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Faculty Members' Digital Footprint Experiences and Digital Footprint Awareness

Öğretim Üyelerinin Dijital Ayak İzi Yaşamları ve Dijital Ayak İzi Farkındalıkları

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ABSTRACT

This study aimed to reveal the relationships between faculty members' gender and Internet usage time (daily usage time and years of use), their use of online environments, their digital footprint experiences, and digital footprint awareness. For this purpose, the relational research model was adopted in the study. The sample of the study consists of 398 faculty members working at a state university in Turkey. Descriptive and relational analyzes were made for the analysis of the data. Mean, percentage, and frequency analysis were used in descriptive analysis. For the relational analysis, the association rule, one of the data mining methods, was used. At the end of the study, it was found that the faculty members' digital footprint awareness was high, and their negative digital environment experiences were low. It was observed that the digital footprint experiences and awareness of female faculty members were significantly higher than that of male faculty members. It was also found that faculty members mostly use online chat tools, social networks, e-mail services, and least blogs, learning management systems, and Wiki. Faculty members who indicated that digital media posts reflect their real thoughts stated that they do not regret these posts, and after checking their writing, they are sharing them in digital media. Finally, researchers were suggested to examine the change in digital footprint awareness according to regional and cultural differences.

Keywords: Digital footprint, digital footprint awareness, digital footprint experiences, faculty member

ÖZ

Bu çalışmada öğretim üyelerinin cinsiyetleri, interneti kullanım süreleri (günlük kullanım süresi ve kullanım yılı), çevrim içi ortamları kullanma durumları, dijital ayak izi yaşantıları ve dijital ayak izi farkındalıkları arasındaki ilişkilerin ortaya konması amaçlanmıştır. Bu amaç doğrultusunda çalışmada ilişkisel araştırma modeli benimsenmiştir. Çalışmanın örneklemini Türkiye'de bir devlet üniversitesinde görev yapan 398 öğretim üyesi oluşturmuştur. Verilerin analizi için betimsel ve ilişkisel analizler yapılmıştır. Betimsel analizlerde ortalama, yüzde ve frekans analizleri kullanılmıştır. İlişkisel analizler için ise veri madenciliği yöntemlerinden birliktelik kuralından faydalanılmıştır. Çalışma sonunda öğretim üyelerinin dijital ayak izi farkındalıklarının yüksek, olumsuz dijital ortam yaşantılarının ise düşük olduğu ortaya çıkmıştır. Kadın öğretim üyelerinin dijital ayak izi yaşantıları ve farkındalıklarının erkek öğretim üyelerine göre önemli ölçüde daha yüksek olduğu görülmüştür. Öğretim üyelerinin çoğunlukla çevrimiçi sohbet araçlarını, sosyal ağları, e-posta hizmetlerini ve en az blogları, öğrenme yönetim sistemlerini ve Wiki'yi kullandıkları ortaya çıkmıştır. Dijital medya paylaşımlarının gerçek düşüncelerini yansıttığını belirten öğretim üyeleri, bu paylaşımlardan pişman olmadıklarını, yazılarını kontrol ettikten sonra dijital ortamda paylaştıklarını belirtmişlerdir. Son olarak, araştırmacılara dijital ayak izi farkındalığındaki değişimi bölgesel ve kültürel farklılıklara göre incelenmesi gerektiği önerilmiştir.

Anahtar Kelimeler: Dijital ayak izi, dijital ayak izi farkındalığı, dijital ayak izi yaşantıları, öğretim üyeleri

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Introduction

Information and communication technologies have caused rapid changes in both the daily and professional lives of individuals. These changes necessitate individuals to be digital citizens. Digital citizens frequently use internet environments, perform many actions in these environments, and digital footprints emerge from these actions. The more time individuals spend in the internet environment; the more footprints they leave in the digital environment. Digital footprints can contain important information about individuals' lives, and some digital footprints that occur as a result of wrong sharing can cause individuals to have problems. So much so that sometimes these marks can be used against individuals. Faculty members are among the employees who use the Internet the most, both in their academic and daily lives. For this reason, determining faculty members' use of online environments, digital footprint experiences, and digital footprint awareness levels and revealing the relationships between these variables will increase faculty member's awareness of digital footprint. For this reason, this study aimed to examine faculty members' experiences of digital footprint and awareness of digital footprint.

The digital footprint can be specified as data residues created while using the Internet. In other words, they are the shadows of individuals in digi-

tal environments. In a different definition, digital footprint refers to the information and data that people generate through purposeful action or passive registration when they are online (Thatcher, 2014). In the literature, instead of digital footprints, digital assets (Edwards & Harbinja, 2013; Hopkins, 2013), digital tracks (Wright, 2014), digital land (Hopkins, 2013), digital heritage and digital memory (Bassett, 2015), or digital remains (McCallig, 2013) are used. Just as people leave a footprint on the ground when they are in a physical environment, they leave various traces of what they do in digital environments. These traces left in digital environments can also cause perceptions to be managed or changed later. Because social media, internet calls, shopping, application usage, online games, and e-mails are recorded in a database and can be viewed and used by others whenever they want. For this reason, what is wanted, written, and uploaded in the digital world can be very important and sometimes dangerous for people (Girardin et al., 2008; Kuehn, 2012).

Footprints left in digital environments can be active or passive (McDermott, 2018). A functional digital footprint is data that is intentionally sent online. In sending an e-mail, it is a situation where information is expected to be seen and/or recorded by another person, and this is the active digital footprint for the sender. The more e-mails a person is sent, the greater their digital footprint, and the messages sent can easily be stored or remain online for many years (Kuehn, 2012; Malhotra et al., 2012). Actions such as browsing, commenting, status updates, and video and photo sharing in social media environments (Whatsapp, Pinterest, Linkedin, Twitter, Facebook, Youtube, Google+, and Instagram) cause individuals to leave active digital footprints.

Active footprints may lead to significant changes and problems in an individual's life due to being the strange footprints used by whom or for what. Because by following the digital footprints of a person, much personal information such as lifestyle (Yuan et al., 2013), view of the world, political opinion, religious belief, personality traits (Lambiotte & Kosinski, 2014), education, gender, sexual orientation and place of residence (Chen et al., 2018) can be reached. Active digital footprints are data sets that can be examined, especially when hiring a new employee. Because it can offer much information about a person's political view, outlook on life, the people around him, his achievements, or failures.

Making random searches on the Internet, purchasing things online, filling out various online forms or surveys, and browsing web pages constitute passive digital footprints. Passive digital footprints are data tracks left online unintentionally by the user. These data sets do not contain personal information, but they may include IP addresses and purchasing habits. This information can be used for purposes such as targeting ads and creating various customer profiles. Search history recorded by some search engines is the most prominent example of passive digital footprints (Uğurdağ, 2019). Until a few years ago, the audience entering the Internet could not be defined. It was impossible to understand their trends, interests or measure their reactions; today, the target audience has become known with passive digital footprint tracking (Alakuş, 2019).

Active footprints are data recorded by users, while passive footprints are data recorded by users unconsciously. The actions made on behalf of individuals without their knowledge (such as opening an account or web page, making social shares, and re-sharing previous posts), the appearance of any search made as an advertisement, and the emergence of created and kept secret profiles or hidden posts can be given as examples of active and passive footprints (Sürmelioğlu & Seferoğlu, 2019).

In the literature, digital footprints are classified in two different ways, except active and passive, as implicit and explicit. Implicit footprints, including all invisible actions, include data such as people clicks on web pages, duration of stay on web pages, cookie data, and search history. Explicit footprints, which record all actions that internet users can see, also include user responses such as likes, comments, and shares in social media applications (Koidl et al., 2018). It would be appropriate to say that latent footprints represent passive digital footprints, and open footprints represent active digital footprints.

Digital footprints of people lead to the formation of large databases. However, most people still have no idea about who collected these stored data, how and why they were collected, how they were stored in databases, and how they were sold to data brokers (Özcan, 2021; Zwitter, 2016). Information that is used in digital media today may appear before the individual differently tomorrow. For example, in the most straightforward and innocent form, data collected from a user can appear in front of that user as advertising messages (Arslankara & Seferoğlu, 2019). The digital footprint can completely change the existing relationships: such as between the individual and institutions, customers and various brands, patients and health centers, voters and governments, and students and universities. In this respect, it can be said that users must have digital footprint from this perspective, an institution's reputation can sometimes be affected by its employees' sharing in digital media.

The digital reputation of an institution is closely related to the institution's digital image. The institution's stakeholders mostly create this image because one of the basic concepts in corporate reputation management is a stakeholder (Karayel-Bilbil & Güler, 2017). Educational institutions are also the most important institutions of a country. The most important stakeholders of the education institutions are students. The decision of which school the students will study at is first decided by looking at the its image, that is, its corporate reputation. Schools with a bad reputation are not preferred much. Other educational institutions' stakeholders are faculty members who help build the institution's reputation, and most parents want to enroll their students in institutions with excellent teaching staff. Universities, which are among these educational institutions, are the institutions' students prefer, especially with their university placement scores. Newly-starting or transitional students also prefer universities and departments by searching through digital media, especially the Internet. However, sometimes, a faculty member's sharing can be attributed to the university they work, and this university is not preferred. Therefore, faculty members are expected to have digital footprint awareness.

In the literature, there are studies, especially on digital footprint awareness of children and adolescents. There are studies on digital footprints of urologists (Gill et al., 2016), dieticians (Karanfilian et al., 2019), neurological surgeons (Kim et al., 2018). The study examining the digital footprint awareness of teachers working in the education sector (Arslankara & Seferoğlu, 2019) is also included in the literature. However, no study examining the digital footprint awareness of faculty members was found. Therefore, this study's general purpose is to examine the relationship between faculty members' digital footprint experiences and their awareness of digital footprints. For this purpose, the following research questions were sought:

1. What are the online media usage situation levels of faculty members?
2. Do faculty members' digital footprints awareness, and digital footprint experiences change significantly according to their gender?
3. Are there any significant relationships among faculty members' gender and their Internet usage duration (daily usage time and years of use), online environments they used, digital footprint experiences, and digital footprint awareness?

Method

The research model, universe and sample, data collection tool, data collection process, and analysis were presented in this section.

Research Model

In this study, a relational research model was used to reveal the relationships between faculty members' gender and Internet usage duration (daily usage time and years of use), their use of online environments, digital footprint experiences, and digital footprint awareness. Relational research models are research designs that aim to reveal change between two or more variables (Karasar, 2009).

Sampling

The population of the study consists of 1050 lecturers working at a state university in Turkey. The entire research population was tried to be reached through the mail service of the university. A total of 398 faculty members voluntarily filled out the questionnaire. Three hundred ninety-eight faculty members who voluntarily participated in the survey with 98% confidence and a 4.60% error rate were deemed sufficient to represent the study's universe. 56.03% of the faculty members were female (n = 223), 44.97% were male (n = 175). The average age of the participants was 40.03. 32.91% of the faculty members were between 23 and 40 years old (n = 131), 44.72% were between 41 and 50 years old (n = 178), and 22.36% were over 51 years old (n = 89). 5.28% of faculty members use daily internet less than 1 hour (n = 21), 37.44% between 1 and 3 hours (n = 149), 28.89% between 3 and 5 hours (n = 115), 14.57% of 5 to 7 hours (n = 58) and 13.82% stated that they used it for more than 7 hours (n = 55). While 16.33% of the faculty members stated that their digital environment is safe (n = 65), 83.67% stated that they are insecure (n = 333). While 5.28% of the faculty members shared their passwords with others (n = 21), 94.72% stated that they did not share their passwords with others (n = 377).

Data Collection Tools

The questionnaire form, which was prepared to collect data, consisted of four parts. In the first part, the personal information form questioning faculty members' internet usage duration and demographic characteristics were included. In the second part, there were ten questions about online tools used by faculty members (Appendix 1).

In the third and fourth parts of the form, there were two parts of the questionnaire developed by Sürmelioğlu and Seferoğlu (2019): (1) Operations carried out in digital environments, (2) Digital media experiences. There were 12 questions to determine the digital footprint awareness of faculty members in operations carried out in digital environments (Appendix 2). In the section on digital media experiences, there were 16 items to determine faculty members' negative experiences regarding the digital footprint (Appendix 3). Faculty members were asked to indicate the items' expressions in the data collection tool on a five-point Likert-type grading scale (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Generally, 5 = Always). Besides, items 13, 14, and 15 in the section on digital media experiences contain reverse expressions compared to other items. Therefore, these items were reverse coded when calculating the mean. While the questionnaire's internal consistency coefficient regarding the transactions performed in digital environments was calculated as 0.89, the internal consistency coefficient of the digital environment experiences questionnaire was found as 0.84.

Validity, Reliability, and Ethics

After deciding on the scale to be used in the study, two field experts were asked to check whether the study's data collection tool was suitable. The experts stated that it was ideal for the research both in terms of structure and content, then the data was collected. After the data was collected, the opinions of an expert working in data mining analysis about the analysis of the data were obtained, and the accuracy of the study was confirmed.

For this research, it was decided that the study was ethically appropriate according to decision number 4 of the document on ethics committee decisions numbered E-97132852-302.14.01-18503 of the relevant university. Necessary permissions were obtained to research within the scope of the university where the research was conducted. The volunteer consent form was filled out by the faculty members who expressed their opinions.

Data Analysis

Descriptive and relational analyzes were made during the data analysis process. While Statistical Package for the Social Sciences (IBM SPSS Corp., Armonk, NY, USA) 22 program was used for descriptive analysis, the VEKA program was used for relational analysis. Within the scope of descriptive analysis, t-test, mean, percentage, and frequency analysis were performed.

In the relational analysis, the association rule, one of the data mining methods, was used to reveal the relationships between variables. Data mining can be defined as the process of obtaining valuable information that may be hidden within the accumulated or collected data over time (Ateş & Karabatak, 2017; Karabatak & İnce, 2004). The association rule is a technique used to reveal new and useful information from big data sets (Ruiz et al., 2016) and the relationships between data. It is also used in social sciences to obtain valuable results in revealing meaningful and interesting relationships between various behavioral variables (Holsheimer et al., 1995).

Lift and confidence values are examined in association rule applications. These two parameters are the two most crucial association rule parameters (Ateş & Karabatak, 2017). The lift value is an important parameter that enables determining the most interesting relationships among many rules, especially in the association rule. Taking the value of "1" for the lift criterion means that the relationship between the variables and the interestingness is weak while being higher than 1 means that the relationship is strong in a positive sense or less than 1 means that the relationship is strong in a negative sense (Holsheimer et al., 1995). Besides, as this value increases, the interestingness of the rule increases. The confidence value of a rule of the form "A à B" refers to the B event's conditional probability value. Accordingly, the confidence value is the probability of an event B occurring depending on an event A occurs (Ateş & Karabatak, 2017).

Before starting the association rule to determine the relationships between variables, the data were converted into a format that the VEKA program can handle. Then, the relationships between variables are analyzed.

Results

The findings made within the scope of the research questions are presented respectively.

Findings on the First Research Question

The findings regarding the first research question about the use of online environments by the faculty members are shown in Table 1.

Table 1.
Distribution of Answers in Regard to the Situations of Faculty Members Using Online Environments

Items		Never	Rarely	Sometimes	Usually	Always	
OE1	n	149	78	101	37	33	2.31
	%	37.44	19.60	25.38	9.30	8.29	
OE2	n	22	27	72	117	160	3.92
	%	5.53	6.78	18.09	29.40	40.20	
OE3	n	25	51	143	111	68	3.37
	%	6.28	12.81	35.93	27.89	17.09	
OE4	n	145	74	83	59	37	2.42
	%	36.43	18.59	20.85	14.82	9.30	
OE5	n	94	90	133	59	22	2.56
	%	23.62	22.61	33.42	14.82	5.53	
OE6	n	13	45	79	100	161	3.88
	%	3.27	11.31	19.85	25.13	40.45	
OE7	n	82	81	91	69	75	2.93
	%	20.60	20.35	22.86	17.34	18.84	
OE8	n	161	116	85	27	9	2.01
	%	40.45	29.15	21.36	6.78	2.26	
OE9	n	3	18	59	108	210	4.27
	%	0.75	4.52	14.82	27.14	52.76	
OE10	n	71	93	106	76	52	2.86
	%	17.84	23.37	26.63	19.10	13.07	

OE = Online environment

As seen in Table 1, the faculty members use "Always" online chat tools (=4.27) by 52.76%, social networks (=3.88) by 40.45%, and e-mail services (= 3.92) by 40.20%. The faculty members stated that they have "Never" used blogs (=2.01) by 40.45%, learning management systems (LMS) (=2.31) by 37.44%, and Wiki (=2.42) by 36.43% (Appendicx 1).

Results on the Second Research Question

Findings related to the second research question "Do faculty members' digital footprints awareness and digital footprint experiences change significantly according to their gender?" are shown in Table 2.

Table 2.
Digital Footprint Awareness and Digital Footprint Experiences of Faculty Members according to Gender Variable

Digital Footprint	*N*		sd	Gender	*N*		sd	t	df	*p*
DFA	398	4.31	.620	Woman	223	4.38	.570			
				Man	175	4.23	.672	2.39	396	.017
DFE	398	2.00	.552	Woman	223	1.92	.503			
				Man	175	2.12	.621	-3.63	396	.000

DFA = Digital footprint awareness; DFE = Digital footprint experiences

As seen in Table 2, the faculty members' digital footprint awareness is high (= 4.31), and their negative experiences in the digital environment are low (= 2.00). According to the independent groups' t-test results, there was a significant difference in favor of women in terms of both the digital footprint experiences (t_{396} = -3.63; $p < .05$) and digital footprint awareness (t_{396} = -2.39; $p < .05$) according to gender variable. However, for the "I have awareness about the concept of digital footprint" question; 39 faculty members stated as "Never", 48 faculty members stated as "Rarely", 83 faculty members stated as "Sometimes", and 106 faculty members stated as "Generally", and 122 faculty members stated as "Always" (Appendix 2).

The Results on the Third Research Question

Findings related to the third research question "Are there any significant relationships among faculty members' gender and their Internet usage duration (daily usage time and years of use), online environments they used, digital footprint experiences, and digital footprint awareness?" are presented below.

With the association rule, 75 rules were created between faculty members' online environment usage situations, digital footprint experiences, and digital footprint awareness. A total of 22 rules with a confidence value above 50% and lift values above "1" were included and interpreted in the study's scope. One of these rules revealed the relationship among online use situations (Rule 1), four revealed the relationships between digital footprint experiences (Rule 2, Rule 3, Rule 4, and Rule 5), and three revealed the relationship between digital footprint awareness (Rule 6, Rule 7, and Rule 8). These rules were shown in Table 3.

Table 3.
Meaningful Patterns and Rules Revealed with the Association Rule

Rule Number	Rules	Confidence	Lift
1	OE2=5 OE7=5 45 ==> OE6=5 44	98%	2.42
2	DFE13 =5 152 ==> DFE4=1 103	68%	1.38
3	DFE15=3 148 ==> DFE14 =3 106	72%	1.56
4	DFE16=1 187 ==> DFE4=1 119	64%	1.29
5	DFE13 =5 152 ==> DFE16=1 92	61%	1.29
6	DFA12=5 122 ==> DFA11=5 88	72%	1.79
7	DFA12=5 122 ==> DFA2 =5 82	67%	1.53
8	DFA11=5 160 ==> DFA2 =5 100	63%	1.42

OE = Online environment; DFE = Digital footprint experiences; DFA = Digital footprint awareness

According to Rule 1, 98% of the faculty members who "always" use social networks (*n* = 45) and cloud file sharing environments (lift = 2.42) also use e-mail services "always" (*n* = 44).

According to Rule 2, 68% (lift=1.38) of the faculty members (*n* = 152) who stated that their posts on digital media "always" reflect their true thoughts "never" regrets their posts in digital media (*n* = 103). According to Rule 3, 72% (*n* = 148) of the faculty members (*n* = 148) who think that they "sometimes" positively affect other people in online tools, are "sometimes" positively affected by the shares in online tools (*n* = 106). According to Rule 4, 64% (lift=1.29) of the faculty members (*n* = 187) who "never" worried about the negative thoughts of people in online tools about themselves "never" regrets their sharing in digital media (*n* = 119). According to Rule 5, 61% (lift=1.51) of the faculty members (*n* = 152) who stated that their posts on digital media "always" reflect their real thoughts, "never" worry about people's negative thoughts about them in online tools (*n* = 92).

According to Rule 6, 72% (lift=1.79) of the faculty members (*n* = 122) who stated that they have an awareness of the concept of the digital footprint, "always" review and organize the privacy settings of online tools (e.g., social networks, online chat, etc.) (*n* = 88). According to Rule 7, 67% (lift=1.53) of the faculty members (*n* = 122) who stated that they have an awareness of the concept of the digital footprint, "always" review and share many times their writing in terms of spelling before they share comments or arti-

cles on digital media (*n* = 82). According to Rule 8, 63% of faculty members (*n* = 160) (lift=1.42) who "always" review and adjust the privacy settings of online tools (e.g., social networks, online chat, etc.) "always" review and share their writings many times in terms of spelling before sharing comments or articles in digital media (*n* = 100).

The 15 rules obtained regarding the relationships among the data in the personal information form, online environments usage, digital footprint experiences, and digital footprint awareness are as in Table 4.

Table 4.
Other Meaningful Patterns and Rules Revealed with the Association Rule

Rule Number	Rules	Confidence	Lift
9	Old= "40-50" OE4=1 43 ==> Daily internet usage= "3-5 hours" 40	93%	1.40
10	OE6=5 161 ==> Internet usage years= "More than 10 years" 105	65%	1.34
11	Internet usage years= "More than 10 years" OE7 =5 46 ==> OE6=5 43	93%	2.31
12	Gender= "Female" DFE16=1 111 ==> DFE4=1 80	72%	1.46
13	DFE4=1 DFE16=1 119 ==> Gender= "Female" 80	67%	1.20
14	Gender= "Female" Daily internet usage= "3-5 hours" 148 ==> DFE4=1 88	59%	1.21
15	Daily internet usage= "3-5 hours" DFE4=1 131 ==> DFE16=1 85	65%	1.38
16	OE7 =5 DFA2 =5 46 ==> OE6=5 43	93%	2.31
17	OE2=5 160 ==> DFA2 =5 87	54%	1.24
18	DFE10=5 140 ==> OE6=5 87	62%	1.54
19	OE2=5 160 ==> DFA11=5 91	57%	1.41
20	DFA11=5 160 ==> OE6=5 82	51%	1.27
21	DFE13 =5 152 ==> DFA2 =5 91	60%	1.36
22	DFA11=5 160 ==> DFE16=1 95	59%	1.26

OE = Online environment; DFE = Digital footprint experiences; DFA = Digital footprint awareness

According to Rule 9, 93% (lift=1.40) of the faculty members between the ages of 40 and 50 who "never" use the Wiki use the Internet for 3 to 5 hours a day (*n* = 40). According to Rule 10, 65% of the faculty members (*n* = 161) who "always" use e-mail services (lift=1.34) have been using the internet for at least 10 years (*n* = 105). Besides, according to Rule 11, 93% (*n* = 46) of the faculty members (*n* = 46) who use "always" both the Internet for more than ten years and cloud storage environments also use the e-mail services "always" (*n* = 439).

According to Rule 12, 72% (lift=1.46) of female faculty members (*n* = 111) who "never" worry about the negative thoughts of people in online tools about themselves do not regret any of their posts in digital media (*n* = 80). Also, according to Rule 13, 67% (lift=1.20) of those who "never" regretted their sharing in digital media and "never" worried about the negative thoughts of people in online tools about themselves in online vehicles (*n* = 119) are female faculty members (*n* = 80). According to Rule 14, 59% (lift=1.21) of female faculty members (*n* = 148) who use the internet for 3 to 5 hours a day were "never" worried about their sharing in digital media (*n* = 88). According to Rule 15, 65% of the faculty members (*n* = 131) who use the Internet for 3 to 5 hours a day and who "never" regret their sharing in digital environments (lift=1.38), "never" worry about the negative thoughts of people in online tools about them (*n* = 85).

According to Rule 16, 93% (*n* = 46) of the faculty members who "always" use cloud file sharing environments and "always" review and share their writing in terms of spelling before posting comments or articles on digital media also use e-mail services "always" (*n* = 43). According to Rule 17, 54% (lift=1.24) of the faculty members (*n* = 160) who stated that they "always" use social networks, "always" review and share their writing in terms of spelling before posting comments or articles on digital media (*n* = 87). According to Rule 18, 62% of the faculty members (*n* = 140) (lift=1.54) who stated that the contents of the search results they made in digital media "always" appear as advertisements in digital media use e-mail services "always" (*n* = 87). According to rule 19, 57% (lift=1.41) of faculty members (*n* = 160) who "always" use social networks, "always" constantly review the privacy settings of online tools (e.g. social networks, online chat, etc.) (*n* = 91).

According to Rule 20, 51% (lift=1.27) of faculty members (n=160) who "always" review and adjust their privacy settings for online tools (e.g., social networks, online chat, etc.)," use e-mail services "always (*n* = 82). According to Rule 21, 60% (lift=1.36) of the faculty members (*n* = 152) who stated that their posts in digital media "always" reflect their real thoughts "always" review and share their writing "always" in terms of spelling before sharing comments or articles on digital media (*n* = 91). According to Rule 22, 59% (*n* = 160) of faculty members (*n* = 160) who "always" review and adjust privacy settings of online tools (e.g., social networks, online chat, etc.) never worry about the negative opinions of people in online tools about them.

Discussion

This study aimed to reveal the relationships between faculty members' gender and internet usage durations (daily usage time and years of use), their use of online environments, digital footprint experiences, and digital footprint awareness. For this purpose, some meaningful and engaging relationships between variables were revealed by using the association rule.

The descriptive analysis revealed that the faculty members mostly use online chat tools, social networks, e-mail services, and least blogs, LMS, and Wiki. The association rule results revealed that almost all faculty members, who always use social networks and cloud file-sharing environments, always use e-mail services. In Arslankara and Seferoğlu's (2019) study, teachers mostly leave a digital footprint on social networks, online chats, and web pages, and at least use LMS, discussion forums, and web pages that produce academic content. Gill et al. (2016) stated that academic urologists have less social media visibility, which means social media is used less by academic urologists. Kim et al. (2018) and Karanfilian et al. (2019) found that the vast majority of medical faculty members in the regions where they conducted the studies had no control over their online identities. Besides, it was revealed that medical faculty did not use social media or doctor-controlled websites much in both studies. It can be said that the reason the current study results and the other studies' results differ from each other is due to the different research and expertise areas of the faculty members for whom the data were collected.

It is expected that faculty members mostly use chat tools, social networks, and e-mail services for their professions. Because faculty members interact with their social environment and with their students, they meet with their students online using digital tools. One of the study's outstanding results is that the faculty members stated that they used LMS less frequently. It can be noted that this is either since faculty members do not know the names of the distance education systems they commonly use during the

pandemic period, or they use a system other than Moodle, Blackboard, Edmodo isted in the survey questionnaire.

At the end of the study, it was observed that the faculty members' digital footprint awareness was high, and their negative experiences in the digital environment were low. Gill et al. (2016) revealed that academic urologists generally control a large part of the content returned in Internet searches. This result is because faculty members use information and communication technologies and databases too much due to their profession. However, one of the most exciting findings of the study is that while faculty members responded to the statements about digital footprint awareness at a high level, they expressed a lower level of opinion about the concept of digital footprint.

This result shows that faculty members know digital footprint as "scope" even though they do not know it as a "concept". Because, according to the association rule results, most of the faculty members who stated that they are aware of the concept of digital footprint and have always used social networks review the privacy settings of online tools and review and share with others their spelling many times before posting comments or articles on digital media. It has been observed that the majority of faculty members, who always review and adjust the privacy settings of digital tools, never worry about the negative opinions of people in online tools about themselves. For this reason, it is a common situation that faculty members frequently check their writings in social network environments in terms of both meaning and spelling. Faculty members can be confident that they do not have much to worry about their writing or privacy. Besides, faculty members do not care much about what others think about them, as they use their e-mails and social media accounts, especially for professional or educational purposes.

In the study, the faculty members stated that their posts on digital media always reflect their real thoughts, do not regret their posts in digital media, and continuously review and share their writing in spelling many times before sharing comments or articles on digital media. This situation shows that faculty members pay attention in form and semantically to their reports in digital media. Also, it can be said that faculty members are trying to protect their professional reputations in digital environments. In the research project carried out by the Department of Sociology of Istanbul University with the support of The Scientific and Technological Research Council of Turkey (TUBITAK), the reputation of being a faculty member in the society with a professional reputation scale ranked second among 20 professions with 83.32% (Jurnal.Ist, 2020). This finding can be interpreted as the effective use of the media, which guides the faculty members' opinions on society's professions.

It was revealed that most of the faculty members, who sometimes positively affect others in the online tools, sometimes positively affect them through the sharing of the online tools. Evans (2010) defines social media as online environments based on sharing the participants' opinions and experiences, building on shared tastes and similarities, offering a sincere conversation environment, meeting the participants at a common point, and often gaining more information to make better choices. The faculty members, who used online environments to raise awareness on some issues, are influenced by positive digital activities.

At the end of the study, it was determined that most of the faculty members, who always reflect their real thoughts in their sharing in digital media, do not worry about the negative thoughts of people in online tools. This finding can be explained by the high self-confidence of the faculty members. Because, self-confidence is the ability to impose their opinions on others, to be optimistic, willing, independent, open to criticism and emotionally mature, to feel love and pride, to feel secure, and to have the ability to evaluate one's capacity correctly (Davranış Bilimleri Enstitüsü [DBE], 2016). Social media are web-based services that enable individuals to connect with other individuals and share files through open or semi-open profiles (Ayan, 2016). For this reason, social media offers an environment that allows individuals to transform themselves into the format they want. However, with this research result, faculty members do not need to convert themselves into many different forms.

Madden et al. (2007) also divided adults into four groups according to their measures to manage and limit their online footprints. Among these groups, "confident creatives" are not worried about the availability of their online information and are actively uploading content but taking various steps to limit their personal data. "Concerned and careful adults" are taking steps to determine their online knowledge and are concerned and careful about their online information. The "worried by the wayside adults" are the group of adults concerned about how much information is available on the Internet about themselves and do not actively limit their knowledge online. "Unfazed and Inactive adults" are adults who are not concerned about their personal information and do nothing to limit the amount of information about themselves online. According to the classification made by Madden et al. (2007), the faculty members are in the group of self-confident adults.

The study revealed that the digital footprint awareness levels of the faculty members are relatively high. However, it was concluded that female faculty members have a higher awareness of digital footprint experiences and digital footprint than men. According to the duration of internet use, it was revealed that the faculty members, who stated that they use the Internet for 3 to 5 hours a day, mostly female faculty members, were never worried about their posts on digital media. It was found that most of the faculty members, most of whom are female lecturers, who do not worry about the negative thoughts of others about them in online environments, never regret their posts in digital environments. This may be because faculty members, who use the Internet for 3 to 5 hours a day, use digital media for academic studies or communication with students rather than social media. Also, female faculty members are not worried about their posts because they care more about their digital media posts and pay more attention to their posts. However, in Arslankara and Seferoğlu's (2019) study, although teachers 'digital footprint awareness levels were high, male teachers' awareness was higher. These results can be explained by the privacy anxiety of women and men's tendency to take risky behaviors. Because Filiz and Yeşildal's (2019) study showed a significant negative relationship between risk perception and privacy anxiety in virtual environments, men's risk perception is higher than women's, and women's privacy anxiety is higher than men's. Also, while the current study was carried out in a province in the Eastern Anatolia Region, Arslankara and Seferoğlu (2019) carried out their studies in a city in the Marmara Region. On the other hand, in the study of Kumar and Raj (2020), it was observed that while men's digital footprint experiences were higher than women's, womens' digital footprint awareness was even higher. The reason for these opposite results may also be due to cultural or regional differences. Because in a study con-

ducted by Sürmelioğlu and Seferoğlu (2019) with students studying at universities in many different regions, it was seen that the digital footprint awareness of women and men did not differ by gender.

Conclusion and Recommendations

It was revealed that most of the faculty members, whose contents of search results in digital environments are always displayed as advertisements in digital environments, always use e-mail services. Faculty members frequently use e-mail services due to their professions. For this reason, it is expected that some search results registered in databases will appear with the e-mail applications used by faculty members. Because the applications with advanced algorithms examine all kinds of data entered into the digital environment and allow advertisements to be displayed with people's applications. Every search on search engines provides clues about what the person needs. Sites that offer e-mail services are also commercial, and although they seem to provide the service for free, they earn their primary earnings from advertisements. For this reason, some previous product searches made by faculty members who use e-mail services due to their professions appear as advertisements with e-mail applications.

There are some limitations to this study. The current research does not examine the development of relationships acquired over time, as it is a cross-sectional study. This is an essential limitation of the study. Another limitation of the study is that the research was conducted only quantitatively. According to the result obtained from the analysis of the quantitative data, although it is seen that female faculty members 'awareness of digital footprint is significantly higher than male faculty members, there are results in the literature that male teachers' awareness of digital footprint is high. To explain the reasons for these contrasting research results, it may be suggested to conduct qualitative or mixed research with faculty members working in the education sector. To illustrate this contradictory situation, it is to investigate with a more comprehensive study whether the opposite results are due to regional or cultural differences by collecting data from people working at the same education level.

According to the results obtained from the present study, although it was revealed that the faculty members mostly use online chat tools, social networks, and e-mail services, it was revealed that the academicians who took their opinions in the studies conducted abroad did not use social media much. For this reason, it may be recommended to achieve more comprehensive research with different academicians (for example, dentistry and medicine) to investigate the reason for the difference between the study results.

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Genişletilmiş Özet

Amaç: Alanyazında özellikle çocukların ve ergenlerin dijital ayak izi farkındalıkları ile ilgili çeşitli çalışmaların yapıldığı görülmektedir. Yetişkin çalışanlarla ilgili olarak da ürolojistlerin (Gill ve ark., 2016), diyetisyenlerin (Karanfilian ve ark., 2019), nörolojik cerrahların (Kim ve ark., 2018) dijital ayak izi üzerine çalışmalar bulunmaktadır. Ayrıca eğitim sektöründe görev yapan öğretmenlerin dijital ayak izi farkındalıklarının incelendiği çalışmalar (Arslankara ve Seferoğlu, 2019) da alanyazında yer almaktadır. Ancak öğretim üyelerinin dijital ayak izi farkındalıklarını inceleyen herhangi bir çalışmaya rastlanamamıştır. Bu nedenle bu çalışmanın genel amacı öğretim üyelerinin dijital ayak izi yaşantıları ile dijital ayak izi farkındalıkları arasındaki ilişkinin incelenmesidir.

Yöntem: Bu çalışmada öğretim üyelerinin cinsiyetleri ve interneti kullanım süreleri (günlük kullanım süresi ve kullanım yılı), çevrim içi ortamları kullanma durumları, dijital ayak izi yaşantıları ve dijital ayak izi farkındalıklarının birbirleri ile aralarındaki ilişkilerin ortaya konması için ilişkisel tarama modeli kullanılmıştır. Çalışmanın evrenini Türkiye'de bir devlet üniversitesinde görev yapan 1050 öğretim üyesi oluşturmaktadır. Araştırmanın evrenine elektronik posta ile ulaşılmaya çalışılmıştır. Toplam 398 öğretim üyesi gönüllü olarak anketi doldurmuştur. %98 güven ve %4,60 hata oranı ile ankete gönüllü olarak katılan 398 öğretim üyesi, çalışmanın evreninin temsili için yeterli görülmüştür.

Çalışmanın amacına uygun veri toplamak amacıyla oluşturulan anket formu dört bölümden meydana gelmektedir. Birinci bölümde araştırmacılar tarafından öğretim üyelerinin interneti kullanmalarını ve demografik özelliklerini sorgulayan kişisel bilgiler formu yer almaktadır. İkinci bölümde ise çevrim içi araçların kullanım durumlarına ilişkin 10 soruya yer verilmiştir. Formun üçüncü ve dördüncü bölümlerde ise Sürmelioğlu ve Seferoğlu (2019) tarafından geliştirilmiş olan anketin iki bölümü yer almıştır: (1) Dijital ortamlarda gerçekleştirilen işlemler, (2) Dijital ortam yaşantıları.

Mevcut çalışmada betimsel ve ilişkisel analizler yapılmıştır. Betimsel analizler için SPSS 22 programı kullanılırken ilişkisel analiz için VEKA programı kullanılmıştır. Betimsel analizler kapsamında t testi, ortalama, yüzde ve frekans analizleri yapılmıştır. İlişkisel analizde ise değişkenler arasındaki ilişkilerin ortaya konması için veri madenciliği yöntemlerinden birliktelik kuralından faydalanılmıştır.

Sonuç: Öğretim üyelerinin cinsiyetleri ve interneti kullanım durumları (günlük kullanım süresi ve kullanım yılı), çevrim içi ortamları kullanma durumları, dijital ayak izi yaşantıları ve dijital ayak izi farkındalıklarının arasındaki ilişkilerin ortaya konması amacıyla yapılan çalışmada öğretim üyelerinin en fazla çevrim içi sohbet araçlarını, sosyal ağları, e-posta hizmetlerini kullandıkları, en az da ağ günlüklerini, ÖYS'yi ve wikiyi kullandıkları ortaya çıkmıştır. Ayrıca yapılan analizlerde sosyal ağları ve bulut dosya paylaşımı ortamlarını her zaman kullanan öğretim üyelerinin hemen hemen hepsinin e-posta hizmetlerini de her zaman kullandıkları ortaya çıkmıştır.

Çalışma sonunda öğretim üyelerinin dijital ayak izi farkındalıklarının yüksek, dijital ortamda olumsuz yaşantılarının ise düşük olduğu ortaya çıkmıştır. Çalışmanın en ilginç sonuçlarından biri öğretim üyeleri dijital ayak izi farkındalıklarına ilişkin ifadelere yüksek düzeyde cevap verirlerken, dijital ayak izi kavramı hakkında farkındalığının bulunmasına yönelik ifadeye daha düşük düzeyde görüş bildirmeleridir. Bu da öğretim üyelerinin dijital ayak izini "kavram" olarak bilmemelerine rağmen "kapsam" olarak bildiklerini göstermiştir.

Dijital araçların gizlilik ayarlarını her zaman gözden geçirip düzenleyen öğretim üyelerinin çoğunluğunun çevrim içi araçlardaki kişilerin kendileri hakkındaki düşüncelerinin olumsuz olmasından asla endişe etmemektedirler. Elde edilen bu bulgular, öğretim üyelerinin bilgi güvenliği ve dijital ayak izi farkındalığına sahip olduklarını ve dijital ortamlarda kendilerini doğru ifade etmeye çalıştıklarını göstermiştir. Çalışmanın başka bir sonucuna göre, dijital ortamlarda yaptığı paylaşımların her zaman gerçek düşüncelerini yansıttığını belirten öğretim üyelerinin dijital ortamlarda yaptıkları paylaşımlardan dolayı pişmanlık duymadıkları ve dijital ortamlarda yorum ya da yazı paylaşmadan önce yazdıklarını her zaman imla açısından birçok kez gözden geçirip paylaştıkları ortaya çıkmıştır. Bu durum, öğretim üyelerinin dijital ortamlarda sadece yazdıklarını biçimsel değil anlamsal olarak da dikkat ettiklerini göstermektedir.

Çevrim içi araçlardaki diğer kişileri bazen olumlu yönde etkileyen öğretim üyelerinin çoğunun, çevrim içi araçlardaki paylaşımların kendilerini bazen olumlu yönde etkilediği ortaya çıkmıştır. Dijital ortamlarda yaptığı paylaşımların her zaman gerçek düşüncelerini yansıttığını belirten öğretim üyeleri çoğunun da çevrim içi araçlardaki kişilerin kendileri hakkındaki düşüncelerinin olumsuz olmasından endişe etmedikleri belirlenmiştir.

Yapılan çalışmada öğretim üyelerinin genel olarak dijital ayak izi farkındalık düzeylerinin oldukça yüksek olmasına rağmen kadın öğretim üyelerinin erkeklere göre hem dijital ayak izi yaşantılarının hem de dijital ayak izi farkındalıklarının daha yüksek olduğu sonucuna ulaşılmıştır. İnternet kullanım süresine göre de; çoğu kadın öğretim üyesi olmak üzere, günde 3 ile 5 saat arasında internet kullanan öğretim üyelerinin dijital ortamlarda yaptıkları paylaşımlardan asla endişe duymadıkları ortaya çıkmıştır. Yine çoğu kadın öğretim üyesi olmak üzere, çevrim içi araçlardaki diğer kişilerin kendileri hakkındaki düşüncelerin olumsuz olmasından endişe etmeyen öğretim üyelerinin çoğunluğunun da dijital ortamlardaki paylaşımlarından dolayı hiçbir zaman pişmanlık duymadıkları ortaya çıkmıştır.

Çalışmanın sadece nicel olarak yürütülmüştür ve bu verilerin analizinden elde edilen sonuca göre kadın öğretim üyelerinin dijital ayak izi farkındalıklarının erkek öğretim üyelerine göre anlamlı düzeyde yüksektir. Ancak alanyazında erkek öğretmenlerin dijital ayak izi farkındalığının kadınlarınkine göre yüksek olduğuna ilişkin sonuçlar vardır. Bu zıt araştırma sonuçların nedenlerinin açıklanması açısından eğitim sektöründe çalışan öğretim elemanları ile nitel veya karma araştırma yapılması önerilebilir. Bu çelişkili durumun açıklanabilmesi için de araştırmacılara aynı eğitim kademesinde çalışan kişilerden veri toplayarak zıt sonuçların bölgesel veya kültürel farklılıktan kaynaklanıp kaynaklanmadığının daha kapsamlı bir çalışma ile araştırılmasıdır.

Mevcut çalışmadan elde edilen sonuca göre öğretim üyeleri en çok çevrim içi sohbet araçlarını, sosyal ağları, e-posta hizmetlerini kullandıkları ortaya çıkmasına rağmen yurtdışı alanyazında yapılmış çalışmalarda görüşü alan akademisyenlerin sosyal medyayı çok fazla kullanmadıkları ortaya çıkmıştır. Bu nedenle çalışmalar arasındaki sonuç farklılığının nedeninin araştırılması için çalışma alanı (örneğin, diş hekimliği ve tıp) farklı akademisyenlerle daha kapsamlı olarak çalışmanın yürütülmesi önerilebilir.

ANNEX-1
Frequency analysis of faculty members' use of online environments

Items	Never	Rarely	Sometimes	Usually	Always
OE1. Learning Management Systems (Moodle, Blackboard, Edmodo etc.)	149	78	101	37	33
OE2. Social networks (Facebook, Twitter, Instagram etc.)	22	27	72	117	160
OE3. Web pages (content, comments, etc.)	25	51	143	111	68
OE4. Wiki	145	74	83	59	37
OE5. Discussion forums	94	90	133	59	22
OE6. e-Mail services (Gmail, Hotmail, Outlook, Yandex etc.)	13	45	79	100	161
OE7. Cloud file sharing environments (Dropbox, Google Drive etc.)	82	81	91	69	75
OE8. Blogs	161	116	85	27	9
OE9. Online chat tools (WhatsApp, Skype, Messenger etc.)	3	18	59	108	210
OE10. Ekşi Sözlük, Uludağ Sözlük, etc. platforms	71	93	106	76	52

ANNEX-2
Frequency analysis of faculty members' awareness of digital footprints

Items	Never	Rarely	Sometimes	Usually	Always
DFA1. Dijital ortamlarda yorum ya da yazı paylaşmadan önce yazdıklarımı üslup açısından birçok kez gözden geçirip paylaşırım.	10	13	43	93	239
DFA2. Dijital ortamlarda yorum ya da yazı paylaşmadan önce yazdıklarımı imla açısından birçok kez gözden geçirip paylaşırım.	14	24	67	118	175
DFA3. Dijital ortamlardaki bilgilerimin okul, iş veya özel yaşantımda karşıma çıkabileceğinin farkındayım.	5	13	36	100	244
DFA4. Dijital ortamlardaki bilgi paylaşımlarımın gelecekte mesleki veya özel yaşantımda karşıma çıkma ihtimali nedeniyle dikkatli davranırım.	5	11	49	93	240
DFA5. Dijital ortamlarda yaptığım her türlü işlemin kayıt altında olacağını bilirim.	2	3	32	84	277
DFA6. Dijital ortamlarda yaptığım hiçbir işlemin gizli kalmayabileceğinin farkındayım.	3	12	24	77	282
DFA7. İnternet kafe, ortak kullanımlı bilgisayar laboratuvarları vb. ortamlarda bilgilerimin/paylaşımlarımın başkalarının eline geçme ihtimali olduğunun farkındayım.	1	8	26	92	271
DFA8. Dijital ortamlarda başkasının görmesini istemediğim kişisel bilgilerimi kimsenin kullanmaması için gerekli önlemleri alırım.	3	10	36	110	239
DFA9. Çevrim içi araçların (örneğin; sosyal ağlar, çevrim içi sohbet vb.) gizlilik ayarlarının farkındayım.	3	7	39	109	240
DFA10. Çevrim içi araçları (örneğin; sosyal ağlar, çevrim içi sohbet vb.) gizlilik ayarlarını kullanıyorum.	7	7	45	109	230
DFA11. Çevrim içi araçları (örneğin; sosyal ağlar, çevrim içi sohbet vb.) gizlilik ayarlarını sürekli gözden geçirip düzenlerim.	7	7	45	109	230
DFA12. Dijital ayak izi kavramı hakkında farkındalığım bulunmaktadır.	39	48	83	106	122

ANNEX-3
Frequency analysis of faculty members' digital footprints experiences

Items	Never	Rarely	Sometimes	Usually	Always
DFE1. Dijital ortamlarda bilgim dışında benim adıma hesap açıldığı oldu.	304	39	32	15	8
	76.38	9.80	8.04	3.77	2.01
DFE2. Dijital ortamlarda bilgim dışında benim adıma paylaşım yapıldığı oldu.	285	50	38	19	6
	71.61	12.56	9.55	4.77	1.51
DFE3. Dijital ortamlarda paylaştıklarım nedeniyle zor duruma düştüğüm zamanlar oldu.	275	60	42	16	5
	69.10	15.08	10.55	4.02	1.26
DFE4. Dijital ortamlarda paylaşımlarımın bazılarından dolayı pişmanlık duyduğum oldu.	196	107	66	23	6
	49.25	26.88	16.58	5.78	1.51
DFE5. Geçmişte yaşadığım olayların dijital ortamda gün yüzüne çıkması sebebiyle tedirgin olduğum zamanlar oldu.	271	59	38	21	9
	68.09	14.82	9.55	5.28	2.26
DFE6. Dijital ortamlarda kimseye haber vermeden oluşturduğum profillerimi tanıdıklarımın öğrendiğini fark ettiğim zamanlar oldu.	271	59	38	21	9
	68.09	14.82	9.55	5.28	2.26
DFE7. Dijital ortamlarda ailemden gizlediğim bilgilerimin öğrenilmesi nedeniyle ailemle tartışmalarım oldu.	330	35	17	11	5
	82.91	8.79	4.27	2.76	1.26
DFE8. Dijital ortamlardaki iletişim içerisinde bulunduğum kişilerden gizlediğim bilgilerimin öğrenilmesi nedeniyle sorunlar yaşadığım oldu.	314	46	25	9	4
	78.89	11.56	6.28	2.26	1.01

ANNEX-3
Frequency analysis of faculty members' digital footprints experiences (Continued)

Items	Never	Rarely	Sometimes	Usually	Always
DFE9. Dijital ortamlarda yaptığım paylaşımlar nedeniyle yasal yaptırımlarla karşı karşıya kaldım.	361	13	12	8	4
	90.70	3.27	3.02	2.01	1.01
DFE10. Dijital ortamlarda yaptığım arama sonuçlarının içerikleri dijital ortamlarda karşıma reklam olarak çıkmaktadır.	106	33	54	65	140
	26.63	8.29	13.57	16.33	35.18
DFE11. Dijital ortamlarda yüklediğim içeriklerin aile yaşamımı olumsuz etkilemesinden endişe duymaktayım.	266	63	37	15	17
	66.83	15.83	9.30	3.77	4.27
DFE12. Dijital ortamlarda yüklediğim içeriklerin mesleki yaşamımı olumsuz etkilemesinden endişesi duymaktayım.	261	60	39	22	16
	65.58	15.08	9.80	5.53	4.02
DFE13. Dijital ortamlarda yaptığım paylaşımlar, gerçek düşüncelerimi yansıtmaktadır.	39	20	69	118	152
	9.80	5.03	17.34	29.65	38.19
DFE14. Çevrim içi araçlardaki paylaşımlar beni olumlu yönde etkilemektedir.	37	49	183	88	41
	9.30	12.31	45.98	22.11	10.30
DFE15. Çevrim içi araçlardaki diğer kişileri olumlu yönde etkilediğimi düşünmekteyim.	32	42	148	119	57
	8.04	10.55	37.19	29.90	14.32
DFE16. Çevrim içi araçlardaki kişilerin benim hakkımdaki düşüncelerinin olumsuz olmasından endişe etmekteyim.	187	90	80	28	13
	46.98	22.61	20.10	7.04	3.27