Presentation of a Human Resource Development Model with a Focus on Sustainable Development (Case Study: Kermanshah University of Medical Sciences Hospital)

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Abstract

The present study aims to propose a human resource development model with a sustainable development approach, focusing on hospitals affiliated with the University of Medical Sciences. This research is applied in terms of its objective and employs a mixed-method approach regarding the nature of the data. The statistical population consists of 300 employees working in the hospitals of Kermanshah University of Medical Sciences. Based on Krejcie and Morgan's table, the sample size was determined to be 341 individuals, and a simple stratified random sampling method was used. A questionnaire was developed to assess the current state of human resource development programs based on a review of literature and background studies, interviews, and the Delphi technique. The validity of the questionnaire was confirmed through content validity and construct validity, and its reliability was assessed using Cronbach's alpha coefficient, yielding a value of 0.88. The findings indicated that the current state of human resource development programs showed relative satisfaction in the dimensions of "ethical," "socio-cultural," and "individual" development. However, the "organizational," "professional," and "educational" dimensions were below the average level. The final model was designed in four sections: philosophy and objectives, dimensions and components, implementation process, and model output. According to the research findings, in the section on dimensions and components, the goodness-of-fit index was estimated at 67.90, and the root mean square error of approximation was 0.06. The overall validity of the model was also confirmed by experts. Considering the identified dimensions, components, and barriers to human resource development based on sustainable development, designing effective human resource development programs in hospitals affiliated with the University of Medical Sciences is of significant importance and ensures the achievement of educational system goals.

Keywords: Human Resource Development, Sustainable Development, Kermanshah

1.   Introduction

Given the competitive business environment, access to appropriate resources is one of the most fundamental factors for an organization's success. Among these, human resources hold particular significance as a unique and distinctive resource compared to others. Unlike other resources, human resources are not subject to perishability or imitative capabilities (Dahinine et al., 2024; Khodadadi Didani et al., 2024; Kossyva et al., 2024). However, it is essential to emphasize that human

resources refer to competent and knowledge-driven individuals whose capabilities and skills are enhanced through human resource development systems and processes (Mortezavi-Fard, 2022).

Human resource development has always been one of the primary challenges for organizations. This is because humans play a central role in generating ideas, and innovation, quality, continuous growth, and other key factors essential for survival in the modern competitive business world depend on them. Human resource development focuses on preparing individuals for learning, growth, and leveraging educational opportunities to improve individual and group performance, ultimately facilitating organizational improvement (Cooper, 2004).

The ultimate goal of human resource development is to ensure organizational survival and advancement by improving job skills and competencies, increasing the necessary knowledge and information for workforce progress in production, fostering cognitive, interpersonal, and technical skills, and shaping positive attitudes for success and performance improvement. These objectives include identifying and nurturing employees' latent talents, updating their knowledge and skills, familiarizing employees with organizational goals and their roles, enhancing human resource efficiency and effectiveness, reducing waste and work-related losses, increasing employee flexibility, decreasing the need for constant supervision, improving job satisfaction, minimizing workplace accidents, creating opportunities for career advancement, and boosting employee motivation (Beigdeli et al., 2000).

Today, most manufacturing and service organizations are engaged in escalating competition, compelling them to explore new approaches to optimizing their key resources, particularly human resources. The reason is that organizations consider human resources as the principal factor in the successful implementation of policies and strategies and a key driver of sustainable development (Scher & O'Reilly, 2009).

Undoubtedly, the role of service organizations in environmental impact has become one of the major concerns of the contemporary era. This issue has led to increased public demand for adopting sustainable approaches, encompassing environmental, economic, and social needs (Hussain et al., 2018). Moreover, all organizations are expected to exert greater efforts to balance their economic, social, and environmental performance, particularly those facing social, competitive, and regulatory pressures (Ayuso et al., 2014). Achieving this balance has become a complex and sometimes controversial challenge. On the one hand, implementing effective environmental management systems to enhance environmental and social performance involves complexities; on the other hand, such measures can positively impact an organization's economic performance. Striking a balance between resource consumption and economic development is a fundamental challenge, prompting organizations to adopt environmentally friendly business practices that ultimately enhance their economic, social, and environmental performance (Haffar & Searcy, 2017).

In the healthcare sector, healthcare services hold critical importance, and considering the substantial amount of waste generated in this sector, it demands special attention from organizations concerned with environmental issues (Reston, 2015). Previous studies in this field include research by Sharifani and Marefat (2022), who conducted a study analyzing the Quranic guidance strategies for human resource development. Additionally, Hosseini-Largani and Mojtabizadeh (2021) conducted research aimed at continuous quality improvement, designing, and validating the quality assurance model for Iranian universities (Hosseini-Largani & Mojtabazadeh, 2021). Similarly, Pourmand, Zakari-Salehi, Afhami, and Karimi (2020) examined the current state of handicrafts education in Iranian art universities in the context of sustainable development discourse (Pourmand et al., 2020). Furthermore, Gill et al. (2022) explored and developed a scale for assessing the quality of business education institutions (Gill et al., 2022). A review of previous research indicates that most studies, particularly in Iran, have focused on educational approaches to sustainable development in higher education. These studies primarily discuss the necessary norms and requirements for realizing sustainable development education in the higher education system, identifying its influencing factors and prerequisites.

As mentioned earlier, limited research has been conducted on education with a sustainable development approach. Moreover, an examination of the theoretical and empirical background of the study reveals that there has been little research on human resource development with this approach. Given these findings and the lack of sufficient studies on the impact of human resource development on sustainable development in the country's hospitals, the topic of in-service training with a

sustainable development approach, especially in the field of medical sciences, requires comprehensive and in-depth investigation due to the lack of optimization in human resource development.

Accordingly, this study aims to propose a model for human resource development with a sustainable development approach in medical universities. The primary research question is: What are the characteristics of the human resource development model with a sustainable development approach, and how valid is it?

2.   Methods and Materials

In this study, a combination of interviews and questionnaires was used to identify the factors influencing human resource development. Therefore, the present research adopts a deductive-inductive approach. Accordingly, both qualitative and quantitative research methods were employed, depending on the type of data and research conditions. Initially, data were collected through exploratory studies, including a review of exploratory literature, exploratory interviews, and multiple rounds of the Delphi technique, in which the opinions of 20 experts were gathered and analyzed. Following this, a questionnaire was developed.

The sample size was determined based on Krejcie and Morgan's table, resulting in a sample of 341 employees from teaching hospitals in Kermanshah. A simple stratified random sampling method was used, and the questionnaire was distributed among the selected participants. The identified factors were then assessed through a survey study. The survey results were quantitatively analyzed to address the research questions.

To test the hypotheses and determine the effects of latent variables, Structural Equation Modeling (SEM) was applied using LISREL 8.05 software. In this study, structural equation modeling was used in two stages. The first stage involved assessing the fit of the measurement models, and the second stage involved evaluating the model and the significance of relationships between variables through path analysis. The model fit indices were numerous; however, six well-known and significant indices were used in this study.

3.   Findings and Results

The highest percentage of participants fell within the 25–30 age range, comprising 26% of the sample. Women accounted for 56% (191 individuals) of the respondents, while men comprised the remaining 44%. In terms of marital status, 18% (63 individuals) were single, while 79% (268 individuals) were married.

Regarding educational qualifications, the majority of participants (237 individuals, 69%) held a bachelor's degree. In terms of work experience, the highest frequency was observed in the category of less than five years, with 90 participants.

Table 1 presents the descriptive statistics, including mean, median, mode, standard deviation, minimum, and maximum values for the research variables.

Table 1. Descriptive Statistics of Variables Related to the Human Resource Development Model

Variable	N	Mean	Median	Mode	Standard Deviation
Educational Development	341	3.09	3.02	3	0.61
Organizational Development	341	2.87	2.99	3	0.56
Individual Development	341	3.04	3.00	3.13	0.42
Professional Development	341	2.75	3.00	3	0.81
Ethical Development	341	3.36	3.40	3.60	0.83
Social Development	341	3.16	3.13	3	0.84
Cultural Development	341	2.81	2.78	2.44	0.43
Human Resource Development	341	3.01	2.99	3.29	0.45

As observed in Table 1, the descriptive statistics, including mean, median, mode, and standard deviation for the factors influencing human resource development, are presented.

Before testing the research hypotheses and conceptual model, it was necessary to confirm the validity of the measurement models. This validation was conducted using Confirmatory Factor Analysis (CFA), which examines the factor loadings and

the relationship between latent variables (extracted factors) and observed variables (survey items). Factor loadings indicate the correlation between a factor and its corresponding indicator. The significance of factor loadings is determined by the T-value, where values less than -1.96 or greater than 1.96 confirm statistical significance.

Table 2 presents the results of the Confirmatory Factor Analysis (CFA) for the human resource development model in the teaching hospitals of Kermanshah University of Medical Sciences.

Table 2. Confirmatory Factor Analysis of the Human Resource Development Model in Kermanshah University of Medical Sciences Hospitals

Independent Variable	Standardized Coefficient	T-Value	P-Value	Significance
Educational Development → Human Resource Development	0.50	8.12	0.0009	Significant
Organizational Development → Human Resource Development	0.69	12.93	0.0009	Significant
Individual Development → Human Resource Development	0.72	12.16	0.0009	Significant
Professional Development → Human Resource Development	0.89	19.11	0.0009	Significant
Ethical Development → Human Resource Development	0.71	11.58	0.0009	Significant
Social Development → Human Resource Development	0.59	10.01	0.0009	Significant
Cultural Development → Human Resource Development	0.73	12.15	0.0009	Significant

The CFA results in Table 2 indicate that all factor loadings and t-statistics are within an acceptable range, confirming the validity of the proposed model.

According to Table 3, the fit indices for all components indicate that the measurement models for each factor are appropriate.
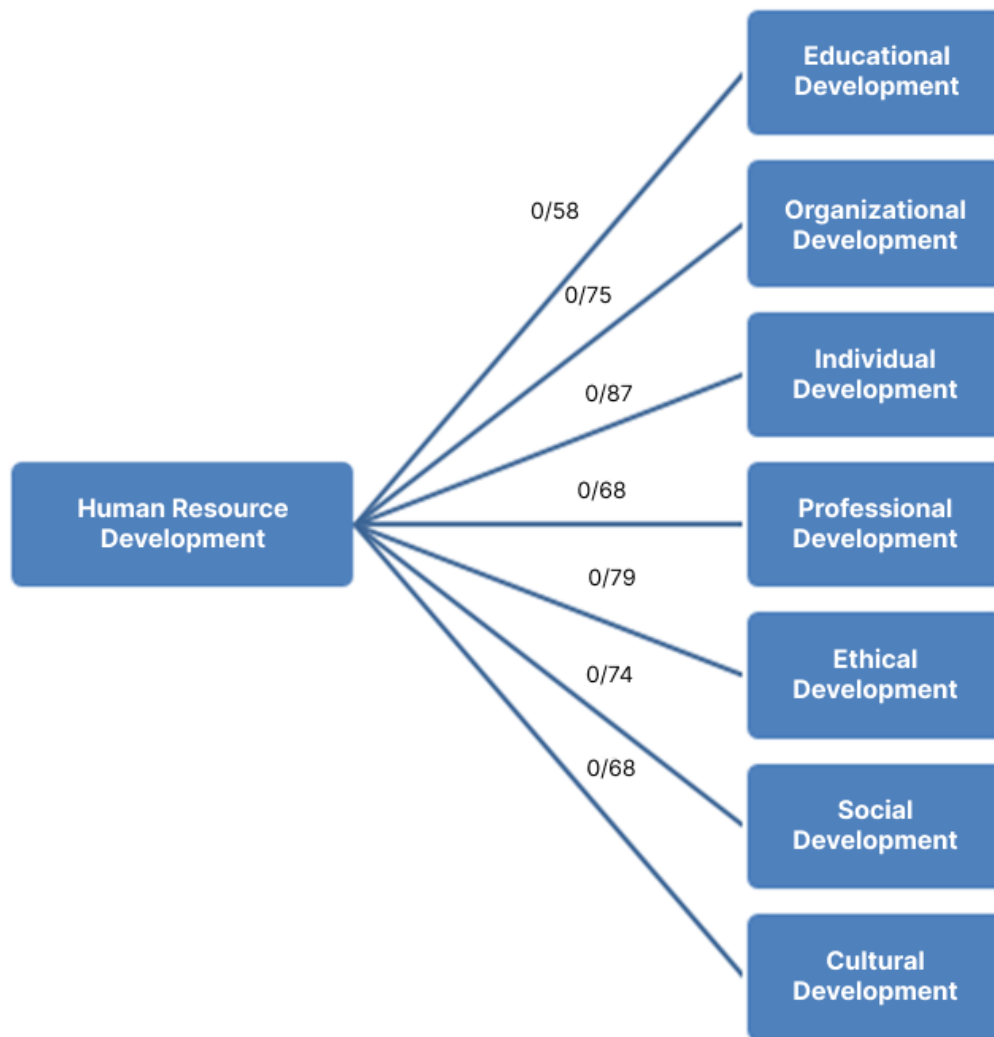
Table 3. Fit Indices of the Comprehensive Human Resource Development Model with a Sustainable Development Approach (Case Study: Hospitals of the University of Medical Sciences)

Index	Research Findings	Acceptability
Chi-Square (χ^2)	667.90	Model Confirmed
P-Value	0.000	Model Confirmed
Degrees of Freedom (Df)	341	Model Confirmed
χ^2/Df	1.93	Model Confirmed
RMSEA	0.06	Model Confirmed
NFI	0.88	Model Confirmed
AGFI	0.86	Model Confirmed
GFI	0.88	Model Confirmed
CFI	0.92	Model Confirmed
IFI	0.92	Model Confirmed
SRMR	0.05	Model Confirmed

Since all indices fall within an acceptable range, it can be concluded that the human resource development model with a sustainable development approach (Case Study: Hospitals of Kermanshah University of Medical Sciences) is confirmed.

After completing the analysis and evaluating various data, the final research model is presented as follows.

Figure 1. Final Research Model

Figure 1 illustrates the measurement model of the latent variable in the human resource development model with a sustainable development approach (Case Study: Hospitals of Kermanshah University of Medical Sciences) in standardized coefficient mode. The standardized coefficients for all components exceed 0.50, confirming the validity of the model.

4. Discussion and Conclusion

This study aimed to identify the components and dimensions related to human resource development in hospitals affiliated with Kermanshah University of Medical Sciences to propose an appropriate model. The results of factor analysis on the identified dimensions and components in this study indicated that factors such as educational development, organizational development, individual development, professional development, ethical development, social development, and cultural development could be considered suitable indicators for enhancing human resources with a sustainable development approach in these hospitals. Additionally, the calculated fit indices confirmed the adequacy of the confirmatory factor analysis model.

It can be concluded that hospitals affiliated with Kermanshah University of Medical Sciences can utilize this model to enhance their human resources in alignment with sustainable development. Moreover, in addition to the statistical confirmation of the model's dimensions and components, human resource specialists have also validated its philosophical objectives and implementation process. Previous studies indicate that various frameworks and models have been proposed by researchers for

human resource development in different organizations; however, a comprehensive model for human resource development at Kermanshah University of Medical Sciences has not yet been established.

For example, Pourkarimi (2009) identified three dimensions—professional, organizational, and individual—for faculty development (Pourkarimi, 2009). Similarly, Shafizadeh (2009) introduced five dimensions—educational, research, individual, organizational, and ethical— (Shafizadeh, 2002) while Jamshidi (2007) emphasized four dimensions— professional, individual, educational, and organizational—for faculty growth (Jamshidi, 2007). Ghanizadeh et al. (2017) categorized teachers' competencies into eight dimensions, including pedagogical and subject knowledge, technological expertise, research ability, self-development, fundamental competencies, socio-emotional skills, ethical and spiritual qualities, and professional identity (Ghanizadeh Gerayeli et al., 2017). Additionally, Reston (2015) highlighted similar dimensions for the development of human resource managers (Reston, 2015).

In this study, after reviewing various models and examining their dimensions and components, seven dimensions were ultimately extracted, which are suited to the human resources at Kermanshah University of Medical Sciences. One of the key considerations in human resource development at this university is that the success of such programs depends on a comprehensive approach to all relevant dimensions. Human resource development must be viewed as an integrated and cohesive entity. While diverse planning may be implemented for different sections, focusing solely on one aspect of the development process will not fully achieve the intended changes and objectives. These dimensions only gain real meaning and impact when they function together synergistically. It is also important to recognize that the emphasis on each of these dimensions may vary depending on the specific needs of individuals.

Moreover, although human resource development programs may be meticulously designed, they cannot achieve their intended results without adequate organizational support. This support must go beyond symbolic gestures and be practically demonstrated through the provision of appropriate human resources, financial resources, facilities, and suitable venues for program implementation. Furthermore, symbolic support should be more than just verbal commitment and should be evidenced in practice through the timely and adequate allocation of resources. Similarly, Brody and Scholar (2007), in their study on the success or failure factors of faculty development programs in Thailand, identified organizational support as the most crucial factor. According to them, institutional support, particularly from senior university administrators, plays a vital role in motivating faculty members and ultimately facilitating organizational change within universities (Brody & Scholar, 2007).

Overall, some of the barriers and challenges in implementing human resource development programs at Kermanshah University of Medical Sciences are inherent to the programs themselves. Factors such as program relevance and credibility, accurate needs assessment, diversity in program design, and educational content are among these internal challenges. Conversely, external factors also impact the effectiveness of these programs. These include managerial support, adequate financial resource allocation, an efficient reward system, and the existence of appropriate policies and regulations, all of which significantly influence the success of these programs.

An assessment of the current state of human resources in hospitals affiliated with Kermanshah University of Medical Sciences indicates that the individual, ethical, and socio-cultural indicators are at an average level. However, the educational, organizational, and professional indicators were evaluated as below average. Nevertheless, all these indicators require further improvement, as they still fall short of an optimal level. Therefore, hospitals affiliated with Kermanshah University of Medical Sciences must undertake serious and targeted efforts in this regard. Investing in education and human resource development is one of the most effective strategies for enhancing the quality of healthcare services and administrative processes in healthcare systems.

In the current competitive environment, competent human resources are the most valuable asset of any organization, serving as the foundation for transforming other organizational factors and achieving fundamental outcomes. Numerous researchers, including Wallace (2009) and Scher and O'Reilly (2009), have found that professional development programs positively impact knowledge enhancement, skill development, and ultimately the efficiency and quality of healthcare services (Scher & O'Reilly, 2009; Wallace, 2009). Similarly, the study by Khordehgir et al. (2017) demonstrated that human resource development indicators significantly influence employee performance effectiveness (Khordehgir et al., 2017).

Given the findings of this study and the identification of dimensions, components, and barriers to human resource development based on sustainable development, designing and implementing effective human resource development programs in hospitals affiliated with medical universities is of critical importance. Such initiatives can facilitate and ensure the achievement of educational system objectives. Since previous studies have predominantly focused on conceptual frameworks and theoretical models in education and development, this research aimed to design a comprehensive model for developing an effective educational system by integrating both literature review and field studies. The objective of this approach is to enhance the level of human resources in the healthcare sector with a comprehensive and practical perspective.

Furthermore, considering the significance of human resource development in organizations and its close connection to education, as confirmed in numerous studies, it is recommended that organizations conduct periodic and continuous educational needs assessments to update the knowledge and capabilities of their human resources. Organizing training programs tailored to identified needs not only enhances employees' skills but also ensures their preparedness to handle evolving temporal and spatial challenges and threats.

In the human resource development programs for hospitals in Kermanshah, all dimensions of development must be considered. While professional, organizational, and educational improvement is crucial, it should not be the sole focus. Ethical, individual, and socio-cultural aspects should also be incorporated into planning efforts.

Since human resource development programs require the attention and support of senior management, it is recommended that senior hospital managers in Kermanshah participate in training workshops to familiarize themselves with various aspects of this topic, including its significance, objectives, and methodologies. Additionally, it is advised that adequate educational and welfare facilities be provided for the implementation of these programs and that senior managers remain informed about potential challenges and obstacles in execution.

To encourage human resource participation in development programs, it is suggested that a diverse range of programs be designed based on needs assessments and made available to employees. This approach allows individuals to engage in programs that align with their personal needs and interests, fostering active and meaningful participation.

Given the importance of motivational mechanisms in human resource development programs, it is recommended that a direct link be established between program participation and the reward structure. This measure can strengthen individuals' motivation for active engagement in such programs.

Recognizing the critical role of organizational culture in the success of human resource development programs, hospital managers in Kermanshah should promote a culture of continuous learning and improvement by increasing awareness of the role of education in enhancing performance.

Ethical Considerations

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

Acknowledgments

Conflict of Interest

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