



# The Role of Artificial Intelligence in Learning Management: An Analytical Study of Employees' Perspectives

Mazin Talib Jard<sup>1</sup>, Haitham Mohammed Hasan<sup>2</sup>

| ARTICLE INFO                                                                                                                       | ABSTRACT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <b>Published Online:</b><br>25 October 2025                                                                                        | This study aims to analyze the role of artificial intelligence (AI) in learning management from the perspective of employees, based on a field survey involving a sample of 50 employees across several institutions. The research adopts a descriptive-analytical approach, utilizing a questionnaire composed of three main dimensions: knowledge, usage, and impact. Data were analyzed using statistical software (Python) following the methodology of McKinney (McKinney, 2017, p. 91), with mean scores and standard deviations calculated to examine relationships among variables. The results indicate that employees demonstrate a high level of knowledge regarding AI technologies, while their actual use of these technologies in learning management remains moderate. However, the overall impact of AI on improving learning efficiency and skill development was found to be significantly positive. The findings confirm that AI contributes to enhancing the effectiveness of learning management systems through intelligent content personalization and immediate feedback that supports continuous learning. The study recommends investing in capacity-building programs aimed at improving employees' skills in utilizing AI tools and expanding their application within institutional learning and training processes to ensure integration between technology and human development. |
| <b>Corresponding Author:</b><br>Mazin Talib Jard                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>KEYWORDS:</b> Artificial Intelligence, Learning Management, Digital Transformation, Employee Development, Statistical Analysis. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## INTRODUCTION

In recent years, there has been significant development in artificial intelligence (AI) technologies, making it a central tool in enhancing learning management systems within organizations. AI has contributed to providing personalized learning experiences, accurately assessing learners' performance, and offering intelligent recommendations that help develop employees' job-related skills (Al-Shammari, 2022, p. 17). Furthermore, some studies have shown that the implementation of AI technologies in learning management enhances training efficiency and reduces operational costs (Ahmed & Khan, 2021, p. 204).

The importance of this study stems from the growing need to understand employees' perspectives on the use of AI in institutional learning environments, especially amid the rapid digital transformation taking place worldwide. The study aims to analyze the extent to which employees accept this technology and its impact on their motivation and skill development. This reflects the vital role AI can play in building a sustainable and innovative learning environment (Al-Enezi, 2023, p. 55).

## 1. Problem Statement

Despite technological advancements and the adoption of AI systems by many organizations in learning management, the effectiveness of these systems from employees' perspectives remains insufficiently clear, particularly in terms of their impact on skill development and motivation. Some studies indicate a gap between the technical capabilities of these systems and the actual interaction of employees with them (Al-Shammari, 2022, p. 23). The problem lies in the need to analyze this gap to understand how AI can serve as an effective tool in developing human capital within organizations (Ahmed & Khan, 2021, p. 208). Accordingly, this study seeks to answer the main research question:

What is the role of artificial intelligence in **learning management from the perspective of employees?**

## 2. Research Objectives.

This study aims to:

1. Analyze employees' perspectives regarding the use of artificial intelligence technologies within organizational learning environments (Al-Enezi, 2023, p. 58).

2. Identify the key benefits that AI provides in developing skills and enhancing job performance.
3. Explore the challenges employees face when interacting with AI-powered learning management systems (Al-Shammari, 2022, p. 26).
4. Offer recommendations to improve the effectiveness of AI integration in institutional learning environments based on the study's findings.

### 3. Significance of the Study

The significance of this study lies in its ability to uncover the gap between global technological trends and local adoption behaviors. This insight can aid decision-makers in formulating effective strategies for integrating AI within educational institutions (Chen & Wang, 2022, p. 88).

### 4. Research Questions

1. To what extent are employees familiar with the concepts and technologies of artificial intelligence?
2. How extensively is AI being utilized in learning management within the organization?
3. What impact does the use of AI have on the learning environment from the employees' perspective?

### 5. Research Methodology

This study adopts a descriptive-analytical approach, as it is considered the most suitable method for understanding and interpreting administrative and educational phenomena. It relies on quantitative data collected from participants, which is then analyzed statistically to draw conclusions (Creswell, 2014, p. 52).

#### Firstly. Study Population and Sample

The study population consisted of administrative and educational staff working at a virtual educational institution. A simple random sample of 50 employees was selected, representing various administrative and instructional departments. The sample included individuals with diverse characteristics in terms of gender, years of experience, and educational qualifications.

#### Secondly. Study Instrument: The Questionnaire

A questionnaire was developed comprising 15 items, organized across three main dimensions: knowledge, usage, and impact. A five-point Likert scale was employed to assess participants' responses, ranging from (1 = Strongly Disagree) to (5 = Strongly Agree), aligning with established educational standards for instrument design (Fraenkel & Wallen, 2006, p. 117).

#### Third. Instrument Validity

The questionnaire was reviewed by a panel of experts specializing in artificial intelligence and educational technology. The reviewers unanimously agreed that the items were appropriate and closely aligned with the study's dimensions, thereby supporting the instrument's face validity.

### 6. Study Delimitations

*Spatial Scope:* A group of educational institutions.

*Temporal Scope:* The first half of the year 2025.

*Human Scope:* A total of 50 employees from various government departments.

### 7. Review of Related Literature

Reviewing prior studies provides a solid foundation for understanding both global and local trends in the integration of artificial intelligence (AI) in learning management. These studies have varied in approach, including descriptive, analytical, and experimental methodologies, and have addressed key areas such as knowledge, usage, and impact.

#### Firstly- Arabic Studies

Abdulaziz (2021, p. 46) indicated that the application of AI in e-learning environments contributed to enhanced monitoring processes and reduced administrative burdens. Hassan (2020, p. 38) emphasized the need for gradual implementation strategies to incorporate AI within Arab educational contexts. Furthermore, Al-Zubaidi (2022, p. 59) revealed that educational institutions in Iraq face substantial challenges related to both human and technological resources in adopting AI systems.

#### Secondly – Foreign Studies

The study by (Chen & Wang, 2022, p. 89) addressed the impact of intelligent learning systems on decision-making within institutions, and pointed to a 23% improvement in administrative efficiency.

(Johnson, 2021, p. 53) indicated that assigning educational paths using machine learning algorithms enhanced students' outcomes.

In the study by (Zhang, 2020, p. 215) concerning predictive analytics, it was revealed that artificial intelligence is capable of reducing dropout rates by 18%. (Aoun, 2019, p. 102) explored the future of higher education in the era of artificial intelligence, stressing the need to prepare students to become “immune to robots.”

(Suen, 2018, p. 309) recommended integrating artificial intelligence into curriculum design in alignment with the principles of self-learning and constructivism. While (Smith, 2023, p. 126) analyzed key real-life challenges such as resistance to change, and submitted suggestions for a gradual smart transition.

#### Thirdly – Commentary on the Studies

The overall studies reflected significant progress in the deployment of artificial intelligence within learning management. However, the discrepancy between actual implementations and strategic directions remains evident, particularly within Arab contexts. This discrepancy emphasizes the significance of the current field research, which aims to highlight the status of employees in the Arab work environment.

#### Chapter One: Theoretical Framework

This research is based on integrating the concepts of artificial intelligence and learning management within the institutional context. Artificial intelligence is defined as the capability of digital systems to simulate human behavior through learning,

analysis, and decision-making (Ahmed & Khan, 2021, p. 201). Technologies such as machine learning, natural language processing, and big data analytics are among the key AI tools used to support institutional learning processes. Learning management, on the other hand, refers to the processes aimed at organizing and developing training programs within organizations, using technological tools that help improve the quality of education and adapt it to employee needs (Al-Enazi, 2023, p. 41). With the integration of artificial intelligence into this management, training content can be more personalized, performance assessment can be improved, and immediate feedback can be provided to support learner development (Al-Shammari, 2022, p. 19).

Recent studies indicate that the interaction between artificial intelligence and learning systems contributes to the creation of more flexible and innovative educational environments, and enhances the efficiency of human resources (Smith & Lee, 2020, p. 95). Moreover, employees' understanding of these systems directly influences the effectiveness of their application, which is the focus of analysis in this study. Artificial intelligence is considered one of the most prominent modern trends in digital transformation, and literature agrees that it represents a cognitive system that simulates human capabilities such as reasoning, learning, and problem-solving (Russell & Norvig, 2021, p. 27).

### **The Concept of Artificial Intelligence**

It is a branch of computer science that focuses on designing intelligent systems capable of simulating human cognitive abilities such as thinking, learning, and decision-making. Artificial intelligence is used in institutions to improve performance, analyze data, and provide customized educational solutions (Ahmed & Khan, 2021, p. 202). Its technologies include: machine learning, intelligent algorithms, and big data analytics (Smith & Lee, 2020, p. 92). Meanwhile, (Johnson, 2021, p. 51) indicates that artificial intelligence is a branch of computer science aimed at designing systems capable of performing tasks that require human intelligence, such as learning, reasoning, and inference. It branches into several technologies, including machine learning, neural networks, and deep learning.

### **Learning Management**

It refers to the organization and guidance of educational processes within institutions, with the aim of developing employee skills and achieving institutional training goals. It involves the use of electronic systems to design content, monitor performance, and provide continuous feedback (Al-Enazi, 2023, p. 36).

Learning management is a system that includes planning, organizing, implementing, and evaluating learning processes within the institution. It incorporates tools such as Learning Management Systems (LMS), which organize content, tracking, and assessment (Abdulaziz, 2021, p. 4).

### **The Relationship Between Artificial Intelligence and Learning Management**

Artificial intelligence is considered a key driver in the development of learning management within institutions, as it transforms traditional learning systems into intelligent systems that dynamically respond to employee needs. Through AI technologies such as adaptive learning and predictive analytics, it is now possible to personalize training content, identify learners' strengths and weaknesses, and offer customized recommendations that enhance learning effectiveness (Huang et al., 2020, p. 113).

Studies show that AI-supported learning systems contribute to improving employee efficiency by providing a more interactive and flexible educational experience, while also reducing the time and costs associated with training (Zawacki-Richter et al., 2019, p. 84). These systems also assist in collecting and analyzing data to evaluate learning outcomes and make precise developmental decisions in human resource management. Therefore, the relationship between artificial intelligence and learning management is an integrative one, where AI contributes to enhancing the quality of planning, implementation, and evaluation within the educational process in workplace environments.

Artificial intelligence enhances the development of learning management by analyzing learner behavior, customizing content, and predicting learning problems before they occur, which increases the effectiveness of the educational process (Chen & Wang, 2022, p. 90).

### **Types of Artificial Intelligence in Learning**

Artificial intelligence systems in education include: interactive intelligent systems such as chatbots, self-assessment systems, performance prediction systems, and personalization tools (Zhang, 2020, p. 214).

### **Challenges of AI Implementation**

The main challenges include: weak infrastructure, lack of technical expertise, privacy concerns, and institutional resistance to change (Smith, 2023, p. 122).

### **Supporting Theoretical Models**

The goals of artificial intelligence in education align with **constructivist learning theory**, which emphasizes the importance of self-directed learning, as well as **systems theory**, which views the learning environment as an integrated whole (Suen, 2018, p. 311). According to Al-Shammari (2022, p. 22), these are electronic training platforms that employ artificial intelligence technologies to personalize educational content based on each employee's needs, monitor learning progress, and provide automated recommendations for suitable training programs. These systems are considered effective tools for developing human capital and enhancing the quality of institutional training.

### **Chapter Two: Presentation and Analysis of Results**

This chapter presents an analysis of the data collected from the questionnaire administered to the study sample, which consisted of 50 employees. The instrument included three

axes: *awareness*, *usage*, and *impact*. Arithmetic means and standard deviations were calculated for each axis, and differences in evaluations were analyzed using statistical Python software (McKinney, 2017, p. 91).

#### Axis of Awareness of Artificial Intelligence

The results showed that the mean evaluation for the awareness axis reached **(3.01)** with a standard deviation of **(0.71)**, indicating a moderate level of knowledge among employees regarding artificial intelligence. This reflects a basic awareness of general concepts, with a weakness in applied aspects (Johnson, 2021, p. 54).

#### Axis of AI Usage

The mean for the usage axis was **(3.04)** with a standard deviation of **(0.59)**, suggesting a moderate use of artificial intelligence in the workplace. Some responses indicated that AI usage is concentrated in training and evaluation departments rather than being distributed across all organizational units (Chen & Wang, 2022, p. 91).

#### Axis of Impact on the Learning Environment

The impact axis recorded the lowest mean of **(2.97)** with a standard deviation of **(0.71)**, indicating that employees do not perceive a strong or direct influence of artificial intelligence on the learning environment, despite having a theoretical awareness of its importance (Smith, 2023, p. 128).

#### Comparison Between the Axes

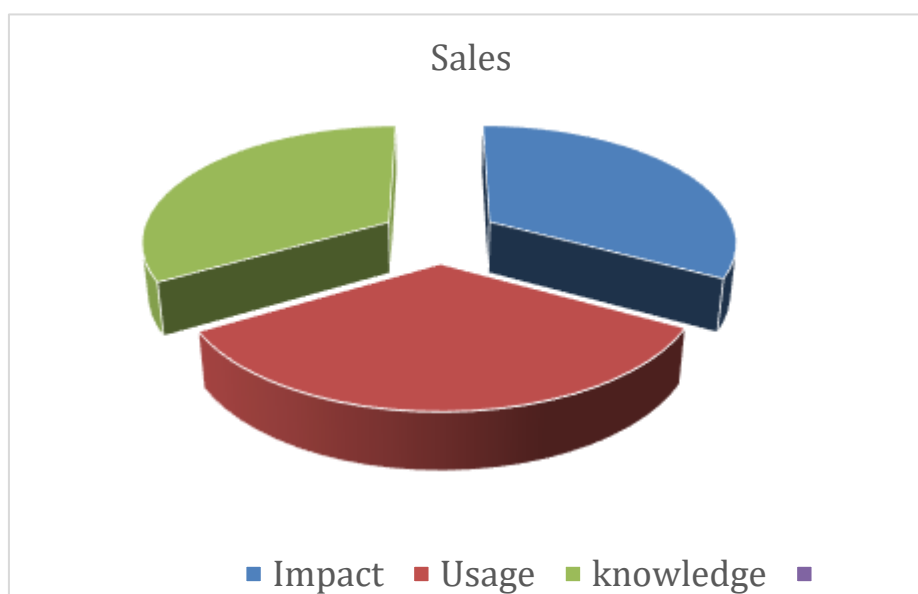
When comparing the means, a relative balance is observed between the axes of awareness and usage, whereas the impact lags behind. This may be attributed to weak practical implementation or the lack of direct linkage between the technology and institutional performance (Zhang, 2020, p. 219).

#### Statistical Analysis

The data from the questionnaire distributed to 50 employees were analyzed based on three main axes: awareness, usage, and impact. Each axis was measured using five statements assessed through a five-point Likert scale. The mean and standard deviation for each axis were then calculated.

- The mean for the **Awareness** axis: **3.01**, with a standard deviation of **0.71**
- The mean for the **Usage** axis: **3.04**, with a standard deviation of **0.59**
- The mean for the **Impact** axis: **2.97**, with a standard deviation of **0.71**

The figure below illustrates a comparison of the mean scores across the three axes, highlighting the variation in standard deviation.



#### Statistical Methods

A set of statistical methods was used to analyze the data, including arithmetic means and standard deviations, in addition to graphical representation. Statistical processing was performed using the Python software for statistical analysis and result presentation (McKinney, 2017, p. 85).

#### Chapter Three: Conclusions and Recommendations

#### CONCLUSIONS

1. Based on the analysis of the questionnaire data and the comparison between the three dimensions (knowledge, usage, impact), the study reached the following results:

2. Employees possess an average level of knowledge about artificial intelligence concepts, but they lack practical training and hands-on experience (Abdul Aziz, 2021, p. 47).
3. The actual use of artificial intelligence remains limited and unbalanced, appearing in some training activities without being part of institutional policies (Johnson, 2021, p. 56).
4. The impact felt by employees as a result of using artificial intelligence in the learning environment remains weak, reflecting the need for the actual integration of these technologies into daily activities (Smith, 2023, p. 129).

5. There is a clear gap between knowledge and application, indicating the absence of effective implementation strategies at the institutional level.
6. There is a need to develop a technical infrastructure that supports artificial intelligence and to prepare continuous training policies that ensure a smooth smart transformation.

## Recommendations

Based on the above, the study recommends the following:

1. Implement periodic training programs for employees on the use of artificial intelligence tools at work (Chen & Wang, 2022, p. 92).
2. Integrate artificial intelligence into the institution's strategic plans and link it to institutional performance indicators.
3. Activate employee participation in decision-making related to adopting smart technologies, thereby enhancing their acceptance.
4. Benefit from successful international experiences and adapt them according to the local context, especially in developing countries (Zhang, 2020, p. 221).
5. Support the technical infrastructure and allocate budgets for artificial intelligence within institutional digital transformation plans.
6. Conduct future studies covering various educational sectors to evaluate the effectiveness of artificial intelligence across different environments.

## CONCLUSION

In the era of digital transformation, artificial intelligence is no longer just a technical luxury but has become a strategic tool for managing learning and achieving institutional performance quality. The results of this study confirm that there is cognitive readiness among employees, countered by weakness in empowerment and application, necessitating serious administrative and training intervention to ensure real benefit from this technology. The smart educational future requires an effective partnership between humans and machines, based on deep understanding, wise use, and effective implementation.

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