

ORIGINAL RESEARCH PAPER

The effect of corporate social responsibility on sustainable development with the mediating role of employee participation in knowledge-based companies

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ABSTRACT

BACKGROUND AND OBJECTIVES: Sustainable development is a process that envisions a desirable future for human societies in which living conditions and resource use meet human needs without compromising the integrity, beauty, and stability of vital systems. Knowledge-based companies today are among those companies that act as factories for converting knowledge into goods and services. In this regard, organizational social responsibility can be the basis for the sustainable development of companies and organizations. Therefore, this research aims to examine the role of the organization's social responsibility for sustainable development in terms of mediating the participation of employees of knowledge-based companies.

METHODS: This research is applied in terms of purpose, descriptive survey and correlation in terms of method. Field and library methods, literature reviews, and standard questionnaires were used to collect information. The statistical population consisted of 578 senior and middle managers of knowledge-based companies in the Science and Technology Park of Sharif University of Technology, Tehran- Iran, and 231 people were sampled using Cochran's formula method and stratified random sampling. A standard questionnaire was also used to collect information. The validity of the questionnaire was checked and confirmed using convergent and divergent validity and confirmatory factor analysis and its reliability using Cronbach's alpha coefficient, joint and combined reliability. Finally, the collected data was analyzed using SPSS and smartPLS software's.

FINDINGS: Based on the results of the Kolmogorov-Smirnov test, the significance of this test was calculated for all indicators less than 0.05 and 0.000, and due to the lack of normal distribution of the data, the smart PLS software was used. The overall fitting criterion was calculated to be 0.551, which means that the model fits well. When testing the main hypothesis, a coefficient of 0.408 was calculated, showing that employee participation explains 40% of the impact of social responsibility on sustainable development. The path coefficient of the sub-hypotheses for these relationships is above 0.5 and the significance is above 1.96. It can be said that the sub-hypotheses of the research are confirmed.

CONCLUSION: According to the indicators obtained, the organization's social responsibility positively and significantly impacts sustainable development and employee participation. The positive role of employee participation in sustainable development was also confirmed. Finally, the results showed that employee participation can mediate the impact of social responsibility on sustainable development.

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INTRODUCTION

Sustainable development is one of the most comprehensive concepts in recent decades and is a process that envisions a favorable future for human societies in which living conditions and resource use meet human needs without harming the integrity, beauty and stability of vital systems (Ruggerio, 2021). Today, companies can achieve sustainable competitive advantage by moving in the path of sustainable development and paying attention to the needs of society and preserving natural resources (Zafar et al., 2021). In the meantime, knowledge-based companies are among the companies that operate as a factory for converting knowledge into goods and services. Although knowledge-based companies are responsible for the creation of a sustainable knowledge-based economy and the development of indigenous knowledge in many countries, but these companies in Iran are not in a favorable condition in terms of quantity and quality according to the 20-year vision of the country, and are facing challenges in their development path (Gholipour et al., 2014). Successful companies, are those which continuously create new knowledge, distribute it broadly throughout the organization and quickly use it in new technologies and products (Tajpour and Razavi, 2023). In addition, the economic sanctions of recent years have had significant positive and negative effects on the sustainable development of knowledge-based companies active in the country (Ghavidel et al., 2019). It should be noted that the main indicators of sustainable development are classified into four general categories: social indicators, environmental indicators, economic indicators and finally institutional indicators (Swati, et al., 2020). In addition, research has shown that integrated management systems and corporate social responsibility can be the basis for the sustainable development of companies and organizations (Abdelhalim and Eldin, 2019; Ikram et al., 2019). Conducting preliminary investigations at the Presidential Office of Science and Technology and Science and Technology Parks in Tehran, as well as conducting preliminary talks with some managers and trustees of knowledge-based companies have shown that, despite the low growth of such companies in recent years, there are no proper statistics on their sustainable development. On the other hand, the lack of

attention and compliance of organizations and sub-managers to their duty and social responsibility is one of the societal problems and problems that can hinder sustainable development. One of the most important results of adhering to the principles of social responsibility is the sustainable development and well-being of society. Therefore, knowledge-based companies must be leaders when it comes to social responsibility beyond their legally defined duties. In this context, in this research we are looking for an answer to the question, which effects does the social responsibility of organizations have on the sustainable development of knowledge-based companies with regard to the mediation of employee participation?

Literature Review

Corporate social responsibility has received increasing attention from academics in recent years (Hur et al., 2018). In recent years, this concept has become a global and growing concern of governments and corporate executives. The movement towards global social responsibility arises from the global growth of companies (Barakat et al., 2016). This term is widely accepted and its meaning encompasses areas such as safety, product, and honesty in advertising, labor rights, environmental sustainability, ethical behavior and global responsibility and has a wide range of stakeholders including employees, customers, communities and environment, competitors, business partners, investors, shareholders and governments (Madueno et al., 2016). The social responsibility of organizations and companies is not only considered a moral obligation or social marketing, but it is a big element in the missing link of the relationship between government policies and corporate policies (Islam et al., 2021). The social responsibility literature shows that employees who acknowledge their existence in an organization and accept responsibility work beyond their duties. Indeed, social responsibility plays an important role in the issue of introducing employees as an important element of the organization. As a result, the employees fulfill their responsibilities in the organization (Rupp et al., 2018). More than ever, managers of global trading companies are looking for foundations for sustainable development, therefore, the role of active organizations in

sustainable development is receiving more and more attention from experts and practitioners of human societies. From these people's point of view, the lack of attention and compliance with their duty and social responsibility by organizations and subordinate managers is one of the societal problems and problems that can hinder sustainable development (Bombiak, Marciniuk-Kluska, 2018). Today, the company's intangible resources are considered to be one of the most important drivers of competitive advantages and sustainable growth (Meysami *et al.*, 2022). Human capital is viewed as a vital intangible resource that plays a significant role in achieving corporate goals. Because a committed employee knows his responsibility and does extra work for the company's success (Abbas and Dogan, 2022). Organizations that fail to answer employees' questions about the importance of the tasks they perform will struggle to retain an energetic and competent workforce (Farrukh *et al.*, 2020). Meanwhile, employee ownership is now considered one of the most exciting human resources approaches towards organizational development and growth (Agarwal, and Kapoor, 2022). The implementation of the participation system can be one of the most efficient and powerful mechanisms and managerial tools to motivate employees and create the basis for a micro-collective presence in the organization (Nazari 2022). Employee participation is defined as the commitment of the organization's members to their job responsibilities. When participating, people use and express themselves physically, cognitively, and emotionally during role performance (Dongrey and Rokade, 2022). Previous studies have ignored the potential impact of corporate social responsibility practices on individual employee performance (Latif *et al.*, 2022). Additionally, most organizations are still unfamiliar with the role of social responsibility in increasing employee engagement and individual performance (Story and Castanheira, 2019). Therefore, it requires researchers' attention to examine the relationship between social responsibility and individual employee performance, which plays a key role in all types of companies and is essential for company success (Dal Mas *et al.*, 2022). Also, most of the research in this field has been conducted in developed countries, and its investigation in developing countries and

knowledge-based enterprises of these countries has been neglected. In a research, Hojjati Niko (2018) discussed the sociological investigation of the factors influencing the societal participation of citizens in the realization of sustainable development using the social development approach. Examining the research results shows that the result of this research on the relationship of social trust as one of the sociological factors affecting social participation has been confirmed. Social cohesion and sense of social belonging also have a significant association with social participation, and when examining the impact of background variables on social participation, it was observed that variables other than age (gender, marital status, and education) had no impact on the participation rate. Khosravi (2017) discussed sustainable development in terms of choosing the best social responsibility criterion from an expert perspective and it showed that, according to expert opinion, social sustainability as the best criterion for sustainable development and managerial responsibility was chosen as the preferred option. In a study, Babainejad (2017) discussed the impact of corporate social responsibility engagement on employee satisfaction behavior related to employee participation. The hypotheses of this research include the impact of social responsibility on employee involvement, job satisfaction and employee behavior, and the impact of employee involvement on job satisfaction and employee behavior, and structural equation modeling was used to test the research hypotheses. The results of the study showed that the hypotheses of the study were confirmed. Swati, *et al.*, (2020) conducted a study in India, entitled "Important survey regarding the structure and calculation of sustainable development indicators". The study showed that the main indicators of sustainable development can be divided into four categories: social indicators (equality, health, education, housing, security, and population), environmental indicators (climate, land, seas, lakes and oceans, freshwater and biodiversity), economic indicators (economic structure, production and consumption patterns) and finally institutional indicators (institutional structure and institutional capacity). Abdelhalim and Eldin (2019) conducted a research in Egypt entitled "Can corporate social responsibility lead to sustainable development?" The results of

this research showed that compliance with different types of social responsibility, including social, moral, legal and discretionary responsibility, can influence sustainable development. [Ikram et al. \(2019\)](#), accomplished a research entitled "Can environmental management systems affect sustainable development?" This research, conducted on the manufacturing companies of Pakistan, showed that integrated management systems (quality, health, safety, environmental management) as well as adhering to the organization's social responsibility can lead to sustainable development. [Faizullah et al. \(2022\)](#), worked on a study entitled "Explanation of the relationship between exercising the role of social responsibility and sustainable development". This research aims to analyze the relationship between fulfilling the social responsibility role of the National Refinery and Broadcasting Company of Iran's petroleum products with the sustainable development. The results showed that social responsibility helps to realize sustainable development, and they choose social responsibility as a defensive measure. Social responsibility, as a tool for job security and protection of private interests, is the result of regular activities that help to build relationships with the company's stakeholders and environmental activists, leading to these groups receiving support and activities such as introducing the social aspect in the product and the production process and the introduction of human resources development programs and the achievement of a higher level of friendly relations with the environment through recycling and pollution reduction or progress in the social goals of the organization. The subject of current research is sustainable development in knowledge-based companies. [Saz-Gil et al. \(2020\)](#) conducted a study entitled "Corporate social responsibility review in the area of sustainable development Goals" which showed that the sustainable development goals are an opportunity and a frame of reference for corporate social responsibility strategies. Companies can enhance their corporate and social image within the framework of strategic social responsibility measures, and undoubtedly improve people's health and well-being and take steps towards sustainable development. The area of knowledge-based enterprises are in Sharif University Science and Technology Park. Science and Technology Park

of Sharif University of Technology was established in 2015. With the establishment of the park, the activities related to entrepreneurship and the establishment of knowledge-based businesses at Sharif University of Technology, which have been gradually developed since 2000, were integrated into the oversight of the park. As a university park, this complex aims to become a national model in the field of sustainable development and community-level value creation by creating a win-win interaction between the university's academic body and other institutions. 167 accepted start-ups and 381 accepted new companies have operated in this park since inception, and the current research has been conducted in 90 new companies and 52 grown companies accepted in the park. The current study was conducted in 2022 in Tehran.

MATERIALS AND METHODS

Considering that the main objective of this study is the role of social responsibility of organizations for sustainable development in terms of mediating the participation of employees of knowledge-based companies, the aim of this research is in the field of applied research. This type of research is conducted to improve the behaviors, methods, tools, devices, products, structures and patterns used by human societies. Also, considering that library study methods and field methods such as questionnaires have been used in this research, it can be stated that the current research is descriptive surveillance research by its nature and method. The statistical population of the present study consisted of all senior and middle managers of knowledge-based companies in the Science and Technology Park of Sharif University of Technology. Given that the number of these individuals was estimated at 578 individuals based on Cochran's formula, 231 individuals were sampled and selected by the stratified random sampling method. Field and library methods, literature reviews, and standard questionnaires were used to collect the data. Corporate social responsibility, using 4 items, was measured using the standard research questionnaire by [Aljarah and Alrawashdeh \(2020\)](#). A standard questionnaire of [Kulachai et al. \(2018\)](#) with 4 items was used to check employee participation. Also, sustainable development was measured using Vijtilak's standard questionnaire, in three economic (4 items), social (5 items) and

environmental (4 items) dimensions. With regard to validity, in addition to construct validity using confirmatory factor analysis, convergent and diagnostic validity were also used. Confirmatory factor analyzes showed that the factor loading for all items is over 0.4 and the significance is over 1.96, which confirmed the construct validity. The average variance extracted (AVE) was used to check the convergent validity. To establish convergent validity, the average value of the extracted variance calculated for each index should be greater than 0.5. Since the value of AVE for all indicators is calculated higher than 0.5, the result confirms the convergent validity. Cronbach’s alpha coefficient and composite reliability were also used to check reliability. Values above 0.7 for Cronbach’s alpha and composite reliability indicate the reliability of the index. Considering that the combined reliability and Cronbach’s alpha coefficient for the research indicators is above 0.7, the confidence in the reliability of the research instrument is confirmed. Information on the reliability and validity of the research tool is presented in Table 1.

To check diagnostic validity: If the average variance extracted for a variable is greater than the square of the variable’s correlation with other variables, then there is diagnostic validity for that

variable. Table 2, shows the numbers for the mean diameter are the extracted average variance.

According to Table 2, the average variance extracted for each variable is more than the correlation of that variable with other variables. Therefore, the diagnostic validity of research variables is confirmed. In the data analysis section, SPSS software was used to check descriptive statistics and the partial least squares method, and smartPLS software was used to check hypotheses. The conceptual model of the research can be drawn based on the theoretical foundations in Fig. 1:

In this context, the research hypotheses are presented as follows:

The main hypothesis

- The social responsibility of the organization has a significant impact on sustainable development through the mediation of employee participation.

Sub-hypotheses

- Organizational social responsibility has a significant impact on sustainable development;
- Organizational social responsibility has a significant impact on employee participation;
- Employee participation has a significant impact on sustainable development.

Table 1: Factor loading values, significance statistics, Cronbach’s alpha, composite reliability and AVE

Construct	Item	The correlation coefficient	Significant statistics	Average variance (AVE)	Composite reliability	Cronbach's alpha	Predictive correlation index (Q ²)	Determination coefficient index (R ²)
Corporate social responsibility	Q1	0.792	7.496	0.543	0.751	0.777	0.284	0.445
	Q2	0.504	4.729					
	Q3	0.728	8.466					
	Q4	0.673	6.055					
Sustainable Development	T1	0.652	3.594	0.512	0.807	0.785	0.269	0.651
	T2	0.794	9.861					
	T3	0.889	16.696					
Employee participation	Q5	0.684	5.498	0.614	0.824	0.780	0.23	0.651
	Q6	0.730	4.961					
	Q7	0.786	17.493					
	Q8	0.658	10.837					

Table 2: Average extracted variance and correlation between research variables

Indicator	Corporate social responsibility	Employee participation	Sustainable development
Corporate social responsibility	0,543		
Employee participation	0.498	0.614	
Sustainable development	0.478	0.598	0.512

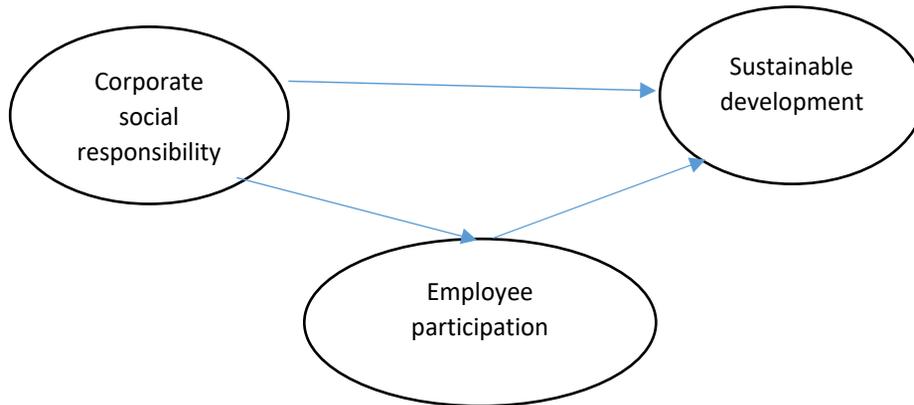


Fig.1: Research conceptual model

Table 3: Respondent demographics

Gender		Age			Education			Work experience		
Man	Woman	Under 40 years	40 to 50 years	Over 50 years	Bachelor's degree	Masters	Doctorate	Under 10 years	10 to 20 years	Over 20 years
189	42	14	137	80	7	52	172	23	58	81

RESULTS AND DISCUSSIONS

As already mentioned, the research results are presented in two sections of descriptive and inferential statistics. In the descriptive part, the demographic characteristics of the respondents were first examined. The results are as described in Table 3:

Next, the normality of the data was checked. Based on the results of the Kolmogorov-Smirnov test, the significance of this test was less than 0.05 for all indicators and was calculated at 0.000, which means that the data do not follow a normal distribution. For this reason, smart-PLS software, which is capable of analyzing abnormal data, was used for data analysis. Research hypotheses were examined below. The output of the PLS software for testing research hypotheses is as described in Fig 2 and 3.

Index of the coefficient of determination (R²) of the dependent variable

The value of R² for the research endogenous constructs is calculated as 0.651 and 0.445.

Predictive correlation Index Q²

The reading of Q² for research indicators is 0.284,

0.269, 0.23, which is positive and at a favorable level. Based on this, it can be said that the predictive power of the model with respect to the variables is favorable.

Goodness of Fit (GOF) Index

This index is the Goodness of Fit (GOF) which is calculated by the subscription’s geometric mean and R², according to Eq. 1:

$$GOF = \sqrt{\text{communality} \times R^2} = \sqrt{0.556 \times 0.548} = .551 \quad (1)$$

Considering that this index was calculated as 0.551 for the current research model, it can be said that the model has a good fit.

Based on the output of the model, the results of the hypotheses are shown in Table 4:

As it can be noticed, the examination of the sub-hypotheses showed that the path coefficient for these relationships is above 0.5 and the significance is above 1.96. As a result, it can be said that the sub-hypotheses of the research are confirmed. On this account, the social responsibility of the organization has a positive and significant impact on sustainable development. The social responsibility of the organization has a positive and significant impact

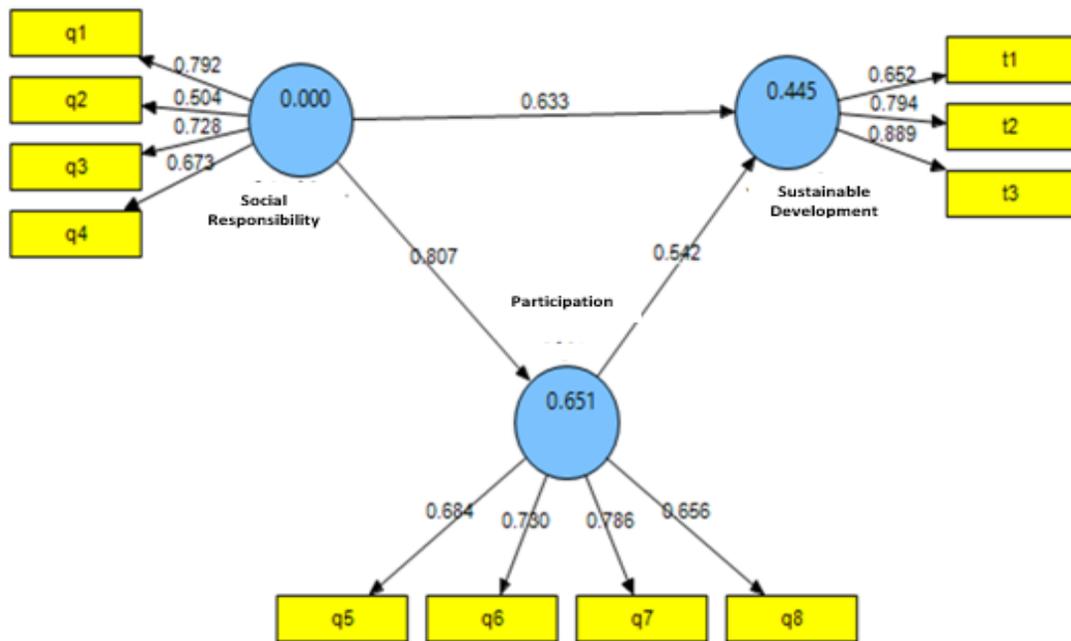


Fig. 2: Factor loading values and path coefficients of the research model

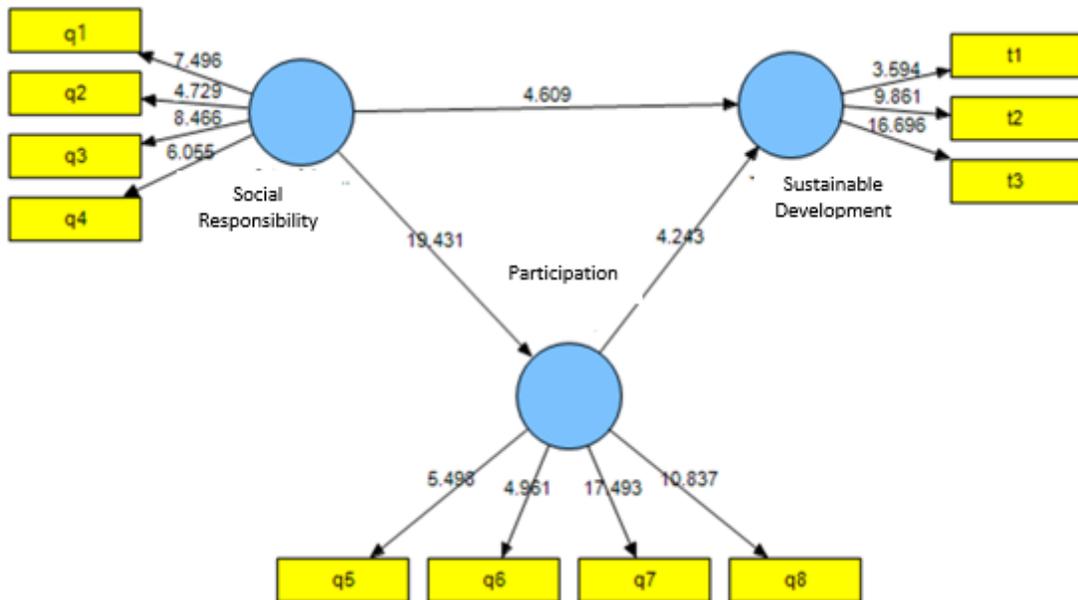


Fig. 3: Significance of the research model

Table 4: The results of the structural model assessment to check research hypotheses

Direction	Path Coefficient	Significant Number	Test Result		
The social responsibility of the organization has a significant impact on sustainable development	0.633	4.609	Confirmed		
The social responsibility of the organization has a significant impact on employee participation	0.807	19.431	Confirmed		
Employee participation has a significant impact on sustainable development	0.542	4.243	Confirmed		
Mediation hypothesis	Direct	Indirect	Total	Variance Accounted For (VAF)	Test Result
The social responsibility of the organization has a significant impact on sustainable development through the mediation of employee participation	0.633	0.437, 0.542, 0.807	1.07	0.408	Confirmed

on employee participation. Employee ownership has a positive and significant impact on sustainable development. In addition, when examining the main hypothesis, a VAF coefficient of 0.408 was calculated, showing that employee participation explains 40% of the impact of social responsibility on sustainable development. Consequently, the organization's social responsibility through the mediation of employee ownership has a significant impact on sustainable development. The current research has found that corporate social responsibility has been an area of interest for academics and professionals around the world for several decades, and researchers pay special attention to the ethical, social, moral, environmental and sustainable concerns of companies with the research of [Hur et al. \(2018\)](#) and [Faizullah et al. \(2022\)](#). The results also showed that the organization's social responsibilities have a significant effect on employee participation. This is also in line with [Babainejad \(2017\)](#) research. In addition, the results showed that employee participation has a significant impact on sustainable development. The simplest means of human resource development is the implementation of the partnership system, which is recognized by managers for its simplicity and ability to learn, while [Faizullah et al. \(2022\)](#) consider social responsibility as a tool for securing jobs and protecting private interests, which helps to build relationships with the company's stakeholders and environmental activists and it leads to support for these groups, and includes activities such as introducing a social aspect into the product and production process and

introducing human resource development programs and achieving a higher level of friendly relations with the environment through recycling and reduction of environmental pollution or advances in Information Technology are the social goals of the organization that are effective for sustainable development. On the other hand, trust in the results of social responsibility has a significant impact on sustainable development. Today, the growth and development of various industries and business entities, the consequences and impact of their activities on society, and the lack of social reporting have created a gap between business entity expectations and society expectations. The concept of corporate social responsibility has been broadened as the corporate mindset has changed from a narrow and flexible view of increasing profitability to a broader view, i.e. quality of life, protection of resources and meeting the general needs of society. In other words, this kind of perspective includes the principles of sustainable development. Participation means the connection and engagement of workers with their organization. Engaged and committed employees are the most useful asset for any business to gain competitive advantage in the marketplace. In fact, the strength of a company is measured by the participation of its employees. Social responsibility is related to employee engagement because employees enjoy working for organizations that use their resources for the benefit of society and employees. Employee participation, opportunities for intellectual development and advancement and involvement as much as possible in the activities

and processes of the organization are very efficient. Employee engagement is becoming increasingly fragile without becoming a dominant culture and enduring process. Given that organizational change and transformation are necessary for organizations in today's world, the lack of public participation minimizes organizations' chances of success. When employee engagement is measured by their collaborative work style and is perceived and measured by showing more commitment, it can create an unstable situation where highly engaged employees are expected to work even harder to maintain their engagement demonstrate what will seriously harm the continuation of their participation and the stability of the participation system.

CONCLUSION

Sustainable development refers to comprehensive political, economic, social and environmental development; It is defined as meeting the needs of the present generation without compromising the ability of future generations to meet their needs. The purpose of education for sustainable development is to empower people and society to understand responsibility and take responsibility for creating a sustainable future. Knowledge-based organizations absorb information and transform it into knowledge through interaction with their environment. With knowledge, the organization can organize itself and keep itself alive and dynamic. Considering the importance of sustainable development of knowledge-based enterprises, the present research has delved into the issue of sustainable development of knowledge-based enterprises in more depth and detail. In this regard, organizational social responsibility is the basis for the sustainable development of companies and organizations. As human capital is considered a vital intangible resource to create competitive advantage and sustainable growth, it plays a significant role in achieving business goals. Employee participation is now considered one of the most prominent approaches in HR work towards organizational development. The implementation of the participation system is also one of the most effective management tools for employee motivation. According to the results of current study, the social responsibility

of the organization has a positive and significant impact on sustainable development. The social responsibility of the organization also has a positive and significant impact on employee participation. Employee involvement also has a positive and significant impact on sustainable development. But according to the model presented and the mediating role of employee ownership, employee ownership explains 40% of the impact of social responsibility on sustainable development. Due to the sensitive role of knowledge-based companies in the economic system and the importance of sustainable development in today's dynamic environment, it is therefore important and worth considering to pay attention to the essential and vital factor of employee participation, which makes the impact of the organization's social responsibility on sustainable development smoother, and this should be reflected in the organization's policies and plans during sustainable development.

Suggestion

In accordance with the results obtained, it is proposed:

- Knowledge-based enterprise managers should institutionalize a culture of collaboration in the organization to create sustainable development and gain a competitive advantage, and contribute to the creation of sustainable development by fostering this spirit in their employees;
- The atmosphere of the organization should be such that employees see themselves as part of the organization and take voluntary action to achieve the organization's results;
- Managers of knowledge-based companies should formulate and implement the necessary policies to achieve sustainability goals through employee behavior;
- The organization's policies and goals should be designed and formulated to achieve the well-being of employees and society.

Limitations

The limitations of the research include the small number of global scientific research and studies related to the research purpose, the lack of internal scientific research related to the research topic, and the small number of experts related to the topic.

AUTHOR CONTRIBUTIONS

Z. Delrabai performed the literature search, data collection, data analysis and interpretation. A. Vedadi, the corresponding author, was responsible for reviewing the results and editing the text. N. Pilehvari was of great help in literature research and data interpretation.

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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ABBREVIATIONS

<i>AVE</i>	Average variance extracted
<i>EP</i>	Employee participation
<i>GOF</i>	Goodness of fit
<i>Q²</i>	Predictive correlation index
<i>R²</i>	coefficient of determination index
<i>VAF</i>	Variance accounted for

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