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A Future Research Study on Data-Oriented Strategic Training: Automotive Industry

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ABSTRACT

This research aims to design a data-oriented strategic training with the future research approach in the automobile industry. The research is applied in terms of its purpose and uses a qualitative approach and thematic analysis method. The data collection tool is semi-structured interviews, and the validity of the questions was obtained using the opinions of experts in the field of human resources in the automotive industry. The statistical population of this research is twenty-seven specialists and experts familiar with education, human resource development, and strategic planning from Saipa Automotive Group companies, who were selected by the snowball method. Next, based on the specified codes, 4 categories were selected, and based on 8 components in the Scenario Wizard software, future research analysis was performed and 3 compatible scenarios were identified. The results of the research show the extraction of 110 primary codes and the statistics of 14 sub-categories and 5 main categories, which include: 1- The core structure category of education, which has 3 sub-categories: organizational structure, systematization, and discipline. 2- The core agility category of education which has 3 sub-categories: transactional, intelligence, creativity and innovation 3- The business-oriented category of education which has 3 sub-categories: business conditions and organizational productivity, beneficiary-oriented 4- The strategy-oriented category of education which has 2 sub-categories: strategy-oriented, foresight and result orientation 5- The central development category of education has two sub-categories: individual development and organizational development. ©**authors**

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1. Introduction

Among the serious challenges and uncertainties facing organizations in the future, we can mention the speed of changes and transformations in the industry, competition, informed and discerning customers, and ever-increasing innovations, which necessitate special attention to the issue of knowledge extraction and its adaptation to future conditions (Arici et al., 2022). If there is no future research in knowledge application excellence in an organization, knowledge development measures will not be beneficial in addition to the inability to solve the problem based on future knowledge needs. Both concepts of future research and knowledge application are about identifying the complexity and dynamism arising from the internal and external environment of organizations and addressing the knowledge requirement of managers to make decisions in such environments.

With a brief look at the role of future research in goal-setting, planning, and decision-making based on data, one can understand the importance of future research in knowledge management. Knowledge management is one of the influential factors in the field of future research (Schymanietz et al., 2022).

Knowledge development and data-oriented training have influenced the role of human resources development (Scully Russ & Torraco, 2020). Human resources in organizations have been noted and confirmed as a competitive advantage in many types of research (Rana & Malik, 2017). Targeted and strategic training of human resources in organizations is not a choice, but a necessity (Linde et al., 2021). The training and improvement of human resources should be considered more seriously. The training of human resources is necessary to increase the productivity and progress of the organization (Chiaburu & Tekleab, 2005).

The research results show that, in addition to increasing the knowledge and skills of employees, adequate and appropriate training can also lead to the improvement of job and work commitment and the productivity of the organization (Arucy & Juma, 2018).

Strategic and targeted training not only plays an important role in creating special knowledge and skills in employees but also makes people contribute to improving the level of efficiency and effectiveness of the organization and adapting to changing environmental pressures (Matt, 2019). Today, the technologies of the fourth industrial revolution are ambiguous and complex, and the nature of new products is internationally multifaceted and a combination of physical, digital, and biological systems (Torraco & Lundgren, 2020).

Today, the speed of technological development has caused profound changes in the way people live and work (Mir & Jahandideh, 2017). These changes have had a significant impact on the field of industry, including the automotive industry, which shows the importance of future research and data recording in this industry for correct decision-making (Giaimo et al., 2019).

With an open innovation approach, the automobile industry has become a global industry with a very highly competitive environment. This fierce competition led to the merger of car manufacturing companies and switching to a common platform, which led to the formation of car manufacturing groups and the multi nationalization of these companies, and the globalization of the chain (Maadi Rudsari et al., 2019).

Future studies conducted by scientific and research institutions have predicted rapid changes in advanced and intelligent technologies in the automobile industry (Razi and Nadi, 2021). The requirement to accept and align with these changes is to have capable and intelligent human resources (Iyewa & Gberevbie, 2017). One of the elements that influence the empowerment and development of employees is strategic training (Amirian, 2017).

The future study of education and development is carried out in line with the realization of the organization's strategic goals and benefits for individuals and the organization, including; Profitability, gaining competitive advantage, and increasing job knowledge (Gulsen et al., 2015). Management of human resources training

with a strategic view based on extracting the organization's current knowledge is considered to be the management of the organization's most valuable assets, i.e. knowledge (Padmasiri et al., 2018). Therefore, it can be said that strategic training plays an important role in the orientation and development of people in the future and provides organizations with a combination of knowledge, skills, and talent to manage and carry out necessary and necessary organizational operations (Izvercian et al., 2014). According to the above explanations and the importance of human resources and their training and development, knowledge-oriented and high-tech organizations and companies such as the automobile industry are not exempted from this rule due to their continuous dependence on modern knowledge and technologies; and perhaps they need more specialized and developed managers and employees; Because the competitive advantage of knowledge-based companies is achieved through knowledge and its effective use. Therefore, targeted and strategic training of employees in the use of new technologies and the use of new approaches and technologies in the automotive industry is vital. Therefore, this research is looking for an answer to the question, what is the data-oriented strategic education with the future research approach of the automobile industry?

2. Literature Review

Today, the science of future research has turned the scattered and incoherent literature about planning for the future into a documented science with sound principles and foundations, whose main task, in addition to analyzing past trends, is to discover, invent, and evaluate possible, probable, and desirable futures. This is done through recording organizational data and converting information into knowledge. Today, the efforts of leading organizations in order to deal with crises in order to preserve their lives, on the one hand, the emergence of a post-industrial society by moving from a production economy to a service economy centered on knowledge as a source of innovation, on the other hand, as well as the increasing constructive role of key structures such as industries, organizations Research, growth, and development centers in organizations confirm the necessity of addressing the phenomenon of future research (Karnik et al., 2022). Knowledge is one of the strategic resources and assets for all organizations (Adedoyin, 2018). In management science, experts consider knowledge as the ultimate substitute for production, wealth, and monetary capital. Knowledge is considered one of the key success factors in industrial organizations. For this reason, knowledge management has gained special importance in an industrial organization like Iran Khurdu (Schwab, 2018). In this regard, the topics related to the knowledge of strategic education and its proper application in the automotive industry have created many ambiguities in the minds of thinkers in this field. Since training is the most strategic solution for the organization in the development of knowledge, organizations are faced with the fundamental question of how they can manage strategic training efficiently and effectively in order to benefit from its benefits to advance the strategic goals of the organization. The future belongs to those with more knowledge. More knowledge means more probability of success, and more success means winning the competition and surpassing the competitors; Therefore, in order to maintain a sustainable competitive advantage, organizations and companies should organize their knowledge management strategies in order to be more flexible in facing future situations. Meanwhile, training represents the organization's planned effort to facilitate the learning of employees' job-related competencies, which include knowledge, skills, or behaviors that are important and necessary for the success of job performance (Noe, 2010). The term “training” means changing knowledge (Landa, 2018), attitude, and interaction with colleagues (Weru, 2014). Human resource development includes developing people with a focus on improving knowledge (Wentland, 2015), skills and abilities to lead organizations, create a long-term vision, develop strategy, communicate, and create support for productivity (Potnuru

& Sahoo, 2017). Education is an experience based on learning that is done in order to create lasting changes in a person to enable him to do work and improve his abilities, change skills, knowledge, attitude, and social behavior (Mohammadi, 2022).

Engetou (2017) in a study shows that having a strategic and long-term training program not only results in the improvement of individual and organizational performance sustainably but also provides quality services and ultimately increases customer satisfaction The research reported a meaningful relationship between targeted training programs and the improvement of individual and organizational performance.

Identifying the state of the automotive industry in the field of education requires checking the recorded data. Also, extracting education knowledge and creating a strategic education model requires identifying a solution and formulating an applicable strategy, which is done using scenario writing in future research. The researcher, considering the gaps and shortcomings that he observed in the backgrounds related to the topic of his article, aims to realize the development and empowerment of human resources in this industry by designing a strategic training model in the automotive industry (a case study of SAIPA Automotive Group) while filling this gap. In this way, this research to provide a model of strategic education to develop human resources in the country's automobile industry from two dimensions, theoretical and practical, is important and can be evaluated.

This research can provide a context for the formation of a strategic model with a transactional nature based on strategic management in the field of business. The opinions of the experts provide the basis for developing a strategic training model in the country's automotive industry, and in this way, it can help the development and empowerment of employees, the satisfaction of stakeholders, and customers, and as a result, improve the performance and productivity of the automotive industry.

Therefore, in this research, the researcher seeks to answer two basic questions, which are:

1- What is a suitable model for strategic training aimed at developing human resources in the automotive industry?

2- How are the dimensions and components of strategic education related to the development of human resources in the automotive industry?

3. Method

The current research was conducted with the aim of designing a strategic training model with the aim of developing human resources. The case study of this research is the Khodrosazi group of Saipa. This research is applied research that used the qualitative data foundation method as a research method. The statistical population of the research, in addition to the internal and external studies in the two fields of strategic training and human resource development, were 27 experts in the field of training and development of human and strategic resources of Saipa Automotive Group, who were selected to conduct interviews using targeted sampling. The qualitative part of the thematic analysis was done in Nvivo software. Next, scenario wizard software was used for future research and scenario writing.

The logic of sampling in the qualitative part was the rule of theoretical saturation. The data collection tool in the qualitative part included a semi-structured interview. Data analysis in the qualitative part was done in three stages of open coding, axial coding, and selective coding. In the open coding stage, naming and classification of data were done. In the axial coding stage, relationships between codes and categories were explored. The main categories were extracted and in the selective coding stage, the results of the previous steps were systematically presented in the form of a model. In this research, 22 experts in the fields of education, development, and strategy (16 male and 6 female) with BA, MA, and Ph.D. degrees in the organizational positions of manager, director, and expert with an age range of 31 to 60 years as shown in Table 2 c.

Table 2. *Demographic characteristics of the participants*

Organization level	Age	Expertise	Field of Activity				Level of Education	
			Strategic planning	human recourse developme nt	Education	PhD	MA/MS	BA/BS
manager	48	Education Management			1		1	
top manager	35	Educational Planning			1			1
top manager	40	Executive Management	1		1		1	
expert	37	Educational Planning					1	
expert	40	Educational technology						1
expert	43	governmental management		1	2		1	
manager	51	Strategic management	1			1		
top manager	42	Education Management			1		۱	
top manager	36	Human resources management		1		1		
expert	38	Educational Planning			1		1	
top manager	46	Educational Planning			1		1	
expert	38	Executive Management			1		1	
manager	52	industrial engineering			1			1
top manager	54	Educational technology			1	1		
expert	47	Educational Planning					1	
expert	37	governmental management		1	1		1	
top manager	51	Education Management			1		1	
top manager	41	Education Management			1		1	
top manager	49	industrial engineering			1			1
manager	48	strategic Managment	1				1	
top manager	52	Education Management		1			1	
manager	46	Human resources management		۱		۱		
22	-	-	3	5	14	4	14	4

4. Findings

Analysis and coding of the interviews were performed using the thematic analysis technique which employees three stages of open coding, central coding and selective coding based on the first question of the research. Based on the calculated Kappa index, the validity of 0.77 was obtained.

The first research question asked: What is a suitable model of strategic training for developing human resources in Saipa Automotive Group?

To answer this question, in this research, in addition to the codes, concepts and categories extracted from the previous findings listed in Table 3, other cases were also added after interviewing experts and forming focus groups by combining some codes, concepts and categories. 110 final codes, 14 sub-categories and 5 main categories were extracted and counted.

Open Coding: The thematic analysis started by open coding and specifying the conceptual codes of each interview, and at the same time that the initial open codes and theoretical notes were written down during the interview, seven categories gradually started to appear. These seven categories represent the most focused subject under study, around which the primary open codes (or theoretical codes) are gathered through the method of constant comparisons; So that among the 930 primary coders, 167 codes were business-oriented, 150 were stakeholder-oriented, 202 were strategy-oriented, 160 were agility-related, 90 were transactional, 120 were development-oriented, and 91 were structure-oriented.

Axial Coding: The next stage was the axial coding. Based on the research objectives, the categories and concepts obtained from the open coding stage were compared and combined and reduced and re-examined open and family codes into larger block categories., Considering the background of the research,

finally 110 open codes, 14 core codes were extracted.

Selective coding: The next stage was selective coding, which included revisiting the open and axial coding and the logical and semantic relationship between the obtained clusters and blocks and the final classification. In order to further ensure the extraction of the codes and the correctness of the central and selective codes, according to the research topic, the coding process was re-examined in a focus group of 8 people who were a combination of experts in education, human resource development and management and strategic planning active in Saipa companies. By combining some codes together, 5 general categories or components were chosen as the selected code in the third stage of coding.

Table 3. *Summary of the flow of extracting qualitative research data (source: research findings)*

Category	sub-categories	The final code
Structure-oriented	Organizational structure (architecture and proper construction of strategic education department)	Low bureaucracy
		The structure of education
		Organizational Culture
		Organization architecture
		Constructivism approach in education
		Organizational harmony
		Reconstruction in education
	Systematization (the process and system of strategic education)	Organizational cohesion
		systematic
		Process oriented
	Legality (standardization and legality of strategic education)	standardized
		Compliance with the rules
Agility oriented	Being transactional (timely, fast and the flexibility and aggressiveness of strategic training)	The driving force of the organization
		dynamic
		delegation of authority
		transparency
		change management
		Fast learning
		Timely training
		Understanding environmental conditions
		Changeability in technology
		Variability in environmental conditions
		flexibility
		Fast training design
		Strategic driver
		Contingency oriented
		Planning from the outside in
		Succession
		Transformational
		Teaching with problem solving method
	Smart (aware of strategic education regarding changes, technologies, new and future knowledge)	Smart needs assessment
		Intelligent design of courses
		Intelligence training process
		The intelligence of future products
		Environmental awareness

		Targeted needs assessment
		Knowledge oriented
		Core technology
		Knowledge of future products
		Knowledge oriented
		Technology literacy
		Professional (competency-based learning)
	Creative and innovative (flexibility, facilitation, re-creation of strategic education)	Facilitation in the organization
		Regeneration in education
		Innovation in implementation
		Creative education
		entrepreneurship
Business oriented	Business conditions (better understanding of environmental conditions and changes, strengths, weaknesses, opportunities and environmental threats through strategic training)	Organizational climate
		Environmental analysis
		Nature of business
		Organizational weakness
		Organizational support
		Economic instability
		Stable economic conditions
		Expansionary policies
		Driving forces
		Economic threats
		leading competitors
	Productive (creating value and advantage and optimizing resources in the organization through strategic training)	Creating value in the organization
		Creating an advantage for the organization
		Choosing the right resources
		Organizational productivity
		Optimal management of resources
		Education leadership style
	Stakeholder-oriented (understanding the interests of stakeholders, customers, employees and shareholders with strategic training)	Management feedback
		Management style
		Stakeholder interests
		Demand for quality
		The interests of suppliers
		Employee benefits
		Customer interests
		Stakeholders' wishes
		interests of shareholders
	Future-oriented (future-oriented and program-oriented strategic education)	Smart planning
		Forward-looking planning
		Targeted planning
		Long-term planning
		Futurology
		Rethinking education
		Reinventing the future
	Strategic insight (training based on drivers (vision, mission, goals, strategies and comprehensive)	Strategic alignment
		Comprehensive education
		perfectionist
		Strategic thinking
		In line with the above documents
		Mission definition

		Determine the perspective
		Content-oriented education
		Strategic training
		Strategic development
		Strategic maturity
		Global vision
	Result oriented (effectiveness, result orientation and feasibility of strategic education)	Effective training
		goal oriented
		possibility
		Program execution guarantee
Development oriented	Organizational development (improving organizational performance, knowledge creation, sustainability and balanced development of organizational resources with strategic training)	Capitalist
		Improving the performance of the organization
		Localization of knowledge
		Sharing knowledge
		knowledge creation
		Balanced development
		organizational development
		Sustainable Development
	Individual development (improving individual performance, empowering employees, improving skills and changing attitudes with strategic training)	Improve individual performance
		Ability of employees
		central merit
		Individual development
		Improving knowledge and skills
		Change of attitude

The final model: the result of summarizing and output of the software and conducting the relevant studies led to the development of the model as described in Figure 1 below. which can be called "

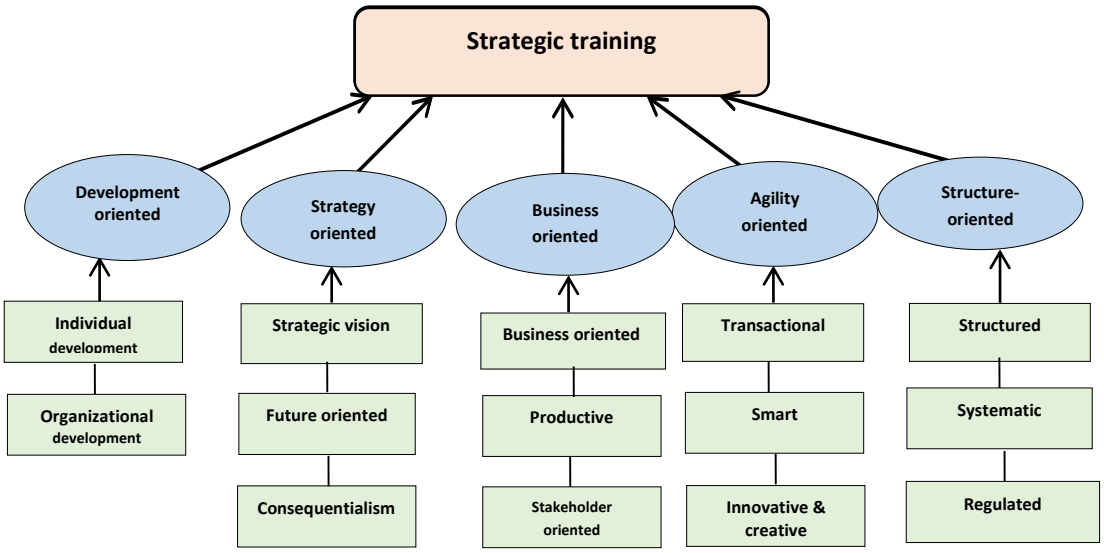

Figure 1. *Strategic training model for human resources development in Saipa Automotive Group.*

At this stage, based on 4 criteria and 8 sub-criteria, the appropriate scenario was identified based on the analysis of the Scenario Wizard software.

First, the cross structure matrix was formed. The CIB matrix is used to extract experts' opinions about the probability of a state of one descriptor occurring on a state of

another descriptor in the form of verbal phrases.

Descriptors:	variant [1]	variant [2]
A	A1	A2
B	B3	B4
C	C1	C2
D	D3	D4

Figure 2. *Structuring the cross matrix*

In the following, weight is given to the cross matrix based on the score of 3 to -3.

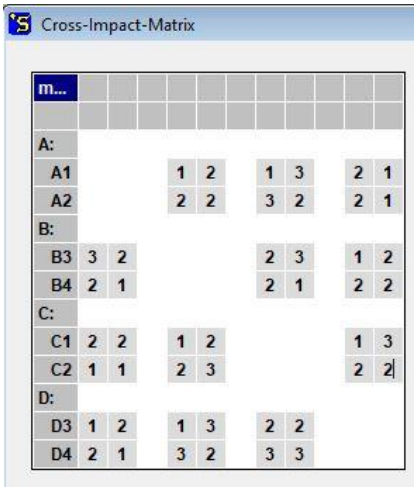

Figure 3. *Completing the cross matrix*

In order to obtain the scenario with the highest consistency, the cross matrix was homogenized.

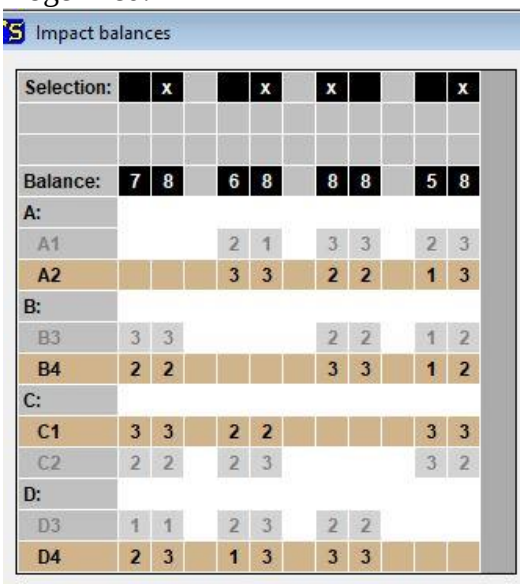

Figure 4. *Cross matrix homogenization*

A total of 84 strategies were identified, but considering the compatibility of the input matrix, 3 best strategies with high compatibility were selected. Finally, according to the importance of all 8 components, 3 scenarios were identified in the scenario wizard software.

Figure 5. *Identified scenarios*

The first scenario based on the components A1, B3, C2 and D3 was called the effectiveness scenario.

The second scenario based on the components of A1, B4, C1 and D4 was called dynamic scenario

The third scenario based on the components of A2, B4, C1 and D4 was called competitive advantage scenario.

5. Discussion

This research was carried out with the aim of designing a data-oriented strategic training model under a future research approach in the automotive industry in Saipa Automotive Group, Iran. The results led to the formation of a strategic training model in Saipa Automotive Group.

This model includes structure-oriented categories consisting of the concepts of structuring, systematization, and regularity of education, an agile-oriented category consisting of transactional concepts, intelligence, creativity, and innovation of education. ; a strategy-oriented category consisting of the concepts of strategic vision, future-oriented and result-oriented education, and the category of acquisition and work-oriented which consisted of the concepts of business-oriented conditions, productivity and beneficiary-oriented education and the development-oriented category consisting of individual development and organizational development of education in the automotive industry.

The results showed that one of the reasons why the automotive industry failed to implement strategic knowledge in the field of education was that they could not distinguish

knowledge from data or information and ignored the unique characteristics of knowledge and knowledge workers. This shows the lack of a forward-looking approach in this industry. Another reason for the failure of strategic educational plans was the lack of a suitable methodology for recording organizational knowledge. Data-oriented strategy training determines the direction of the organization's goals, the main goal of which is to actualize practical knowledge in the automotive industry. In the applied knowledge strategy proposed in this research, the implementation process, activities, and standardization of the main components of the solutions are considered. The set of operations and activities of the organization in the light of the knowledge application strategy will make the strategic education system work effectively and efficiently, become the basic strategy of the organization and continue to work effectively in order to support the organization.

In summarizing and concluding the findings of the research, it can be stated that human resources are considered the most valuable capital and the center of ability and knowledge growth in organizations, including the Saipa Group's automotive industry. Being a strategic partner requires managers to know what abilities and capabilities are included in the successful implementation of the company's strategy, which will be possible by knowing the nature of value creation and the role of human capital in providing value to customers in the automotive company. For this purpose, the theoretical foundations and models of Schymanietz et al. (2022), and Linde et al. (2021), all emphasize the strategic approach and transactional action of education in organizations and believe that education should be the matter of empowering and developing human resources in order to design, build and achieve Act on the latest technologies, scouting, and in line with the organization's macro strategies.

6. Conclusion

Based on the findings of the research, five core categories and 14 subcategories were identified to create the strategic training model aimed at developing human resources in the automotive industry in Saipa Group automotive companies. The first step in the automotive industry is the proper architecture of education with the nature of the companies (production, service or parts supplier). This component emphasizes the appropriate structure and process-oriented education, a systematic approach in accordance with the standards and quality and legal requirements, considering the outlook of this industry at the national and international level. This approach has not been extensively discussed in the previous models. - Another finding of this research is the data-oriented nature of education in this industry. Considering the intelligentization, the speed of innovation in the design and manufacture of new cars at the global level, it is emphasized to the managers of the automotive industry, especially to the managers of education in the country's automotive industry, that they should use flexible structures and use new technology in training and empowerment. Employees should be more agile than ever and interact with environmental changes inside and outside the country, creatively, intelligently and transactionally, to deal with education and educational planning, which has not been clearly stated in previous studies and models. It is one of the important components in the competition with the automobile companies of the world. - Another difference between this research and previous researches is business-based training. The automobile industry is a complex, knowledge-intensive, intelligent and interdisciplinary industry. Therefore, according to the nature of the activity of each company and the demands of the beneficiaries, trustees and managers of training and development and empowerment of employees, it should create value and increase interest by assessing the educational needs based on business (major goals, strategies, current and future products).

Another achievement of this research is the data-oriented approach. The strategic education model emphasizes balanced development. Therefore, in this model, there is a lot of attention to both individual development and organizational development in the automotive industry at the same time, which indicates the use of new training

methods with the aim of sustainable development and continuous empowerment of employees at different organizational levels, as well as improving organizational performance.

Based on the obtained results, it is suggested that:

Employee development should be a continuous effort in order to strengthen work performance.

Since training programs allow employees to gain a much deeper knowledge of certain computer skills and the world of information technology, it is suggested that the employees should be taught how to draw graphs, create spreadsheets, edit data in databases, and network structures to gain a deeper understanding of computers to show their optimal performance in the workplace.

Declaration of Competing Interest

The author declares that he has no competing financial interests or known personal relationships that would influence the report presented in this article.

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