deeper understanding of the challenges faced by academics with this academic title and provide potential interventions to increase career satisfaction. In the future, researchers can conduct longitudinal studies examining changes in digital literacy and career satisfaction. Thus, presenting an idea about these variables' dynamics can contribute to determining the factors affecting the development and maintenance of digital literacy skills and career satisfaction among academics.

Peer-Review	Double anonymized - Two External
Ethical Statement	It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited.
	*(Istanbul Esenyurt University Rectorate, Ethics Committee Decision was taken with the decision dated 16.03.2023, numbered , E-12483425-299-30271of the Presidency of the Publication Ethics Committee.)
Plagiarism Checks	Yes - Ithenticate
Conflicts of Interest	The author(s) has no conflict of interest to declare.
Complaints	itobiad@itobiad.com
Grant Support	The author(s) acknowledge that they received no external funding in support of this research.
Author Contributions	Design of Study: 1. Author (%34), 2. Author (%33), 3. Author (%33)
	Data Acquisition: 1. Author (%34), 2. Author (%33), 3. Author (%33)
	Data Analysis: 1. Author (%34), 2. Author (%33), 3. Author (%33)
	Writing up: 1. Author (%34), 2. Author (%33), 3. Author (%33)
	Submission and Revision: 1. Author (%34), 2. Author (%33), 3. Author (%33)

Değerlendirme	İki Dış Hakem / Çift Taraflı Körleme
Etik Beyan	Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.
	*(İstanbul Esenyurt Üniversitesi Rektörlüğü, Etik Kurul Başkanlığının 16.03.2023 Tarih , E-12483425-299-30271 Nolu kararı ile Etik Kurul Kararı alınmıştır.)
Benzerlik Taraması	Yapıldı – Ithenticate
Etik Bildirim	itobiad@itobiad.com
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır.
Yazar Katkıları	Çalışmanın Tasarlanması: 1. Yazar (%34), 2. Yazar (%33), 3. Yazar (%33)
	Veri Toplanması: 1. Yazar (%34), 2. Yazar (%33), 3. Yazar (%33)
	Veri Analizi: 1. Yazar (%34), 2. Yazar (%33), 3. Yazar (%33)
	Makalenin Yazımı: 1. Yazar (%34), 2. Yazar (%33), 3. Yazar (%33)
	Makale Gönderimi ve Revizyonu: 1. Yazar (%34), 2. Yazar (%33), 3. Yazar (%33)

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