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The Role of Learning Digital Systems in Improving Employee Productivity

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ABSTRACT

In the contemporary competitive landscape, organizational productivity stands out as the paramount objective, rooted in a philosophy and approach dedicated to refining strategies. The pursuit of productivity is envisioned as an overarching principle that must seamlessly permeate every sector of society, akin to an interconnected chain. Governments, facing the formidable challenge of optimizing productivity, grapple with the task of establishing comprehensive systems grounded in technology and information, extending to encompass human development programs. The study, a descriptive and applied investigation, casts a wide net over all public office personnel within Balkh Province. The findings illuminate the prevailing composition of government workers, encompassing 110 individuals with 41 Bachelor's degrees, 59 Bachelor's degrees, 8 Master's degrees, and one Doctorate degree. Employing a 25-question questionnaire with an alpha value of 0.82, indicative of good reliability, the study delves into the perspectives of respondents. According to their views, effective factors in corporate training include the integration of computers in the curriculum, substantial investment in enhancing employee capabilities, and the organization of training workshops. These insights contribute to a comprehensive understanding of the dynamics influencing productivity in the given organizational context.

1. INTRODUCTION

Employee training and development programs are crucial for achieving business success on a global scale. These programs provide opportunities for employees to enhance their skills while also enhancing productivity and organizational culture for employers, ultimately reducing employee turnover. In 2020, a career institute report estimated employee turnover costs American companies over $360 billion annually. (Bob Nelson), author of the book "1001 Ways to Attract Employee Participation," emphasizes that learning and development are crucial factors in promoting employee participation [1]. Continual effort is necessary to enhance employee performance through training courses, which provide new information, skills, and often lead to career advancement. In today's competitive world, organizations strive for productivity as the main goal. Productivity is a philosophy and improvement strategy that includes activities across all sectors of society. By effectively using resources such as labor, capital, materials, energy, and information, the mission of management and the main goal of managers is achieved. (Odden, 1995) The proper and efficient utilization of production factors, including both goods and services, has become a national

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priority worldwide [2]. It is widely recognized that productivity is essential for the continued prosperity of societies, and thus its importance cannot be disregarded [3].

Since the human resource factor is widely recognized as intelligent and able to coordinate other factors amongst the production factors, it holds a crucial role in both increasing and decreasing the productivity of an organization. Thus, it occupies a unique and essential position and warrants special attention. If an individual possesses the drive, skills, and efficacy, they can effectively utilize resources and achieve various levels of productivity, thereby contributing to organizational productivity. However, a lack of motivation and active participation from employees can lead to stagnation and hindrance to progress within the organization. The promotion of productivity in the healthcare sector is crucial given its unique challenges, such as resource constraints, universal demand for healthcare, absence of economic prioritization, and reliance on human expertise [4-5]. These factors magnify the importance of productivity in this field. However, one may wonder:

How can human efficiency be enhanced or productivity increased? It is a question that institutions and organizations answer according to their mission and employees' needs. Objective analysis is essential for identifying and addressing these differences. While these needs and factors may be similar, the intensity and priority of their impact on employee productivity varies. In general, organizations' activities are influenced by multiple factors, which can be effectively analyzed and understood to enhance performance and attain overarching objectives.

On the other hand, productivity depends on several factors that differ between organizations due to their missions, activities, operations, and other variables. Furthermore, the significance and impact of these factors on organizational productivity are not uniform. Consequently, organizations cannot excel in all areas and aspects simultaneously. To achieve optimal productivity, identifying and prioritizing key factors according to scientific standards and criteria is essential. From there, developing specific plans and implementing them effectively can lead to improved productivity [6-7]. In terms of research methodology, this approach fosters a more objective and systematic approach to enhancing productivity.

1.1. Research Methodology:

The present study is characterized as descriptive applied research, comprising all government office workers, private entrepreneurs, and students within Mazar-i-Sharif as its statistical population. The questionnaire, designed with a five-choice Likert format, has been distributed to a sample size of (110) individuals chosen randomly. Data collection entailed entering filled-in questionnaires into SPSS 25 software, with descriptive and inferential statistical analyses conducted thereafter.

Descriptive statistics were employed to depict individual questionnaire characteristics, while inferential statistics were utilized to validate or nullify hypotheses. A one-sample t-test was performed for hypothesis testing and assessing collinearity, and Friedman's test was applied for variable ranking.

1.2. Hypotheses

1.2.1. Main hypothesis

This study hypothesizes that the adoption and utilization of digital systems significantly contribute to the enhancement of employee productivity.

1.2.2. Sub-Hypotheses

It is hypothesized that computer training, along with familiarity and effective use of information technology, has a positive impact on the productivity of disadvantaged or marginalized employees.

It is further hypothesized that employees' familiarity with digital systems, in conjunction with the recruitment of qualified experts, is positively associated with overall workforce productivity.

2. RESEARCH BACKGROUND

The rapid advancement of digital technologies has transformed various aspects of organizational operations, significantly affecting employee productivity. This literature review explores the critical role of learning digital systems in enhancing productivity across diverse sectors, including human resource management, education, manufacturing, and agriculture. By synthesizing the findings from recent research, this review highlights how digital systems facilitate improved workflows, employee engagement, and overall organizational efficiency.

Recent advancements in HMI technologies show promise in enhancing productivity through improved interactions between humans and machines. The integration of machine learning and neural interfaces within wearable HMIs can create more intuitive and responsive systems tailored to individual user needs. This adaptability is crucial in fostering efficient workflows and enhancing user experiences, ultimately leading to increased employee productivity [8]. As organizations embrace these technologies, the potential for significant productivity gains becomes evident, particularly in environments that prioritize advanced digital systems.

Digital transformation in human resource management (HRM) has emerged as a key driver of employee productivity. By streamlining HR processes such as employee selection, training, and assessment through digital platforms, organizations can enhance employee satisfaction and engagement . The emphasis on adopting digital HR processes illustrates how learning and adapting to these systems can lead to improved productivity. Moreover, AI-assisted HRM applications further support this notion by providing better resources and engagement opportunities for employees [9].

The concept of personalized learning through digital systems is crucial in fostering employee engagement and productivity. For instance, a digital badge system designed for teachers allows for customized professional development experiences, aligning with individual needs and workplace constraints [10]. This personalization encourages employees to take charge of their learning, directly impacting their productivity and job satisfaction. Such tailored opportunities are essential in an era where employee performance is increasingly linked to individualized development paths.

The digital economy has significantly influenced manufacturing productivity, particularly in the context of green initiatives. Research indicates that organizations that integrate digital technologies into their manufacturing processes experience enhanced operational efficiency and innovation [11]. This integration not only improves productivity but also fosters a workforce capable of adapting to evolving digital systems. As manufacturing continues to embrace digital transformation, the link between these systems and employee productivity becomes increasingly evident.

The utilization of enterprise social networks (ESNs) has been shown to enhance knowledge sharing among employees, which in turn boosts productivity. Aboelmaged (2018) emphasizes the motivational drivers behind knowledge sharing through ESNs, highlighting that when employees engage in collaborative environments, their productivity significantly increases [12]. This reinforces the importance of learning to navigate and effectively utilize digital platforms for improved communication and collaboration within organizations.

Digital literacy has emerged as a critical factor in enhancing employee productivity and employability in the 21st-century workforce. By equipping individuals with essential digital skills, organizations can improve academic performance and workplace readiness [13]. This emphasis on digital literacy highlights the need for continuous learning in adapting to digital systems, ultimately contributing to improved employee performance.

The integration of digital tools for tracking productivity and engagement has transformed how organizations evaluate workforce effectiveness. As Burnett and Lisk (2019) note, real-time data analysis allows organizations to rethink traditional measurement methods, leading to enhanced employee performance and satisfaction. This ability to monitor and adapt based on digital insights underscores the importance of learning to utilize these systems effectively [14]. While the potential of AI to enhance productivity through improved decision-making is recognized, ethical implications also arise. The balance between leveraging AI for productivity gains and ensuring ethical governance is essential for maximizing employee productivity while minimizing risks [15]. Understanding how to navigate these complexities is vital for organizations aiming to implement AI responsibly within their digital systems.

Despite the positive correlation between learning digital systems and employee productivity, several knowledge gaps remain. Future research could focus on:

Longitudinal Studies: Investigating the long-term impacts of digital system integration on employee productivity across various industries.

Sector-Specific Studies: Exploring the unique challenges and opportunities presented by digital systems in different sectors, such as healthcare, education, and manufacturing.

Employee-Centric Approaches: Examining how employee perceptions of digital systems influence their engagement and productivity.

Ethical Frameworks: Developing frameworks for the ethical use of AI and digital tools in enhancing productivity while considering employee well-being.

The integration of digital systems in the workplace plays a pivotal role in enhancing employee productivity. From advancements in HMI technologies to personalized learning opportunities and effective measurement tools, the findings highlight the importance of learning and adapting to these digital systems. As organizations continue to navigate the digital landscape, fostering an environment that promotes continuous learning and ethical considerations will be crucial for maximizing productivity and employee satisfaction.

3. FINDINGS

Table 1. Descriptive statistics regarding the position of the community

education			Frequency	Percent	Valid Percent	Cumulative Percent
Baccalaureate	Valid	Employee Government	40	97.6	97.6	97.6
		student	1	2.4	2.4	100.0
		Total	41	100.0	100.0	
Bachelor's degree	Valid	Employee Government	1	1.7	1.7	1.7
		Student	59	98.3	98.3	100.0
		Total	60	100.0	100.0	
Master	Valid	Private entrepreneur	8	100.0	100.0	100.0
PHD	Valid	Private entrepreneur	1	100.0	100.0	100.0

Table (1) shows the descriptive statistics of the respondents in relation to their social status, including (110) tons, (41) tons of bachelors, (60) tons of bachelors, (8) tons of masters and (1) tons of doctors. Among the (41) baccalaureates, 40 are government employees and one are students, and among the (60) one are government employees and 59 are students. And recently, there are 9 private entrepreneurs, 8 of whom are masters and one is a doctor. Table 2 displays the descriptive statistics of the participants categorized by gender and age. The sample consists of 110 individuals with a high school diploma, 41 participants with a bachelor's degree, 60 participants with a master's degree, 8 participants with a PhD, and no individuals with other educational backgrounds.

In total, individuals with a Bachelor's degree were within the age range of 20 to 30. Among them were 60 individuals with a Bachelor's degree, 53 of whom were between the ages of 20 to 30, six were between 31 and 40, and one was negative 51 years old. Additionally, eight individuals with a Master's degree were within the same age range, whereas three were between 20 and 30, two were between 31 and 40, two were between 41 and 50, and one was between 51 and 60. Among them was a doctor who was between 41 and 50 years old.

Table 2. Descriptive statistics of respondents by age and level of education

Education			Frequency	Percent	Valid Percent	Cumulative Percent
Baccalaureate	Valid	20-30	41	100.0	100.0	100.0
Bachelor's degree	Valid	20-30	53	88.3	88.3	88.3

		31-40	6	10.0	10.0	98.3
		51-60	1	1.7	1.7	100.0
		Total	60	100.0	100.0	
Master	Valid	20-30	3	37.5	37.5	37.5
		31-40	2	25.0	25.0	62.5
		41-50	2	25.0	25.0	87.5
		51-60	1	12.5	12.5	100.0
		Total	8	100.0	100.0	
PHD	Valid	41-50	1	100.0	100.0	100.0

Table 3. Descriptive statistics of respondents by education level and civil status

Education			Frequency	Percent	Valid Percent	Cumulative Percent
Baccalaureate	Valid	Single	30	73.2	73.2	73.2
		Married	11	26.8	26.8	100.0
		Total	41	100.0	100.0	
Bachelor's degree	Valid	Single	36	60.0	60.0	60.0
		Married	24	40.0	40.0	100.0
		Total	60	100.0	100.0	
Master	Valid	Single	1	12.5	12.5	12.5
		Married	7	87.5	87.5	100.0
		Total	8	100.0	100.0	
PHD	Valid	Married	1	100.0	100.0	100.0

Table (3) shows the descriptive statistics of the respondents by education level and civil status. The results of the descriptive statistics show that out of (110) people, (41) people are non-Koreans, of which (30) people are single and (11) people are married. Out of (60) bachelors, (36) are single and (24) are married. Among them (8) masters, (1) were single and (7) were married. Recently, a doctor whose civil status is married.

Table 4. alpha Cronbach's test

Cronbach's Alpha	N of Items
0.821	25

This test is used to check the validity of the questionnaire. If the value of Cronbach's alpha is smaller than 0.7; The questionnaire has no validity (that is, there are more disturbing variables; a disturbing variable is a variable that prevents the researcher from reaching his goal. The task of the researcher is to prevent the disturbing variable. In this questionnaire, the disturbing variables have been prevented as much as possible. Because every The value of the disturbing variable is greater; the internal validity of the research decreases as well.) The alpha value obtained is equal to (0.821), which is acceptable.

Table 5. Friedman descriptive statistics

	Mean Rank
Incorporating computer education in the curriculum of schools is considered essential in the modern era.	18.08
Computer education is included in the basic curriculum of all faculties without exception.	14.70
For better productivity, employees, companies and entrepreneurs should provide private in-service training to provide computer training for their employees.	13.87
Considering the standard of computer literacy in hiring employees, individuals and communities are encouraged to offer computer training and digital programs.	12.96
The use of information and communication technology reduces administrative costs.	13.73

Competition in the labor market is impossible without learning digital systems.	10.09
Accelerated action is one of the basic components of learning digital systems in improving the productivity of workers.	11.89
Training and development capacity of specialized workers, foundational partnership workers in the management organization.	13.20
Collaborative management style without learning digital system is considered impossible.	10.35
Better productivity of employees can be achieved by acquiring specialized knowledge.	15.23
Conducting workshops and educational seminars leads to growth and development of human capital.	15.99
In-service training should be included in short-term and long-term plans.	12.56
Dispatch workers to teach digital systems and exchange experiences to the youth of the developed world.	13.52
Financial support of senior management, under the supervision of permanent management of human resources, public and private institutions, to follow training courses, computer staff related.	10.94
Knowledgeable employees of digital systems, the desired effects in the cost and quality work in profitable production institutions.	11.50
Trained and expert employees are responsible for the satisfaction of customers, clients and the development of the organization's credibility.	13.45
Learning digital systems will play an important role in the development of professional workers.	12.10
Local workers with digital systems, a large volume of information issued by senior management, will inform the entire organization in a short period of time.	12.43
Trained and expert workers can make the process of accounting and auditing accurate in a short period of time.	14.19
The use of modern educational methods will reduce educational costs to a minimum.	12.91
The use of effective training methods, the efficiency of training adults in the organization is simplified.	11.10
Traditional educational institutions will not be able to cope with challenges such as: maintaining the workforce and eliminating competitors, they are not competitive in the market.	11.91
The permanent process of education balances the three pillars of the basic economy (production, distribution and consumption).	12.25
In the modern education system, the presence of students and teachers in the scheduled classes was not required. This process can take place in different geographies.	12.07
Electronic books and audio and video lessons have improved the efficiency of self-learning for employees in the organization and have a constructive role in their productivity.	13.97

According to the respondents surveyed in the Friedman test, adding computer education to the school curriculum is deemed necessary in the modern era (18.08). Additionally, a majority of respondents (15.23) believe that specialized knowledge acquisition leads to improved employee productivity. Educational workshops and seminars lead to growth and development of human capital (15.99). Thus, organizations should include training courses in their short-term and long-term plans, aiming to improve the productivity of employees (12.56).

From the perspective of the respondents, maintaining the workforce and eliminating competition have the least impact on employee productivity (11.91), while utilizing effective methods facilitates adult training within the organization (11.15). Learning digital systems is deemed essential for management success (10.35) and competition in the market (10.09).

Table 6. One Sample t test

	N	Mean	Std. Deviation	Std. Error Mean
Incorporating computer education in the curriculum of schools is considered essential in the modern era.	110	4.8364	0.53376	0.05089
Computer education is included in the basic curriculum of all faculties without exception.	110	4.4818	0.73861	0.07042
For better productivity, employees, companies and entrepreneurs should provide private in-service training to provide computer training for their employees.	110	4.4000	0.73197	0.06979
Considering the standard of computer literacy in hiring employees, individuals and communities are encouraged to offer computer training and digital programs.	110	4.2727	0.85573	0.08159
The use of information and communication technology reduces administrative costs.	110	4.3909	0.76740	0.07317

Competition in the labor market is impossible without learning digital systems.	110	3.8727	1.05020	0.10013
Accelerated action is one of the basic components of learning digital systems in improving the productivity of workers.	110	4.1545	0.89017	0.08487
Training and development capacity of specialized workers, foundational partnership workers in the management organization.	110	4.2818	0.85812	0.08182
Collaborative management style without learning digital system is considered impossible.	110	3.9182	1.10156	0.10503
Better productivity of employees can be achieved by acquiring specialized knowledge.	110	4.5091	0.82111	0.07829
Conducting workshops and educational seminars leads to growth and development of human capital.	110	4.6182	0.66335	0.06325
In-service training should be included in short-term and long-term plans.	110	4.2636	0.76239	0.07269
Dispatch workers to teach digital systems and exchange experiences to the youth of the developed world.	110	4.3455	0.86137	0.08213
Financial support of senior management, under the supervision of permanent management of human resources, public and private institutions, to follow training courses, computer staff related.	110	4.0545	0.90702	0.08648
Knowledgeable employees of digital systems, the desired effects in the cost and quality work in profitable production institutions.	110	4.1273	0.86850	0.08281
Trained and expert employees are responsible for the satisfaction of customers, clients and the development of the organization's credibility.	109	4.3394	0.79606	0.07625
Learning digital systems will play an important role in the development of professional workers.	109	4.1743	0.84814	0.08124
Local workers with digital systems, a large volume of information issued by senior management, will inform the entire organization in a short period of time.	110	4.2091	0.85773	0.08178
Trained and expert workers can make the process of accounting and auditing accurate in a short period of time.	110	4.4364	0.71070	0.06776
The use of modern educational methods will reduce educational costs to a minimum.	110	4.2455	0.90042	0.08585
The use of effective training methods, the efficiency of training adults in the organization is simplified.	110	4.0182	1.01350	0.09663
Traditional educational institutions will not be able to cope with challenges such as: maintaining the workforce and eliminating competitors, they are not competitive in the market.	110	4.1455	0.96580	0.09209
The permanent process of education balances the three pillars of the basic economy (production, distribution and consumption).	110	4.1455	1.01219	0.09651
In the modern education system, the presence of students and teachers in the scheduled classes was not required. This process can take place in different geographies.	110	4.1455	0.90702	0.08648
Electronic books and audio and video lessons have improved the efficiency of self-learning for employees in the organization and have a constructive role in their productivity.	110	4.4000	0.81500	0.07771

Table 8 displays the outcomes of a sample t-test. According to the respondents' perspectives, the inclusion of computer topics in the school curriculum (4.83), the integration of computers in all faculties (4.81), the reduction of administrative expenses (4.39), and the growth and development of the workforce through workshops (4.62) have the most impact. However, they have the least impact on enhancing employee productivity by learning digital systems. According to respondents, learning digital systems (3.8) is necessary to compete in the job market. The use of a collaborative management style (3.91) has the greatest impact on learning digital systems and improving employee productivity.

4. CONCLUSION

one of the most critical challenges for governments in implementing technology and information-based comprehensive systems is the human development programs. As communication and information technology has revolutionized several daily work procedures, this research is descriptive and applied in nature. The study's statistical population comprises all government officials employed in Balkh province's offices. The majority of these individuals are government employees.

The results demonstrate that among 110 individuals, 41 hold a Bachelor's degree, 59 have completed a Bachelor's degree, 8 have earned a Master's degree, and 1 possess a Doctorate. The majority of these individuals are government employees. The survey comprised 25 questions. The alpha coefficient obtained was 0.82, indicating good internal consistency. The results indicated that according to respondents, effective measures include computer integration into the curriculum, investment in employee capacity building, and organizing training workshops.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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