Using Artificial Intelligence Applications to Improve Administrative Performance in Public Education Schools

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Abstract

This study aims to explore the utilization of artificial intelligence (AI) technologies to enhance administrative efficiency in public education schools. To achieve the study aims, the researcher utilized a descriptive design and a quantitative technique, depending on the questionnaire as the main instrument for collecting study data. A research investigation was carried out on a group of (411) individuals who held positions as principals, deputy principals, and teachers in public education schools located in Abha Governorate. The participants were selected in a random manner. The study's findings revealed that the implementation of AI applications led to enhanced administrative performance in public education schools in the Asir region. Furthermore, the results indicated that there is no statistically significant difference in the extent to which the use of AI applications enhances administrative performance, when considering factors such as job title and highest level of education.

Keywords: Using artificial intelligence applications, improve administrative performance, public education schools, Saudi Arabia.

1. Introduction

The world is currently in a technological era, and many countries are striving to implement technology in all areas in order to create a successful digital society. They are focusing on developing skills and empowering their citizens to accelerate the process of digital transformation (Ahmad et al., 2022). This is being done through educational institutions that are working to incorporate technology and achieve the strategic goals of the Kingdom's Vision 2030. The significance of utilizing educational and information technology has escalated due to the rapidity of information dissemination. Those who have knowledge of science, technology, and information are capable of staying up to date with the era of artificial intelligence (Alshadoodee et al., 2022. In order to ensure their survival and remain competitive, institutions must develop and implement novel business models promptly, effectively, and with exceptional quality to fulfil the expectations of users, particularly in light of the rapid availability of service infrastructure. The Internet and the proliferation of smart devices have made it essential to utilize

the World Wide Web and its services for the purpose of enhancing human resources development (Chen et al., 2020).

Many countries throughout the world are implementing educational reforms in response to technological advancements, leading to the adoption of modern approaches in both administrative and instructional processes (Owoc et al., 2019). Education has embraced the utilization of contemporary technological tools due to their significant contribution in enhancing the quality of education and administration, particularly through the implementation of intelligent technologies based on AI applications. These applications have demonstrated their efficacy in education by facilitating the advancement and modernization of the educational and administrative processes (Murphy, 2019). Additionally, they have been employed in the development of public education management systems. AI applications have revolutionized the way we access and engage with information, and they are poised to play a crucial role in how students interact with information in their personal lives, as well as in future scientific research endeavors through the integration of cutting-edge technology (Vinay, 2023).

Al-Khaibari's study (2020) validated various AI applications applicable to education, including voice recognition applications, games, human performance modeling, planning and automation, augmented reality, smart agents, catboats, intelligent learning systems, and systems applications. Experts and computer programs emulate the methodologies employed by experts to tackle complex problems. They are utilized to replicate the decision-making and problem-solving abilities of experts, as well as to address user questions, rectify errors, and resolve issues. They maintain continuous and quick communication with the information base and its interpretation. Thus, leadership places great importance on selecting a distinguished and effective school administration. The organization possesses advanced technical expertise and aims to empower its employees through targeted training, increased incentives, and greater authority to make work-related decisions. It also fosters a culture of initiative, creativity, and proficiency in areas such as planning, communication, and utilizing electronic guidance for managing the educational process (Yildirim et al., 2021).

From this perspective, the Kingdom of Saudi Arabia aims to enhance its educational institutions with the goal of positioning Saudi education as one of the top education systems globally by 2030. The objective is to address the disparity between educational outcomes and labor market demands, and to foster investment in education while establishing a unique education industry. Consequently, a prominent movement has emerged to enhance the effectiveness of education by enhancing the performance of educational and administrative leaders across all educational institutions (Al-Muraikhi, 2023). Multiple studies have substantiated the numerous challenges encountered in implementing AI applications in education, specifically in school administration. For instance, Al-Khaibari's research conducted in 2020 revealed that secondary school teachers in Al-Kharj Governorate possessed a limited level of AI skills. Similarly, the Albuhayri and Aleilyani (2024) confirmed that human involvement remains essential in fulfilling the prerequisites for implementing AI models. The utilization of AI applications in leadership endeavors facilitates the mitigation of bias in decision-making processes and the attainment of objectivity in decision-making.

In the same context, the study conducted by Savaş (2021) highlighted the significance of schools, leaders, and teachers investing in the content of digital communication. It emphasized the need to clarify the methods students use in dealing with technology and to utilize digital means of communication to enhance the sense of belonging to and pride in one's homeland, as well as fostering a spirit of defending it. Dhara et al. (2022) emphasized that secondary school leaders encounter various obstacles at the organizational level. These obstacles include the lack of progress in organizational structures despite significant developments, slow decision-making processes, weak incentive systems, and human resource limitations. Additionally, material obstacles such as insufficient school budgets and a lack of necessary facilities, equipment, and resources further hinder their work. Considering the information provided, the purpose of this research is to examine the current utilization of AI applications in the administration of public education schools in Abha Governorate.

Research questions

The objective of this study is to investigate the following questions.

1. What is the reality of using artificial intelligence applications to improve administrative performance in public education schools in Abha Governorate?

2. Are there statistically significant differences in the average responses from the research sample regarding the actual use of artificial intelligence applications in the administration of public education schools in Abha Governorate, based on variables of job title and highest academic degree?

2. Literature Review

Artificial intelligence refers to a collection of specialized technologies and methodologies that aim to make logical and adaptable decisions in the face of frequently unpredictable environmental circumstances. It encompasses natural language processing, machine learning, intelligent agents, and decision-making (Singh & Mishra, 2021). It is recognized as a flourishing technology that is integrated into several intelligent applications across diverse industries. It is widely utilized in the services we create and utilize, and its usage for problem-solving in diverse domains is consistently growing, including systems for identifying malware and viruses, as well as image processing in computer vision technologies (Gocen & Aydemir, 2020). Thus, AI is a technology that is extensively utilized in numerous intelligent applications throughout educational and administrative sectors within institutions, effectively achieving its objectives. It is created by trained professionals and can be utilized for school administration (Ilić et al., 2021).

The significance of incorporating AI applications in educational institutions lies in the enhancement of technical systems and the acquisition of valuable information that facilitates the achievement of goals and the development of job competencies. This, in turn, contributes to the institution's distinctiveness and the growth of its staff (Zafari et al., 2022). AI applications function as a strategic technology in various domains. Increasing efficiency, generating additional revenue streams, and fostering customer loyalty, this capability is rapidly becoming a

competitive edge for numerous organizations. It enables companies to complete tasks more efficiently, deliver personalized and appealing customer experiences, and forecast business outcomes to boost profitability (Wang, 2021). AI can be applied to address crises such as the Corona crisis and wars. It serves as a tool to offer innovative solutions through educational technology and its instruments to enhance the educational system (Salas-Pilco & Yang, 2022). AI enhances the role of educators, supervisors and educational leaders, enhances the quality of education, assists students in the teaching and learning process, and equips them with the necessary skills for the future through its diverse applications. The objective is to train computers to replicate human cognitive capacities and work habits, so enhancing human existence and enabling machines to efficiently complete jobs that were previously laborious and time-consuming. (Meng & Sumettikoon, 2022). AI applications enhance organizational performance and productivity by automating processes or tasks that previously relied on human effort. Additionally, AI possesses an unparalleled ability to comprehend and analyze vast amounts of data, enabling it to optimize performance and achieve objectives beyond human capabilities (Yousuf & Wahid, 2021).

The utilization of AI in educational institutions offers numerous benefits, such as the capacity for self-awareness and decision-making through artificially designed algorithms and data. Additionally, it has the potential to assist or even supplant human involvement in tasks that previously relied on human intelligence (Tyson & Sauers, 2021). AI demonstrates the ability to adapt variables with agility and speed across many scenarios, promptly identifies and rectifies faults, and simultaneously achieves precise and rapid enhancements (Ahmad et al., 2021). The use of smart education programs enables students to enhance their creativity, comprehend scientific concepts, develop life skills, and utilize computer simulations that mimic human intelligence and abilities such as thinking, understanding, hearing, speaking, and performing various tasks (Kaur et al., 2020). It possesses exceptional speed and precision, operates for extended periods without experiencing boredom or fatigue, exhibits excellent data management capabilities, demonstrates inference and perception abilities, recognizes patterns, simulates social and emotional intelligence, and effectively applies knowledge in diverse domains such as smart robotics, natural language processing, expert systems, line and image recognition, sound processing, vision systems, and weather forecasting. Its applications have expanded to encompass medicine, education, and engineering (Ogunode et al., 2023).

AI systems in education encompass various domains, including automating fundamental tasks such as categorization, assessment, grading of homework and testing for large-scale lecture courses, and facilitating professional development through the application of AI techniques (Owan et al., 2023). Teachers can now employ automated classification methods to categorize various sorts of multiple tests and customize educational programs to cater to the specific requirements of learners ranging from kindergarten to graduate studies (George & Wooden, 2023). There are a number of dimensions of AI, including:

1. Data: AI applications rely on the abundance of data, but what is the precise amount of data needed? What is the duration of its existence? What is the level of investability? These questions should be answered with practical solutions that include a comprehensive data strategy.

The use of AI applications requires various types and amounts of data. However, the main challenge for many organizations is not a shortage of data in general, but rather a lack of useful data that can be accessed for implementing industrial AI solutions (Joshi et al., 2021). Educational institutions have leveraged AI technologies to create educational software and applications that enhance learning experience and make it more engaging by including research and analytical capabilities. AI applications in education have a beneficial effect by implementing adaptive and collaborative instructional programs, educational games and robots, and software that caters to students' needs, thereby emphasizing their significance. Identifying the areas where learners encounter challenges and providing several approaches to address them (Habashi, 2024).

2. Individuals (human capabilities) in the organization: This dimension focuses on the cognitive framework, responsibilities, and competencies necessary for the creation and implementation of AI projects, both within and beyond the organization. The effectiveness of any AI application relies on the preparedness of individuals to utilize them, which necessitates technical training and ongoing functional assistance (Muminov, 2024). Hence, it is imperative for institutions to establish a state of concordance among leadership, corporate culture, and change management to guarantee the preparedness, inclination, and capability of staff to utilize and allocate resources towards AI applications (İçen, 2022).

3. Infrastructure: Infrastructure is a vital component for operating AI applications. It encompasses software, hardware, and organizational framework required for the development and implementation of AI (Al-Muraikhi, 2023). Hence, it is imperative for organizations to embrace a well-defined strategy, particularly for their infrastructure, to effectively mitigate implementation risks, expedite the achievement of objectives, broaden the scope of AI investments for future readiness, and synchronize the life cycle of an AI model across diverse applications (Albuhayri & Aleilyani, 2024).

AI can be categorized into three primary types: narrow or weak AI, which represents the most basic form of AI. This type of AI is designed to execute predetermined tasks within a defined context, and its actions are regarded as responses to certain circumstances, limited to specified environmental conditions. An instance of this type is the "Deep Blue" automaton, created by IBM, which triumphed against global chess champion Garry Kasparov. On the other hand, strong or general AI is distinguished by its capacity to gather and interpret data, as well as amass knowledge from the situations it encounters, enabling it to make independent and autonomous decisions (Saleh, 2022). Illustrations of this kind of AI encompass automated catboats and individualized self-improvement applications. Finally, super AI refers to experimental models that aim to replicate human behavior. Here, two fundamental categories can be identified. The first approach focuses on comprehending human cognition and affect, which influence human actions, and possesses a restricted capacity for social engagement. The second model represents the theory of mind, since it encompasses these theories. The next generation of highly intelligent computers is capable of expressing its internal state, predicting the emotions and circumstances of others, and engaging in interaction (Al-Azzam, 2021).

Developing administrative performance is essential in the modern era. To achieve this effectively, certain standards must be in place. These standards define the expected output, the

use of materials, machines, and tools, and adherence to a specific timeframe. There are numerous types of standards, including quantitative standards that are related to quantity (Al-Khaibari, 2020). Productivity refers to the output or work completed by an individual within a defined timeframe, accompanied by a precise and detailed account of the tasks performed. Qualitative standards pertain to the requirements of the desired performance and emphasize the precision and accuracy of the work. Quantitative and qualitative criteria encompass both the productivity, measured by the amount of work completed within a given timeframe, and the precision and accuracy of the job. Cost standards pertain to the expenses associated with resources, devices, machines, and other related items. Time standards pertain to strategies aimed at enhancing the commitment and allegiance of employees inside the firm (İçen, 2022).

Furthermore, there is a belief that activating institutional planning is a crucial factor for achieving distinguished and successful administrative performance. This involves organizing administrative tasks such as authorization, building management, implementing rules and regulations, and maintaining records and files (Kaur et al., 2020). Additionally, it entails supervising and evaluating teaching and learning processes, as well as prioritizing student welfare and fostering strong relationships with parents and local community institutions. The organization's management should focus on self-improvement, as well as the development of organizational values and the utilization of the organization's staff (Ogunode et al., 2023).

The significance of enhancing performance in education is emphasized due to its successful contribution in enhancing job methodologies, elevating employee competence, improving employer efficiency, and aiding in overcoming challenges. It is the optimal approach for overcoming bureaucracy and centralization, enhancing efficiency, boosting staff morale, and providing direction (Wang, 2021). It facilitates the achievement of organizational goals by equipping personnel with problem-solving skills, enhancing their knowledge and abilities, and providing them with a comprehensive guide to effectively manage the system. The shared objective across all administrative performance development efforts is to enhance institutional performance, bolster efficiency and effectiveness, and enhance competitive advantage. Hence, it is imperative to enhance the leadership performance of the public schools by selecting the most suitable approach from the various approaches to performance development (Tyson & Sauers, 2021). This should be done in a manner that aligns with the organization's specific circumstances and environment. Additionally, it is crucial to establish a conducive work environment that supports the chosen approach, while also striving to increase productivity in order to achieve the goals outlined in Vision 2030 (Al-Muraikhi, 2023).

Previous studies

Albuhayri and Aleilyani (2024) investigated the practical implementation of AI applications in managing public education schools in Bisha Governorate and discussed strategies for its enhancement. The study employed a descriptive methodology and utilized a questionnaire as a means of data collection. The study involved a total of 364 participants, including 76 principals, 40 deputies, and 248 teachers. The results showed that the participants' responses regarding the use of AI applications in communication, guidance, and decision-making in the management of

public education schools in Bisha Governorate were at a moderate level. There were no significant differences in the responses based on variables of current job and educational stage.

Al-Muraikhi (2023) assessed the administrative performance of secondary school principals in Hafr Al-Batin Governorate by examining the requirements of AI. Additionally, it aimed to analyze the influence of variables of specialization, qualification, type of school, and experience of principals' responses. Furthermore, it aimed to determine the impact of AI requirements on enhancing the performance of principals. A descriptive correlational survey was disseminated to a subset of (49) principals. All of them are headmasters of secondary schools in Hafr Al-Batin Governorate, and the study findings revealed the following: The actual administrative performance of secondary school principals in Hafr Al-Batin Governorate achieved an overall average of 3.44 out of 5, indicating a high level of performance. This assessment was based on various factors. The communication dimension obtained the highest ranking, with an average score of 3.55. Following closely behind were guidance and control, with a score of 3.44, both achieving a high grade. Decision-making ranked third with a score of 3.40. Lastly, planning and organizing received a score of 3.36, both achieving a medium grade. The intelligence needs axis did not receive a specific ranking in the provided information. Regarding dimensions, the legislative requirements dimension had the highest average rating of 3.36, followed by human requirements with a rating of 3.35. Physical requirements ranked third with a rating of 3.26, and technical requirements came in fourth with a rating of 3.22. All dimensions were rated as moderate. The findings also indicated that there were no statistically significant disparities at a significance level of 0.05 or higher ($\alpha \geq 0.05$) among the sample responses based on the factors of specialization, qualification, experience, and school type. in the realm of administrative performance; Except for the first dimension of planning and organization, there were variations in the dimensions of artificial and total intelligence requirements based on the school type and eligibility. Furthermore, there was a statistically significant impact, with a significance level of 0.05 or greater, on the improvement of administrative performance among female principals due to the availability of AI requirements.

Saleh (2022) explored the utilization of expert systems, a form of AI, to enhance the decision-making process in educational institutions. The study utilized a descriptive technique and employed a questionnaire as the primary tool for data collection. The study comprised three axes, in addition to the section dedicated to describing the topic, research questions, and methodology. One of the applications of the first axis was the theoretical and intellectual foundations of expert systems. The study focused on the application of AI in educational administration. It examined the role of expert systems in the decision-making process and proposed procedures for developing this process in educational departments in Minya Governorate. Expert systems were identified as one of the applications of AI in this context. A descriptive methodology was employed, and a questionnaire was administered to a sample of (46) supervisors. The analysis determined that the office's management extensively utilized AI and implemented a highly advanced comprehensive quality management system. Furthermore, there was a statistically significant positive relationship between the overall score and the sub-categories of the comprehensive quality dimension, as well as the overall score of the AI dimension.

Al-Azzam (2021) determined the impact of AI on enhancing the effectiveness of human resources management in the administrative systems of the University of Tabuk. The researcher utilized the analytical approach to carry out the study. In order to accomplish the study's goals, a questionnaire was created to gather data from a random sample of (13) male and female employees at the University of Tabuk. The study findings indicated that the characteristics of gender, educational level, and years of experience did not have a statistically significant impact on the study instrument.

3. Method

This study utilized quantitative methodologies and descriptive research to conduct a thorough, accurate, and systematic analysis of the characteristics and data related to the population under investigation. Descriptive quantitative research, as described by Saunders et al. (2016), aims to thoroughly describe and clarify all different aspects of the subject or domain being studied. Subsequently, the data that has been processed is shown.

Population and Sample

In the latter half of the 2023-2024 academic year, a total of (621) principals, deputy principals, and teachers from public education schools in Abha Governorate. The statistics provided by Krejcie and Morgan (1970) suggest that a sample size of(242) is sufficient for correctly portraying the population. In order to ensure the sample was a true reflection of the entire community, the primary objective of the study was to carry out an extensive survey among the principals, deputies, and teachers, and to reduce any potential prejudice in the results by gathering a substantial volume of participant data (Blumberg et al., 2014). A digital distribution strategy was employed and surveys via email were sent to (432) participants. According to Hair et al. (2010), (21)_surveys were eliminated from the analysis because they had a significant number of unanswered questions. Grand total of (411) surveys were identified as authentic and reliable in the investigation.

Research Instrument

The researcher incorporated the findings from prior studies conducted by Al-Muraikhi (2023) and Albuhayri and Aleilyani (2024) to develop a questionnaire that would be used as the main tool for this investigation, to achieve research goals. The survey consisted of two distinct components. The initial section of the poll prompts individuals to specify their "job title" and "highest level of educational attainment." In Section 2, a thorough set of (20) items for evaluating the utilization of AI applications in was developed order to enhance administrative performance. The questionnaire items were evaluated using a Likert scale, which ranged from "1" (representing very low) to "5" (representing very high).

Instrument Validity

A team of (10) education specialists, who are associated with Saudi universities and have competence in language development and scientific precision, were tasked with evaluating the

reliability of the research tool. According to their evaluations, it has been determined that all components are acceptable; however some minor linguistic modifications were done.

Instrument Reliability

One method employed to assess the dependability of measurement entails assessing the uniformity of outcomes by employing comparable samples and instruments while maintaining all other variables unchanged. Cronbach's alpha coefficient was used to evaluate the consistency of the answers. According to Saunders et al. (2016), the assessment of a survey's reliability is determined by its credibility, which is deemed satisfactory when it reaches or exceeds a minimum threshold of (60%). The Cronbach's alpha coefficient was determined to be (0.861), indicating a high degree of reliability. Therefore, there were no discrepancies found among the various elements of the study instrument.

Data Analysis

The research issues of the study were examined using SPSS software to compute the means, execute the independent sample t-test, and do a one-way analysis of variance (ANOVA). Cuevas et al. (2004) suggest using the ANOVA One-Way test as a substitute for the independent sample t-test when comparing three or more means. The explanation below pertains to the results acquired by the utilized methods for their characterization. The item's average score is (2.33) or lower, indicating a low grade. The item's mean score ranges from (2.34) to (3.67), suggesting a moderate degree of performance. The item's average score is equal to or greater than (3.68), indicating a high grade.

4. Findings and Discussion

An exploratory analysis was conducted to investigate the characteristics of the participants, focusing on their job title and highest academic degree. Table (1) shows that teachers constituted the largest proportion of respondents, comprising (75.4%) of the total. Principals accounted for (12.7%) of the respondents, while deputy principals made up (11.9%). The table also presents the proportions of participants' educational qualifications as follows: (78.1%) with an undergraduate degree and (21.9%) with a postgraduate degree.

Table 1: The respondents profile

Variables	Category	N	%
Job title	Principals	52	12.7
	Deputy principals	49	11.9
	Teachers	310	75.4
Highest level of academic achievement	Undergraduate	321	78.1
	Postgraduate	90	21.9

In order to address the first study question, the means and standard deviations were determined for the utilization of AI applications to enhance administrative performance in public education institutions in Abha Governorate.

Table 2. Means and standard deviation

N	Items	Means	St.devs	Results
1	The school's plan contributes to developing students' artificial intelligence skills	4.50	0.39	H
2	The school administration seeks to employ artificial intelligence in the field of planning	4.16	0.48	H
3	School plans are implemented in the form of artificial intelligence-based activities and procedures	4.05	0.53	H
4	The school administration prepares and publishes academic schedules based on artificial intelligence applications	4.12	0.40	H
5	School administration uses artificial intelligence to hold school meetings	4.30	0.44	H
6	The school administration prepares periodic electronic reports on performance evaluation	4.25	0.47	H
7	The school administration applies educational legislation related to artificial intelligence	4.40	0.42	H
8	The school administration uses artificial intelligence-based standards for guidance and control	4.47	0.43	H
9	The school administration gives appropriate incentives for electronic participation in school decisions	4.10	0.45	H
10	The school administration adopts artificial intelligence techniques in making and implementing decisions	4.59	0.40	H
11	The school administration activates the role of artificial intelligence in developing human relations in the school	4.36	0.41	H
12	The school administration involves teachers in making decisions regarding artificial intelligence	4.19	0.43	H
13	The school administration emphasizes documenting all administrative decisions using artificial intelligence	4.20	0.41	H
14	The school administration uses modern electronic means of communication to communicate with external beneficiaries	4.00	0.41	H
15	The school administration constantly seeks to develop electronic communication systems	4.22	0.42	H
16	Messages from school employees are responded to immediately	4.15	0.43	H
17	Qualified personnel are available to use technological communication techniques at the school	3.93	0.46	H
18	The school administration provides continuous feedback to improve electronic communication processes inside and outside the school	3.75	0.43	H
19	The school has effective electronic communication between the school's administrative levels	4.35	0.46	H
20	The school administration supports teachers to enable them to manage the school technically and achieve educational goals	3.70	0.44	H
	Total	4.20	0.37	H

The data presented in table (2) reveals that the mean score for the deployment of artificial intelligence applications in improving administrative performance in public education institutions in Abha Governorate is (4.20). This is accompanied with a standard deviation of (0.37). The feature labeled "The school administration adopts artificial intelligence techniques in making and implementing decisions" item (10) has the highest average value among all the elements, with a score of (4.59). Item (1), "The school's plan contributes to developing students' AI skills", gets a measurement of (4.50). The item labeled (20), which pertains to “The school administration supports teachers to enable them to manage the school technically and achieve educational goals", had the lowest average score of (3.70) compared to all other items.

The researcher ascribes this outcome to the public school principals' eagerness to enhance their performance and their recognition of the significance of excellence in all administrative procedures. This aligns with the findings of Albuhayri and Aleilyani's (2024) research, indicating that school principals fulfill their administrative responsibilities to a significant degree. However, it contradicts the findings of Al-Muraikhi's (2023) study, which highlighted the inadequate development of technical and administrative performance in basic education schools. The researcher also ascribes this outcome to the educational policy in the Kingdom, which involves centralized planning by the Department of Education and the Ministry of Education, as well as

decentralized implementation. Additionally, the training courses and educational meetings in the domains of planning and organization may have contributed to this result. Furthermore, the transition to e-learning during the Corona pandemic has impacted schools. Begin strategizing for a physical transformation. Furthermore, the motivation of school principals to monitor the administrative and educational performance of school staff may stem from their adoption of contemporary leadership approaches, such as participatory leadership, distributed leadership, and other effective leadership styles. The rationale may also stem from the necessity to initiate the administrative procedure of "evaluation." Particularly considering the implementation of a novel study approach.

Public school principals occasionally adhere to conventional leadership techniques, resulting in little control over administrative performance being solely in their hands. This could be attributed to the inversion of the chain of command, where middle and upper administrations get central decisions and subsequently school principals receive orders and directions directly from higher administrations. Its function is restricted to directly executing these directives, with the fundamental premise being centralization in planning and decentralization in execution, rather than both. Additionally, the nature of administrative work entails the need for conducting administrative communications. It is crucial for principals to possess strong communication skills and utilize them to enhance administrative performance. However, the Department of Supervision and Follow-up lacks the ability to accurately identify the training requirements of school staff in the area of internet communication. This phenomenon may be attributed to the aptitude of female employees to foster an environment in schools that promotes self-development and the acquisition of fundamental competencies in the realm of technological communication.

In order to determine whether there were statistically significant variations in the average responses of the research sample participants regarding the actual utilization of AI applications in the management of public education schools in Abha Governorate, variables such as job title and highest academic degree were taken into account. The independent sample t-test and one-way analysis of variance were employed for this purpose.

Table 3. T- test

Variables	N	Mean	St.dev	df	t	Sig
Undergraduate	321	3.86	0.48	409	0.985	0.325
Postgraduate	90	3.84	0.49			

According to the statistics presented in table (3), undergraduates had an average rating of (3.86), while postgraduates had an average rating of (3.84). Moreover, the Sig value for both highest academic degree groups is (0.325), indicating that the highest academic degree does not significantly influence the employment of AI applications in managing public education schools in Abha Governorate.

Table 4. ANOVA

Variable	Groups	Sum of Squares	df	Mean Square	F	Sig
Job title	Between groups	0.195	3	0.065	0.652	0.680
	Within groups	33.456	408	0.082		
	Total	33.651	411			

Table (4) indicates that there were no discernible distinctions between the groups when examining job titles. The job title does not seem to have a statistically significant impact on the employment of AI applications in managing public education institutions in Abha Governorate, as indicated by the p-values of (0.680).

5. Conclusion

The main objective of this study was to investigate the reality of using AI applications to improve administrative performance in public education schools in Abha Governorate. The research findings reveal the deployment of AI applications in improving administrative performance in public education institutions in Abha Governorate. The educational policy of the Kingdom involves centralized planning by the Department of Education and the Ministry of Education, along with decentralized implementation. Furthermore, the training programs and educational conferences in the fields of planning and organization could have had a role in this outcome. Moreover, the shift to online learning within the Corona pandemic has had an influence on schools. Commence devising a plan for a dramatic change. In addition, school principals may be motivated to monitor the administrative and instructional performance of school staff due to their embrace of modern leadership approaches, such as participatory leadership, dispersed leadership, and other effective leadership styles. The reason for this may also arise from the need to commence the administrative process of "evaluation", especially when considering the adoption of an innovative research methodology.

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