



Investigating the Impact of Cyberspace Usage on Employee Productivity in Afghanistan's Public Sectors: A Case Study of Badakhshan and Parwan Provinces

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ABSTRACT

Employees are arguably the most valuable asset of any organization since they can create value and provide organizations with a long-term competitive edge. Therefore, they are crucial to the organization's success, and the effectiveness of the organization is determined by the productivity of its workforce. It has become increasingly common for employees to use cyberspace extensively at work, often causing work to be postponed and resulting in client dissatisfaction. The primary objective of this study was to determine whether employees' time spent in cyberspace impacted their performance and their relationships with clients. The sample was drawn at random from employees whose workplaces had internet access as well as clients of the organization. We use the Analysis of Variance (ANOVA) test and Pearson's correlation coefficient to determine the strength of the relationship between the variables. The results of the study indicate that employee productivity is negatively correlated with Cyberspace Activities at Office Time (SAO).

Keywords: Cyberspace, Employee Productivity, Public Sector, Employee's Perspective, Client's Perspective

JEL Classifications: H11, H70, N75

1. INTRODUCTION

Today's corporate world faces enormous worldwide challenges, including the financial crisis, fiercer competition, limited and unpredictable supplies of natural resources like oil, rising costs, and lower earnings. To boost workplace efficiency and employee satisfaction, firms must revitalize and perhaps even reinvent their cultures and business practices.

In this constantly changing environment, employees who are seen as organizational assets have a greater role to play in causing organizations to break apart. As economies and organizations endure continuous transformation, reliance on manual labor is being replaced by the productivity of skilled workers. According to (Ramírez and Nembhard, 2004), over two-thirds of the current labor force is comprised of qualified workers. Organizations are

consequently at a crossroads marked by a disruptive change since digital literacy and internet connectivity have become essential life skills for not only individuals but also for organizations. Millions of people utilize networking sites, which are causing controversy and changing certain aspects of human behavior, such as the inhibitions associated with sharing information. Creating personal networks, keeping tabs on family and friends, streaming and downloading music and videos, checking sports scores, and keeping up with social bookmarks are just a few of the non-work-related activities that employees are spending more time in cyberspace.

The internet has become the center of practically all human activity and attention over time, as has been amply proven (Haythornthwaite and Wellman, 2002). Human nature requires alliances or networks for the formation of communities for family, school, religion, work, and personal pursuits. Innovative

online social communities have infiltrated the personal spaces of employees and, consequently, the workplace in recent years (Shirky, 2008).

Cyberspace has become an integral part of many people's daily lives, necessitating research on how to establish a balance between its use and its effects on employee productivity in terms of organizational resources and time. Practitioners must manage the positive effects of cyberspace participation, such as informal learning, knowledge creation and sharing, organizational knowledge retention in searchable formats, efficient use of computer-assisted communication technologies, and increased productivity and workflow (Hutley, 2009). Employees need to collaborate to complete tasks (Hutley, 2009), and organizations must be able to differentiate between personal and professional usage of organizational IT resources.

The simple act of wasting time online comes with a high hidden cost for businesses. If an eight-person department wastes 1 h every day on the aforementioned activities, an entire employee is being wasted (Babinchak, 2011). There is a very low chance that an IT expert will be able to understand everything about cyberspace and correctly restrict access for everyone. The challenge faced by employees is the intrusion of work into their personal lives. The adoption of technology that enhances connectivity with the workplace outside of the office is evidence of this. This can involve an employee checking and reacting to interactions on the business's social media page, such as Facebook, or answering emails from home.

As using cyberspace is rapidly expanding in every aspect, Unanswered questions include how it is used, whether it increases or decreases productivity, and how enterprise-friendly design and use may develop (Skeels and Grudin, 2009). Particularly, the use of social media and networking sites like WhatsApp, Facebook, Skype, Twitter, YouTube, Instagram, and LinkedIn has grown to be a phenomenon that has and made it more complicated to answer these questions. According to (Yeshambel et al., 2016), an increasing number of people are using these platforms to collaborate and communicate with friends, family, and coworkers. This increasing role, impact on productivity and job performance of employees in addition to employees' skills, talents, knowledge, and qualifications (Nyaribo and Munene, 2018).

Several studies have looked at the impact of accessing the internet while at work on employees' productivity, primarily from employees' perspective. This study specifically examines the online activities during office hours from both the employee's and the client's viewpoints to better understand the effects of cyberspace usage on employee productivity.

1.1. Problem Statement

Today, the idea of using cyberspace is seen as an essential component of every civilization. Employees frequently discuss work-related difficulties in cyberspace, either directly or indirectly. Thus, their ideas and feelings about their entire working relationship are communicated, which may have a detrimental effect on employee productivity. Through a descriptive analysis of the collected data from public

sector employees and clients of different organizations from Badakhshan and Parwan provinces, this study aims to tackle the issue of employee productivity in the public sector from the perspectives of both employees and clients.

1.2. Research Hypotheses

The following hypotheses were assessed considering the problem statement to determine whether the dependent variable of Employee Productivity (EP) and the independent variable of Cyberspace Activities at Office Time (SAO) could be correlated. The dependent variable of Employee Productivity (EP) has subset variables of Un-Concentration on Work, Low Work Performance, Work Postponement, Client Dissatisfaction, and Keep Clients Waiting as well as the independent variable of SAO has subset variables of Familiarity with CS, Login to CS Accounts from Office and Hours using CS Accounts from Office.

H1: Employees who frequently log in to their cyberspace accounts from the office have a low level of productivity.

H2: There is a negative correlation between Employee's Familiarity with CS and Employee Productivity.

H3: Employee Productivity is negatively correlated with the number of hours spent utilizing CS accounts from the office.

2. LITERATURE REVIEW

We are living in an era of technology where cyberspace is at its best and has become the source of development for many individuals and groups. It has changed the way people make networks of friends, communicate, entertain and share ideas. Meanwhile the usage of cyberspace at workplace has become a concern for many organizations and businesses (Kishokumar, 2016). Cyberspace affects organizations' success the way it is used in the workplace. Cyberspace could be full of opportunities for improvement or threats for wasting resources.

Digital communities have inseparable ties with workplace and employees, study by (Bonsón et al., 2012; Snead, 2013) shows that around 80% of public sector organizations have access to these communities. The majority use social media like Facebook and Twitter for different purposes, specially disseminating information and getting feedback according to (Oliveira and Welch, 2013). Involvement of these digital communities in the workplace has both positive and negative sides for employee's productivity, because the workers use this communities for both work-related and non-work-related purposes at the office, but they spend most of their times on building personal networks (Nyaribo and Munene, 2018). 30-50 of internet usage at workplace is non-work-related, causing annual losses as much as \$1 billion, and employees on average spent at least 1 h on non-work-related activities during a regular working day (Vitak et al., 2011).

Some study found that using cyberspace at work significantly reduces employees' productivity due to time spent online chatting with friends, exchanging photos, gaming and interacting with coworkers (Wushe and Shenje, 2019). The study by (Celebi and Terkan, 2020) shows that social media usage does not increase work performance, nor does it improves employee's productivity. Excessive internet usage not only impacts on the work productivity

but generally social occupational functioning of an individual especially disturbance in sleep, meals, personal hygiene and family relationships are also negatively impacted (Shrivastava et al., 2018). Varghese argues that non-restricted use of digital communities has a detrimental impact on workers' efficiency. Employees productivity does not correlate well with the use of cyberspace and it causes an overall 9% decrease in job performance in the field of education (Varghese and Kumari, 2018).

As per study by (Waheed et al., 2022), maximum responds show that digital communities connect the employees, but it is not a tool for improving personality. They found that these communities could damage the reputation of employees during office hours and have a negative impact on quality of work and as a result, it is a waste of time for employees.

Few studies have found that cyberspace can also be used positively and be useful tool for improving productivity of employees. (Ali-Hassan et al., 2015) Demonstrated that the utilization of social networking sites reinforces employees' skills to form, share and obtain information that conclusively enhances job performance. The impact of digital communities on job performance is experimentally investigated by (Babu et al., 2020), as it relates to social capital and knowledge transfer, gives managers information on the advantages of using these communities in businesses. Based on social exchange theory, if an employee's motivations are fulfilled, they feel a sense of satisfaction at work and hence their productivity at workplace can improve. Therefore, organizations should provide a flexible environment for their employees instead of restricting their social media usage (Jafar et al., 2019). Bonsón and Snead concluded that there is a positive relationship using Facebook and job performance of individuals (Bonsón et al., 2012; Snead, 2013) Another study in which a quasi-natural field experiment was conducted at a major Chinese financial services company to gather information from two matched-sample groups. They discovered that digital communities' platforms geared toward sociability (WeChat) and business (DingTalk) are complementing tools that create efficiencies to boost team and employee performance. (Song et al., 2019)

The literature review reveals conflicting evidence on the relationship between employee productivity and cyberspace usage at work. Some studies suggest a positive association, while others find a negative correlation. Conducted research primarily focuses on employee's data without client involvement. This study aims to address this gap by collecting data from both employees and clients, comparing their views on the impact of cyberspace usage.

3. RESEARCH METHODOLOGY

The study employed a descriptive research methodology as it enabled the researchers to generalize and apply the findings beyond the context of the original study and generate testable hypotheses. When attempting to determine how the use of cyberspace in the workplace will affect changes in employee productivity.

As illustrated in Figure 1, our study aimed to establish a correlation

between employee productivity (dependent variable) and the use of cyberspace during office hours (independent variable) using the descriptive method. To mitigate potential biases and external influences, the researchers employed randomization techniques during data collection, reducing any contaminating factors that could have affected the study. The study group included both staff and clients of organizations with online accessibility. The questionnaire was distributed to 300 employees and 300 clients of public organizations in Badakhshan and Parwan provinces. After collection of the questionnaires and data preprocessing, an analysis sample of 240 employees and 240 clients was selected for examination. To increase response validity, a questionnaire with 28 closed-ended questions was administered online and on paper. Using a 1-to-5 Likert scale questionnaire (1: strongly disagree, 2: disagree, 3: unsure, 4: agree, 5: strongly agree), the level of respondents' agreement with the investigated models was determined.

The instrument's internal consistency was evaluated to determine its dependability as part of a reliability test. Cronbach's alpha is one of the most commonly used metrics of internal consistency. Cronbach's alpha coefficient for an ideal scale is 0.7, and values greater than 0.8 are preferred (Pallant, 2020). The Cronbach alpha test for the instrument yielded a score of 0.745 as shown in table 1, indicating its reliability, and the study moved on to the phase of data collection.

The collected data were compiled, classified, and entered into version 25 of SPSS (Statistical Package for the Social Sciences). The relationship between Cyberspace Usage at Office Time (SAO) and Employee's Productivity indicators was evaluated using Pearson correlation and regression analysis techniques.

4. RESULTS

We analyzed data from a total of 240 employees and 240 clients, resulting in a response rate of 80%. This response rate was considered sufficient to ensure accurate research findings and draw conclusions regarding the impact of cyberspace use on employee productivity in the public sector. The response rate corroborates Mugenda's claim that a response rate of at least 60% is necessary to conduct valuable primary data analysis (Mugenda and Mugenda, 2012).

Figure 2 presents the demographic characteristics of the respondents, including that most respondents were male, and that most of respondents were between the ages of 21 and 30 (47.1%), followed by those between the ages of 31 and 40 (41.7%), indicating that most digital community users are young. In addition, many of respondents hold a bachelor's degree (63.7%), indicating that the educated generation participates more actively in digital communities. This lends credibility to the results of the survey because respondents can independently comprehend and evaluate the queries. The table 2 lists the many digital communities that employees use, and table 5 displays the daily logins to accounts in these communities made by employees.

Pearson correlation analysis was used to determine the strength of the relationship between the dependent variable employee productivity (Un-concentration on Work, Low Work Performance,

Figure 1: Conceptual model

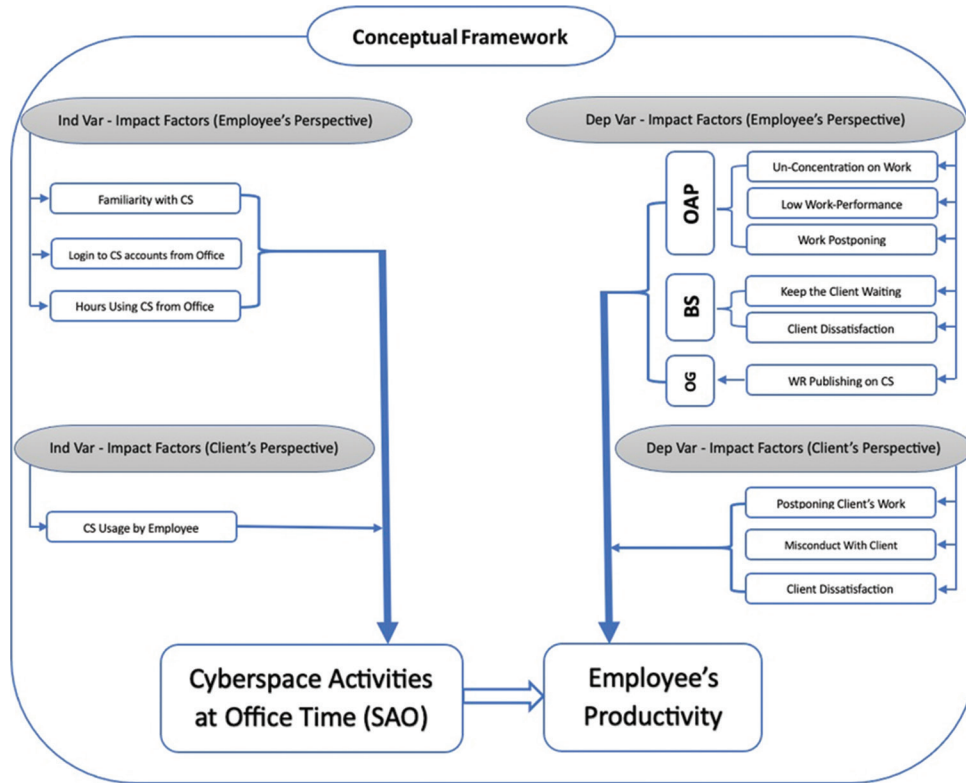
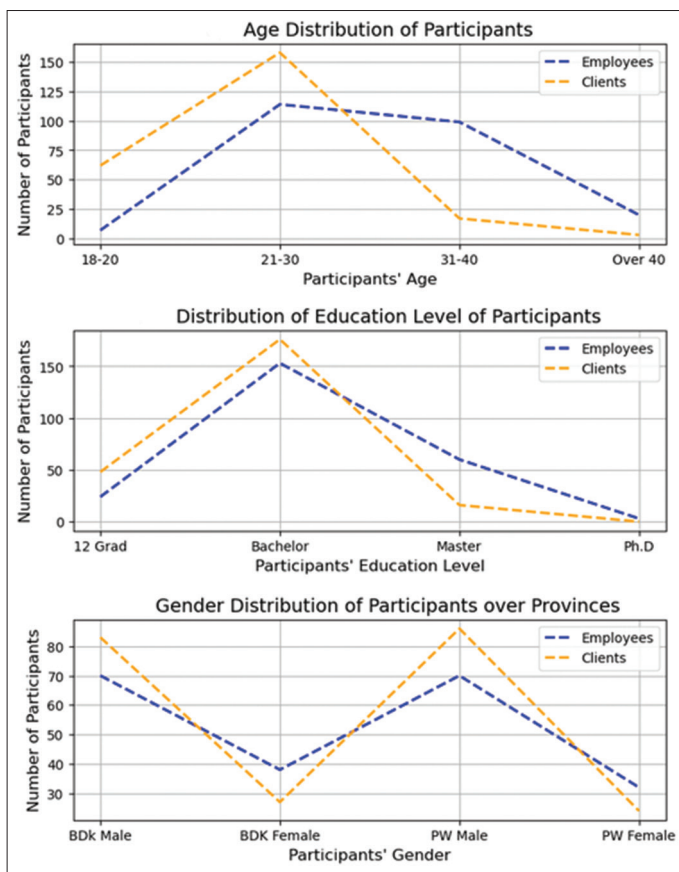


Figure 2: Demographic distribution of participants



Work Postpone, Keep Client Waiting, Client Dissatisfaction, Work Report Publishing on CS) and the independent variable

Cyberspace Activities at Office Time (Familiarity with CS, Login to CS Accounts from office, Hours using CS Accounts from office).

Since many of variables were continuous, Pearson correlation was believed to be the best analytical method for determining the nature and magnitude of the linear relationship, and it was proposed that the independent and dependent variables of a study could be related using a Pearson correlation matrix (Shami et al., 2014).

Familiarity with Cyberspace has a negative and substantial link with employee productivity ($r = -0.208, P < 0.05$) at the 0.05 level of significance, according to the correlation matrix provided in Table 3. This inevitably indicates that any rise in the Cyberspace Activities at Office Time by government workers while at work would have a negative impact on productivity of employee. Therefore, based on the collected data, this acknowledges that Cyberspace Activities at Office Time in workplace has a detrimental impact on employees' productivity.

Login to Cyberspace Accounts from Office has a negative and substantial link with employee productivity, according to the Pearson correlation ($r = -0.256, P < 0.05$) based on Table 3. These results suggest that if government employees use digital communities more often during work hours, it could have a negative impact on their work performance. Therefore, based on the collected data, we accept the hypothesis that Login to Cyberspace Accounts from office has a negative association with employees' productivity and this can cause Low Work Performance and Clients Dissatisfaction. The results also describe the more daily usage of cyberspace during working hours, the worse services and customer dissatisfaction which can be read

from Table 4, with 34.2% 1 h and 27.5% 2 h participation in social media per day.

The Pearson correlation shows a significant negative relationship between Hours using Cyberspace Accounts from Office and Employee Productivity ($r = -0.325$, $P < 0.05$). These findings imply that government employees' productivity would eventually deteriorate if they spent more hours using Cyberspace accounts during the

office time. Accordingly, based on the data gathered, the theory that Hours using Cyberspace Accounts from Office has an unfavorable relationship with employee productivity, which can lead to negative effect on organization behavior from the customer perspective, which are unacceptable to any firm. The results also describe the more hours of using Cyberspace accounts during the office time the more negative effects on organization image which can be read from Table, with 53.3% more than 4 times cyberspace accounts usage per day.

Since it is important to consider the opinions of the clients to evaluate the relationship between Cyberspace Activities at Office Time and Employees' Productivity, to the best of our knowledge,

Table 1: Reliability statistics

Cronbach's alpha	Number of items
0.735	28

Table 2: Varieties of utilized digital communities

Digital communities	Frequency	Percentage	Valid percentage	Cumulative percentage
Facebook	149	62.1	62.1	62.1
WhatsApp	53	22.1	22.1	84.2
Instagram	7	2.9	2.9	87.1
YouTube	18	7.5	7.5	94.6
Twitter	13	5.4	5.4	100.0
Total	240	100.0	100.0	

Table 3: Correlation analysis – employee's perspective

Variables	Familiarity with CS	Login to CS accounts from office	Hours using CS accounts from office	Employee productivity
Familiarity with CS	1	0.227**	0.157*	-0.208**
Login to CS accounts from office	0.227**	1	0.782**	-0.265**
Hours using CS accounts from office	0.157*	0.782**	1	-0.325**
Employee productivity	-0.208**	-0.265**	-0.325**	1

*Correlation is significant at the 0.05 level (two-tailed), **Correlation is significant at the 0.01 level (two-tailed)

Table 4: Daily digital communities' usage

Hours of Using CS Accounts from Office	Frequency	Percentage	Valid percentage	Cumulative percentage
Less than an hour	61	25.4	25.4	25.4
1 h	82	34.2	34.2	59.6
2 h	66	27.5	27.5	87.1
3 h	24	10.0	10.0	97.1
>3 h	7	2.9	2.9	100.0
Total	240	100.0	100.0	

Table 5: Daily Login to digital communities' accounts

N of Login to CS Accounts from Office	Frequency	Percentage	Valid percentage	Cumulative percentage
Once a day	11	4.6	4.6	4.6
Twice a day	25	10.4	10.4	15.0
3 times a day	38	15.8	15.8	30.8
4 times a day	38	15.8	15.8	46.7
>4 times	128	53.3	53.3	100.0
Total	240	100.0	100.0	

Table 6: Correlation analysis – client's perspective

Variables	Employee productivity - client perspective	CS usage by employee - client perspective
Employee productivity - client perspective	1	-0.198**
CS usage by employee - client perspective	-0.198**	1

**Correlation is significant at the 0.01 level (two-tailed)

Table 7: Model summary

Model	R	R ²	Adjusted R ²	SE of the estimate
1	0.362 ^a	0.131	0.120	0.73139

Predictors: (Constant), Familiarity with CS, Login to CS Account from Office, Hours using Cyberspace accounts from office. SE: Standard error

Table 8: ANOVA (one-way analysis of variance analysis)

Model	Sum of squares	df	Mean square	F	Significant
1					
Regression	18.995	3	6.332	11.837	0.000 ^b
Residual	126.245	236	0.535		
Total	145.240	239			
2					
Regression	9.004	1	9.004	9.743	0.002 ^b
Residual	219.957	238	0.924		
Total	228.961	239			

^aDependent variable: Employee productivity^[1], employee productivity-client perspective^[2], ^bPredictors: (Constant), familiarity with CS^[1], login to CS accounts from office^[1], hours using CS accounts from office^[1], CS usage by employee-client perspective^[2]

Table 9: Regression model results – coefficients

Model	Unstandardized coefficients		Standardized coefficients (β)	T	Significant
	B	SE			
1					
Constant	4.165	0.200		20.821	0.000
Familiarity with CS	-0.083	0.032	-0.163	-2.608	0.010
Login to CS accounts from office	-0.164	0.052	-0.238	-2.908	0.005
Hours using CS accounts from office	-0.215	0.067	-0.312	-3.202	0.002
2					
Constant	3.517	0.135		25.999	0.000
CS usage by employee-client perspective	-0.163	0.052	-0.198	3.121	0.002

^aDependent variable: Employee productivity, ^bDependent variable: Employee productivity-client perspective

different from other studies in which only the employee's point of view is considered. We gathered and included the opinions of clients to analyze the relationship between Cyberspace Activities at Office Time and Employees' Productivity.

The Table 6 presents the significant negative correlation ($r = -0.198, P < 0.01$) between CS usage by employees and employees' productivity from clients' perspective. The results suggest that the use of cyberspace during working hours can lead to a decline in productivity among government employees. Therefore, based on the collected data, we support the hypothesis that the amount of time spent using cyberspace and logging into cyberspace accounts from the office negatively correlated with employee's productivity.

The determinants of employee productivity as hypothesized in the study model were found using regression analysis. Regression analysis therefore aimed to quantify the impact of each independent variable on the dependent variable. Table 7 displays the conclusions.

The regression coefficient for all sorts of Cyberspace Activities at Office Time (SAO) was calculated as $r = 0.362$ based on the data mentioned earlier. The dependent variable's variance as a result of changes in the independent variable is shown by the modified R² coefficient of determination, which was $R^2 = 0.131$. This demonstrates that the three forms of SAO can account for roughly 13% of employee productivity in government departments. This demonstrates the importance of the entire concept. In other words, social media use at work has a general negative impact on employee productivity.

To evaluate the significance of the various models in the study, one-way analysis of variance (ANOVA) was employed. Table 8 displays the results.

According to Table 8, which has an F-value of 11.83, the model is statistically significant ($\text{sig.} = 0.000$). It confirmed by the model's significance threshold of < 0.05 that there is a correlation between employee productivity and the study's independent variables. To analyze the effects of the three variables simultaneously, a regression model was also employed. Table 9 displays the conclusions based on the findings.

The results also showed that a unit rise in Familiarity with CS would cause a factor of 0.083 (8.3%) decline in employee productivity. Additionally, a unit rise in Login to CS Accounts from Office would result in a factor of 0.164 (16.4%) less employee productivity. The study also showed that a unit increase in Hours using CS accounts from office would result in a factor of 0.215 (21.5%) loss in employee productivity. In addition, according to the findings, the study showed a statistically significant correlation with $P < 0.05$ for the client perspective part, which disclosed that a unit rise in CS usage by Employee-Client Perspective a reduction of 0.163 (16.3%) factor in employee productivity, could be expected.

The results showed that Familiarity with CS ($P = 0.010$), Login to CS Accounts from Office ($P = 0.005$), Hours using CS Accounts from office ($P = 0.002$) and CS Usage by Employee-Client Perspective ($P = 0.002$) were all significantly

important in predicting employee productivity in government organizations. This was since the P values were less than 0.05. Thus, the results clearly demonstrate the extent of the relationship between employee productivity in the public sector and SAO.

5. CONCLUSION

Based on the analysis of the data, it can be concluded that cyberspace activities at office time have a detrimental impact on employee productivity in the public sector. The study found a negative correlation between familiarity with cyberspace, login to cyberspace accounts from the office, and hours using cyberspace accounts from the office with employee productivity. Additionally, analysis from client's data confirmed the negative relationship between cyberspace usage by employees and employee productivity. The regression analysis revealed that cyberspace activities at office time accounted for a significant portion of the variance in employee productivity. These findings highlight the importance of minimizing cyberspace distractions during work hours to enhance employee productivity in government organizations.

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