Maximization of Artificial Intelligence Apps on Human Resources Management in Tertiary Institution: Implication to Educational Sector

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ABSTRACT

The objective of this study is to carry out maximization of artificial intelligence Apps on human resources management in tertiary institutions. Two research hypotheses were formulated to guide the focus of this work as correlation research design was used in this work. This design type allows one to determine the nature of the relationship that exists between independent and dependent variables. Human Resource Managers from Lagos State University of Education and Yaba Technology, all in Epe, Lagos state. The population of the study comprised all Human Resource Personnel as HRM from LASUED and Yaba Tech all from Epe were used in this work. A sample of 150 HR officers was selected using a simple random sampling technique. A closed-ended structured instrument, Questionnaire on Maximization of Artificial Intelligence Apps on Human Resources Management in Tertiary Institution (QMAIAHRMTI) was used in data collection. This instrument contains 15 close-ended items on a 4-Likert scale type. The instrument was validated and affirmed to meet construct validity by 2 Human Resource personnel from LASU. With the Cronbach-alpha form of reliability, the r-coefficient value of 0.886 was obtained meaning internal consistency was met. Correlation analysis was used to analyse the data and tested at a significant level of 0.05 respectively. The result reveals that there is a significant relationship between maximization of artificial intelligence apps and human resources management in tertiary institutions. The study concluded that excessive use of these AI Apps would render HRM useless in-service delivery shortly. Among others, the study concluded that with the use of AI Apps, recruitment process, appointment and promotion, staff training, and decision making among others will experience quality manpower use.

HOW TO CITE

Introduction

The term Human Resource Management is a specialised field that centres on staff recruitment, training, compensation benefits, human resource planning, organisational development, design of the organisation and plan, employee assurance, union and labour relations, personnel research, and information system. Human resource management can also be regarded as a process of dealing with various problems within the scope of employees, employees, labourers, managers, and other employees to be able to support the activities of an organization or achieve predetermined goals. According to Gunawan & Penelitian, (2019), human resource management is a human relations field that is centred on personnel management. Human resource management (HRM) is a form of recognition of the importance of organizational members (personnel) as resources that can support the achievement of organizational goals, the implementation of functions and activities of the organization to ensure that they are used effectively and fairly for the benefit of organizations, individuals and society. In any given organisation, management remains an integral aspect of that outfit because it determines to a large extent the true functioning of that organisation (Gunawan and Penelitian, 2019). Management controls both human and natural resources for the optimum achievement of objectives. Human resources management is the science and art of managing the relationships and roles of the workforce effectively and efficiently to achieve common goals, and objectives of organizations not forgetting employee and society expectations.

The use of artificial intelligence aids in meeting deadlines, making informed decisions, enhancing quality service delivery, projections, and taking informed decisions, especially on labour related issues and human relationship management. Through AI introduction, knowledge-based is improved especially on that which concerns the use of technology, constructive criticism, and making quality decisions from a pool of alternatives among others. AI Has helped HRM in areas of recruitment and staffing, promotion and screening, performance evaluation, retirement, and gratuity payment, compensation payment, career path, training, research, and development. Artificial Intelligence provides benefits to a variety of industries by reducing the amount of time and effort required to complete complex tasks, resulting in higher accuracy and better results. The amount of time required for data analysis increases along with the number of human resources data. AI-powered software can now easily identify data patterns and manage critical data-intensive tasks. This has helped computers detect errors and discrepancies faster and more accurately than HR personnel. This significantly saves time leading to a higher profit margin. One of the key aims of every organization is to generate revenue and this has resulted in businesses maximizing the advantages of AI and employee-machine collaboration.

According to Vilani (2018), the concept of artificial intelligence can be seen as a science that aims to replicate aspects of human intelligence such as problem solving, learning, reasoning, perceiving, and critical thinking using computer-based programs that are guided by logic. Meanwhile, Russel and Norvig (2010) describe AI as an intelligent agent as machines can act intelligently as humans by mimicking human intelligence and this is made possible by feeding the machines with lots of data that are tested and trained through machine learning models. It can also be expressed as the ability of a system to correctly understand input, learn from it, and apply it in achieving specific objectives and tasks through adaptable implementation (Kaplan & Haenlein, 2018). Human resource management (HRM) finds its roots in the emergence of industrial welfare work plans. There have been shifts from one directed system of management to a more technical system of management leading to growing professionalism in this role. Organizations can increase the value of

their competitive edge through the acquisition, expansion, and fusion of not only human capital but also organizational and physical resources, and this can be achieved when organizations truly work on HR practices. AI technology can be incorporated with HR functions to come up with innovative solutions to employee problems concerning HR.

The growth of HRM as experienced by organisations and industries is mind-blowing. A careful examination at this growth is an indication that the growth is dependent on the interplay of AI usage. Through AI introduction, it has the potential to transform HR operations with relevant and in-depth analysis of various functions like recruitment and selection, onboarding, performance management, employee engagement, and employee retention are now performed with the help of a virtual assistant (Jia, Guo, Li, Li, & Chen, 2018). The development of Human Resource Information Systems (HRIS) has provided the foundation for AI applications. HRIS is a procedure for collecting, storing, maintaining, retrieving, and validating data needed by an organization about its human resources, personnel activities, and organization unit characteristics (Kovach & Cathcart, 2000; Tewari & Pant, 2020).

On recruitment and selection, HR professionals are responsible for the recruitment of talent for the organization and the right candidates need to be hired. Finding the right candidate can be difficult as you try to locate the right person in a pool of many talents. Short-listing candidates and screening resumes to find a suitable candidate for the job can be a challenging task for HR executives (Garima, Vikram, & Vinay, 2020). They need to reach out to the right candidates while trying to fill up job positions as fast as possible because a vacant position may cost the organization lots of money due to delays in operations. Ensuring good candidate experience is key as it increases the chances of the candidate accepting the offer. It

must be ensured that the future team has a great experience from the first contact.

AI can help speed up the recruitment process even as the hiring requirement continually increases. It can be involved in automating repetitive tasks by first working on large data analytics to get trends. It can also be used to streamline the hiring process during recruitment (Skil, 2022). AI technology such as chatbots can be added to organizations websites to engage visitors and increase conversation rates. Prospective candidates will be willing to drop their resumes and other basic details while chatting with the bots. Chatbots can ask questions regarding the role the candidate is interested in and answer some basic questions asked by the prospective candidate. This helps to save time as some of the tedious work in recruiting such as collecting candidate information, prequalifying candidates, scheduling meetings and chat times, and providing the candidate with answers to basic questions can be done using chatbots (Wilkinson & Redman, 2013).

On AI-based HRM can use chatbots to collect data, provide the information needed by recruits, organize information, present the recruits with every necessary form to fill, request necessary documents from the recruits, and provide any online guidance necessary. These chatbots can also help set up new accounts for these new hires and integrate them into the organization's system without IT support. AI's automated onboarding process provides flexibility concerning time and location as it allows the recruits to integrate into the system at their pac (Vivek & Yawalkar, 2019). Onboarding is a process of integrating new hires within the organization's culture, and policies quickly and smoothly (Bauer, 2010). Onboarding is an important facet of the HRM process. It is not just the demonstration of the company culture but also defines and promotes this culture (Stanley & Terry, 2012). A good onboarding process will make recruits feel better about the organization, stay more engaged, and be more eager to stay longer

with the organization. However, these recruits require more attention, and attending to them individually is a challenging task. AI can automate the onboarding process thereby making the process a self-service process, allowing these recruits to easily coordinate with the workforce and management team and help streamline manual and time-consuming tasks. The onboarding process from the early stage is important as this is where the recruits form their impression of the organization. Smart chatbots also play a role in this process. This also reduces administrative tasks and results in a faster integration process. These chatbots can also get feedback from the recruits to help serve them better and provide a better onboarding experience.

Artificial Intelligence has significant effects based on the degree or extent of usage, and gender disparity among others. Aldulaimi, Mohamed, Abdeldayem and Hameed (2020), asserted that prompt utilization of AI apps in a workplace ensures effective human resource management. In any organisation where an AI app is used judiciously to achieve organisational goals and objectives either in the long-run or short-run period, human resource management goals are achieved. Aldulaimi, et al. (2020) claimed that with effective maximization of AI, organisations are better informed on the selection, recruitment, and training of staff, enumeration of compensation benefits, prompt execution of human resource planning, organisational development, design of organisation plan, employee assurance, union and labour relations, personnel research and information system among others.

On the extent of AI use by firms, it is beyond expectation. There is a belief that in other to deviate from the local mode of operation and existence, the extent to which organisations key into its usage is unimaginable. In a study by Israel & Rahmat (2024), they noted that over 77.5% of HRM organisations are known to internalise the use of technology to execute their day-to-day activities. To achieve their statutory organisational goals, most HRMs have incorporated the use of AI app in enforcement of managerial responsibilities. Moreover, Israel & Rahmat (2024) noted that with Human Resource Management, organisations systematically factor in their organisational goals in the achievement of organisational goals and objectives. The degree to which firms incorporate AI use in production and service delivery cannot be under-emphasised.

On gender disparity in maximization of AI app use, it is observed that male staff unlike their female counterpart believe that maximization of AI apps does have a prompt effect on HRM in tertiary institutions. In a study by Parveen & Palaniammal (2019) they claimed that male staffers are of the notion that due to their level of exposure, experience, and training, they tend to perform better than their female counterparts. Gender has a significant effect on effective Human Resource Management in organisations. According to Parveen et al (2019), top organisational hierarchies in firms are managed by male individuals whom most times switch to mode of operations that can bring about positives and an addition to the organisation. Unlike their female counterparts who are less skilled in technology usage have a negative perception of AI use especially in the achievement of organisations goals.

Studies by Akingbade, Oluyole, and Akin (2020) claimed that most firms that optimally maximise the use of artificial intelligence during their mode of operations end up having prompt outcomes and opportunities. This outcome can be seen in the quality of decisions taken, mode of selection from alternatives, management of organisation's data, improvement in recruitment process, prompt identification and codification of firms' data set among others. Akingbade, Oluyole and Akin (2020) also supported that there exists a symbiotic relationship between artificial intelligence and effective human resource management. They also

claimed that the more the level of intervention of artificial intelligence in an organisation/firm/institution, the better the quality of performance to be expected in task execution.

Artificial intelligence components contributed significantly towards effective human resource management. These components of artificial intelligence are such that are designed to improve the quality of outcome or result as the case may be. It is subject to the strength and efficacy of the package. Artificial intelligence components of the use of language, perception, learning, reasoning, and problem-solving are good predictors of effective HRM. Although these identified components show some level of contribution, problem-solving is often seen as one that motivates HRM to utilise AI packages. This is given because the sole aim of using AI is to facilitate quality service delivery by HRM personnel who claimed that human resource managers in most organisations adopts the use of artificial intelligence especially when confronted with sensitive challenges and issues. They maintain that during problem solving, the use of artificial intelligence packages goes a long way to contribute maximally to their efficiency. Using AI helps in solving the problem at the shortest possible time with a limited manpower supply (Oloyede, Samuel and Simeon, 2019).

The use of AI provides the opportunity for HR employers to focus on more challenging activities requiring significant human involvement. This includes building relationships with clients, a more engaged workplace, career development of employees, and a focus on strategies. Although many companies continue to use online learning tools for ongoing training, they are often disorganized, and employees do not receive the most benefit from them. Upon this premise, the researcher was poised to investigate maximization of AI App and effective Human Resource Management in Tertiary institution, Lagos state, Nigeria.

Statement of the problem

There has been a rise in the rate of complaints from various establishments and institutions concerning the quality of service delivery by HRMs. These complaints ranges from inadequate data source, faulty data set, inability to management human relationships, failure to identify the needs of labours in an organisation, faulty information on retirement and payment of compensation of staff among others. It is projected that failure to effectively carry out HRM responsibility may likely result to faulty data plan, poor decision making process, demotivation of staff, under-productivity and eventual loss of job. In a bid to minimise the chances of such taking place, there is a belief that should AI be introduced by HMRs, institutions would benefit immensely as all activities of running an organisation would be automated therefore minimises errors and enhance effective predictions. However the researcher was poised to investigate into how maximization of AI app can influence Human Resource Management in tertiary institution.

Purpose of the study

The main objective of this study is to investigate how perception maximization of artificial intelligence Apps can affect human resources management in tertiary institutions in Lagos state Nigeria. The specific objectives are:

i. To justify if maximization of artificial intelligence would affect human resources management in tertiary institution

ii. To assess the extent of AI use ineffective human resource management

iii. To determine the how maximization of AI can affect effective human resource management by gender

Research Hypotheses

$H0_1$: Maximization of artificial intelligence does not have any significant effect on effective

human resources management in tertiary institution

H0₂: Extent of AI use does not have any significant effect on effective human resource management in tertiary institution

H0₃: Maximization of AI does not have any significant effect on human resource management by gender

Research Methodology

A descriptive survey research design was used in this study as it allows for the study of a large group of participants to generalise the outcome. The population of the study comprises all non-academic staff from Lagos State University and Yaba Technology all from the Epe campus. A sample of 150 participants was selected through a simple random sampling technique. A closed-ended structured instrument, Questionnaire on Maximization of Artificial Intelligence Apps on Human Resources Management in Tertiary Institution (QMAIAHRMTI) was used in data collection. This instrument contains 15 close-ended items on a 4-Likert scale type. The instrument was validated and affirmed to meet construct validity by 2 Human Resource personnel from LASU. With the Cronbach-alpha form of reliability, the r-coefficient value of 0.886 was obtained meaning internal consistency was met. Analysis of Variance analysis was used to analyse the data and tested at significant level of 0.05 respectively.

Results and Interpretation

H0₁: Maximization of artificial intelligence does not have any significant effect on effective human resources management in tertiary institution

Table 1: ANOVA maximization of AI effect on effective human resources management

			Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	(Combined)		.690	2	.345	.961	.003
	Linear Term	Unweighted	.393	1	.393	1.094	.002
		Weighted	.655	1	.655	1.825	.009
		Deviation	.035	1	.035	.098	.007
Within Groups			52.750	147	.359		
Total			53.440	149			

From table 1 above it shows that 150 participants was captured in the study as mean square of .345 and $F_{(2,149)} = .003$, then $P<0.05$, it shows significant, hence null hypothesis is rejected and alternative hypothesis which states that maximization of artificial intelligence do have significant effect on effective human resources management in tertiary institution is retained.

H0₂: Extent of AI use does not have any significant effect on effective human resource management in tertiary institution

Table 2: ANOVA showing extent of AI use does have effect on effective human resources management in tertiary institution

			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		1.782	2	.891	2.536	.015
	Linear Term	Unweighted	.304	1	.304	.864	.005
		Weighted	.734	1	.734	2.090	.005
		Deviation	1.048	1	1.048	2.982	.016
Within Groups			51.658	147	.351		
Total			53.440	149			

Table 2 above it shows that 150 participants were captured in the study as mean square of .891 and $F_{(2,147)} = .015$, then $P<0.05$, which shows significance, hence null hypothesis is rejected and the alternative hypothesis which states that extent of AI use do have a significant effect on effective human resource management in tertiary institution is retained.

H0$_3$: Maximization of AI does not have any significant effect on human resource management by gender

Table 3: t-test analysis showing the extent of AI use does influence effective human resources management by gender in tertiary institution

Variable	N	Mean	SD	P	t-val	Sig	Remark
Male	150	3.49	.598	0.05	3.99	0.000	Significant
Female	150	1.52	.500				

Table 3 shows that 150 participants participated in this work, as male staff recorded higher mean and standard deviation values of 3.49 and .598 as against female staff who recorded a lower mean and standard deviation value. At t-val. of 3.99, $P<0.05$, it shows significance hence the alternative hypothesis which states that maximization of AI does have a significant effect on human resource management by gender is retained. By implication, it shows that male staff believe that maximization of AI does have a positive effect on human resources management in tertiary institutions.

Discussion of Findings

Hypothesis one shows that maximization of artificial intelligence does have a significant effect on human resources management in tertiary institutions. This finding agrees with the study of Aldulaimi, Mohamed, Abdeldayem & Hameed (2020) who asserted that prompt utilization of AI apps in a workplace ensures effective human resource management. In any organisation where an AI app is used judiciously to achieve organisational goals and objectives either in the long-run or short-run period, human resource management goals are achieved. Aldulaimi, et al. (2020) claimed that with effective maximization of AI, organisations are better informed on the selection, recruitment, and training of staff, enumeration of compensation benefits, prompt execution of human resource planning, organisational development, design of organisation plan, employee assurance, union and labour relations, personnel research and information system among others.

Meanwhile, hypothesis two reveals that the degree or extent of AI use does have significant effect on human resource management in tertiary

institutions. The extent of AI use by firms is beyond the expectation by organisation. There is a belief that in other to deviate from the local mode of operation and existence, the extent to which organisations key into its usage is unimaginable. The finding of this study agrees with that of Israel & Rahmat (2024) that claimed over 77.5% of organizations are known to internalise the use of technology to execute their day-to-day activities. To achieve their statutory organisational goals, most HRMs have incorporated the use of AI app in the enforcement of managerial responsibilities. Moreover, Israel & Rahmat (2024) noted that with Human Resource Management, organisations systematically factor in their organisational goals in the achievement of organisational goals and objectives. The degree to which firms incorporate AI use in production and service delivery cannot be under-emphasised.

Hypothesis three shows that maximization of AI apps does have a significant effect on human resource management. It is revealed that male staff unlike their female counterpart believe that maximization of AI apps does have prompt effect on HRM in tertiary institutions. The finding of this work corroborates with Parveen & Palaniammal (2019) who claimed that male staffers are of the notion that due to their level of exposure, experience, and training, they tend to perform better than their female counterparts. Gender has a significant effect on effective Human Resource Management in organisations. According to Parveen et al (2019), top organisational hierarchies in firms are managed by male individuals whom most times switch to the mode of operations that can bring about positives and an addition to the organisation. Unlike their female counterparts who are less skilled in technology usage have a negative perception of AI use especially in the achievement of organisations goals.

Conclusion

Among others, the study concluded that with the use of AI Apps, the recruitment process, appointment and promotion, staff training, and decision making would experience quality manpower use. It also concluded that excessive use of these AI Apps in the long run may likely render HR Managers useless in service delivery in near future unless deliberate balancing is practiced.

Recommendation

From the conclusion made, the study recommended among others that:

i. Staff across all cadres should be exposed to in-service training to help them gain the knowledge needed to handle AI App.

ii. HRMs should be encouraged to recruit new members of staff who are skilled in both soft and hard skills

iii. Institutions should invest more in maximization of AI apps in every departments and unit because they help reduce errors and mistakes

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