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Designing a Human Resource Productivity Model with a Focus on Occupational Health and Safety Management Systems

Atheer Mahdi Hameed[1], Saeid Aghasi[2]*, Husam Hussein Shyaa Alsalami[3], Sayyed Mohammad Reza Davoodi[4]

1. PhD Student in Public Administration - Human Resources, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
2. Assistant Professor, Social and Cultural Researches Center, Dehaghan Branch, Islamic Azad University, Dehaghan, Iran
3. Assistant Professor, Department of Business Administration, Faculty of Management and Economics, Karbala University, Karbala, Iraq
4. Associate Professor of Social and Cultural Researches Center, Dehaghan Branch, Islamic Azad University, Dehaghan, Iran

***Correspondence: Sae_aghasi@yahoo.com**

Abstract

Occupational health and safety management is a critical aspect of organizational success, emphasizing the creation of safe work environments that enhance employee well-being and productivity. Occupational health and safety management not only ensures regulatory compliance but also contributes to economic benefits and improves the organizational image. The present study aims to design a human resource productivity model with a focus on occupational health and safety management systems. The study is applied in terms of its objective and employs a survey methodology. The research follows a qualitative approach. Accordingly, the research method is exploratory-applied based on its objective. The statistical population of the study includes university professors and industry managers in the construction sector in the city of Karbala. The sample size consists of 10 construction industry managers selected using the snowball sampling method. The thematic analysis method was used for data analysis. The research instrument was a semi-structured interview. The findings indicate that the most influential factors in human resource productivity, with a focus on occupational health and safety management systems, include job creation, scientific training and development, establishing effective communication, risk management, and providing rewards and incentives. One of the key recommendations of this study is the use of modern technologies by organizations to identify, assess, and control risks. Additionally, continuous monitoring and improvement can also be effective. In other words, organizations should consistently monitor the performance of their risk management systems and take necessary actions for improvement.

Keywords: Human resource productivity, safety management, occupational health

1. Introduction

Occupational health issues negatively impact quality of life, contribute to both work-related and non-work-related fatalities, and lead to forced retirements (Kurniawan et al., 2024). Reliable human resources play a strategic role in the era of global competition. Human resources are the most valuable asset of an organization, and effective management is the key to success. Organizations must maximize their human resources to operate optimally in order to achieve their goals. Human resources are essential for the continuity and advancement of an organization; therefore, special attention should be given to employees. One of the fundamental components of an organization that requires attention is the occupational health and safety management system. These influential elements should be regarded as an integral part of the activities, as well as the quality of products, goods, and services produced by organizations (Rios-Avila, 2020; Wariati & Wardani, 2023).

Every organization must implement occupational health and safety management activities to ensure that workers can continue their tasks without fear of workplace accidents and injuries. Although industry managers have numerous responsibilities and obligations, they are legally bound by labor laws to uphold fundamental safety and health regulations to prevent human injuries and losses. The critical issue here is how these activities should be planned, as this constitutes the most important pillar of sustainable human resource development (Mavroulidis et al., 2022). Without attention to human resources, no process can be successfully or efficiently realized. From a traditional perspective, focusing on production volume without considering employees' dignity and lack of training implies a failure to recognize potential workplace challenges, which may pose threats to workers. Therefore, the modern management approach, which prioritizes workforce protection, is a crucial principle in organizational management policies. To prevent unforeseen accidents among employees and safeguard their physical and mental health, concepts such as occupational health and safety management have emerged (Miller & Le Breton-Miller, 2021).

A safety management system is structured based on key components, including leadership and commitment, policies and strategic objectives, organizational resources and documentation, risk assessment and management, planning, implementation, and monitoring. The research and development of occupational health and safety management systems in the workplace should be carried out through a logical process and continuous improvement. This can be achieved through policy creation, evaluation, audits, and corrective actions. Some scholars argue that organizations are governed by the industries to which they belong and must take necessary steps to meet key performance indicators for effectiveness and productivity. Therefore, they organize, integrate, direct, and control resources to maximize profits. In this regard, a well-defined strategy that generates positive social impact benefits an organization in all aspects (Jiménez & Rosa, 2017).

Indicators that enhance labor productivity in organizations are fundamentally linked to a nation's economic prosperity, which depends on the ability of its industries to maintain high and stable operational capacity. As an organization, it is crucial to optimize resource utilization in product delivery while being managed by individuals committed to maximizing these resources. According to productivity researchers, productivity represents the relationship between output (goods or services) and input (employees, materials, and capital). Productivity serves as a measure of production efficiency (Calligaris et al., 2016).. Comparisons between output and input are often constrained by workforce limitations, while output is measured in terms of its physical characteristics, form, and value. Productivity is the comparison between the production outcomes achieved by employees and all the resources utilized by the company to carry out production activities within a specific time unit (Padriansyah & Firmansyah, 2021). Productivity can also be defined as the relationship between input and output, wherein work results are derived from employees' activities within the organization based on assigned workloads (Rios-Avila, 2020).

According to productivity researchers, productivity refers to how organizations produce or maximize the output of goods and services by optimally utilizing human resources. Therefore, productivity is frequently interpreted as the ratio of output to input within a given unit of measurement. The National Productivity Council describes productivity as a continuous approach to ensuring that the quality of life improves day by day, aiming for a better tomorrow than today. The key aspects that must be reviewed to ensure high productivity include workforce management capabilities, labor efficiency factors, and workplace environmental conditions. Corporate productivity consists of both machine or equipment productivity and human resource productivity. In the context of workforce productivity, several experts have concluded that employee productivity is an activity that contributes to the success of a project or product in terms of job responsibilities assigned to employees within a specified period. Productivity is the ratio between the potential output that can be generated through overall enthusiasm and the satisfaction achieved through employees' dedication (Carreño et al., 2020; Chi et al., 2023).

Having innovative ideas to maintain customer satisfaction and improve employee well-being is essential, as these factors contribute to increased organizational productivity. One of the primary means of achieving this is through the implementation of occupational health and safety programs. Such programs should be available to all employees, particularly those in field operations, with the aim of fostering motivation and encouraging employees to work more productively. By aligning these two aspects effectively, companies must also implement managerial disciplines to enhance productivity (Padriansyah & Firmansyah, 2021). Workforce productivity is influenced by conditions where conflicts arise due to misalignment in objectives and the manifestation of different opposing behaviors among individuals, groups, or organizations (Hardani et al.,

2020). These conflicts are shaped by differences in opinions, inconsistencies, and the presence of other indicators that exacerbate disputes. Such attitudes can result in two possible outcomes: on the one hand, they may drive employees to compete in demonstrating superior performance, thereby increasing productivity. Conversely, unresolved conflicts may lead to decreased employee productivity. Therefore, effective conflict management is necessary to improve relationships between employees, their supervisors, and colleagues, ensuring sustained and enhanced organizational productivity.

Accordingly, this study seeks to address the following research question:

- What is the model for human resource productivity with a focus on occupational health and safety management systems?

2. Methods and Materials

Given that the objective of this study is to design a human resource productivity model with a focus on occupational health and safety management systems, the research methodology is classified as exploratory-applied based on its purpose. In terms of data collection timing, the study is cross-sectional, while from a philosophical perspective, it follows an inductive-deductive approach. Regarding data collection methods and the nature of the research, it is a survey-based study. The thematic analysis method was used to conduct the research. The thematic analysis approach involves the application of qualitative methods aimed at identifying, categorizing, and extracting concepts based on the perspectives of experts and relevant specialists.

The statistical population comprises university professors and managers from the construction industry in the city of Karbala. The sampling method used was snowball sampling, with 10 experts from Iraq being interviewed. The sampling method in this study is theoretical and purposive, meaning that participants were selected based on their expertise and prominence in the field. The data collection tool for the qualitative section was semi-structured interviews. To ensure validity and reliability, Creswell's eight strategies for verifying research findings were applied.

3. Findings and Results

Table 1 presents the demographic characteristics of the study participants, including their average age, work experience, and level of education in the relevant research field.

Table 1. Demographic Characteristics of the Surveyed Experts

Group	Sample Size	Average Age	Average Work Experience	Master's Degree (%)	Doctoral Degree (%)
Construction Industry Managers	5	38.66	13.50	80	20
University Professors and Experts	5	42.33	15.35	0	100

Analysis of the participants' average age indicates that university professors and experts had the highest mean age of 42.33 years, while construction industry managers had the lowest mean age of 38.66 years. Regarding work experience, university professors and experts had the highest average of 15.35 years, whereas construction industry managers had a lower average of 13.50 years. Among the study participants, six individuals held doctoral degrees, and four held master's degrees.

A segment of the interview transcript from one of the interviewees is presented in the following:

"Continuous safety training for employees is one of the primary methods for improving occupational health and safety in the workplace. This measure can directly and indirectly impact human resource productivity. Continuous safety training increases employees' awareness and knowledge regarding safety and occupational health issues. This information encourages individuals to better recognize risks and adopt safety measures, ultimately enhancing human resource productivity. Training employees on safety methods and accident prevention can reduce workplace injuries and accidents. This initiative not only supports employee health and safety but also reduces costs associated with workplace incidents. Providing ongoing safety training fosters employees' trust in the organization and enhances job commitment. This leads to increased job satisfaction and productivity. Continuous safety training also helps cultivate a safety culture within the organization, shifting employees' perceptions of the importance of occupational health and safety. Employees who receive proper safety training typically exhibit higher productivity and efficiency. Therefore, continuous safety training can directly and indirectly contribute to human resource productivity and the improvement of workplace health and safety. Additionally, mental health training for employees plays a crucial role in enhancing human resource productivity and workplace health and safety. Mental health training helps

reduce stress and anxiety among employees, increasing job satisfaction, concentration, and overall productivity. It also teaches stress management skills, allowing employees to handle tasks more effectively. Furthermore, mental health training improves workplace communication, fostering better coordination and collaboration. Providing mental health education can prevent declines in efficiency and workplace accidents. Employees with strong mental health tend to be more effective in their roles."

After analyzing the identified codes (open codes) obtained from the expert interviews, the final step involved defining and naming the themes. The findings indicate that the most critical factors influencing human resource productivity with a focus on occupational health and safety management systems include job creation, scientific training and development, effective communication, risk management, and the provision of rewards and incentives. Each of these core components also contains subcategories, as presented in Table 2.

Table 2. Extracted Secondary Codes for Human Resource Productivity with a Focus on Occupational Health and Safety Management Systems

No.	Objective	Research Dimensions	Extracted Secondary Codes
1	Human Resource Productivity with an Occupational Health and Safety Approach	Job Creation	Assessing Organizational Vulnerability
2			Continuous Monitoring and Evaluation of Safety Systems
3			Evaluating Work-Related Stress Levels
4			Creating a Suitable Work Environment
5		Scientific Training and Development	Continuous Safety Training for Employees
6			Mental Health Training
7			Accident Prevention Training
8			Ergonomics Training
9		Effective Communication	Transparency in Employee Safety Information
10			Socialization of Safety and Health Measures
11			Promoting Open Communication Between Managers and Employees
12			Training in Safety Communication Skills
13		Risk Management	Developing Risk Mitigation Strategies
14			Comprehensive and Periodic Risk Assessments
15			Utilizing Technology for Risk Identification
16			Encouraging Employee Participation in Risk Reduction
17		Rewards and Incentives	Promotion and Increased Job Responsibilities
18			Developing Incentive Programs for Safety Enhancement
19			Providing Financial and Non-Financial Rewards
20			Encouraging a Positive Organizational Culture

The final model derived from the study's indicators and secondary codes is presented in Figure 1.

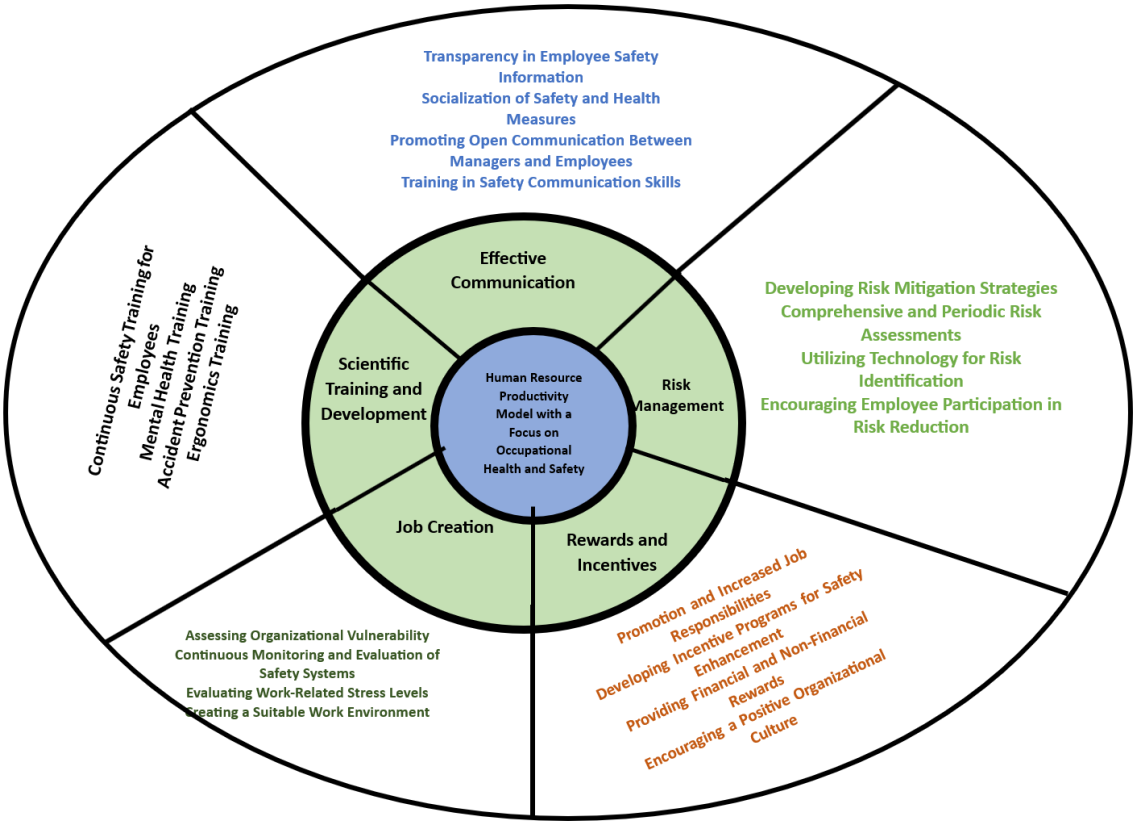

Figure 1. Final Model Derived from the Study's Secondary Codes

4. Discussion and Conclusion

This study aimed to design a human resource productivity model with a focus on occupational health and safety management systems. The research employed thematic analysis to answer the following key question: how can a model for human resource productivity be designed with a focus on occupational health and safety management systems? Through thematic analysis, seven key dimensions were identified, including job creation, scientific training and development, effective communication, risk management, and the provision of rewards and incentives.

In explaining these findings, it can be stated that, in general, risk management within Health, Safety, and Environment (HSE) systems directly and indirectly impacts human resource productivity. This relationship can be examined from two perspectives. First, reducing workplace accidents and occupational diseases is a significant factor. By identifying, assessing, and controlling occupational health and safety risks, organizations can prevent workplace incidents and illnesses. This leads to a reduction in employee absenteeism, lower medical and insurance costs, and increased employee presence and focus in the workplace, ultimately improving productivity. Second, enhancing employee morale and motivation plays a crucial role. When employees feel safe and healthy in their work environment, their morale and motivation increase. This allows them to work with greater concentration, thereby improving their productivity (Aqel Azad et al., 2023). Additionally, occupational health and safety risks can cause stress and anxiety among employees. Effective risk management can reduce this stress and anxiety, enabling employees to work with greater calm and focus. With fewer workplace accidents and illnesses and a healthier, safer work environment, employees can better fulfill their job responsibilities, leading to improved work quality (Jiménez & Rosa, 2017; Josh, 2023). Organizations that prioritize risk management and employee health and safety are often recognized as responsible and reputable. This can help attract and retain skilled and motivated employees, which, in turn, enhances organizational productivity (Diawati et al., 2023).

In explaining the role of effective communication as a key dimension of human resource productivity within occupational health and safety management systems, it can be stated that motivated and productive employees are more engaged in risk

identification processes, suggesting improvements and implementing control measures. This engagement enhances the efficiency and effectiveness of the organization's risk management system. Productive and informed employees tend to adhere more strictly to occupational health and safety regulations, reducing the likelihood of accidents and illnesses. Experienced and productive employees can provide valuable feedback on the effectiveness of control measures, helping organizations continuously improve their risk management systems. Furthermore, employees with greater expertise in occupational health and safety can contribute to more effective risk management within the organization.

In summary, risk management is a fundamental aspect of occupational health and safety management systems, significantly influencing human resource productivity. By investing in risk management and creating a healthy and safe work environment, organizations can achieve increased productivity, reduced costs, improved employee morale, and, ultimately, long-term success. Additionally, human resource productivity plays a crucial role in the effectiveness of risk management systems.

Regarding technology-driven risk reduction, data analytics technologies can assist managers in analyzing patterns and trends in the workplace. These data analyses can lead to continuous improvements in occupational safety programs and processes. Educational and training technologies, such as virtual reality and online learning platforms, can significantly enhance employees' preparedness and training in occupational health and safety. These tools encourage employees to better recognize workplace hazards and adopt safer behaviors. Using technology as a tool for promoting a safety culture within organizations can encourage safer behaviors and greater awareness of occupational health and safety. Overall, leveraging technology in risk identification and improving occupational health and safety can enhance human resource productivity by preventing hazards, analyzing data, improving training, reducing time and costs, and fostering a stronger safety culture.

These findings align with the prior studies (Aqel Azad et al., 2023; Chi et al., 2023; Zare et al., 2023).

Organizations should prioritize safety and health by considering employee safety and well-being as a core organizational value. Investing in training and awareness is essential to ensure that employees are educated on occupational health and safety and understand the risks present in their work environment. Employee participation in risk management processes should be encouraged, and organizations should actively consider their suggestions. The integration of modern technologies can assist organizations in identifying, assessing, and controlling workplace risks more effectively. Continuous monitoring and improvement of risk management systems should be implemented to ensure ongoing effectiveness and adaptation to new workplace challenges.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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