

Panopticon Perception Scale for Employees: A Study on the Validity and Reliability

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Abstract: The aim of this methodological study was to develop the Panopticon Perception Scale (PPS) to assess employees' perceived levels of panoptic surveillance in workplace environments and to examine its psychometric properties. The study was conducted with a sample of 484 employees working in various sectors in Istanbul, Türkiye. The scale development process began with a theoretical framework and literature review, followed by expert evaluations to ensure content validity. The construct validity of the scale was examined using both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA results revealed a five-factor structure consisting of Perceived Surveillance, Perceived Intent of Monitoring, Loss of Privacy, Digital Traceability, and Self-Control and Pressure, explaining 60.6% of the total variance. CFA confirmed the adequacy of this five-factor model ($\chi^2/df = 1.187$; RMSEA = 0.020; CFI = 0.989; TLI = 0.987). The internal consistency of the scale was high (Cronbach's $\alpha = 0.881$), and test-retest reliability analysis indicated strong temporal stability (ICC > 0.90). Additionally, significant differences between the lower 27% and upper 27% groups ($p < 0.001$) demonstrated the discriminant validity of the scale. The findings indicate that the PPS is a valid, reliable, and psychometrically robust instrument for measuring perceptions of surveillance and control in the workplace. The scale can be effectively applied across diverse occupational groups, including healthcare, education, service, finance, public administration, industry, information technology, and logistics. It provides a valuable tool for understanding the effects of digital surveillance on employee experiences in both academic research and organizational practice.

Keywords: Panopticon Perception, Digital Surveillance, Workplace Monitoring

Çalışanlar İçin Panoptikon Algısı Ölçeği: Geçerlik ve Güvenirlik Çalışması

Özet: Bu araştırmanın amacı, çalışanların iş ortamlarında algıladıkları panoptik gözetim düzeyini belirlemek amacıyla Panoptikon Algısı Ölçeği (PPS)'ni geliştirmek ve ölçeğin geçerlik-güvenirlik özelliklerini incelemektir. Araştırma, metodolojik bir tasarıma sahip olup, İstanbul'da çeşitli sektörlerde çalışan toplam 484 katılımcı ile yürütülmüştür. Ölçek geliştirme sürecinde öncelikle literatür taraması ve kuramsal çerçeve doğrultusunda madde havuzu oluşturulmuş, ardından uzman görüşleri alınarak kapsam geçerliği sağlanmıştır. Ölçeğin yapı geçerliliğini incelemek amacıyla Açıklayıcı Faktör Analizi (AFA) ve Doğrulayıcı Faktör Analizi (DFA) uygulanmıştır. AFA sonucunda ölçek; Gözetlenme Algısı, Denetimin Niyeti Algısı, Mahremiyet Kaybı, Dijital İzlenebilirlik ve Otokontrol ve Baskı olmak üzere beş alt boyuttan oluşmuştur. Bu beş faktör toplam varyansın %60,6'sını açıklamıştır. DFA bulguları, ölçeğin beş faktörlü yapısının veriyle uyumlu olduğunu göstermiştir ($\chi^2/df=1.187$; RMSEA=0.020; CFI=0.989; TLI=0.987). Ölçeğin genel güvenirlilik katsayısı Cronbach's $\alpha=0.881$, test-tekrar test güvenirliliği ise ICC>0.90 olarak bulunmuştur. Ayrıca alt ve üst %27'lik gruplar arasında tüm boyutlarda anlamlı farklar ($p<0.001$) elde edilmiştir. Elde edilen sonuçlar, Panoptikon Algısı Ölçeği'nin geçerli, güvenilir ve psikometrik açıdan güçlü bir ölçme aracı olduğunu ortaya koymaktadır. Ölçek, sağlık, eğitim, hizmet, finans, kamu, sanayi, bilişim, güvenlik ve lojistik gibi farklı sektörlerde çalışan bireylerin iş yerinde algıladıkları gözetim, denetim ve kontrol düzeylerini değerlendirmede kullanılabilir. PPS, hem akademik araştırmalarda hem de örgütsel uygulamalarda, dijitalleşme ve gözetim süreçlerinin çalışanlar üzerindeki etkilerini anlamada önemli bir araç olarak değerlendirilmektedir.

Anahtar Kelimeler: Panoptikon Algısı, Dijital Gözetim, İş Yerinde Denetim

1. Introduction

With the rapid acceleration of digitalization, surveillance practices in the workplace have become widespread not only in physical but also in digital domains. Emerging technologies allow for the continuous monitoring of employees' behaviors, significantly affecting individuals' perceptions of privacy, freedom, and security (Zuboff, 2019). This transformation has turned surveillance from a mere observation process into a powerful organizational control mechanism (Ball, 2010; Fuchs, 2013).

In this context, Michel Foucault's (1975) concept of the panopticon provides the theoretical foundation of modern surveillance. The panopticon is based on the idea that an individual, even without knowing whether they are being observed, regulates their own behavior due to the mere possibility of being watched. According to Foucault, this mechanism produces an invisible yet internalized form of control, leading individuals to monitor and discipline themselves (Foucault, 1975; Lyon, 2018).

In the digital era, this panoptic structure has been reconstructed through algorithmic management systems and performance-monitoring technologies (Andrejevic, 2015). Especially with the growing prevalence of remote and hybrid work, employees' data related to location, time, and productivity can be continuously tracked (Moore & Robinson, 2016). This constant monitoring fosters a sustained sense of being watched, which, in turn, shapes behaviors through self-regulation (Brivot & Gendron, 2011).

Research indicates that employees working under digital surveillance experience various psychosocial consequences such as stress, alienation, insecurity, and loss of privacy (Monahan, 2009; Albrechtslund, 2008). These outcomes not only affect individuals but also influence organizational variables such as commitment, job satisfaction, and performance (Lyon, 2014; Zuboff, 2019).

However, it is observed that there are limited instruments that can directly and comprehensively assess the panoptic effects of workplace surveillance on employees. Existing scales generally focus on overall perceptions of surveillance and fail to fully capture the structural, psychological, and technological dimensions specific to the workplace context (Ball, 2010; Fuchs, 2013).

Therefore, the purpose of this study is to develop a valid and reliable scale that can evaluate employees' perceptions of panoptic surveillance in the workplace in a multidimensional manner. The proposed scale aims not only to measure employees' surveillance perceptions but also to serve as a significant tool for understanding organizational dynamics in the digital age.

2. Theoretical Framework

2.1. Panopticon and Surveillance Theory

The concept of surveillance in modern societies represents a multidimensional socio-political process that extends far beyond the mere physical observation of individuals. It is intertwined with mechanisms of power, discipline, self-regulation, and the construction of normative order. In this context, Michel Foucault's panopticon metaphor provides one of the most fundamental theoretical frameworks for understanding modern surveillance practices (Foucault, 1975).

Originally designed by Jeremy Bentham in the eighteenth century as a prison model, the panopticon enabled a central watchtower to observe inmates who, in turn, could never be certain whether they were being watched.

Foucault transformed this architectural design into a metaphor explaining the functioning of the modern disciplinary society. According to him, the panopticon symbolizes a regime of self-discipline in which power operates without direct coercion—individuals regulate their own behavior as if they were under constant observation (Foucault, 1975).

In Foucault's analysis, surveillance is not merely an external act of monitoring but a form of power internalized within individuals' consciousness. Power becomes invisible yet embedded in the mental structures of the subject. Consequently, individuals are compelled to behave "in accordance with norms" even in the absence of physical authority (Lyon, 2018). Surveillance, in this sense, constitutes a knowledge-power relationship: to observe is not only to control behavior but also to generate information about individuals defining, categorizing, and classifying them (Ball, 2010).

Foucault's approach provides a powerful theoretical foundation for analyzing contemporary capitalist workplaces, where employee monitoring, performance control, and behavioral regulation prevail. Brivot and Gendron (2011) argue that surveillance practices in modern organizations reinforce the sense of being under constant yet invisible observation—an experience that produces self-discipline, performance pressure, and the erosion of privacy.

Andrejevic (2007) extends this notion by asserting that with the advent of digital technologies, the classical panoptic model has become increasingly pervasive, immanent, and even voluntary. Individuals are no longer merely subjects of surveillance but participants in it. For example, systems that allow employees to track their own productivity foreground the idea of self-surveillance (Moore, Upchurch, & Whittaker, 2018).

Zuboff's (2019) concept of surveillance capitalism situates the digital panopticon within economic and political contexts. In this framework, individuals' behavioral data are monitored and commodified for profit, transforming people into unaware producers of data.

Within this theoretical context, panoptic surveillance in the digital workplace no longer concerns only the control of employees but also the management of their emotions, thoughts, and habits. Although contemporary surveillance has evolved beyond Foucault's original formulation, the underlying logic of the panopticon continues to

illuminate the operation of today's algorithmic and digital control systems (Lyon, 2014).

2.2 The Evolution of Surveillance in the Digital Era

Traditional surveillance was typically confined to physical spaces and relied on hierarchical, centralized structures. However, with the advancement of digitalization in the twenty-first century, surveillance has acquired a more fluid, predictive, and pervasive character. This transformation is not merely a technological development but also a socio-political evolution that reshapes the nature, scope, and function of surveillance itself (Lyon, 2018).

As in Foucault's panoptic metaphor, modern surveillance was historically based on the disciplining of individuals through internalized self-control. In the digital age, however, this model is being replaced by post-panoptic or platform-based surveillance frameworks. Surveillance no longer functions solely as a top-down power relation; it has become distributed, automated, and algorithmic in nature (Brivot & Gendron, 2011).

Zuboff (2019) conceptualized this transformation as surveillance capitalism. In this model, individuals' digital behaviors are unconsciously transformed into economic commodities. Platforms such as Google, Facebook, and Amazon record users' interactions to generate what Zuboff calls "behavioral surplus." These data are then utilized to predict and shape future behaviors. Surveillance thus becomes not only a means of observation but also a mechanism of control, manipulation, and behavioral steering (Zuboff, 2019).

Similarly, Andrejevic (2014) describes digital-era surveillance as preemptive surveillance. In this form, individuals' behaviors are analyzed and acted upon before they actually occur. Big data analytics, artificial intelligence, and algorithmic decision-making systems make such anticipatory interventions possible. This form of surveillance targets not only individuals' past behaviors but also their potential futures, rendering them objects of continuous predictive monitoring.

Another significant development in this evolutionary process is self-surveillance. Moore (2018) argues that digital technologies have fostered a culture in which individuals monitor and optimize their own productivity. In workplaces, tools such as time-tracking software, productivity apps, and KPI-based measurement systems encourage employees to evaluate themselves continuously. Consequently, surveillance transforms from an external disciplinary

mechanism into an internalized ideology of performance.

Rosenblat and Stark (2016), in their case study of Uber drivers, demonstrated the regulatory power of algorithmic management. Here, control is exercised not by human supervisors but through opaque algorithms and data-driven scoring systems. Such mechanisms create an invisible yet unquestionable authority over workers.

Finally, Van Dijck, Poell, and de Waal (2018) argue that in a platform society, surveillance has become a precondition for social participation itself. Individuals voluntarily consent to being monitored in order to access digital platforms. Thus, surveillance has evolved into not only a tool of power but also an integral component of digital citizenship.

2.3 Workplace Surveillance and Panoptic Effects

With the advent of digitalization, employee surveillance in workplaces has moved beyond physical spaces and evolved into software-based, continuous, and largely invisible monitoring systems. These advanced technologies analyze a wide array of data points—from employees' productivity levels and screen times to their geolocation information—in real time (Ajunwa, Crawford, & Schultz, 2017). Such practices generate panoptic power relations within organizations, transforming surveillance from a technical operation into a psychological and behavioral construct (Brivot & Gendron, 2011).

Michel Foucault's theory of the panopticon is grounded in the idea that individuals discipline their own behavior in response to the constant possibility of being watched (Foucault, 1975). In workplace settings, this manifests as employees behaving as though they are under constant observation, even in the absence of visible monitoring mechanisms. Workers strive to maximize productivity, conform to norms, and align with organizational expectations, regardless of whether they are actively being monitored. Thus, surveillance becomes an invisible yet internalized instrument of discipline (Ball, 2010).

In contemporary workplaces, panoptic surveillance has been reinforced by the rise of algorithmic management systems. Rosenblat and Stark (2016), in their study of Uber drivers, revealed that human managers have been replaced by algorithms that monitor, evaluate, and reward or penalize workers based on performance scores. This system not only observes employees' behaviors but also directly

guides and shapes them, functioning as a new mechanism of digital control (Mateescu & Nguyen, 2019).

Ravid et al. (2020) emphasize that electronic performance monitoring (EPM) systems induce stress, pressure, insecurity, and privacy concerns among employees, while also diminishing creativity and discretionary behaviors. This phenomenon aligns with Foucault's notion of self-discipline, illustrating how individuals internalize surveillance and regulate themselves according to organizational norms.

Similarly, Bhave, Teo, and Dalal (2020) argue that the loss of workplace privacy negatively affects employee commitment and job satisfaction. Panoptic surveillance environments undermine employees' sense of psychological safety, thereby constraining innovative and initiative-based behaviors. Alge et al. (2006) further demonstrate that in contexts where information privacy is lacking, employees' voluntary engagement and creative performance significantly decline.

Surveillance, therefore, is not only a technological process but also an ideological and cultural one. Moore, Upchurch, and Whittaker (2018) suggest that modern workplace surveillance functions not merely to control labor but to bind employees to the mythologies of productivity, loyalty, and efficiency. In this sense, the panoptic effect becomes a mechanism that shapes employee identity and transforms the individual's relationship with the organization.

3. Method

3.1. Research Design

This study was conducted as a methodological research aimed at developing a valid and reliable measurement instrument to assess employees' perceptions of panoptic surveillance in workplace settings. Methodological studies are systematic investigations designed to develop, adapt, or evaluate the psychometric properties of measurement tools, focusing on validity, reliability, and dimensional structure.

3.2 Study Group

The study sample consisted of 484 participants residing and working in Istanbul, Türkiye. Of these, 74.8% ($n = 362$) were female and 25.2% ($n = 122$) were male. Regarding age distribution, 24.4% were between 20–29 years, 35.7% between 30–39 years, 27.3% between 40–49 years, and 12.6% were aged 50 years and above. In terms of educational background, 9.1% had completed high school, 20.2% held an associate degree, 50.4% had

a bachelor's degree, and 20.2% had postgraduate education (master's degree or higher).

When classified by sector, 38.8% of the participants worked in the healthcare field, 21.1% in education, 19.2% in the service sector, 14% in other private-sector industries, and 6.8% in public administration or office-based positions. Concerning professional experience, 5% had less than one year of experience, 27.5% had between 1–5 years, 34.9% between 6–10 years, and 32.6% had worked for 11 years or more.

Participants were recruited from various organizations and institutions across Istanbul, reflecting the city's diverse professional landscape that includes healthcare, education, service, and private industry sectors. These demographic characteristics demonstrate that the sample represented a heterogeneous group in terms of age, gender, education, occupation, and work experience—providing a broad and suitable basis for psychometric validation of the Panopticon Perception Scale for Employees.

3.3 Data Collection Instrument

The Panopticon Perception Scale for Employees (PPSE) is a 25-item, self-report instrument developed to evaluate individuals' perceived surveillance in the workplace. All items are scored on a five-point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), and no items are reverse-coded.

The scale consists of five subdimensions: Perceived Surveillance (Items 1–5), Self-Control and Pressure (Items 6–10), Loss of Privacy (Items 11–15), Perceived Intent of Monitoring (Items 16–20), Digital Traceability Perception (Items 21–25)

For each subdimension, scores are calculated as the arithmetic mean of the relevant items. The total score is obtained by averaging all 25 items. Higher scores indicate a stronger perception of panoptic surveillance within the workplace environment. The total scores range between 1 and 5, with increasing values representing higher levels of perceived panoptic observation and control.

3.4 Expert Evaluation and Content Validity

To ensure the content validity of the Panopticon Perception Scale, expert opinions were obtained following the development of the initial item pool. In this process, a panel of 15 experts—comprising academicians and field professionals specializing in psychology, sociology, health management, human resources management, and educational measurement and evaluation—was consulted to

assess the clarity, relevance, and dimensional consistency of the items.

Each expert was asked to rate the appropriateness of each item on a four-point scale (1 = not appropriate, 4 = highly appropriate) based on three criteria: clarity, content relevance, and fit with the intended dimension. Using these ratings, the Content Validity Index (CVI) was computed. The item-level CVI (I-CVI) values for all items were above .80, indicating satisfactory content agreement among experts. The scale-level CVI (S-CVI), representing the overall representativeness of the instrument, was calculated as .91.

Minor linguistic adjustments were made to several items based on expert feedback, although no major structural modifications were required. These findings demonstrate that the scale possesses adequate representativeness and content appropriateness as evaluated by domain experts.

3.5 Statistical Analysis

In the analysis phase, descriptive statistics were first computed, including means, standard deviations, skewness, and kurtosis for each item. To examine the construct validity of the scale, both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed.

Before conducting EFA, the suitability of the data for factor analysis was assessed using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. CFA was subsequently performed using a covariance-based approach, and model fit was evaluated through several fit indices, including χ^2/df , GFI, CFI, TLI, and RMSEA.

The internal consistency reliability of the instrument was assessed using Cronbach’s alpha coefficients, calculated separately for each subdimension as well as for the overall scale. Item–total correlations were analyzed to determine the degree to which each item corresponded to the construct being measured. The discriminant validity of the scale was tested through independent samples t-tests comparing the upper and lower 27% groups based on total scores.

Additionally, test–retest reliability was examined using data collected with a two-week interval between administrations. The stability of scores was assessed using paired-samples t-tests and the Intraclass Correlation Coefficient (ICC). The level of statistical significance was set at .05 for all analyses. All statistical procedures were conducted using standard statistical software packages.

4. Results

4.1. Descriptive Statistics

To evaluate the normality of the Panopticon Perception Scale items, skewness and kurtosis coefficients were examined. The results indicated that skewness values ranged between -0.65 and $+0.42$, while kurtosis values ranged between -1.10 and $+0.88$. Since all values fell within the acceptable limits of ± 1.5 , the item distributions were considered approximately normal, supporting the suitability of the data for parametric statistical analyses (Doane & Seward, 2011).

4.2. Exploratory Factor Analysis, Reliability, and Item Analysis

An Exploratory Factor Analysis (EFA) was conducted to examine the construct validity of the Panopticon Perception Scale for Employees. The Bartlett’s test of sphericity was significant ($p = .000 < .05$), indicating that the correlation matrix was factorable. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was .890, exceeding the recommended threshold of .60, and thus confirming the adequacy of the sample size for factor analysis.

The EFA was performed using the varimax rotation method to maintain the orthogonality and interpretability of the factor structure. The analysis revealed a five-factor solution, explaining a total variance of 60.609%.

All factor loadings ranged from .495 to .833, and each item loaded significantly on its respective factor, confirming the multidimensional structure of the scale. The overall internal consistency of the scale was high, and the item–total correlation coefficients ranged from .495 to .723, indicating that all items were strongly correlated with the total score and contributed meaningfully to the construct being measured.

These findings demonstrate that the Panopticon Perception Scale for Employees possesses a stable factor structure, satisfactory internal consistency, and strong item discrimination. Overall, the results of the EFA, item analyses, and Cronbach’s alpha coefficients collectively confirm that the scale is a valid and reliable measurement instrument for assessing perceived panoptic surveillance in workplace settings.

Table 1. Factor Structure of the Panopticon Perception Scale

Dimension / Item	Factor Loading	Item-Total Correlation
Perceived Surveillance (Eigenvalue = 6.543; Explained Variance = 12.937%; $\alpha = .860$)		
4. I feel as if I am constantly being observed by someone at work.	0.807	0.723
2. I feel that my behaviors are monitored through cameras or surveillance systems.	0.787	0.701
1. I often think that I might be under surveillance in my workplace.	0.772	0.638
3. I feel more observed when someone is around me.	0.767	0.687
5. The possibility of being watched makes me feel pressured at work.	0.740	0.637
Perceived Intent of Monitoring (Eigenvalue = 2.505; Explained Variance = 12.481%; $\alpha = .843$)		
20. Surveillance is primarily for control and inspection rather than support.	0.833	0.701
19. Monitoring systems are used as a tool to punish employees.	0.794	0.638
17. The main purpose of surveillance tools is to find mistakes.	0.778	0.687
16. The purpose of management's observation is to control rather than support my development.	0.735	0.637
18. I believe monitoring systems are used because of a lack of trust in employees.	0.680	0.723
Loss of Privacy (Eigenvalue = 2.242; Explained Variance = 12.154%; $\alpha = .837$)		
12. I think surveillance systems interfere with my personal space.	0.768	0.721
14. I believe even my private conversations may be monitored.	0.742	0.696
13. I feel that I might be under surveillance even in rest areas.	0.740	0.642
11. I feel that there is no personal space for me at work.	0.738	0.632
15. I feel that there is no private area that belongs to me in my workspace.	0.733	0.559
Digital Traceability Perception (Eigenvalue = 2.015; Explained Variance = 11.851%; $\alpha = .826$)		
23. I am concerned that my actions on computers or digital systems are constantly recorded.	0.759	0.649
25. The digital tracking of all my activities creates pressure on me.	0.741	0.621
24. I believe digital systems aim to monitor rather than evaluate my performance.	0.737	0.664
21. I feel uncomfortable knowing that every digital action I take can be tracked.	0.733	0.666
22. I have a constant sense of being monitored through digital record systems.	0.717	0.603
Self-Control and Pressure (Eigenvalue = 1.846; Explained Variance = 11.186%; $\alpha = .793$)		
6. The possibility of being monitored makes me act more cautiously.	0.580	0.580
8. Believing I am constantly being controlled makes me try not to make mistakes.	0.611	0.611
10. I feel I must continuously monitor my own behavior at work.	0.600	0.600
7. When I think I might be watched, I limit my natural behavior.	0.583	0.583
9. The feeling of surveillance causes me to feel under pressure.	0.495	0.495
Total Variance Explained = 60.609%; Overall Reliability (Cronbach's α) = .881		

3.3. Confirmatory Factor Analysis

To test the construct validity of the Panopticon Perception Scale, a covariance-based Structural Equation Modeling (SEM) approach was employed using Confirmatory Factor Analysis (CFA). The results indicated that the five-factor model demonstrated a very good fit to the data.

The chi-square value was $\chi^2 = 314.611$, $df = 265$, and although statistically significant ($p < .05$), it was not considered solely due to its sensitivity to sample size. The χ^2/df ratio was 1.187, which is well below the recommended threshold of 5, indicating an excellent model fit (Kline, 2016).

Other absolute and incremental fit indices also supported the structural validity of the model:

RMR = .018, GFI = .951, NFI = .934, RFI = .925, IFI = .989, TLI = .987, CFI = .989, and RMSEA = .020.

These values fall within the acceptable and ideal ranges reported in the literature (Hu & Bentler, 1999; Hooper, Coughlan, & Mullen, 2008; Kline, 2016). In particular, the high values of CFI, TLI, and IFI (all $> .95$) indicate an exceptionally strong fit, while the RMSEA value below .05 reflects a close-to-perfect model fit.

Taken together, these findings confirm that the five-factor structure of the Panopticon Perception Scale is well supported by the data, providing strong evidence for construct validity.

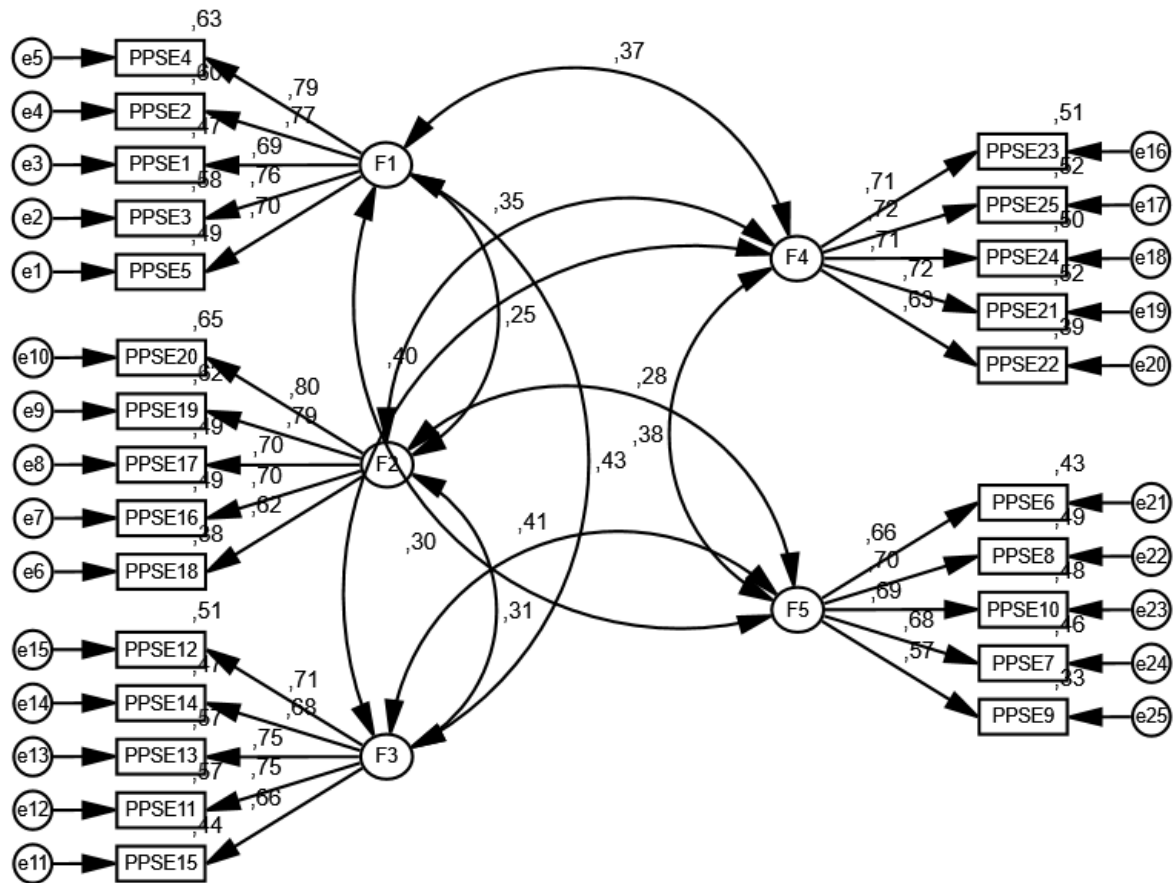


Figure 1. Confirmatory Factor Analysis Model of the Panopticon Perception Scale

3.4. Discriminant Validity Findings

The discriminant power of the Panopticon Perception Scale was examined by comparing the mean scores of the lower 27% and upper 27% groups using an independent samples t-test. The results showed statistically significant differences between the two groups across the total scale and all subdimensions ($p < .001$).

These findings demonstrate that the scale and its subdimensions can significantly differentiate individuals with high and low levels of perceived panoptic surveillance. The strong discriminant power of the instrument reflects its high measurement sensitivity and item-level reliability.

Table 2. Discriminant Validity Results

Groups	Lower 27% (n = 131)		Upper 27% (n = 131)		t	df	p
	Mean	SD	Mean	SD			
Panopticon Perception (Total)	2.516	0.176	3.398	0.235	-34.404	260	.000
Perceived Surveillance	2.431	0.491	3.501	0.512	-17.256	260	.000
Self-Control and Pressure	2.583	0.416	3.241	0.473	-11.956	260	.000
Loss of Privacy	2.399	0.430	3.330	0.508	-16.009	260	.000
Perceived Intent of Monitoring	2.594	0.444	3.399	0.490	-13.927	260	.000
Digital Traceability Perception	2.576	0.429	3.521	0.469	-17.028	260	.000

Independent samples t-test; t, p: significance; df: degrees of freedom.

3.5. Test-Retest Reliability Findings

To determine the temporal stability of the Panopticon Perception Scale, a test-retest reliability analysis was conducted with a two-week

interval between administrations. A total of 43 participants completed both measurements. The differences between the two administrations were evaluated using a paired-samples t-test, and Intraclass Correlation Coefficients (ICC) were

calculated to assess the consistency of scores over time.

The mean scores for the first and second administrations were 2.901 (SD = 0.282) and 2.861 (SD = 0.324), respectively. The difference between these means was not statistically significant ($t = 1.407$, $p = .167$). The overall ICC value for the total scale was .926 ($p = .000$), indicating a very high level of reliability.

All ICC values exceeded .90, demonstrating excellent test-retest reliability for both the total scale and all subdimensions. These results indicate that the Panopticon Perception Scale exhibits a high degree of temporal consistency and that its measurements are stable and reproducible over time.

Table 3. Test-Retest Reliability Results

Dimension	Test		Retest		n	t	p	ICC	p
	Mean	SD	Mean	SD					
Panopticon Perception (Total)	2.901	0.282	2.861	0.324	43	1.407	.167	.926	.000
Perceived Surveillance	2.363	0.410	2.302	0.477	43	1.427	.161	.912	.000
Self-Control and Pressure	3.023	0.360	2.977	0.373	43	1.431	.160	.932	.000
Loss of Privacy	2.865	0.465	2.861	0.465	43	0.443	.660	.948	.000
Perceived Intent of Monitoring	3.070	0.597	2.995	0.648	43	1.420	.163	.909	.000
Digital Traceability Perception	3.186	0.469	3.167	0.474	43	1.274	.210	.916	.000

Paired-samples t-test; ICC = Intraclass Correlation Coefficient.

4. Conclusion

This study conducted the validity and reliability analyses of the Panopticon Perception Scale (PPS), developed to measure employees' perceived level of panoptic surveillance in workplace settings. The scale development process began with an item pool grounded in the theoretical framework, followed by expert evaluations to ensure content validity, and was subsequently tested on a sample of 484 participants.

The Exploratory Factor Analysis (EFA) revealed that the scale consisted of five subdimensions: Perceived Surveillance, Perceived Intent of Monitoring, Loss of Privacy, Digital Traceability, and Self-Control and Pressure. These five factors together explained 60.609% of the total variance. Factor loadings ranged from .495 to .833, and all item-total correlations exceeded .50, indicating strong construct validity and internal consistency.

The Confirmatory Factor Analysis (CFA) confirmed the five-factor structure of the scale, with fit indices (χ^2/df , RMSEA, CFI, TLI, etc.) falling within acceptable and ideal ranges. The overall Cronbach's alpha coefficient ($\alpha = .881$) and subscale reliability values indicated a high level of internal consistency. Furthermore, the test-retest analysis, conducted with a two-week interval, produced intraclass correlation coefficients (ICC > .90), demonstrating that the scale has a highly stable structure over time.

The discriminant validity analysis, comparing the lower 27% and upper 27% groups, revealed significant differences across all subdimensions ($p < .001$), showing that the scale can effectively

distinguish between individuals with low and high levels of perceived panoptic surveillance.

Taken together, these findings demonstrate that the Panopticon Perception Scale is a valid, reliable, and psychometrically robust instrument that accurately reflects the theoretical construct of panoptic surveillance. The scale provides a solid empirical tool for assessing employees' perceptions of monitoring, observation, and control in workplace contexts.

The PPS can be applied across a wide range of professional groups where surveillance, supervision, and performance monitoring practices are common. The scale is suitable for use among healthcare professionals, education and academic staff, call center and service employees, banking and finance personnel, public administration and office workers, industrial and factory employees, information technology and software professionals, and security and logistics staff. Moreover, it can be effectively used in other occupational fields where digital surveillance, data-driven evaluation, or behavioral control mechanisms are integral components of daily work.

In conclusion, the Panopticon Perception Scale serves as a valuable instrument for both academic research and organizational practice. It has significant potential for contributing to studies in human resource management, organizational behavior, occupational health psychology, and digital transformation. By enabling the systematic assessment of employees' perceptions of surveillance across sectors, the PPS provides a

foundation for developing interventions and organizational strategies that promote ethical, transparent, and psychologically safe work environments.

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Appendix. Turkish Version of the Panopticon Perception Scale

1. Çalışma ortamımda izleniyor olabileceğim düşüncesine sık sık kapılıyorum.
2. Kameralar veya izleme sistemleri aracılığıyla davranışlarımın takip edildiğini hissedirim.
3. Yanımda biri olduğunda daha fazla gözlem altında olduğumu düşünürüm.
4. İş yerinde sürekli biri tarafından gözlemleniyor gibi hissedirim.
5. İzlenme ihtimali, iş yerinde kendimi baskı altında hissetmeme neden olur.
6. Gözetleniyor olma ihtimali, davranışlarımı daha dikkatli yapmama neden olur.
7. İzleniyor olabileceğimi düşündüğümde doğal davranışlarımı sınırlarım.
8. Sürekli kontrol altında olduğumu düşünerek hata yapmamaya çalışırım.
9. Gözetim hissi, kendimi baskı altında hissetmeme neden olur.
10. İş yerinde kendi davranışlarımı sürekli izlemek zorunda kaldığımı hissedirim.
11. İş yerinde kişisel alanımın olmadığını hissedirim.
12. Gözetim sistemlerinin özel alanıma müdahale ettiğini düşünürüm.
13. Dinlenme alanlarında bile izleniyor olabileceğim aklıma gelir.
14. Kendi aramda yaptığım özel konuşmaların bile gözlem altında olabileceğini düşünürüm.
15. Çalışma alanımda kendime ait bir “özel alan” olmadığını hissedirim.
16. Yönetimin beni gözlemlemesinin amacı gelişimimi desteklemekten çok denetim sağlamaktır.
17. Gözetim araçlarının temel amacı hata aramaktır.

18. Çalışanlara güven eksikliği nedeniyle izleme sistemleri kullanıldığını düşünüyorum.
19. Gözetim sistemleri çalışanı cezalandırmaya yönelik bir araç gibi kullanılmaktadır.
20. Gözetim, daha çok denetleme ve kontrol içindir, destek amaçlı değildir.
21. Kullandığımız dijital sistemlerdeki her işlemimin izlenmesi beni rahatsız ediyor.
22. Dijital kayıt sistemleri üzerinden sürekli olarak takip ediliyor hissine kapılıyorum.

23. Bilgisayar veya elektronik sistemlerde yaptığım işlemlerin sürekli kayıt altına alınması beni endişelendiriyor.
24. Dijital sistemlerin esas amacının performansımı değerlendirmek değil, izlemek olduğunu düşünüyorum.
25. Yaptığım tüm işlemlerin dijital olarak izlenmesi, üzerimde baskı oluşturuyor.