



The Role of Social Media in Shaping Industrial Design Practices: Insights from Turkish Practitioners

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Abstract

With the inclusion of internet technology in daily life, individuals have tended to conduct their social interactions in virtual environments. Social networking platforms, which bring together millions of people, have allowed people to move a large part of their living spaces to the virtual environment. These platforms, called social media, are occupying a more prominent place in our life day by day. Social media attracts great attention from users across a wide age range due to its interactive nature that allows interaction and gives individuals the opportunity to express their personal opinions.

This aim of the study is to examine the use of visual-based social media by industrial designers in Turkey and to analyse their usage habits. Since the research aims to measure the impact of social media on the industrial design profession, social media platforms were limited and the evaluation was made through visual interaction-based social media platforms.

During the data collection phase of the research, information was collected through a questionnaire distributed over the Internet to 269 industrial designers. The findings show that social media usage is inversely proportional to age; in other words, as age progresses, the duration of social media usage tends to shorten. It was determined that the device that users most frequently use to access social media platforms is the smartphone. In addition, statistical data on social media usage purposes were obtained.

1. INTRODUCTION

The rapid development of internet technologies and the rise of social media have been one of the elements that have shaped the basic dynamics of modern society since the beginning of the 21st century. This transformation; It has had profound effects on a wide range from access to information to communication styles, from ways of doing business to daily social interactions.

The new internet era, called Web 2.0, has brought to the fore the participation of users as content creators and multi-faceted interaction. The concept of Web 2.0, introduced by Tim O'Reilly [1], defined the internet as a dynamic and interactive platform beyond static pages. With the emergence and popularization of social media platforms, communication and information sharing between people have varied. Platforms such as Facebook, X, and Instagram have brought together billions of people, providing a vast stage for individuals to showcase their thoughts, experiences, and creativity. These platforms have come to play a central role not only for social interaction but also for various purposes such as news dissemination, marketing, and political campaigns.

Industrial design aims to increase the quality of life of individuals by building a bridge between functionality and aesthetics. This process starts with user needs and expectations and centres on their

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experiences. Social media provides designers with large data sets about their target consumer audience, providing valuable insights into user needs and wants. This gives designers access to user feedback that is difficult to access through traditional methods, as well as the opportunity to keep up with the current work of competitors and designers. Answers to questions such as which company has done what, what are the new trends in the sector, what do people need, are users satisfied with this product can be accessed through these interactive virtual networks. Hagen and Robertson [2] argue that social technologies also create new opportunities for participation and change traditional design methods. Beyond being a content-sharing platform for users, social media is also becoming a research tool for designers that allows them to better understand their target audience. Interactions on social media can provide valuable insights to designers, making user needs, expectations, and experiences more transparent and accessible. By leveraging discussions, shared content, and user interactions on social media platforms, designers can predict what users value, what aesthetic understandings they gravitate towards, and what functionalities they desire.

It can be mentioned that social media can provide support to industrial designers in the development of new products and services, improving existing products and services, and evaluating the performance of a product or service after it is launched. This article aims to examine this important interaction between industrial design and social media. The answers to the questions of which social media platforms the designers prefer, how much time they spend on social media platforms during the day, and for what purposes they use professionally were investigated.

2. WEB 2.0 AND SOCIAL MEDIA

With the spread of the Internet, individuals have started to maintain their social interactions in online environments through digital networks integrated into the daily lives of communities. Initial phase of the internet, known as Web 1.0, is characterized by websites where users could only view content, whereas with the advent of Web 2.0, the internet became more interactive and social. "Web 2.0," or second-generation internet services, have made digital networks more accessible, enabling users to engage actively in creating content and facilitating two-way communication [3]. The concept of Web 2.0, introduced by Tim O'Reilly in 2004, describes the internet as an environment formed through user collaboration. Web 2.0, unlike Web 1.0, has enabled users to take on the role of content producer, leaving the position of not only buyers [1]. This is the new era of the internet; It has offered a dynamic structure that supports multi-faceted interactions such as information sharing, social networking, blogging, and online games.

Web 3.0, which followed Web 2.0, represents a period where the internet became more intelligent and efficient through the incorporation of technologies such as artificial intelligence and machine learning. Web 4.0 defines our current era, where the widespread use of mobile devices has made the internet accessible anytime and anywhere, enabling continuous interaction between people and devices. Web 5.0 is the anticipated future phase. In this phase, it is expected that advancements in artificial intelligence and emotion analysis technologies will allow the internet to interact in a more human-centred and emotionally responsive manner [4]. This paper on social media focuses on Web 2.0, the phase which the web became interactive and social.

Manuel Castells [5] defines the social organizational structure that has developed with the emergence of Web 2.0 as a "network society". This new social structure can be clearly observed on social media platforms. The concept of Web 2.0-based social media, which allows two-way interaction, is defined by Boyd & Ellison [6] as:

"...social network sites as web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system."

Kietzmann et al.[7], on the other hand, define social media as "...highly interactive platforms via which individuals and communities share, cocreate, discuss, and modify user-generated content." Another researcher, Tuten [8], considered social media as technological tools that enable communication, transfer and cooperation between interconnected individuals, communities and companies by looking at them from a marketing perspective. Kaplan & Haenlein [9] use social media as more inclusive. They defined it as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content." Kaplan & Haenlein [9] stated that when an application with similar features is developed in the future, they keep their definition broad to ensure that it can be included under the inclusiveness of this definition.

Social media technologies enable many people to be together online at the same time. When social media statistics are examined, it is observed that the number of users is increasing every year. According to the 2024 statistics prepared by "we are social"; the number of internet users globally accounts for 66.2% of the total world population. The number of social media users is equal to 62.3% of the world's population. It is seen that the majority of internet users are also social media users [10].

In Turkey, 74.41 million people, accounting for 86.5% of the population, utilize the internet. The number of user IDs on social media is 57.50 million people, 66.8% of the population. When the user accounts on social media are compared with the number of individuals aged 18 and over, it is seen that 86.8% of the population is a social media user. The desire to communicate with friends and family has been stated as the first reason why people use social media in Turkey. The reasons for the next high rate of use are respectively; to gain knowledge, to spend leisure time, to discover content, to review products that can be purchased and to share ideas. The most used social media platforms between the ages of 16 and 64 were Instagram, Whatsapp, Facebook, X, Telegram, Tiktok, Facebook Messenger, Pinterest, Snapchat and LinkedIn, respectively. It is seen that the top 3 social media platforms where the most time is spent in this age range are Instagram, Tiktok and Youtube [10].

It can be said that the way we interact has changed as social media has become an integral part of our lives [11–13]. The effects of internet technologies and social media on societal and cultural evolution are visible in community dynamics. Prensky [14] introduced the concept of "digital native" to describe today's young generation in his article titled "Digital Natives, Digital Immigrants Part 2: Do They Really Think Differently?". Digital natives, who grow up in the network society and can easily adapt to new technologies, perceive meeting online as natural and are more prone to producing, sharing and collaborating content through this environment than the previous generation. Tuten [8] shows social media as the place where digital natives live their social life. Prensky [14] named the previous generation, who were not born in a network society, who were introduced to the products of internet technologies after adolescence, and who felt alienated from internet technologies, as "digital immigrants".

In this context, the X, Y, and Z generations are among the most frequently referenced. People are classified into certain generations according to their birth year: individuals born between 1965 and 1980 are classified as Generation X; Those born between 1981 and 1999 are Y (also known as millennials); and individuals born or to be born between 2000 and 2020 represent Generation Z. Generation X is a transition generation that has witnessed a period in which technological developments are integrated into our social and individual lives. Members of this generation, based on their life experiences, tend to secure their future financially and find it important to save in this context. In business life, it is observed that they exhibit a competitive approach. Generation Y is defined as a group that develops in parallel with the evolution of digital technologies and places these technologies at the centre of their lives. The most striking characteristic of Generation Z is their intensive use of technological tools such as smartphones, tablets and computers [15]. Today, social media serves as a platform where the target demographic for industrial designers willingly engages, forms connections, acquires knowledge, and shares their thoughts.

3. INDUSTRIAL DESIGN AND SOCIAL MEDIA

Industrial design plays a crucial role in allowing manufacturers to stand out in the market through unique product differentiation. Social media is also conducive to creating new forms of communication and interaction between users and industrial designers. According to Yum [16] with the development of technology, communication in the online environment changes and turns into interaction. In addition to communicating with the help of social media, people get in touch with the likes of content, commenting, and many other interaction methods [6].

De Vere [17] explains the industrial design process in 4 steps as analysis, creation, definition and implementation (Figure 1). He states that social media can be used at many stages of the industrial design process. In the analysis phase, designers create a problem definition by researching the users who are their target audience. Industrial designers have an idea about the future user of the product or service while performing the act of designing [18]. Designer; in addition to demographic information such as age, gender, and education level, it also obtains information about the functional needs and aesthetic taste of users [17–20]. Social media makes it possible to access more data compared to traditional sociological methods. "Big data" obtained from social media provides researchers with much more information about human behaviour [21,22]. Social media, which contains a large amount of numerical data, is used effectively in many areas from researchers to companies, from governments to politicians. According to Zhan et al. [23], the most well-known benefit of using social media in the product development process is to provide information to organizations.

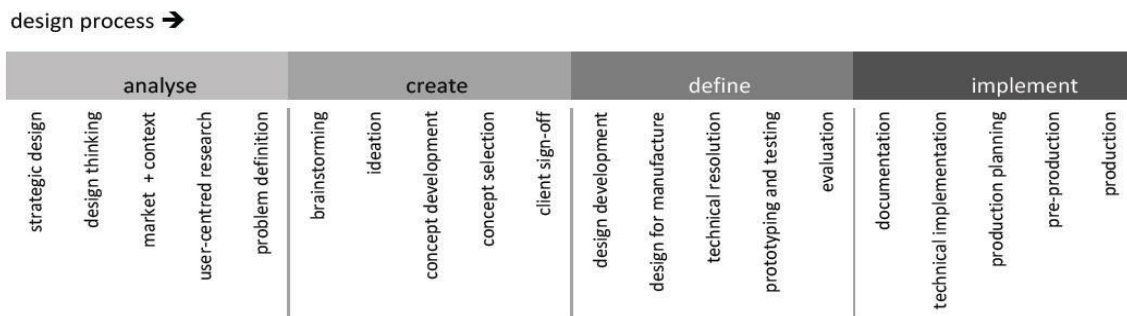


Figure 1. The Design Process (De Vere, 2014)

In the creative phase, user participation in the design process can be ensured through online environments. With the participation of more skilled users (engineers, designers) at the identification stage, the product solutions can be produced on the problems that may be experienced in production. Feedback can be obtained about the designed product or service. During the implementation phase, sponsors can be found with the project crowdfunding, and comments about the product can be received on forums and blogs with a preview [17]. Social media is characterized by being engaged, open, communicative, connected, and a sense of community [9]. The characteristics of social media are compatible with participatory design. Social media enables collaboration between users and industrial designers in the analysis and creative stages of the design process.

According to Hagen & Robertson [2], social media offers a new way to participate. The fact that it does not require expertise and allows distant relationships creates an advantage for participation through social media [24]. According to Li [25], another advantage of social media is the ease of group creation. On social media, groups can appear almost instantly and can be made up of people from all over the world. With the opportunities brought by technology, groups have become more visible and powerful. The fact that social media allows for collaborative and simultaneous content creation is an important advantage for participatory studies [9]. While conducting an online study has the effect of reducing the cost of research, it can also provide access to a much wider geography and participants [26]. Näkki & Virtanen [27] stated

that one of the biggest challenges in participatory design is to force people to be participatory and give feedback. On social media, people voluntarily participate and produce content. In addition, individuals who do not want to participate in face-to-face work have the opportunity to express themselves online.

4. METHOD

As part of this research, a questionnaire was carried out involving 269 industrial designers in Turkey. The survey method is a systematic and standardized data collection technique that allows the researcher to gain access to broad and comprehensive information about a specific segment of society [28]. Thanks to the homogeneity of the responses, questionnaires can be easily processed during data analysis and offer the opportunity to generalize across large data sets [29].

In this survey conducted with industrial designers, questions were prepared by limiting social media platforms as visual interaction-based social media platforms. These platforms are divided into three:

- **Media Sharing Platforms:** These are platforms such as Instagram and Facebook that allow the user to share media and interact through these media.
- **Portfolio Sharing Platforms:** These are platforms that allow designers such as Behance and Dribbble to publish their works and interact through these works.
- **Software Platforms:** These are platforms such as Canva and Miro, which contain tools to help design, allow more than one user to connect online and design together, and where prepared designs can be published.

In the first part of the survey, there are factual questions that will create demographic profiles of designers. These questions revealed the factors of age, education level and professional experience. In the second part, the focus is on the social media usage habits of designers. This section includes questions to evaluate behavioural characteristics such as time spent on social media, reason for using social media, as well as potential relationships between these characteristics and demographic factors. The questions were prepared using multiple choice, short answer and 5-point Likert scale. Research indicates that social media use may be related to the demographic characteristics of individuals [30]. It is important for the study to determine whether there is such a relationship in this questionnaire as well.

In cases where it is impossible to reach the entire universe, general trends are determined with the help of samples. A sample is a subgroup that is supposed to be representative of the universe [31]. While selecting the sample from the universe of industrial designers, “stratified sampling” method was preferred. Obtaining a sample that has the competence to represent the universe in probability sampling is the main reason why this sampling method is preferred. In the stratified sampling method, which is one of the probability sampling methods, the demographic characteristics in the sample form the layers [32,33]. In this context, the selection of the “age” factor as the demographic characteristic considered in this research is a strategic decision. Especially when dealing with social media use and technological interactions, the age of individuals plays a decisive role in these habits and preferences. The fact that social media usage habits vary according to age groups has been the main motivation behind this choice.

Concepts such as “digital native”, “digital immigrant” and “X, Y, and Z generations”, which are used to distinguish age groups, define the characteristics of different generations related to the use of technology and social media. These concepts were used as a guide in organizing the age ranges determined for the research. Thus, it is aimed that the results of the research reflect the social media usage habits of different generations more clearly and accurately.

$$n = \frac{N \times Z^2 \times p \times (1 - p)}{(N - 1) \times d^2 + Z^2 \times p \times (1 - p)}$$

In this formula:

n: Sample size

N: Total population (10000)

Z: Z score (based on confidence interval; Z=1.645 for 90% confidence level)

p: Success rate in the population (0.5)

d: Acceptable amount of deviation

For the universe, which is approximately N=10000 people, the estimated deviation amount is taken as d = 0.5, and the confidence level is (1- α) = 0.90. The Z value for this confidence level is 1.645. The sample size for N=10000 and 0.5 deviation was calculated with the above formula and the result was found to be 266 people [32]. Considering the sample size of at least 266 people predicted in this study, the preliminary application of the questionnaire was carried out meticulously on 13 individuals. As a result of this pre-test process, the questions that could not be understood or found ambiguous by the participants were updated, and the integrity and clarity of meaning of the questionnaire were increased by combining similar or repetitive expressions. The obtained sample size has been distributed as a percentage among age groups based on the age criterion selected in stratified sampling. Since most of the Generation Z group to collect data in the study is still university students, student designers were also included in the sample (Table 1).

Table 1. Percentage distribution in the sample

Age	Percentage in Sample	Generation	Digital Native or Immigrant
18-24	30%	Generation Z	Digital Native
25-30	25%	Generation Y	Digital Native
31-35	20%	Generation Y	Digital Native
36-42	15%	Generation Y	Digital Native
43 and up	10%	Generation X	Digital Immigrant

After the completion of the pre-application, the survey questions were transferred to Google Forms, a web-based survey application. Internet-based surveys provide participants with access without time and place limitations. This allows researchers to reach a wide range of participants in a short period of time, while at the same time significantly reducing costs. Thanks to these features, many researchers prefer internet-based survey methods, especially in studies that appeal to wide geographies and demographic groups [32,34]. The survey was delivered to the participants using the “snowball sampling” method. This method is a recommended method for reaching special occupational groups. In this method, it is based on the fact that the current participants encourage other potential participants to be involved in the study by referencing or suggesting them.

5. FINDINGS

The survey was conducted online using Google Forms with a total of 269 people. The demographic information of the participants is given in the table below. 31.23% of the participants were between 18-24, 27.88% were between 25-30, 20.82% were between 31-35, 14.14% were between 36-42, 5.95% were between 42 and over (Table 2). The approximate percentages determined in the age-based stratified sampling to be reached were approached.

Table 2. Distribution of demographic information of respondents

	Frequency	Percent (%)
Age Range		
18-24	84	31.23
25-30	75	27.88
31-35	56	20.82
36-42	38	14.13
42 and above	16	5.95
Total	269	100.00
Educational Background		
PhD and beyond	31	11.52
License	142	52.79
Student	41	15.24
Master	55	20.45
Total	269	100.00
How long have you been practicing your profession? (Active working experience)		
0-5 years	113	42.01
10 years and above	43	16.73
5-10 years	70	26.02
I am a student	41	15.24
Total	269	100.00

Participants were asked a question about which tools they use to reach image-based social media platforms. Since image-based social media tools can cover many different purposes, these tools are divided into three as media sharing platforms (Instagram, Facebook, etc.), portfolio sharing platforms (Behance, Dribbble, etc.), and software platforms (Miro, Canva, etc.). 92.94% of the participants access media sharing platforms via their smartphones. However, they mostly prefer the use of computers as a tool when accessing portfolio sharing and software platforms.

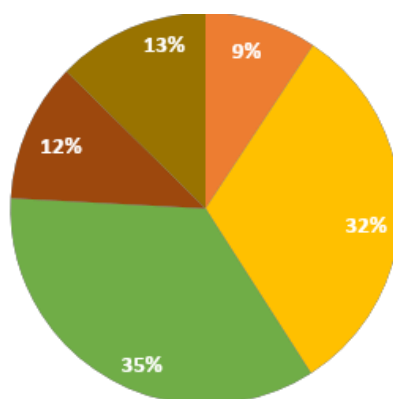
Table 3. Tools used to reach image-based social media tools.

	Frequency	Percent (%)
To media sharing platforms		
Smartphone	250	92.94
Computer	18	6.69
Tablet	1	0.37
Total	269	100.00

	Frequency	Percent (%)
To portfolio sharing platforms		
Smartphone	70	26.02
Computer	167	62.08
Tablet	23	8.55
I don't use it	9	3.34
Total	269	100.00

	Frequency	Percent (%)
To software platforms		
Smartphone	41	15.24
Computer	194	72.11
Tablet	24	8.92
I don't use it	10	3.71
Total	269	100.00

The time that participants spend on visual-based social media platforms on a daily basis varies. This data is visualized in the graph below (Figure 2).



Orange: Less than 1 hour / Yellow: 1-2 hours / Green: 2-3 hours Deep Brown: 3-4 hours / Brown: More than 4 hours

Figure 2. Approximate daily time spent by respondents on visual interaction-based social media platforms.

It was investigated whether there was a significant relationship between the age of the participants and the time they spent on social media. As a result of chi-square analysis, it was determined that there was a statistically significant relationship. As the age of the participants increases, the time they spend on image-based social media platforms decreases. Accordingly, the proportion of those in the 25-30 age group who spend less than 1 hour per day on visual interaction-based social media platforms (18.7%) is significantly higher than the 18-24 age group (1.29%) and the 31-35 age group (1.8%). In the 31-35 age group, the proportion of those who spend approximately 1 hour-2 hours per day on visual interaction-based social media platforms (48.2%) is significantly higher than the 18-24 age group (22.6%) and the 25-30 age group (22.7%). Among those in the 36-42 age group, the proportion of those who spend more than 4 hours a day on visual interaction-based social media platforms (34.2%) is significantly higher than the 18-24 age group (11.9%), the 25-30 age group (8%) and the 31-35 age group (8.9%). Among those aged 42 and over, the proportion of those who spend approximately 1 hour-2 hours per day on visual interaction-based social media platforms (87.5%) is significantly higher than the 18-24 age group (22.6%), the 25-30 age group (22.7%) and the 36-42 age group (21.1%). In the 31-35 age group, the proportion of those who spend approximately 1 hour-2 hours per day on visual interaction-based social media platforms (48.2%) is significantly higher than the 18-24 age group (22.6%) and the 25-30 age group (22.7%). The 18-24 age group, which we can call Generation Z, has been determined as the group that spends the most time on social media (Table 4).

Table 4. Comparison of Time Spent and Age Information of the Participants

			Age Range					Total	
			18 - 24	25 - 30	31 - 35	36 - 42	42 and above		
How much time do you spend daily on visual interaction-based social media platforms?	Less than 1 hour	Frequency	1a	14b	1a	7b	2a, b	25	
		Percent	1.2	18.7	1.8	18.4	12.5	9.3	
	1 hour - 2 hours	Frequency	19a	17a	27b, c	8a, c	14b	25	
		Percent	22.6	22.7	48.2	21.1	87.5	9.3	
	2 hours - 3 hours	Frequency	41a	29a, b	14b, c	10a, b, c	0c	94	
		Percent	48.8	38.7	25.0	26.3	0.0	34.9	
	3 hours - 4 hours	Frequency	13a	9a	9a	0a	0a	31	
		Percent	15.5	12.0	16.1	0.0	0.0	11.5	
	More than 4 hours	Frequency	10a	6a	5a	13b	0a, b	34	
		Percent	11.9	8.0	8.9	34.2	0.0	12.6	
	Total		Frequency	84	75	56	38	16	269

	Percent	100.0	100.0	100.0	100.0	100.0	100.0
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Participants were asked to write the social media platforms they use the most as a short answer. The top five visual interaction-based social media platforms used by the participants were Instagram with a rate of 73.98%, Pinterest with a rate of 72.12%, Behance with a rate of 36.06%, Youtube with a rate of 31.23%, and Canva with a rate of 21.19% (Figure 3). According to this statistic, it is seen that industrial designers prefer media sharing platforms more.

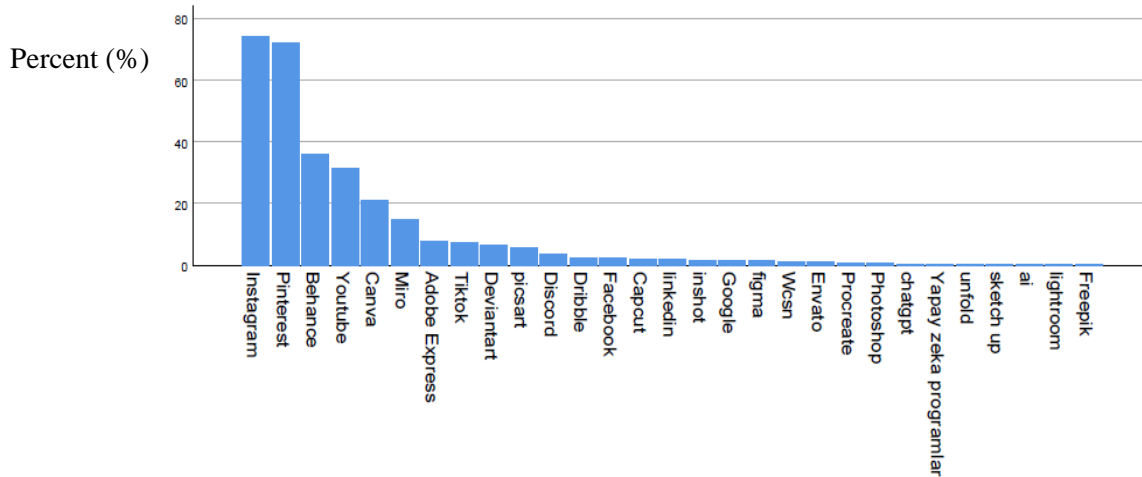


Figure 3. Bar graph of participants' social media usage distributions

In the second part of the questionnaire, they were asked to score using a 5-point Likert scale (strongly disagree, disagree, partially agree, agree, strongly agree). This part under the title of "For What Purposes Do You Use Visual Interaction-Based Social Media Platforms Professionally?", 12 questions were asked to the participants. Statistical information on the responses obtained from here is given in the table below (Table 5). According to the averages of the responses obtained from here, industrial designers mostly use visual interaction-based social media platforms for the purpose of "obtaining associations that will guide their designs" (4.39) and "monitoring design trends" (4.33). From this, it can be deduced that one of the main reasons why industrial designers use social media professionally is to obtain data that they can use in the design process. Afterwards, the answers "to reach professionally up-to-date information" (4.28), "to follow the designers I find remarkable" (4.19) and "to reach professionally instructive content" (4.12) were determined as the answers with high scores, respectively.

Table 5. Statistics on the items in the section "For What Purposes Do You Use Visual Interaction-Based Social Media Platforms Professionally?"

	Median	1. Quarter	3. Quarter	Smallest	Biggest	Average	Standard Deviation
To keep up with professional up-to-date information	4	4	5	2	5	4.28	0.79
To access professionally instructive content	4	3	5	2	5	4.12	0.89
To be able to share my own designs	4	2	5	1	5	3.51	1.25
To track my design orientations	4	4	5	1	5	4.33	0.82
To get associations to guide my designs	5	4	5	2	5	4.39	0.71
To increase the recognition of my name (brand)	3	2	4	1	5	3.14	1.45

To be able to connect professionally	4	3	5	1	5	3.65	1.16
To be able to exchange ideas professionally	4	3	4	1	5	3.60	1.15
To follow designers that I find noteworthy	4	4	5	1	5	4.19	0.88
To be able to acquire customers	2	1	4	1	5	2.80	1.48
To be able to direct people to my site/blog	3	1	4	1	5	2.78	1.54
To be able to create engaging visual content for my designs	4	3	5	1	5	4.09	1.11

The 18-24 age group differs from others as the age group that uses social media to access professionally instructive content. According to the Kruskal Wallis analysis, there is a statistically significant difference in the age groups and the scores given to the question "to reach professionally instructive content" ($p < 0.001$). In order to investigate the source of the difference, the Dunn-Bonferroni test was performed, the score distribution of the 18-24 age group is different from the 31-35, 25-30 and 36-42 age groups. The reasons for the least use of social media were determined as "directing people to my own site/blog" and "acquiring customers" and "increasing the recognition of my name (brand)". Since these three questions included industrial designers who could be the owners of their own business, it was considered normal to obtain low scores.

6. CONCLUSION

This study has deeply examined the social media usage habits of industrial designers in Turkey. The results of the research revealed that industrial designers actively use social media platforms, especially Instagram and Pinterest. This preference stems from the fact that these media sharing-oriented platforms are aligned with the needs of designers to showcase their visual work and find sources of inspiration. The 24/7 ease of access and portability offered by smartphones, in particular, leads designers to adopt these devices as the primary tool for social media interactions.

The age factor also plays a decisive role in the interaction times of industrial designers on social media platforms. Participants between the ages of 18-24 were found to be the group that spent the most active time on image-based social media platforms as digital natives. This finding reflects Generation Z's predisposition to digital technologies and its natural relationship with the internet, a result that is also supported by the literature.

In addition, the analyses made for the purposes of industrial designers to use these platforms showed that designers mostly use visual media platforms for the purpose of "getting ideas to inspire their designs" and "following design trends". These findings reveal that designers see such platforms as an effective resource in their search for diversity and innovation for their projects.

As a result, this survey conducted among industrial designers in Turkey showed that social media has a significant impact on design processes and professional development. The high use of image-heavy platforms reflects designers' constant search for visual inspiration and industry trends. In addition, the natural interaction of digital natives with social media makes the use of digital tools even more important in the design world.

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