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RESEARCH ARTICLE - MANAGEMENT

Impact of Artificial Intelligence on Employee Development at Basrah University

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Article Info.	Abstract
	Employees are the leading resource of any company because they are the base of a strong and long-running organization. Their performance affects the overall evolution of the organization. Thus, modern companies have started spending an enormous amount on employee development. It is an essential process for employees and organizations. Companies have started using recent technology in employee development to make this process more productive. Artificial Intelligence is a branch of computer science. It is based on the concept of imitation the human intellectual functioning. This research studies the impact of artificial intelligence on employee development. A descriptive analytical methodology is used. Artificial Intelligence is considered an independent variable. However, the dependent variable was Employee development with three dimensions (Skills, engagement, and performance). Basrah University in Iraq was taken as a sample. Consequently, a questionnaire of 24 questions is built and distributed to Basrah University employees. The collected answers were examined using SPSS. The result shows a significant impact between Artificial Intelligence applications and employee development.

1. Introduction

Because employees are the organization's primary resource, their performance impacts its evolution in all situations. Organizations are recommended to fund enormous amounts of money for employee development. The human resources department is responsible for training and developing employees to reveal employees capabilities. Hence, employee development produces an overall development of the organization such that it becomes more successful [1]. The process of employee development is essential for the employees. It represents the interest of the organization in its employees. When organizations donate regarding the employee development process, the employees perform better; operate their full talents and efforts to complete the organization's purposes. The employee development process includes self-development and self-directed learning [2]. This process implies that employee development must be applied to employees who want to improve their skills and can learn. Indeed, employees interested in learning new skills should be able to increase their performance. They are more pleased with the job. Employee development also relies upon the characteristics of the employee, how much they are curious to learn new things, and how they are interested in developing themselves [3].

In recent decades, the technology sector has witnessed remarkable development. New sciences and tools such as artificial intelligence have started to be used in many sectors, such as finance, banking, healthcare, and robotics. Artificial Intelligence (AI) science is based on imitating human intellectual functioning. It comprises many branches, including machine learning, deep learning, natural language processing, and others. AI tools are used in most daily human tasks, such as navigation, data collecting, and classification [4, 5].

This study will study the impact of AI tools on employee development. Basrah University in Iraq will be considered as a case study. Below are the main objectives of this study:

- Identify the importance of employee development.
- Defining and describing types of AI.
- Describe how AI tools are used in most daily human tasks.
- Status of using AI tools in Arab countries, especially Iraq.
- Study the impact of AI on employee development in Iraq universities.

Thus, the main purpose of this study is to examine the effect of using AI tools on employee development. This goal is achieved by adopting a descriptive-analytical methodology that will be illustrated in more detail in this paper. Thus, this paper is organized as follows. First, the employee development process is described, followed by an illustration of artificial intelligence. Afterward, the role of artificial intelligence in employee development is described based on a determined methodology applied by the authors. The research's sample and procedure are also detailed in the methodology. Later, the methodology results are shown, followed by a discussion of the obtained results. Finally, the research paper is concluded and some recommendations are provided.

Nomenclature & Symbols			
AI	Artificial Intelligence	HR	Human Resources
MOOCs	Massive Open Online Courses	ML	Machine Learning
NLP	Natural Language Processing	SEM	Structural Equation Modelling
MANOVA	Multivariate Analysis of Variance	ANOVA	Analysis of Variance

2. Employee Development

There exist many definitions of employee development. Table 1 includes some of these definitions. As seen in this table, many definitions were given to the employee development process. However, all definitions focused on the good effect of employees' development on the evolution and improvement of the organization. Thus, employee development can be considered a collaborative initiative of the employee and the employer to boost a person's current skills and learning. Employees must keep themselves up-to-date with the latest evolutions in technologies and industry to outlive the intense competition.

Table 1. Employee development definitions in the literature

Reference Paper	Definition
[6]	"Human Resource Development is any process or activity that has the potential to develop adults' work-based knowledge, expertise, productivity, and satisfaction, whether for personal or group/team gain, or the benefit of an organization, community, nation, or, ultimately, the whole of humanity."
[7]	"The evolution of an individual's capability to work effectively in their job and duties for an organization"
[8]	"Systematic process aimed at improving competences of the individual and group through training and development, career development, and organizational development practices to achieve superior performance"
[9]	"Process of developing the abilities of an individual employee and organization as a whole so; hence employee development consists of individual or employee and overall growth of the employee as when employees of the organization would develop the organization, an organization would be more flourished, and the employee performance would increase."
[10]	"The motivating factor to the employees helps them develop themselves in the changing environment. If Proper employees are set to the job, which will lead to organizational success."

Employee development includes training, enhancing an employee's skills, and boosting his current knowledge and abilities. As employee development significantly affects organizational improvement, organizations must motivate workers to participate in employee development tasks. In addition, employees should take skill enhancement and employee development activities seriously. There is a main difference between employee training and employee development. Indeed, employee training concentrates on short-term results. It aids an employee in performing better results at his current task. Employee training aims to give employees the skills required to perform their positions' functions [11]. For instance, employee training includes a concrete end goal, including creating a good presentation or successfully using a specific application [12].

However, employee development contains a long-term vision. It concentrates less on technical skills but focuses more on improving employees as individuals. The main goal of employee development is to train employees with the philosophies and talents required to confront future challenges [13]. Unlike employee training, employee development concentrates on talents and behaviors that have a longer life. These skills aid employees in facing problems throughout their careers and apply them to their personal lives [14]. Employee training represents all tasks about accomplishing duties. However, employee development concentrates more on being.

2.1. Employee Development Process

Fig. 1 represents the process of employee development. The first step identifies needs; it finds the gaps between employees and the skills required to perform their jobs. After that, the objective of the development should be fixed. Using this objective, the HR department can select the most appropriate method for performing the development plan. The HR department should survey the execution of the development method. By the end of the development method, the HR department should include a performance evaluation [15].
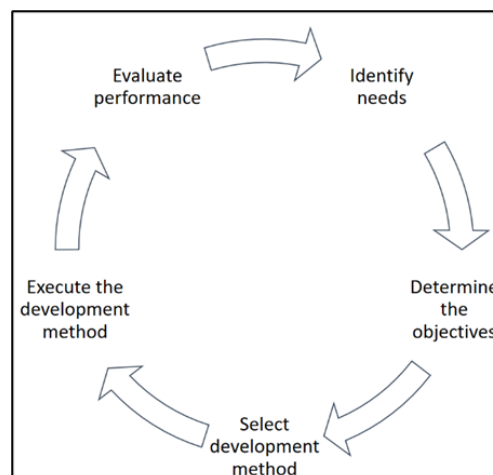

Fig. 1. Employee development process

2.2. Methods Used in the employee development process

Employee development methods can be classified into four categories (see Fig. 2) [16].
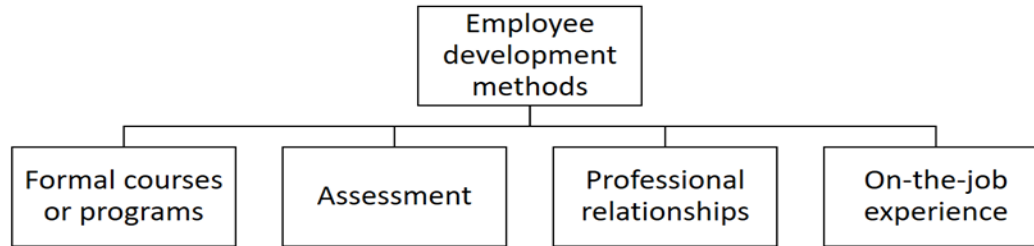

Fig. 2. Methods of employee development

2.2.1. Formal courses or programs

Registering in online courses and webinars is a form of autonomous development activity that employees may use to improve their skills and learning. The academic educational resources movement gives massive open online courses (MOOCs). These courses are open and accessible by anyone with an internet connection and intelligent devices such as a computer, tablet, or smartphone, enrolled by thousands of learners. The online learning platforms may contain videos of lectures and interactive coursework via discussion groups and wikis; each course has a start and end date and includes exams and quizzes [17]. MOOCs include enormous topics, including computer science, psychology, physiology, and health policy. Courses are often created in collaboration with organizations with academic ties, such as Coursera.

Webinars represent live seminars, presentations, lectures, or online workshops. Webinars offer synchronous education. Expert educators share videos, audio, and images, motivating participants to ask questions and participate with their ideas. During webinars, there are real-time question-answer sessions, opportunities for discussion, and immediate feedback, and participants can save content for review or share with others [18].

2.2.2. Assessment

Getting certificates or feedback is the goal of assessment activities that allow employees to boost their skills and identify and get more skills for better performance and future opportunities. Certifications mean a commitment to knowledge, experience, and skills in a particular professional area. An accredited organization or professional society commonly suggests an exam for people with minimum qualifications to evaluate their knowledge and capacity to perform a specific job or task. Individuals who get a grade above the specified standards receive certification as evidence of expertise [19].

2.2.3. Professional relationships

The professional relationships developed in the workplace are valuable for employees' current well-being and future professional collaborations. Although the relationships employees form with themselves and senior staff can help them achieve organizational goals, they change according to individual personalities. Learning about these relationships can help employees improve their existing ones and form new connections [20].

2.2.4. On-the-job experience

Job crafting represents job experience, defined as "an employee-initiated approach which enables employees to shape their work environment to fit their individual needs by adjusting the prevailing job demands and resources." This approach has many benefits: enhanced organizational performance, greater engagement, and more challenge to promote mastery [21].

However, Organizations operate on regular rules. Therefore, changing how employees do things can affect the organization's system. For instance, Sabbaticals represent the long-time employees can spend away from work. During this period, employees are still employed and may still be paid. The employees can employ this time as they like, whether for rest, learning new skills, writing, or Inner Work. This period may motivate and satisfy employees. Usually, employees return from this period with higher performance than before [22].

3. Artificial Intelligence

Artificial intelligence's primary key is the human brain's imitations to memorize, examine, evolve, and make decisions [23]. Therefore, AI tools are implemented to decrease human workload, make better decisions and reduce labour costs. Consequently, artificial intelligence creates a new age of enterprise development in which workers and staff can store, manage, and analyze more data and information faster and more accurately. Many institutions and researchers have recently increased their use and investment in AI.

AI can boost employee creativity in enterprises. Indeed, automating repetitive and manual tasks will permit employees to have more time for creative activities. Furthermore, AI can improve employees' capacity to complete jobs with the assistance of extended intelligence. Specific AI tools can handle a large data set and support experts with creative tasks such as decision-making and segmentation [24].

AI contains different branches, as shown in Fig. 3 [25].

3.1. Expert Systems

It is a branch of Artificial Intelligence (AI-based) system that understands and emulates the decision-making ability of humans. Expert Systems employ logical notations to resolve complex systems. These systems are generally used in the healthcare and medical sector to operate medical skills and catch viruses and diseases. In addition, it is used in banking areas for managing investments and loans [26].

3.2. Machine Learning (ML)

It is the most used branch of AI. It represents the science that allows machines and computer systems to learn from historical data to improve performance. The techniques used in ML allow systems and machines to predict results based on past knowledge. The model can be trained in ML systems using a data set and then used to predict future outcomes. Recent technologies like text, face, and speech recognition are the derivatives of ML techniques.

ML is used in many sectors like finance, Human resource, healthcare, education, and robotics. Generally,

3.3. Robotics

The robot is an artificial agent that can operate in a real-world environment [27]. The main goal of the robot is to manipulate existing objects by sensing, selecting, pushing, changing the physical properties of an object, destroying it, or having an effect, thus freeing the workforce from performing repetitive tasks without becoming bored, distracted, or exhausted.

3.4. Natural Language Processing

It is a type of AI that assists machines and systems in comprehending human language. Therefore, machines can efficiently complete redundant tasks. Translation systems and spell check are examples of NLP systems. NLP is an essential tool for businesses. Indeed, it assists in managing and analyzing a large volume of data, such as news posts and social media data. These data may contain hugely valuable information, and NLP can assist in uncovering these data [28].

3.5. Planning

It is a method that assists the user in finding out what he wants and has [29]. Using this information, the user can easily decide which steps to take to get from where he is to where he wants to be.
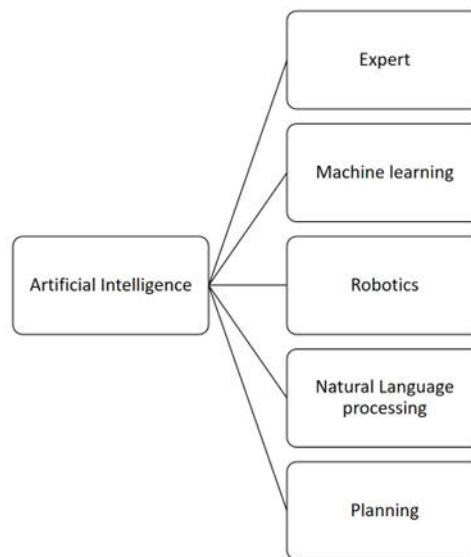

Fig. 3. AI branches

4. Artificial Intelligence in Employment Development

The use of AI techniques has improved the employee development process. It can be used in each step of employee development (see Fig. 4) [30, 31]:

4.1. Understanding the knowledge gaps of each employee

Employees come from different backgrounds and different education levels. Therefore, offering the same training or Learning material to all employees wastes time as some employees can have prior information, knowledge, and skills in this training and material. Thus, identifying the knowledge cap of each worker and staff is an essential step for the company. It reduces the cost of employee development and minimizes the development period. In addition, it increases the employees' engagement by improving their skills and helps them learn new things [32]. AI can calculate and integrate big data collected from different resources to identify gaps in an individual's knowledge. Then, according to the result given by AI, employee profiles can be completed. Using profiles, the gaps in knowledge can be identified. Therefore, a training plan can be prepared to improve employee skills.

4.2. Using personalized learning styles

The learning process may differ from one person to another. In addition, a human may maintain information differently. Using AI in development, programs can be created and designed considering each worker's different learning styles. The main benefits of using AI in selecting the appropriate development method for each employee are saving time and learning. When using AI in development, employees can choose their needed learning material and purposes and acquire information according to their learning styles and priorities. It will allow them

to learn the personalized content at their own pace while meeting the company's criteria. Furthermore, businesses can deliver training courses on demand because AI learning platforms can be built to hold the employee's learning materials and preferences. This type of learning platform enables management to monitor the progress of employees.

4.3. Using the knowledge

Companies may invest millions of dollars in the employee development process. However, the employee can only offer a short time to the development programs. Using AI, this problem can be resolved by automating the development process. This automation may help enhance employee engagement and support the development and learning program. Furthermore, personalizing the development program for employees can boost completion rates and reinforce knowledge [32].

4.4. Online assistance

Employees may perform the learning and development process online at their own homes. Therefore, it is normal to have questions. AI applications like chatbots allow employees to obtain answers directly throughout their development programs. Accordingly, there is no delay in resolving the questions, and the employee can continue his learning and development programs without waiting for the trainer to answer the questions [33].

4.5. Assessment

AI tools developed for the development and learning process can check and correct answer sheets, calculate scores, and evaluate performance. They can also immediately collect other information for the employee by profoundly analyzing the results. Tests can be corrected by the AI tool. In addition, AI tools may help provide a personalized assessment, considering the learner's skills and deep learning capabilities. As a result, it provides a more accurate performance result while eliminating the possibility of human error [34].

4.6. Evaluating the development process

In the development process, AI can analyze and use data collected from this process. This data can be used to obtain feedback on employee performance and other analytics that can provide insights into the enterprise's development efforts. These details can be used to assess the effectiveness of learning content, identify areas for improvement, and identify learning patterns and techniques among employees while mapping out trends [32].
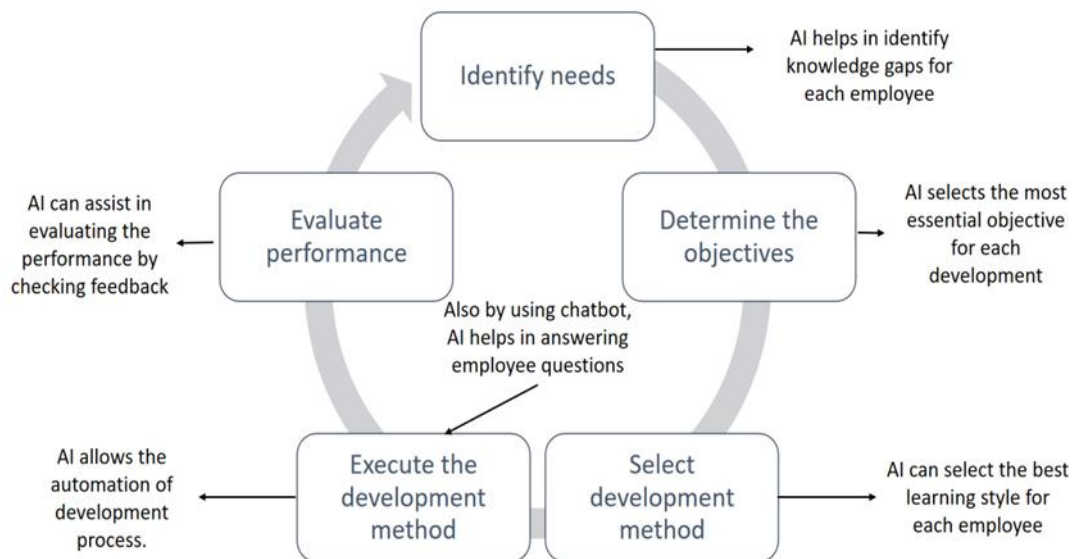
Fig. 4. AI in the employee development process

5. Literature Review

Many recent researches have considered the impact of artificial intelligence on employee development. The author in [35] aimed to examine how employees perceived change leadership's role in implementing artificial intelligence (AI), which will affect performance and workplace engagement in changing environments. Quantitative research strategy and data analysis have been applied in this work. It has been done using a structural equation modelling (SEM) strategy supported by the program computer software AMOS 22.0. In this study, 357 respondents were included; only 254 qualified. The respondent worked for firms in the banking and services industries in the East Java region of Indonesia. The findings demonstrate that AI significantly positively impacts worker engagement and productivity. Positive change management helps moderate AI's impact on worker productivity and engagement. This model's development is unique by integrating "the role of change leadership" as a moderating element. Leaders have a crucial role in environments that are undergoing fast change. After all, in the organization, decisions are made by the leaders. Studies of service and banking companies have been the main focus of this concept's development. Because it will enhance organizational performance, employee performance is a crucial factor in the organization. Additionally, implementing AI in enterprises would cause chaos, necessitating the crucial role of leaders to succeed in employee work engagement.

The work of N. Malik et al. in [40] aimed to develop a practical understanding of the good and unfavourable employee experiences related to the deployment of artificial intelligence (AI) and the emergence of technostress. It distinguishes the difficulties associated with human resource

development with the advent of Industry 4.0; 32 professionals with an average of 7.6 years of work experience who worked in nine industries participated in semi-structured interviews. The transcripts were analyzed using NVivo. The findings show that adopting AI has significant adverse effects, including information security, data privacy, changes brought on by digital transformations, and employment risk and employee insecurity. Following this is a hierarchy of elements that comprise the beneficial effects, including increased job performance overall, flexibility and autonomy at work, and creativity and invention. Work overload, job uncertainty, and complexity were additional variables causing technological stress (among employees). The emergence of the information economy and technological advancements are altering job profiles, necessitating the acquisition of new skill sets and technological prowess. Therefore, the firms must implement strategic people development strategies focusing on knowledge management and skill upgrades. Using specialized technologies and virtual reality, well-designed training programs are needed to enhance skills (VR). Additionally, employees require assistance managing positive and bad outcomes in their socio-technical ties.

The work of N. M. Boustani in [37] aims to analyze the use of artificial intelligence (AI) in the banking industry, how it affects consumer and bank employee behaviour while acquiring financial services, and how crucial it is for providing social services in Lebanon, a growing nation in Western Asia. The author addressed the following issues: can AI take the role of people in customer service? Moreover, will AI alter the role of the banker and increase the bank's profitability? A quantitative research-based model using hypothesis regression was applied to the data gathered and assessed. Despite its unique architecture, AI cannot replace people when it comes to customer interactions with bank workers, but the results have been beneficial. The quality of banking transactions is improved with AI. While human resources can easily replace technology in some technical banking positions, AI has been unable to substitute emotional intelligence when managing client/employee relationships in banks. By examining the potential for implementing innovation and change through AI at various sizes of banks with more significant staff, financial resources, and corporate clients, researchers can compare giant alpha banks to smaller banks in the same developing country. Concerns about the effects on employment have been noticed; AI may make many bank professions obsolete in the coming years, according to the claim that AI and robotics "decrease the necessity for humans in areas like back-office functions."

According to data, a surge in banking jobs may coincide with the spread of AI. It is also possible that only the menial tasks, like data input, will be abandoned in the name of technological advancement. While it may seem ideal for job growth to be correlated with higher AI adoption rates, some data suggests that most financial institutions are not yet fully confident in applying the technology effectively for the best results. This study was conducted and restricted to one developing Asian nation. However, it would be beneficial to expand it to include other nations in the region to prove more profound knowledge that helps researchers evaluate the adoption of AI in Asian countries from different perspectives, including many features.

The work of A. Alrashedi et al. in [38] focused on the hotel sector, looking at the effectiveness of applying artificial intelligence (AI) in commercial business. This study examined how AI and personnel service quality affect customer happiness and loyalty from the customers' perspective. The study focused on visitors who had used the AI and staff services provided by the surveyed hotels and was done in several hotels in Portugal. The findings indicate that AI and employee service quality account for sizable variations in overall service quality rating and client loyalty and satisfaction. However, just a few aspects of service quality caused distinctive variations in the essential outcomes. AI becomes minor and detrimental when combining employee service quality and artificial intelligence. This study adds to the body of knowledge on AI and customer loyalty. The results of this study have financial ramifications for hotels and shed light on the best resource allocation strategies.

The work by C. Prentice et al. in [39] focused on the hotel sector, looking at the effectiveness of applying artificial intelligence (AI) in commercial business. This study examined how AI and personnel service quality affect customer happiness and loyalty from the customers' perspective. The study focused on visitors who had used both AI and staff services provided by the surveyed hotels and was done in many hotels in Portugal. The findings indicate that considerable variations in total service quality assessment, customer satisfaction, and brand loyalty explain AI and employee service quality. However, only a few aspects of service quality caused distinctive variations in the relevant results. AI turns negative and inconsequential when employee service quality is regressed in the same equation. This study aids research on AI and customer loyalty. The study's conclusions have financial ramifications for hotels and suggest the best resource allocation.

6. Methodology

This study examines the impact of using Artificial Intelligence on the efficacy of employee development in Iraq universities. Thereby, two variables will be used:

- Artificial intelligence as an independent variable
- Employee development with three dimensions (Performance, skills, and engagement) as the dependent variable.

These dimensions are selected based on studies illustrated in Table 2.

Table 2. Studies that examined the dependent variables in employee development

Dependent Variable	Definition
Employee performance	[35]
Employee engagement	[32]
Employee skills	[38]

Based on these variables, the conceptual framework of this study is built, as shown in Fig. 5.

According to Fig. 5, the following Hypotheses are developed, as follows:

The primary hypothesis:

- H0: There is an impact between Artificial Intelligence and employee development.

The following hypotheses are thus derived:

- H01: There is an impact of artificial intelligence on employee performance.

- H02: There is an impact of artificial intelligence on employee skills.
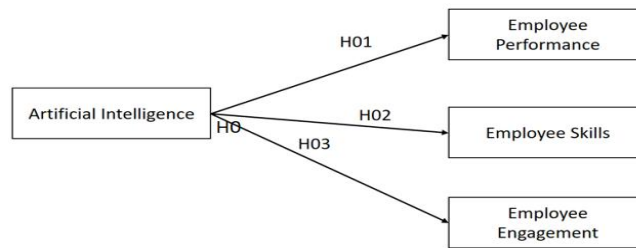- H03: There is an impact of artificial intelligence on employee engagement.

Fig. 5. Conceptual framework for the first central hypothesis

6.1. Sample and procedure

A descriptive-analytical method is used in this study to provide the impact of information technology on decision management in business. The procedure is performed after examining the relationship between dependent, independent, and moderate variables. Consequently, this study's procedure is illustrated in Fig. 6.
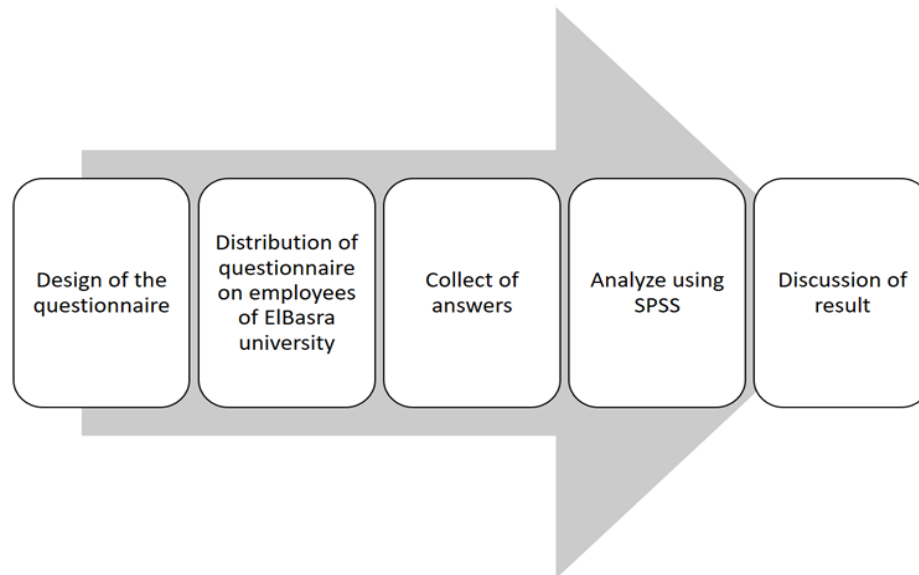

Fig. 6. Using a questionnaire, the five steps in the procedure to examine the relationship between the variables

First, a questionnaire of 24 questions was prepared. This questionnaire is composed of five parts (see Table 3).

Table 3. Number of items specified for the dependent and independent variables

Variable			Number of Items
	Personal information	Age –Education- position- contract type	4
Independent	Artificial Intelligence		5
Dependent	Employee Development	Skills	5
		Performance	5
		Engagement	5

Then, this questionnaire will be distributed to employees of Basrah University. The number of employees at Basra University is 5120. According to the employees' number, the sample size is computed using the following formula [41, 42]:

$$n = p * (1 - p) * (\frac{z}{E})^2$$
$$size_{sample} = N * \frac{n}{n + N - 1}$$

Where;
- N is the population size; in this case, it is equal to 5120.
- Z is the normal standard distribution value reflecting the confidence level to be used (see Table 4). In this study, Z is chosen to be equal to 1.96 for a 95% confidence level.
- E is the required margin of error; in this case, it is considered 5%.

- p is the percentage of successes in the population, needed as an approximation value, ranged {0, 1}; in the study case, p is considered to be equal to 0.5.

Thus, we get a sample size of 358 records needed in this study.

Table 4. Z-values for most used confidence levels

Confidence Level	Z-value
90%	1.645
95%	1.960
99%	2.576

6.2. Statically methods

The collected data will be analyzed using SPSS. The following statically methods were used [36, 37]:

- Stability coefficient (Cronbach's alpha)
- Calculation of the variance between the variables (Kaiser-Meyer-Olkin test- KMO)
- Creating measurement indicators
- Descriptive data presentation: frequencies, ratios, arithmetic mean, and standard deviation
- P-P plot and histogram
- Skewness and Kurtosis
- MANOVA
- Eta squared

7. Results and Discussion

7.1. Demographic results

Table 5 illustrates the demographic distribution of the sample chosen from Basrah University in Iraq.

Table 5. Demographic distribution of the sample

No	Variants	Class	Number	Ratio (%)
1	Certificate	Technical	12	3
		Bachelor	149	42
		Master	49	14
		Doctorate	139	39
		None	9	3
2	Age	18-24	32	9
		25-35	41	11.5
		36-44	130	36.5
		45-50	108	30
		Above 50	47	13
3	Gender	Male	184	51
		Female	174	49

According to Table 5:

- The male ratio is much closer to the female ratio. It is concluded that the sample is well distributed according to the gender factor.
- Employees between 36 and 44 have higher percentages, whereas employees below 30 or above 50 are considered less engaged in this sector.
- Bachelor's and doctorate degrees have the highest percentages, 42%, and 39%, respectively. It is expected in higher education, such as in universities.

7.2. Questionnaire reliability

In this study, the weights of those answers were calculated using a five-point Likert scale, as shown in Table 6.

Table 6 Weights of questionnaire answers

Category	Strongly disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly agree (SA)
Degree	1	2	3	4	5

Cronbach's alpha was used to assess the questionnaire's reliability. Cronbach's alpha is a static tool to assess a questionnaire's internal consistency. It determines how closely related a group of items is. It is a scale reliability metric. Cronbach's alpha values are shown in Table 7, along with their meanings.

Table 7. Signification of different Cronbach's alpha values

Alpha Value	Meaning
Less than 0.5	Internal consistency is unacceptable
0.5 – 0.6	Internal consistency is poor
0.61 – 0.7	Internal consistency is questionable
0.71 – 0.8	Internal consistency is acceptable

0.81 – 0.9	Internal consistency is good
Above 0.9	Internal consistency is excellent

The questionnaire stability was calculated after applying Cronbach's alpha to a minor sample of 30 people. This mini-sample was excluded from the original study sample to ensure a proper investigation. Cronbach's alpha and its corresponding constancy applied to the small sample, are shown in Table 8.

Table 8. The stability study was measured for a small sample of 30 people

Variant	Value	Constancy
Artificial Intelligence	0.817	Good
Performance	0.835	Good
Engagement	0.868	Good
Skills	0.915	Excellent
Total	0.923	Excellent

7.3. KMO test

KMO is a statistical test that validates the suitability of data for the factor of the study. KMO value can change from 0 and 1. The sample is considered adequate if the KMO values are between 0.8 to 1. However, the sample is mediocre if the KMO values are between 0.6 to 0.79. Finally, the sample is unacceptable if the KMO values are smaller than 0.6. However, the factor of the study is inappropriate for the data analysis if the KMO is less than 0.5.

Table 9. KMO values for the dependent and independent variables

Variables	KMO
Artificial Intelligence	0.82
Performance	0.87
Engagement	0.91
Skills	0.90
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.90

Table 9 shows the KMO values for the collected sample. As shown in this table, the sample is suitable for the factors of the study.

7.4. Descriptive statistics

Table 10 shows the mean interpretation compared to the Likert gradient used during this study [42, 43].

Table 10. The interpretation of the mean compared to the Likert gradient

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1-1.80	1.81-2.60	2.61-3.4	3.41-4.2	4.21-5
Very Weak	Weak	Moderate	Strong	Very strong

Table 11 shows the mean, standard deviation, Kurtosis, and Skewness values for all the dimensions.

Table 11. Descriptive analysis of the variables

Variable	Statement	Mean	Standard deviation	Skewness	Kurtosis
Artificial Intelligence	You are interested in learning more about artificial intelligence, as it may affect your future career.	4.089	0.831	-1.041	0.811
	Artificial intelligence could automate many jobs, including office jobs, over the next 20 years.	2.231	0.8744	-1.1180	0.9310
	Your university uses artificial intelligence tools in the security of data communications.	2.922	0.9735	-0.2760	0.4490
	Your university uses artificial intelligence tools in data analysis.	2.222	0.9735	-0.2760	0.4490
	Your university uses AI tools, such as the attendance system, to monitor job absenteeism.	2.720	0.923	-0.8740	0.3970
Skills	Your university is trying to analyze employee data and develop an AI training plan.	3.136	0.579	-1.1009	0.2960
	Your university is interested in improving your leadership skills through artificial intelligence.	3.225	0.595	-1.1280	0.3810
	Your university is interested in improving your creativity with artificial intelligence.	3.161	0.594	-1.1288	0.3430
	Your university is interested in improving your critical thinking (Making the right decisions) by collecting data and using artificial intelligence.	3.242	0.594	-1.1270	0.3810
	Your university is interested in keeping employees in an active learning environment through artificial intelligence.	3.158	0.582	-1.1045	0.2670
Performance	Your university monitors staff performance (by collecting data and using artificial intelligence to analyze it).	3.870	0.8833	-0.9830	0.1280
	AI tools may improve decision-making.	4.069	0.7910	-1.038	0.1280
	AI tools may improve employee productivity.	4.111	0.7151	-1.131	0.1290
	AI tools may improve employee performance.	4.208	0.7746	-1.066	0.1290

	AI tools may speed up the work process.	3.958	0.782	-1.1045	0.2670
	Your university is trying to improve work collaboration by using artificial intelligence.	3.386	0.9607	-0.6110	0.1520
	AI tools may help share information faster.	4.133	0.7594	-1.1840	2.8060
Engagement	Your university trains staff on new technology and software.	3.656	1.0677	-0.7970	0.1440
	Your university uses the survey to determine what challenges employees face at work.	3.439	1.0900	-0.4940	0.4000
	Your university uses AI-enhanced software to analyze employee morale.	3.172	1.1587	-0.2210	0.7680

According to Table 11:

- The mean for the independent variable is between 2.222 and 4.089. Therefore, the sample agrees that "Artificial Intelligent is not widely used at Basrah University". However, the employees are interested in learning more about AI, as the response to the first question has a mean of 4.089. The standard deviation values are smaller than 1. Therefore, the collected answers associated with the independent variable are close to the mean. The skewness value is negative; thus, the left tail is smaller at the end of the distribution than the right tail, which is more significant at the end. Fig. 7 shows the interpretation of kurtosis values.
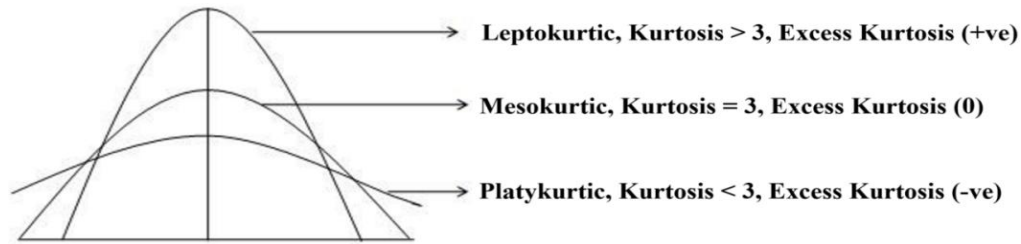

Fig. 7. Kurtosis interpretation [44]

As SPSS gives the excess kurtosis value (it is positive in Table 11), the distribution is Leptokurtic.

- The mean of the Skills dimension is between 3.136 and 3.242. Therefore, the sample agrees that "Artificial Intelligence is used in Basra University for enhancing employee skills". The standard deviation values are smaller than 1. Therefore, the collected answers associated with the independent variable are close to the mean. The skewness value is negative; thus, the left tail is smaller at the end of the distribution than the right tail, which is more significant at the end. The kurtosis values are positive; therefore, the distribution is Leptokurtic.
- The mean of the Performance dimension is between 3.870 and 4.208. Therefore, the sample agrees that "Artificial Intelligent is used in Basrah University for enhancing employee's performance". The standard deviation values are smaller than 1. Therefore, the collected answers associated with the independent variable are close to the mean. The skewness value is negative; thus, the left tail is smaller at the end of the distribution than the right tail, which is more significant at the end. The kurtosis values are positive; therefore, Leptokurtic distribution.
- The mean engagement dimension is between 3.172 and 4.113. Therefore, the sample agrees that "Artificial Intelligent is used in Basrah University for enhancing employee's performance". The standard deviation values are smaller than 1. Therefore, the collected answers associated with the independent variable are close to the mean. The skewness value is negative; thus, the left tail is smaller at the end of the distribution than the right tail, which is more significant at the end. The kurtosis values are positive; therefore, the distribution is Leptokurtic.

7.5. Linear relationship and Normal distribution

Fig. 8 (Left) shows the histogram associated with the dependent variable "Employee development", showing a normal distribution of this variable. On the other side, Fig. 8 (Right) shows the relationship between dependent and independent variables, showing a linear relationship between the variables of the study.
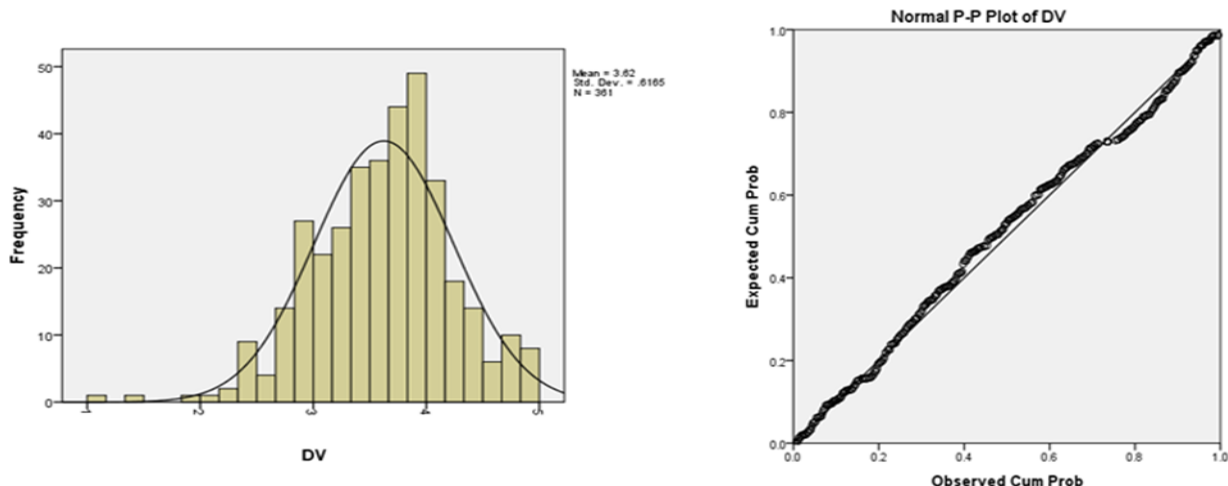

Fig. 8. Normal distribution of the dependent variable "Employee performance" and the relationship between variables of the study

In this study, one independent variable is adopted. However, a dependent variable with three dimensions is used. For this reason, MANOVA will be employed to prove the central hypothesis.

7.6. MANOVA test

Multivariate analysis of variance (MANOVA) is a new version of the univariate analysis of variance (ANOVA) [41, 43]. Indeed, in ANOVA, the statistical relationship between one continuous dependent variable by an independent grouping of variables can be tested. However, the MANOVA expands this testing by considering more than one dependent variable. In this section, the author tests the central hypothesis and the associated sub-hypotheses using One-Way MANOVA to prove the impact between "Artificial Intelligence" and "Employee development". Table 12 shows the result of the MANOVA test in this study.

Table 12. Outputs of the MANOVA test

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Artificial Intelligence	Pillai's Trace	1.313	2.54	69	24	0.00	0.70
	Wilks' Lambda	0.202	3.02	69	34	0.00	0.82
	Hoteling's Trace	2.115	4.12	69	22	0.00	0.62
	Roy's Largest Root	3.042	8.64	23	18	0.00	0.67

From the MANOVA Tests, we can conclude that Employee development depends on artificial intelligence use as the Sig value is smaller than 0.001. For interpreting the partial Eta Square ($\eta2$), the following scale will be used:

- η^2 between 0.01 and 0.05 represents a small effect
- $\eta2$ between 0.06 and 0.13 represents a medium effect
- $\eta2 > 0.14$ represents a significant effect

As indicated in Table 12, all partial Eta squared is more remarkable than 0.14. Thus, there is a significant effect of artificial intelligence on employee development. This result is proven by Table 13, based on the proven following points:

Table 13. Compare means

Measures of Association	Eta	Eta Squared
AI * Performance	0.79	0.624
AI * Skills	0.76	0.577
AI * Engagement	0.80	0.64

- There is an impact between Artificial Intelligence and Employee performance. The value of Eta is equal to 0.79; thus, there is a positive. The size of the changes (Eta Squared) that occurred in employee performance due to using the Artificial Intelligence tool is equal to 0.624. This value confirms sub-hypothesis H01.
- There is an impact between Artificial Intelligence and Employee developed skills. The value of Eta is equal to 0.76; thus, there is a positive. The size of the changes (Eta Squared) that occurred in employee performance due to using the Artificial Intelligence tool is equal to 0.577. This value confirms sub-hypothesis H02.
- There is an impact between Artificial Intelligence and Employee engagement. The value of Eta is equal to 0.80; thus, there is a positive. The size of the changes (Eta Squared) that occurred in employee performance due to using the Artificial Intelligence tool is equal to 0.64. This value confirms sub-hypothesis H03.

8. Conclusion

Employees are the primary resource of any organization. Their performance may affect the organization's production and evolution. Recently, many companies worldwide have started applying for employee development programs. Such a program aims to enhance the employee's skills, performance, and engagement. Organizations spend enormous amounts of money on employee development. The procedure of employee development is essential for the employees. It describes the interest of the company in its employees. Indeed, when a company starts spending money on employee development, employees understand that they are essential and irreplaceable. Thus, they perform better; use their full talents and efforts to achieve the organization's goals.

Artificial Intelligence is a recent science of building systems that include intelligence like human-being. Recently, it has been widely used in many fields like healthcare and navigation. Artificial Intelligence tools may help any organization quickly analyze massive data. Many companies worldwide have started to use AI in creating employee development processes. It may help find the employees' skills gaps or choose the best training technique for each.

This paper studies the impact of using AI on employee development by moderating demographic factors. This study consists of AI as the independent variable and Employee development as the dependent variable. Three dimension of employee development was adopted: Employee performance, Employee skills, and Employee engagement. Two demographic factors are considered moderate variables: Age and education. A descriptive-analytical method was used.

For this reason, a questionnaire of twenty-five items was built and distributed to the employees of Basrah University. Three hundred fifty-eight answers were collected. SPSS software was used to examine the collected answers. The result shows that Basrah University is interested in developing their employee. In addition, it adopts new technology tools and performs maintenance of technological devices. However, AI applications are not used enough in the university. The result of SPPS shows the impact of AI on employee development. As this study is built on using three dependent variables and one independent variable, the MANOVA test is used to check the relationship between variables. The ETA values resulting from MANOVA were between 0.76 and 0.80. Thus, there is an impact between the independent variable (Artificial Intelligence) and the dependent variables (Employee development) and their dimension (Skills, performance, and engagement). This result is logical. By using advanced tools like artificial intelligence, the company can easily detect the gaps in employees' skills and choose the

appropriate training to enhance their skills. Employees will be more engaged when they feel that they are important and their skills are improved. Also, their performance will become better if they use advanced applications.

In addition, the effect of demographic factors (age and education) was studied. SPSS shows that age and education factors strengthen the impact between Artificial Intelligence and employee development. Indeed, with a good education level, the employee understands more about the effectiveness of using advanced technical tools like Artificial Intelligence. Also, they better comprehend employee development's function in improving their skills and performance. Thus, they will become more motivated and excited to accomplish training and development courses. Also, the employee with more experience understands better the efficacy of using more technical tools. In addition, he has more skills to use Artificial Intelligence tools more efficiently. Older employees have better engagement than new ones as they comprehend more the rule of their work due to the experience.

After performing the study, the author suggests the following points:

- The Effect of AI on employee development should be studied more by taking more dimensions of AI and employee development variables
- AI applications should be used more in Arabic countries, especially for data analysis
- Companies should perform more effort into developing their employees.
- Adopting more artificial intelligence applications
- Perform more studies concerning the impact of artificial intelligence on the development of employees in the educational sector in Iraq.
- Consider employees' opinions to check their abilities to use new technologies platforms.
- Conduct more training and seminars that explain to the professors, employees, and students more about artificial intelligence sciences and how it can improve their lives.
- Using chatbots and thoughtful text messages on the university website and applications to answer student inquiries efficiently
- Use artificial intelligence in evaluating employees and professors in universities
- Use of artificial intelligence in recruitment tasks.
- Prepare a practical plan for training employees and professors in universities to use artificial intelligence applications
- Focusing on hiring experts in the field of artificial intelligence to benefit from them in training employees in universities
- Monitor the university infrastructure and provide the necessary equipment for more advanced applications.
- Update the library systems with artificial Intelligence tools to assist researchers during their research journey.

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