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Journal of Asian Architecture and Building Engineering

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/tabe20

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To cite this article: İbrahim Eren, Aslı Altanlar & Esin Özlem Aktuğlu Aktan (29 Aug 2024): The impact of digital technologies on public life: a critical examination of perspectives from spatial design experts, Journal of Asian Architecture and Building Engineering, DOI: 10.1080/13467581.2024.2397115

To link to this article: https://doi.org/10.1080/13467581.2024.2397115

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Published online: 29 Aug 2024.

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JOURNAL OF ASIAN ARCHITECTURE AND BUILDING ENGINEERING
https://doi.org/10.1080/13467581.2024.2397115

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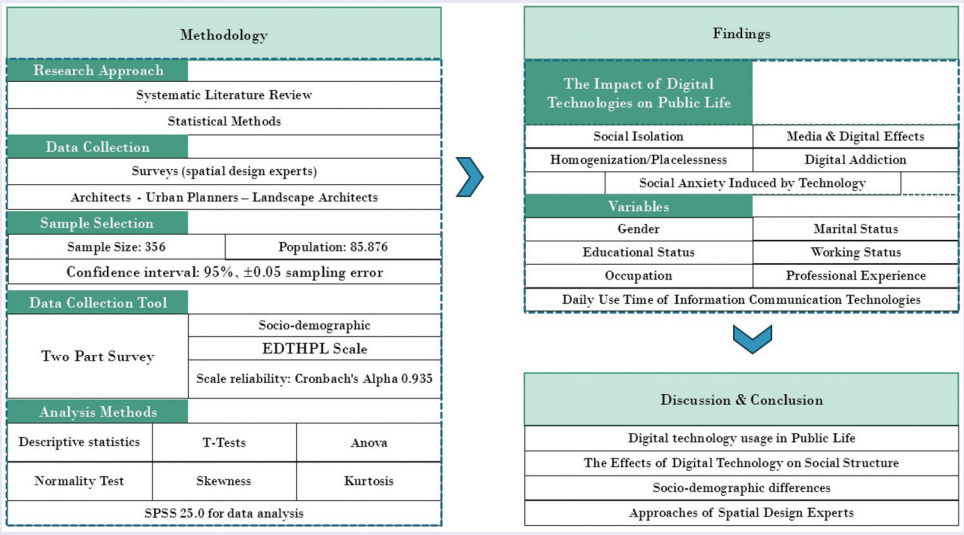
The impact of digital technologies on public life: a critical examination of perspectives from spatial design experts

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ABSTRACT

This study explores the influence of digital technologies on public life and evaluates spatial design professionals' perceptions of these impacts. The research involved surveying architects, urban planners, and landscape architects to comprehend the ramifications of digital technology on public life. In total, 356 spatial design experts participated in the study. The analysis utilised descriptive statistical methods, t-tests and ANOVA tests for independent samples. The findings reveal that social isolation was rated highest among the spatial design experts' scale, whereas social anxiety scored lowest among the elements comprising the spatial design experts' scale. A comparison between participants' socio-demographic characteristics and their scores on the impact of digital technologies in public life showed variances in gender, employment status, profession, and daily usage of digital technology, but found no significant differences in marital status, level of education, or professional experience. Consequently, this research sheds light on the repercussions of digital technology usage in public life, offering invaluable insights for all stakeholders, particularly spatial design professionals and social scientists. By understanding these impacts, the study highlights the importance of adopting more informed and conscious approaches to fostering positive social interactions and enhancing community well-being in public life.



ARTICLE HISTORY
Received 28 March 2024
Accepted 21 August 2024

KEYWORDS
Digital technologies; public life; public space; digital addiction; placelessness

1. Introduction

Digitalization plays a central role in structuring societies and the daily lives of individuals in the 21st century. This dizzying speed of the digital age has brought sometimes direct, sometimes indirect, and process-wide effects on the evolution of public spaces and human behaviour. This revolutionary transformation is evident across a wide range of areas, from individuals' daily life practices to social interactions, and the use of public spaces to urban design and social psychology. It is particularly pronounced in the relationship between public space and public life. Public space refers to the physical environments accessible to the public, while public life involves societal and everyday relations that unfold within these spaces. The spread of digital technologies has significantly altered these dynamics, triggering substantial

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evolution in the lifestyles of individuals and communities and reshaping public spaces and social interactions. This transformation necessitates that researchers fundamentally question the approach to understanding the social pattern of cities and observing the interactions of individuals in public spaces.

This study aims to investigate the effects of digital technologies on public life and the relationship of these effects with sociodemographic factors. However, within the scope of this study, we concentrated on spatial design experts (urban planners, architects, and landscape architects). This focus is due to spatial design experts' unique experience with and influence over public life, shaped by their daily professional engagement and their consideration of social and cultural processes. Therefore, it is thought that exploring these professionals' views on how digital technologies affect human behaviour in public life can provide important clues. For this purpose, this study asks: (1) What are the average scores received by spatial design experts on "the impact of digital technologies on human behaviour in public life" scale and its factors? and (2) Do spatial design experts' perceptions of the effects of digital technologies on human behaviour in public life differ significantly according to the variables of gender, age, marital status, educational status, employment status, working time in the profession and duration of use of information and communication technologies (ICT)?

Around these two questions, the hypotheses of the research are H1(a,b,c,d): "The way spatial design experts perceive the effects of digital technologies on human behaviour in public life differs according to demographic characteristics such as age, gender, marital status and educational status." H2(a,b,c,d): "The way spatial design experts perceive the effects of digital technologies on human behaviour in public life varies according to their field of expertise, working status, duration of work in the profession and duration of use of information and communication technologies." As a result, this research aims to determine the perspectives of spatial design experts on the digitalization of public life. In other words, it seeks to fill the knowledge gap in this field. The current literature discusses the effects of digital technologies on public life in terms of psychology (Liu and Freestone 2016, s. 13; Turkle 2011) or design (Badel and Lopez Baeza 2021, 129). This study strives to investigate comprehensively the dynamic relationship between public life and digital technology use, considering these effects from a multidimensional perspective. This approach emphasizes the importance of this study's contribution to the literature and highlights the innovative aspect of the research. Additionally, this study can enhance both theoretical discussions and practical applications. This potential can aid in shaping policies that better reflect the digital age's requirements for public space design and management. The results of this research indicate valuable information in terms of comprehending the effects of digital technologies on public life and revealing the relationship of these effects with sociodemographic variables.

The research methodology is based on a survey conducted with spatial design experts. This survey includes findings that evaluate the relationship between the scale revealing the impact of digital technologies on human behaviour in public life and the sociodemographic characteristics of spatial designers. Survey outcomes provide valuable insights into the effects of digital technologies on public life and illustrate how these effects correlate with sociodemographic variables. As a result, we aim to create a basis for this research to comprehend the digital transformation of public life and contribute to developing policies and designs that will shape this transformation.

2. Literature review

This chapter explores the complex and reciprocal relationship between public life and digital technology, highlighting how these technologies shape human behaviour and interactions. (Hampton, Livio, and Goulet 2010, 701–703) draw attention to the transformative impact of digital media on public spaces, especially how it reshapes social dynamics. They emphasize that interpersonal interaction and mass media are experiencing a profound transition, mirroring broader societal changes.

(Rainie and Wellman 2012, 6–7) delve into how the internet and mobile connectivity foster "networked individualism," altering participation patterns in public spaces and catalyzing a revolutionary shift in social dynamics. They discuss the "triple revolution" – social networks, the internet, and mobile technology – and its extensive influence on social change, a theme that Pierre Lévy expands on in his examination of the "semantic sphere" where digital technologies reshape our cognitive frameworks and the economy of information (Lévy 2011). Lévy emphasizes that this transformation fosters the growth of a public space energized by powerful schools of thought, enabling collaborative interpretation of data and enhancing collective intelligence. Moreover, in "Becoming Virtual: Reality in the Digital Age," Lévy and Bononno (1998) explores how virtual reality and digital environments contribute to the virtualization of public spaces, suggesting that this shift not only redefines human interactions but also creates new forms of social spaces where the boundaries between the physical and the virtual blur, thus further enriching our understanding of public life in the digital age.

Feenberg (2002, 137–141) critiques the concept of technological determinism, arguing that technology has

a significant but not unilateral impact on social change. He posits that social structures must adapt to technological progress, suggesting a more nuanced interplay between technology and society than traditionally depicted by technological determinism. Similarly, MacKenzie and Wajcman (2002, 3–8) explore how technological determinism overlooks the role of human agency in shaping technology's impact on society. This theory suggests that technology plays a decisive role in social relations, economic structures, political systems, and cultural norms. Lévy (2011) further elaborates on this interplay by emphasizing the role of digital technologies in creating a "semantic sphere" that fosters collective intelligence and reshapes public spaces through collaborative interpretation and the integration of diverse intellectual perspectives (Lévy 2011).

The profound transformation discussed by Sennett and Birkan (2018) regarding the acceleration of technological advancements further propels changes in public life. He observes that digital technology not only alters lifestyles but also influences human behaviour and interpersonal relationships. In discussing the pros and cons of digital technologies within society, Clark (2019) argues that while technology offers numerous benefits, it also challenges the adaptability of society and the continuity of public life, particularly affecting human relations.

Building on this foundation, Egard and Hansson (2023) offer a modern analysis of how digital technologies can both empower and marginalize various social groups. Their research points out the obstacles that digital technologies can present, especially for disabled individuals, emphasizing the need for inclusive design to prevent social exclusion. This ties into the larger theme of digital transformation presenting both opportunities and challenges in public life, highlighting the need for a nuanced approach to incorporating technology in urban environments.

(Turkle 2011, 13, 146, 242) claims that although mobile communication tools facilitate communication in some cases, they can harm relationships between people in general. In particular, it focuses on the weakening of social ties, making individuals feel more isolated and anxious, and touches on the contradictory effect of technology, which increases the feeling of both connectedness and loneliness.

The discussion of the societal impacts of digital technology is broadened by Putnam (2000), who focuses on the decline in social capital and participation due to evolving media cultures. Turkle (2011) further explores how virtual interactions replace direct, in-person encounters, leading to social isolation and alienation. Lefebvre and Ergüden (2010) and Bauman (2008) discuss the possible states of society in an era of rapid digitalization and acceleration, with Bauman (2008) critiquing the individualization of society amid these changes.

Referring to the rise of the information society and the concept of the network society, Castells (1996) focuses on the decreasing dependence on physical space, referring to this phenomenon as placelessness. Highlighting the homogenizing effect of digital technologies on cultural experiences, Castells (2010, 18, 20, 244) also expresses the loss of local identity and diversity with the term homogenization.

Focusing on digital addiction, William and White (2020) explore how excessive use of digital technologies impacts individual lives, touching upon internet addiction and its implications for face-to-face interactions. In this regard, Brubaker (2023, 3, 6, 20) states that digital technology affects daily life in a way like what television did in its time, and states that digital hyperconnection recreates daily experiences. Tarafdar, Gupta, and Turel (2013, 270) touch upon the concept of technostress by touching on the physiological and psychological problems that may develop with the use of digital technology. (Turkle 2011, 241–264) suggested that such circumstances could manifest as avoidance behaviours or a decline in social skills. Complementing this perspective, Przybylski et al. (2013, 1841–1848) highlight the tendency among individuals to seek constant connectivity, a state referred to as the Fear of Missing Out (FOMO).

The escalating utilization of digital technologies and the evolution of media may also give rise to various ethical concerns, prominently highlighted by issues like the "filter bubble." According to Sheposh (2023), the filter bubble is provided by personalized search technology on the web and creates an effect that narrows or restricts the individual's perspective. Similarly, Kitchens, Johnson, and Gray (2020, 1619–1622) state that echo chambers and filter bubbles are terms that can hinder public information sharing by restricting the flow of information on social media. They also stress that while this increases homogeneity in online information exchange, it reduces the chance of exposure to different views. Garrett (2009, 279) gives examples of echo chambers and states that people are unlikely to create echo chambers completely isolated from diverse political perspectives on the internet. Instead, the focus is on their inclination to be open to various political views and to strengthen their convictions through increased engagement with content that incites idea conflict.

Additionally, the media's role in shaping online behaviour introduces the concept of disinhibition, which, according to Joinson (2007, 89, 90), the disinhibition phenomenon observed in online interactions is often examined through the anonymity factor. However, Joinson argues that understanding disinhibition requires a more comprehensive context that includes a wide range of privacy implications, urging a deeper exploration of online behaviours beyond anonymity.

In the literature, there is a significant focus on studies that measure the effects of digital addiction (Arslan 2020, 31) and social media addiction (Baz 2018; Çiftçi 2018; Demirci 2019; Gül and Diken 2018; Sağar 2019, 20) on social (Bilge, Baydili, and Göktaş 2020; Shaw et al. 2015), social (Primack et al. 2017; Meshi, Cotten, and Bender 2020; (Yang et al. 2019, 7), and their impacts on daily life (Aktan 2018, 411; Çalapkulu and Sarı 2022, 900). Although these studies attempt to explore the relationship between digital addiction and social media use with social isolation, social anxiety, and loneliness, more research is needed to understand the causal relationships in these relationships. As can be comprehended from the relevant literature, the development of digital technology can have positive and negative aspects.

This study focuses on the potential effects of digital technology on societal dynamics within public spaces. Unlike other research, it aims to provide a comprehensive analysis of spatial design experts' perspectives on how digital technologies influence human behaviour in public life, considering both psychological and physical dimensions. The concepts discussed in the literature review have been systematically interpreted and categorized based on their semantic relationships, thereby aiding the formulation of the study's methodology. The literature review reveals those digital technologies impact social structures through various dimensions: homogeneity and placelessness, social isolation (including alienation, individualization, and isolation as discussed by Primack et al. 2017; Turkle 2011), and anxiety-related issues such as techno-stress, digital addiction, hyperconnectivity, social anxiety, and the fear of missing out (FOMO) (Brubaker 2023; Tarafdar, Gupta, and Turel 2013, 270). Furthermore, the study examines digitalization effects like disinhibition and technological determinism (Feenberg 2002), along with media effects including echo chambers and filter bubbles (Al Atiqi, Chang, and Deguchi 2020; Kitchens, Johnson, and Gray 2020). Based on these insights, the study delineates the key factors of the "Effects of Digital Technologies on Human Behaviors in Public Life" (EDTHPL) scale, which include social isolation, media and digital influences, homogenization/dislocation, resource-based social anxiety, and digital addiction.

3. Methodology

In this study, mixed methods were employed to provide a comprehensive perspective on the existing research concerning the impact of digital technologies on public life. This approach, grounded in community-based and interpretative methodologies, primarily utilized systematic literature reviews and statistical methods. The methodology encompassed not only an extensive review of the literature but also the application of quantitative and qualitative research methods to ensure a holistic analysis. The data derived from the literature formed the foundation for the subsequent phases of the study, including surveys and statistical examinations. Additionally, the survey method was used as a data collection technique to gather primary data from spatial design professionals, including architects, urban planners, and landscape architects. Descriptive statistical methods, t-tests, and ANOVA tests for independent samples were employed to analyze the survey data, providing detailed insights into the experts' perceptions of the effects of digital technologies on public life.

3.1. Sample selection

According to 2023 data, the number of landscape architects who are members of the Union of Chambers of Turkish Engineers and Architects (UCTEA) Chamber of Landscape Architects is 8746; the number of urban planners who are members of the Chamber of Urban Planners is 7044; the number of member architects of the Chamber of Architects has been determined as 85,876. Therefore, the sample number was identified as 356 for a total of 85,876 people, with a 95% confidence interval and ± 0.05 sampling error. The designed survey form was applied between 16 May 2023 and 24 July 2023 with the online survey method.

3.2. Data collection tool

Survey questions are comprised of two parts. The first part contains 12 questions designed to ascertain the socio-demographic characteristics of the participants. The second part employs a scale developed by the authors to assess the impact of digital technologies on human behaviour in public life (Appendix 1). The scale's KMO coefficient is .949, and Bartlett's test of sphericity yielded a significant result, $\chi^2 = 9371.983$ ($p = .00$). Within the scope of validity studies, Exploratory Factor Analyses were conducted, and it was found that the scale, EDTHPL, has a five-point Likert-type structure. This structure includes five sub-dimensions: social isolation, media and digital effects, homogenization/placelessness, technology-induced social anxiety, and digital addiction, comprising 38 items. The internal consistency coefficient (Cronbach's Alpha) for the entire scale was recorded as .935. As for the sub-factors, internal consistency coefficients ranged between .838 and .935 (Table 1). Analysis has revealed that it is a valid and reliable scale to determine the opinions of spatial design experts on the impact of digital technologies on human behaviour in public life (Özdamar 1999, s. 513). The highest score that can be obtained from the scale is 105, the lowest score is 21, and the average score of the scale is 78. A high score reveals that experts think digital technologies affect human behaviour in public life.

Table 1. The effects of digital technologies on human behavior in public life (EDTHPL) scale sub-dimensions and reliability analysis findings.

Scale and Sub-factors	Number of Items	Factor Loads	Eigenvalue	Variance (%)	Cronbach's Alpha coefficient (α)
EDTHPL Scale	38	−0.866–0.855	–	62.474	.935
D1 Social Isolation	11	0.855–0.452	16.202	42.636	.935
D2 Media and Digital Effects	7	0.727– 0.505	2.519	6.629	.925
D3 Homogenization/Placelessness	8	0.741–0.550	2.141	5.635	.835
D4 Social Anxiety Induced by Technology	8	−0.866 – −0.527	1.475	3.880	.838
D5 Digital Addiction	4	0.845–0.794	1.403	3.693	.895

The reliability (α value) is interpreted as follows, according to Özdamar (1999, 513):

- If $0.00 \leq \alpha < 0.40$, it is not reliable,
- If $0.40 \leq \alpha < 0.60$, it has Low reliability,
- If $0.60 \leq \alpha < 0.80$, it is Quite reliable,
- If $0.80 \leq \alpha \leq 1.00$, it is Highly reliable.

3.3. Analysis of data

The data obtained from the scale results used in the research were analyzed through the SPSS 25.0 program. In the study, the "arithmetic averages" as well as the "frequency percentage distributions" of the opinions of the spatial design experts who participated in the research on the effects of human behaviour in public life were calculated using the "descriptive statistics" method. A normality test was conducted to assess if the EDTHPL scale adheres to the hypothesis of normal distribution. Tabachnick and Fidell (2013) accept that normal distribution is achieved when the skewness and kurtosis values are between + 1.5 and −1.5. As a result of the normality test, it was determined that the variables were normally distributed (Table 2). After the analysis, it was decided to use parametric test methods, considering the skewness and kurtosis coefficients of the scale and subscales. While examining the differentiation of group scores of the variables according to the personal information of the participants, "independent sample t-test" was used for two-group comparisons of variables that met the assumption of normal distribution, and "ANOVA" was used for comparisons of three or more groups. In the dimensions where the differences between the groups were significant, the Bonferroni test, one of the post hoc tests, was applied to determine which group or groups caused the notable difference, and the significance level was tested as 0.05.

4. Results and evaluation

4.1. Personal characteristics of the participants and frequency analysis results for the EDTHPL scale

The frequency analysis revealed that 24.7% of the participants were male, while 75.3% were female; age-wise, 39.6% fell within the 21–29-year range, 32.9% were aged 30–39, and 27.5% were 40 or older; marital status showed that 44.13% were married and 55.4% were single. Educational levels indicated that 47.8% of participants held a bachelor's degree, 26.7% a master's degree, and 25.6% a doctorate. Professionally, 25.6% of participants were architects, 18.5% were landscape architects, and 55.9% were urban planners. Furthermore, professional experience varied as 41.7% of participants had 1–5 years, 18.4% had 6–10 years, 12.1% had 11–15 years, and 27.8% had 16 years or more. Employment status showed that 8.1% of participants were unemployed, 38.2% were employed full-time, 3.4% were part-time, 8.1% self-employed, 23.9% were academicians, and 18.3% worked in other fields. It was also noted that 45.8% of participants used information and communication technologies for five or more hours daily, while 18% used them for four hours (Table 3).

The average of the participants' responses to the scale items on the impact of digital technologies on human behaviour in public life was found to be 78.24. The average score of the responses to the statements regarding the social isolation factor is 22.80, the average of the responses to the statements regarding the media and digital effects factor is 14.80, the average of the responses to the statements regarding the homogeneity/placelessness factor is 14.47, the average score of the responses to the statements regarding the technology-based social anxiety factor is 11.20, the average of the responses to the statements regarding the digital addiction factor is 14.98 (Table 4).

Table 2. Skewness and kurtosis values of scale and scale sub-dimensions.

Scale	N	Skewness	Kurtosis
Effects of Digital Technologies on Human Behaviors in Public Life	356	−.808	1.070
Social Isolation	356	−.784	.595
Media and Digital Effects	356	−.943	.012
Homogenization/Placelessness	356	−.566	.200
Social Anxiety Induced by Technology	356	−.644	.392
Digital Addiction	356	−.821	.561

5. Findings regarding sub-problems

A t-test was conducted to determine whether there were significant differences in the means of the scale and the factors constituting the scale according to participants' genders and marital statuses (Tables 5 and 6). According to the analysis results, there were significant differences between participants' gender and the impact of digital technologies on human behaviour in

Table 3. Frequency analysis results for participants' characteristics.

Gender	F	%	Marital Status	F	%
Male	88	24.7	Married	157	44.1
Female	268	75.3	Single	199	55.9
Age	**F**	**%**	**Educational Status**	**F**	**%**
21-29	141	39.6	Bachelor's degree	170	47.8
30-39	117	32.9	Master's degree	95	26.7
40+	98	27.5	Doctorate	54	15.2
			Post-doctoral	37	10.4
Profession	**F**	**%**	**Daily ICT Usage**	**F**	**%**
Architect	91	25.6	None	9	2.5
Landscape Architect	66	18.5	Less than 1 hour	12	3.4
Urban Planner	199	55.9	1 hour	10	2.8
Years of Experience	**F**	**%**	2 hours	41	11.5
1-5 years	138	41.7	3 hours	57	16.0
6-10 years	61	18.4	4 hours	64	18.0
11-15 years	40	12.1	5 or more hours	163	45.8
16+ years	92	27.8			

Table 4. Descriptive analysis results for EDTHPL scale.

Scale	N	Mean	SD
Effects of Digital Technologies on Human Behaviors in Public Life	356	78.24	13.72
Social Isolation	356	22.80	4.95
Media and Digital Effects	356	14.80	2.81
Homogenization/Placelessness	356	14.47	3.39
Social Anxiety Induced by Technology	356	11.20	2.50
Digital Addiction	356	14.98	3.57

public life (t:-4.248, $p < 0.05$), social isolation (t:-3.092, $p < 0.05$), homogenization/placelessness (t:-3.993, $p < 0.05$), technology-induced social anxiety (t:-4.324, $p < 0.05$), and digital addiction (t:-3.673, $p < 0.05$), on the other hand, the media and digital influences factor did not exhibit a significant difference ($p > 0.05$) (Table 5). According to the findings obtained, it was observed that the average scores of female participants on the impact of digital technologies on human behaviour in public life (Mean = 79.97) were higher than those of male participants (Mean = 72.98). Similarly, it was determined that female participants had higher average scores on social isolation, homogenization/placelessness, technology-induced social anxiety, and digital addiction compared to male participants (Table 5).

The average scores obtained from the scale and its sub-dimensions were compared according to the marital status variable. It has been determined that there is no significant difference between the participant's marital status and the scale of the impact of digital technologies on human behaviours in public life ($p > 0.05$), social isolation ($p > 0.05$), media and digital effects ($p > 0.05$), homogenization/placelessness ($p > 0.05$), and technology-induced social anxiety ($p > 0.05$) sub-scales. However, a significant difference has been found

Table 5. Comparison of mean scores obtained from the EDTHPL Scale and its sub-dimensions according to gender variable.

Variables	Gender	N	$\bar{X}$	SS	T	p
Effects of Digital Technologies on Human Behaviors in Public Life	Male	88	72.98	15.62	−4.248	**.000**
	Female	268	79.97	12.60		
Social Isolation	Male	88	21.40	5.65	−3.092	**.002**
	Female	268	23.26	4.62		
Media ve Digital Effects	Male	88	14.33	3.34	−1.816	.070
	Female	268	14.96	2.60		
Homogenization/Placelessness	Male	88	13.24	3.68	−3.993	**.000**
	Female	268	14.87	3.20		
Social Anxiety Induced by Technology	Male	88	10.23	2.86	−4.324	**.000**
	Female	268	11.52	2.28		
Digital Addiction	Male	88	13.78	4.04	−3.673	**.000**
	Female	268	15.37	3.33		

Table 6. Comparison of mean scores obtained from the EDTHPL Scale and its sub-dimensions according to marital status variable.

Variables	Marital Status	N	$\bar{X}$	SS	T	p
Effects of Digital Technologies on Human Behaviors in Public Life	Married	157	78.92	14.29	.821	.412
	Single	199	77.71	13.27		
Social Isolation	Married	157	22.96	5.22	.554	.580
	Single	199	22.67	4.74		
Media and Digital Effects	Married	157	14.87	2.82	.391	.696
	Single	199	14.75	2.82		
Homogenisation/Placelessness	Married	157	14.42	3.41	−.226	.821
	Single	199	14.50	3.39		
Social Anxiety Induced by Technology	Married	157	11.27	2.54	.437	.662
	Single	199	11.15	2.47		
Digital Addiction	Married	157	15.40	3.22	1.995	**.047**
	Single	199	14.64	3.80		

between participants' marital statuses and the digital addiction sub-scale (t:1.995, $p < 0.05$). According to the findings, married participants have higher average scores of digital addiction (Mean = 15.40) compared to single participants' average scores (Mean = 14.64) (Table 6).

The variations in average scores for scale and sub-scale dimensions, based on characteristics of the participants including age, educational background, profession, employment status, and duration of employment, were analyzed using ANOVA. According to the analysis results, the education variable, the impact of digital technologies on human behaviour in public life ($p > 0.05$), social isolation ($p > 0.05$), media and digital effects ($p > 0.05$), technology-induced social anxiety ($p > 0.05$) and digital addiction. While it was found that there was no significant difference between ($p > 0.05$), a substantial difference was observed in the case of sameness/delocalization (F:4.770, $p < 0.05$) (Table 7). It has been determined that the average scores for the homogenization/placelessness factor of participants with a bachelor's degree (Mean = 14.86) and those with a master's degree (Mean = 14.66) are higher than the average scores (Mean = 12.65) of participants with a post-doctoral academic career.

Notable differences were identified between participants' employment statuses about the effects of digital technologies on human behaviours in public life (f:3.428, $p < 0.005$), specifically within the sub-dimensions of homogenization/placelessness (f:5.399, $p < 0.05$) and digital addiction (f:2.450, $p < 0.05$). However, no significant variance was found in terms of social isolation, technology-induced social anxiety, and the effects of media and digital influences ($p > 0.05$) (Table 8). Besides, it was determined that retired participants had a higher average score (Mean = 81.83) regarding the impact of digital technologies on human behaviour in public life compared to those self-employed (Mean = 72.83). The means for homogenization/placelessness for unemployed (Mean = 14.90) and retired participants (Mean = 15.53) were higher than those for participants working as academics (Mean = 13.34). Similarly, the averages for digital addiction among unemployed (Mean = 16.07) and retired participants (Mean = 15.74) were found to be higher than those for self-employed (Mean = 13.86) and part-time employed participants (Mean = 13.25).

Significant differences have been observed in the impact of digital technologies on human behaviours in public life based on participants' professions (f:3.499, $p < 0.005$), particularly within the sub-dimensions of media and digital influences (f:3.672, $p < 0.05$), homogenization/placelessness (f:3.334, $p < 0.05$), and technology-induced social anxiety (f:3.268, $p < 0.05$). However, the analysis revealed no meaningful differences in the aspects of social isolation and digital addiction ($p > 0.05$). It has been determined that landscape architects had a higher mean score (Mean = 81.36) regarding the effects of digital technologies on human behaviour in public life compared to architects (Mean = 75.57). Furthermore, it was found that landscape architects had a higher mean in media and digital influences (Mean = 15.41) compared to architects (Mean = 14.21). Additionally, the average score for landscape architects in homogenization/placelessness (Mean = 15.00) was higher than that for architects (Mean = 13.71). Similarly, the mean score for landscape architects in the technology-induced social anxiety factor (Mean = 11.76) was higher than that for architects (Mean = 10.74) (Table 9).

Table 7. Comparison of mean scores obtained from the EDTHPL Scale and its sub-dimensions according to educational status variable.

Variables	Education	N	$\bar{X}$	SS	F	P	Group Difference
Effects of Digital Technologies on Human Behaviors in Public Life	$Bachelor_a$	170	78.80	14.57	.775	.509	
	$Master_b$	95	78.18	13.17			
	PhD_c	54	78.78	11.36			
	$Post\text{-}doc_d$	37	75.08	14.34			
Social Isolation	$Bachelor_a$	170	23.04	5.09	.623	.600	
	$Master_b$	95	22.67	4.88			
	PhD_c	54	22.93	3.95			
	$Post\text{-}doc_d$	37	21.84	5.82			
Media and Digital Effects	$Bachelor_a$	170	14.78	3.01	.375	.771	
	$Master_b$	95	14.87	2.50			
	PhD_c	54	15.02	2.30			
	$Post\text{-}doc_d$	37	14.41	3.31			
Homogenization/Placelessness	$Bachelor_a$	170	14.86	3.40	4.770	**.003**	
	$Master_b$	95	14.66	3.13			**a.b>d**
	PhD_c	54	14.11	3.11			
	$Post\text{-}doc_d$	37	12.65	3.87			
Social Anxiety Induced by Technology	$Bachelor_a$	170	11.26	2.59	.158	.924	
	$Master_b$	95	11.05	2.39			
	PhD_c	54	11.22	2.25			
	$Post\text{-}doc_d$	37	11.27	2.72			
Digital Addiction	$Bachelor_a$	170	14.86	3.89	.458	.712	
	$Master_b$	95	14.92	3.43			
	PhD_c	54	15.50	2.98			
	$Post\text{-}doc_d$	37	14.92	3.27			

Table 8. Comparison of mean scores obtained from the EDTHPL Scale and its sub-dimensions according to working status variable.

Variables	Employment Status	N	$\overline{X}$	SS	F	P	Group Difference
Effects of Digital Technologies on Human Behaviors in Public Life	Unemployed$_a$	29	82.28	12.13	3.428	**.005**	
	Full-time employment$_b$	136	78.86	12.92			
	Part-time employment$_c$	12	72.42	15.52			**f>d**
	Freelance$_d$	29	72.83	19.06			
	Academic$_e$	85	75.81	12.88			
	Retired$_f$	65	81.83	12.69			
Social Isolation	Unemployed$_a$	29	24.03	4.06	1.938	.087	
	Full-time employment$_b$	136	23.13	4.69			
	Part-time employment$_c$	12	21.75	6.38			
	Freelance$_d$	29	20.97	6.14			
	Academic$_e$	85	22.13	4.78			
	Retired$_f$	65	23.45	5.04			
Media and Digital Effects	Unemployed$_a$	29	15.66	2.78	1.715	.130	
	Full-time employment$_b$	136	14.58	2.88			
	Part-time employment$_c$	12	14.08	3.65			
	Freelance$_d$	29	14.31	3.67			
	Academic$_e$	85	14.66	2.59			
	Retired$_f$	65	15.42	2.21			
Homogenization/Placelessness	Unemployed$_a$	29	14.90	3.36	5.399	**.000**	
	Full-time employment$_b$	136	14.92	3.16			**a,f>e**
	Part-time employment$_c$	12	12.58	4.56			
	Freelance$_d$	29	13.48	3.61			
	Academic$_e$	85	13.34	3.51			
	Retired$_f$	65	15.58	2.80			
Social Anxiety Induced by Technology	Unemployed$_a$	29	11.62	2.24	1.678	.139	
	Full-time employment$_b$	136	11.26	2.50			
	Part-time employment$_c$	12	10.75	2.34			
	Freelance$_d$	29	10.21	3.02			
	Academic$_e$	85	11.04	2.49			
	Retired$_f$	65	11.65	2.31			
Digital Addiction	Unemployed$_a$	29	16.07	2.69	2.450	**.034**	
	Full-time employment$_b$	136	14.98	3.54			
	Part-time employment$_c$	12	13.25	5.03			**a,f>c,d**
	Freelance$_d$	29	13.86	4.46			
	Academic$_e$	85	14.65	3.26			
	Retired$_f$	65	15.74	3.43			

Table 9. Comparison of mean scores obtained from the EDTHPL Scale and its sub-dimensions according to occupation variable.

Variables	Profession	N	$\overline{X}$	SS	F	p	
Effects of Digital Technologies on Human Behaviors in Public Life	Architect$_a$	91	75.57	15.81	3.499	**.031**	
	Landscape Architect$_b$	66	81.36	11.70			b>a
	Urban Planner$_c$	199	78.43	13.13			
Social Isolation	Architect$_a$	91	22.08	5.49	2.425	.090	
	Landscape Architect$_b$	66	23.83	4.28			
	Urban Planner$_c$	199	22.78	4.87			
Media and Digital Effects	Architect$_a$	91	14.21	3.24	3.672	**.026**	
	Landscape Architect$_b$	66	15.41	2.60			b>a
	Urban Planner$_c$	199	14.87	2.63			
Homogenization/Placelessness	Architect$_a$	91	13.71	3.90	3.334	**.037**	
	Landscape Architect$_b$	66	15.00	2.80			b>a
	Urban Planner$_c$	199	14.63	3.28			
Social Anxiety Induced by Technology	Architect$_a$	91	10.74	2.73	3.268	**.039**	
	Landscape Architect$_b$	66	11.76	2.21			b>a
	Urban Planner$_c$	199	11.23	2.45			
Digital Addiction	Architect$_a$	91	14.84	3.87	.487	.615	
	Landscape Architect$_b$	66	15.36	3.14			
	Urban Planner$_c$	199	14.91	3.58			

It has been determined that there is no noteworthy differentiation in terms of professional seniority with the impact of digital technologies on human behaviours in public life scale and its sub-dimensions including social isolation, media and digital effects, homogenization/placelessness, technology-induced social anxiety, and digital addiction ($p > 0.05$) (Table 10).

According to the analysis, there is no significant variation between the daily usage duration of digital technologies and the Impact of Digital Technologies on Human Behaviors in Public Life, social isolation, and its sub-dimensions; media and digital effects, homogenization/placelessness, technology-induced social anxiety, and digital addiction ($p > 0.05$) (Table 11).

5. Discussion and conclusion

This study aims to critically assess how spatial design experts view the digitalization of public spaces, focusing on enhancing the management and development

Table 10. Comparison of mean scores obtained from the EDTHPL scale and its sub-dimensions according to professional experience.

Variables	Professional Tenure (Years)	N	$\overline{X}$	SS	F	p
Effects of Digital Technologies on Human Behaviors in Public Life	1-5 years	138	77.88	14.22	.937	.423
	6-10 years	61	76.31	14.18		
	11-15 years	40	80.65	10.57		
	16+ years	92	79.00	13.86		
Social Isolation	1-5 years	138	22.57	5.19	1.157	.326
	6-10 years	61	22.21	4.93		
	11-15 years	40	23.95	3.88		
	16+ years	92	23.03	5.11		
Media and Digital Effects	1-5 years	138	14.72	3.01	.108	.955
	6-10 years	61	14.69	2.60		
	11-15 years	40	14.98	2.35		
	16+ years	92	14.83	2.98		
Homogenisation/Placelessness	1-5 years	138	14.65	3.29	.613	.607
	6-10 years	61	14.11	3.54		
	11-15 years	40	14.80	2.81		
	16+ years	92	14.24	3.74		
Homogenization/Placelessness	1-5 years	138	11.14	2.63	1.691	.169
	6-10 years	61	10.64	2.49		
	11-15 years	40	11.58	1.82		
	16+ years	92	11.46	2.49		
Digital Addiction	1-5 years	138	14.79	3.85	.965	.409
	6-10 years	61	14.66	3.73		
	11-15 years	40	15.35	3.08		
	16+ years	92	15.45	3.10		

Table 11. Comparison of the average scores obtained from the EDTHPL scale and its sub-dimensions according to the daily use time of information communication technologies.

Variables	Daily Usage Time of Digital Technologies (Years)	N	$\overline{X}$	SS	F	P
Effects of Digital Technologies on Human Behaviors in Public Life	None	9	81.00	18.20	1.499	.189
	1 hour	22	81.23	17.14		
	2 hours	41	81.27	13.50		
	3 hours	57	80.18	10.68		
	4 hours	64	77.80	12.44		
	5+ hours	163	76.43	14.32		
Social Isolation	None	9	23.67	6.10	1.668	.142
	1 hour	22	23.59	5.75		
	2 hours	41	24.12	4.47		
	3 hours	57	23.54	3.81		
	4 hours	64	22.64	4.60		
	5+ hours	163	22.11	5.31		
Media and Digital Effects	None	9	14.78	5.40	.428	.829
	1 hour	22	14.95	3.36		
	2 hours	41	15.00	2.64		
	3 hours	57	15.18	2.57		
	4 hours	64	14.81	2.65		
	5+ hours	163	14.60	2.75		
Homogenisation/Placelessness	None	9	15.44	4.00	.782	.563
	1 hour	22	15.09	3.99		
	2 hours	41	15.15	3.45		
	3 hours	57	14.28	3.47		
	4 hours	64	14.31	2.94		
	5+ hours	163	14.28	3.41		
Social Anxiety Induced by Technology	None	9	11.22	3.60	1.062	.381
	1 hour	22	11.55	2.92		
	2 hours	41	11.63	2.45		
	3 hours	57	11.58	1.99		
	4 hours	64	11.23	2.12		
	5+ hours	163	10.90	2.67		
Digital Addiction	None	9	15.89	3.30	1.480	.196
	1 hour	22	16.05	4.03		
	2 hours	41	15.37	3.74		
	3 hours	57	15.60	2.96		
	4 hours	64	14.80	3.28		
	5+ hours	163	14.54	3.76		

of these areas through informed and conscious approaches. The proliferation of digital technologies has been transforming the ways individuals interact in public life, which can either weaken existing social connections or foster new forms of social engagement. For instance, the increasing usage of social media platforms has been transforming how people engage with each other, yet it may also contribute to individuals distancing themselves from real-life social interactions and experiencing social isolation (Çalapkulu and Sarı 2022, 897; Bilge, Baydili, and Göktaş 2020, s. 225).

These technology-driven communication forms profoundly influence societal structures. Individuals deeply engaged with digital technologies often limit their interactions with nearby people, focusing instead on their devices. This shift can isolate them from real-life events and impair their ability to communicate effectively (Arslan 2020, 30). Consequently, advancements in digital technologies are reshaping social interactions within public life, emphasizing changes in community engagement and personal connectivity in daily activities (ATDE 2015). Therefore, this study explores the psychological and spatial dimensions of how digital technologies affect human behaviour in public life and how these effects are related to user behaviour and approaches.

Drawing on existing literature, we've identified several impacts of digital technologies on social structures: social impact (homogenization and placelessness), socio-isolation (alienation, individualization, and isolation), technological anxiety (technostress, digital addiction, hyperconnectivity, social anxiety, and Fear of Missing Out (FOMO)), digitalization effects (disinhibition, technological determinism), and media effects (echo chambers, filter bubble). These insights informed the development of a scale measuring social isolation, media and digital effects, homogenization/placelessness, technology-induced social anxiety, and digital addiction, which has proven highly reliable with a Cronbach's alpha of 0.962 (Özdamar 1999, s. 513). The highest average subscale scores were observed in social isolation ($\overline{X} = 22.80$), followed by digital addiction ($\overline{X} = 14.98$), media and digital influences
($\overline{X} = 14.80$), and homogenization/placelessness ($\overline{X} = 14.47$), with the lowest scores in social anxiety ($\overline{X} = 11.20$). In addition to presenting survey findings, this study employs a critical analysis to delve deeper into the implications of digital technology on public life, offering a nuanced understanding of the varied impacts across different demographic groups.

The participants' demographic details were compared against the scores of the scale evaluating the effects of digital technologies on human behaviour in public environments. The analysis indicated significant variations linked to gender ($p = 0.000$), employment status ($p = 0.005$), and profession ($p = 0.31$). However, no substantial differences were observed concerning marital status ($p = 0.412$), education level ($p = 0.509$), professional experience ($p = 0.937$), or daily usage of digital technologies ($p = 0.189$).

Gender-specific analysis revealed that digital technologies affect female participants more profoundly than male participants, with significant disparities noted in dimensions like social isolation, homogenization and placelessness, technology-induced social anxiety, and digital addiction. However, gender differences were not prominent in the impacts related to media and digital effects. This finding aligns with existing research, suggesting that women experience higher levels of engagement and potential addiction to social media, as they often access these platforms more frequently and intensely compared to men (Çalapkulu and Sarı 2022, 910; Tutkun-Ünal 2016, 162). Contrarily, some studies suggest that men exhibit a higher propensity towards digital technology addiction overall (Arslan 2020, 33; Sağar 2019, 34). This discrepancy highlights the complex nature of digital interactions and their varied effects across different demographic groups. Furthermore, studies like those by Elhai, Hall, and Erwin (2018) have noted that the consequences of losing access to smartphones can induce greater stress in women than in men, suggesting a nuanced gender dynamic in digital dependencyThese insights underscore the need for targeted interventions that consider these demographic differences in designing digital public spaces and policies aimed at mitigating the adverse effects of digital technologies while enhancing their benefits.

In this study, marital status did not significantly differentiate most of the responses on the EDTHPL scale ($p = .412$) and its sub-scales such as social isolation ($p = .580$), media and digital effects ($p = .696$), homogenization/placelessness ($p = .696$), and technology-induced social anxiety ($p = .662$). However, an exception was found in digital addiction, where married participants exhibited higher levels compared to single participants (t:1.995, $p < 0.05$), aligning somewhat with findings from Sağar (2019) and Andreassen et al. (2016), who noted differing patterns of social media addiction based on marital status, though their studies suggested that single individuals displayed higher levels of addiction.

Educational status also showed no significant impact on the EDTHPL scale responses ($p > 0.05$) across most dimensions; however, a notable difference emerged in the homogenization/placelessness dimension (F:4.770, $p < 0.05$), with undergraduates and graduates reporting higher impacts compared to those with postdoctoral training. This finding points to a nuanced understanding of how education levels influence perceptions of digital integration into public life (Table 7). The research revealed that the mean scores of the homogenization/placelessness factor for undergraduate degree holders (Mean = 14.86), master's degree holders (Mean = 14.66), and doctoral degree holders (Mean = 14.11) were higher than the mean scores of participants who have pursued a postdoctoral academic career (Mean = 12.65).

Professional discipline showed variable impacts on perceptions of digital technology's effects. Landscape architects reported more significant impacts from digital technologies across media and digital effects, and technology-induced social anxiety than their

counterparts in urban planning and architecture. This suggests that the nature of the profession influences sensitivity to certain aspects of digital technologies. Interestingly, landscape architects also reported a stronger sense of homogenization/placelessness, indicating a unique professional perspective on spatial identity and digital influence (Table 9).

Contrasting these results, other studies such as those by Arslan (2020) and Baz (2018) found no significant differences between academic disciplines and their digital or social media addictions. However, Aktan (2018) identified a specific trend within academic programs, noting that students in public relations and promotion were more engaged in social media compared to those in security and protection programs, highlighting how specific educational content might influence digital behaviours. These findings illustrate the complexity of how different demographic factors, including marital status, education, and professional discipline, intersect with digital technology's impacts on public life. They underscore the need for tailored approaches in policy and design to address these varied influences effectively.

The impact of digital technologies on the behaviour of spatial design experts in public life varies significantly with employment status. Key differences were observed in perceptions of homogenization/placelessness and digital addiction, with retired participants notably more affected by digital technologies than self-employed ones. However, no significant differences were evident in terms of social isolation, technology-induced social anxiety, and media and digital effects (Table 8). This indicates that employment status plays a role in how digital environments are experienced and perceived. Further, while no substantial differences were noted concerning the duration of professional tenure and overall daily use of digital technologies, specific usage patterns like prolonged daily internet sessions have been linked to increased social media addiction. This aligns with findings by Kırık et al. (2015) and Çalapkulu and Sarı (2022), who reported a rise in social media addiction with increased internet use. Similarly, Çiftçi (2018) observed higher social media addiction rates among students who spent five or more hours per day online, compared to those who logged fewer hours. Conversely, increased use does not always correlate with negative outcomes; some studies suggest that these technologies can also enhance social connections (Hampton, Livio, and Goulet 2010; Turkle 2011), illustrating the dual-edged nature of digital interaction

The insights of spatial design experts are indispensable, as they not only witness but also actively shape the technological transformation of public spaces. Their expertise offers a vital bridge between theoretical concepts and practical applications, enriching our understanding of the socio-technical dynamics that define urban environments. Architects, who play a crucial role in designing physical structures, provide unique insights into how digital technologies integrate with and augment the physical and aesthetic aspects of urban spaces. Urban planners, focusing on strategic and holistic urban development, are key to understanding how digital tools influence urban policies and community interactions, offering perspectives essential for grasping the broader social implications of digitalized environments. Landscape architects contribute their specialized knowledge on the ecological and aesthetic dimensions of spaces, exploring how digital innovations can enhance or disrupt the natural and recreational qualities of urban landscapes. Furthermore, the role of spatial design experts extends beyond mere observation and design; they are pivotal in fostering societal progress and enhancing public life. By integrating digital technologies thoughtfully into urban planning and architecture, they facilitate environments that are not only technologically advanced but also socially inclusive. Architects, urban planners, and landscape architects work collaboratively to ensure that technology serves as a tool for social engagement rather than a barrier, crafting spaces that promote connectivity and accessibility. Their collective efforts are crucial in developing sustainable urban spaces that respond to the needs of diverse populations, thereby making a profound impact on the quality of public life and community well-being.

In conclusion, this research provides significant insights into public life and human behaviour in the digital age, prompting critical discussions on the social impacts of digital technologies. As we harness the benefits of digital tools, individuals must recognize potential risks and cultivate mindful engagement strategies. Moreover, policymakers and developers should prioritize human-centric design and applications that advance societal interests, mindful of the overarching social implications. The findings from this study equip individuals, policymakers, and developers with the knowledge to make informed decisions that consider the broad societal impacts of technology. Understanding the influences of digital technologies on public life is crucial to mitigating potential negative effects while maximizing their positive contributions. Additionally, this study lays the groundwork for developing strategies that integrate digital technologies into urban planning and design, engaging all relevant stakeholders. For future research, this study underscores the importance of comparative analyses across different socio-demographic groups to understand the diverse effects of digital technology use. It is also recommended to pursue long-term studies to assess the enduring consequences of digital technologies on public life.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The work was supported by the Yildiz Technical University Scientific Research Projects Coordination Unit [FBA-2023-5807].

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Appendix 1. Factor loadings and reliability results of the EDTHPL scale (Developed by the authors)

	Component				
	F1	**F2**	**F3**	**F4**	**F5**
D206. The individualisation that comes with digital technology causes face-to-face interaction to decrease.	0.855				
D205. Instant connection and sharing opportunities offered by digital technology weaken social ties in the public space.	0.815				
D202. Digital technology disrupts traditional forms of communication, leading to the disruption of social ties in public spaces.	0.802				
D204. The proliferation of digital technology causes people to spend more time on virtual interactions rather than face-to-face interactions.	0.8				
D201. Digital technology leads to alienation in public spaces as we focus on devices rather than interacting with those around us.	0.751				
D209. Digital technology increases individualization by weakening social ties.	0.732				
D208. With the increasing use of personal devices in public spaces, people are becoming more isolated from each other.	0.718				
D207. Digital technology creates a paradoxical situation in which we are more connected than ever before, yet more isolated and individualized.	0.659				
D210. In a society individualized by digital technology, the importance of common values and shared experiences decreases.	0.649				
D203. The constant distraction caused by digital technology leads to a lack of focus and reduced connection with the physical environment.	0.636				
D309. The constant connection created by digital technology reduces individuals' interest in real-life social interactions.	0.452				
D409. Digital technologies can provide a sense of anonymity and freedom, making people less likely to comply with laws and rules.		0.727			
D408. Digital technologies eliminate social barriers by facilitating interactions between people.		0.634			
D402. Echo chambers and filter bubbles exacerbate social and political polarization, making it difficult to find common ground in public debates.		0.606			
D401. The proliferation of echo chambers and filter bubbles creates a fragmented public space in which individuals are increasingly isolated from each other.		0.557			
D405. Digital technology causes people to behave in ways that cannot be done in face-to-face interactions, resulting in a lack of courtesy and respect.		0.527			
D406. Social media platforms create a culture of impulsivity and instant gratification in our public interactions.		0.526			
D403. Digital technologies, with their echo chambers and filter bubbles, blur the boundaries between public and private.		0.505			
D104. By changing the concept of space in the virtual world, digital technology reduces people's necessity to localize and establish social ties in public spaces.			0.741		
D107. Digital technology makes it difficult to distinguish one place from another (becoming similar spaces).			0.721		
D106. Digital technologies have resulted in the convergence of human behavior and interaction.			0.68		
D108. Digital technologies cause loss of diversity or local identity.			0.611		
D110. The access provided by digital technology enables individuals to interact more with global media and culture, thus leading to spatial uniformity.			0.61		
D105. Because digital technologies may be utilized anywhere, physical interaction between people in public spaces is decreasing.			0.593		
D109. The spread of digital technology leads to the formation of a similar consumption culture around the world.			0.574		
D103. The ability to access digital content from anywhere obscures the boundary between physical and digital space, resulting in a feeling of out of place.			0.55		
D306. Hyperconnectivity through digital technology creates a sense of constant connection with others, leading to increased fear of missing out on social experiences.				−0.866	
D307. The pressure to constantly check social media and other digital platforms leads to anxiety and stress as individuals feel compelled to stay always connected.				−0.819	
D305. Extensive use of technology causes time management problems, which increases stress levels.				−0.726	
D301. Digital technology causes technostress and social anxiety, causing individuals to feel overwhelmed.				−0.663	
D308. The hyper-connectivity and fear of missing out (FOMO) created by digital technology leads to the prioritization of virtual social connections over real-life social interaction in public spaces.				−0.659	
D302. The pressure to be constantly accessible through digital technology leads to increased technostress and social anxiety.				−0.63	
D304. The information load created by digital technology creates problems in individuals such as decision-making difficulties, information pollution, and anxiety about accessing information.				−0.605	
D303. Over-reliance on digital technology results in decreased face-to-face social interaction and therefore increased social anxiety.				−0.527	
D114. Digital addiction affects individuals' time management skills, making it difficult for them to be efficient and effective in the public space.					0.845
D113. Digital addiction makes it difficult for individuals to be fully present in public spaces and interact with the world around them.					0.839
D112. Digital addiction creates a barrier to meaningful face-to-face interactions with others in public spaces.					0.821
D115. Digital addiction causes individuals to feel lonely in their daily lives and distance themselves from society.					0.794
Eigenvalue	**16.202**	2.519	2.141	**1.475**	**1.403**
Explained Variance (%)	42.636	6.629	2.141	1.475	1.403
Number of Items	11	7	8	8	4
Cronbach's Alpha Reliability Coefficient (α)	0.935	0.935	0.835	0.838	0.895

Note: * If Cronbach's alpha (α) is ≥ 0.9, it is excellent; if 0.9 > α ≥ 0.8, it is good, and if 0.8 > α ≥ 0.7, it is considered acceptable.