



A Study on Usage of Chatbot in Human Resource Management

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ABSTRACT: The integration of artificial intelligence (AI) technologies, particularly chatbots, has revolutionized human resource management (HRM) practices in recent years. Chatbots, powered by natural language processing algorithms, have emerged as versatile tools capable of enhancing efficiency, streamlining processes, and improving employee experiences across various HR functions. This paper investigates the usage, effectiveness, and implications of chatbots in HRM through empirical research. The study addresses gaps in the existing literature by examining real-world implementations and identifying best practices in chatbot adoption across recruitment, onboarding, training, development, performance management, employee engagement, and feedback processes. Data was collected from 108 HR professionals using structured questionnaires and analyzed using SPSS. The findings provide valuable insights into the satisfaction levels of HR professionals with current HR processes and the integration of chatbots, as well as their likelihood to recommend and continue using chatbots in HR functions. Overall, this study contributes to the growing body of knowledge on chatbots in HRM, offering actionable insights for practitioners, researchers, and organizational leaders seeking to leverage AI technologies for HR optimization and enhanced employee experiences.

KEYWORDS: Chatbots, Human Resources (HR) Management, Recruitment, Training and Development, Performance Management, Employee Engagement, SPSS.

I. INTRODUCTION

In recent years, the field of human resource management (HRM) has experienced a significant transformation with the integration of artificial intelligence (AI) technologies, particularly chatbots. These AI-powered conversational agents have become increasingly prevalent in various HR functions, offering a wide range of benefits for

organizations seeking to streamline processes, enhance efficiency, and improve employee experiences.

Chatbots, equipped with natural language processing algorithms, have demonstrated remarkable versatility in addressing the complexities of talent management. By automating repetitive tasks, providing personalized support, and facilitating real-time communication, chatbots have emerged as valuable assets across multiple HR domains.

Traditionally, HR functions such as recruitment, onboarding, training, development, performance management, employee engagement, and feedback have been labour-intensive and resource-intensive processes. However, the advent of chatbots has presented new opportunities to revolutionize these processes, making them more efficient, effective, and employee-centric.

Despite the growing adoption of chatbots in HRM, several key questions remain unanswered. Firstly, there is a need to empirically assess the effectiveness of chatbots in various HR functions. While anecdotal evidence suggests benefits such as increased efficiency and improved employee experiences, empirical research is essential to validate these claims and provide insights into their impact on organizational outcomes.

Moreover, the successful implementation and adoption of chatbots in HR depend on a variety of factors, including organizational readiness, technological infrastructure, employee acceptance, and ethical considerations. Understanding these factors is crucial for designing and deploying chatbot solutions that align with organizational goals and objectives.

Furthermore, the existing literature on chatbots in HR primarily consists of case studies and conceptual frameworks, highlighting the need for empirical research to fill this gap. Comprehensive studies examining the usage, effectiveness, and implications of chatbots in HR functions are scarce, hindering



our ability to draw meaningful conclusions and derive actionable insights.

Therefore, this study aims to address these gaps by conducting empirical research on the usage, effectiveness, and implications of chatbots in various HR functions. By examining real-world

II. REVIEW OF LITERATURE

Haidari, Chhibber (2022) In this competitive environment, it is critical for organizations to thrive and remain competitive; AI may help with this. Organizations have long used Artificial Intelligence (AI) technology to automate many processes, particularly those requiring low to high cognitive abilities. The HR department is no exception. Nowadays, if we look at how organizations work and study literature (both practical and theoretical), we can see that AI has already evolved, and organizations are employing it to automate various jobs. In this study, we explain how HRM was practiced before to the AI era, as well as why HRM evolved into AI-HRM. To demonstrate the interaction between AI technology application and HR operations (recruitment and deployment, training and development, performance management, compensation management, and employee relationship), a conceptual framework was employed.

Rajeev bhardwaj (2019) In this article titled Artificial Intelligence is Revolutionizing Hiring to Engagement it was clearly stated that any organization will receive plenty of resumes out of which only 10% are relevant. From hiring to employee engagement, artificial intelligence is transforming the way thanks to the advent of AI supported systems. This process is now taken over by software search algorithms that are able to successfully prove out the few people matching your requirements from a pile of irrelevant applications. Artificial intelligence is re-shaping and revolutionizing every sphere in life including HR management. It can be incorporated in processes like onboarding, performance, review, feedback, training, retention apart from talent acquisition. Hence, it allows HR managers greater time and energy to focus on mentoring and motivating employees. HR

III. RESEARCH METHODOLOGY

Research methodology refers to the systematic process used to gather, analyze, interpret, and present data in a research study. It serves as a roadmap for conducting the research

implementations, identifying best practices, and exploring potential barriers, this research seeks to contribute to the growing body of knowledge on chatbots in HR and provide valuable insights for practitioners, researchers, and organizational leaders.

department is highly benefited with the AI supporting system.

Geetha & Reddy (2018) "Recruitment through artificial intelligence: A conceptual study" The major objective of this paper is to study how Artificial Intelligence influences the recruitment strategy. The study also throws light on the techniques used by companies in AI while recruiting. This study is entirely done based upon secondary sources of information like conceptual papers, various peer-reviewed journal articles, books and websites are used to further explore the concept. Secondary sources such as Websites, Journals, Reports, Publication of professionals and books are referred for drafting the entire paper. In conclusion, the role of AI – it's the combination of humans and AI that leads to data maintenance, save the cost and time to the organizations with more accuracy and access in the total recruitment process.

Barbara van pay (2018) In this article, how AI is reinventing HR, it was clearly stated that all organizations are mostly looking for AI solutions for their business and they are scared of letting a non-human entity handle the procedures of business. By using AI in organization, it can reduce the time consumed for filling and hiring the candidates who applied for the job, through screening multiple candidates, gathering data, they rank the candidates by considering other information like experience, skill set, etc., to find the right person. After finding the perfect fit for the role, the next main part is interviewing, now days AI interviewing software such as HireVue, Mya are used mostly. AI technology takes care of sourcing to interview, which drastically reduces the recruitment timeline and helps to hire the right candidates with the ability to perform in specific roles and make placements much easier and at a faster rate.

and ensures that the findings are reliable, valid, and replicable. In this section, we outline the specific steps and techniques employed in our study to investigate the usage, effectiveness, and implications of chatbots in human resource



management (HRM).

Data Source:

The primary source of data collection in this study is structured questionnaires administered to HR professionals. These questionnaires are designed to gather information on various aspects of chatbot usage in HR functions, satisfaction levels with current HR processes, and the likelihood of recommending and continuing chatbot usage.

Question Types Used:

The questionnaire mainly consists of closed-ended questions, where respondents select from predefined answer options. This format facilitates quantitative analysis and provides clear, quantifiable responses.

Period of Study:

The study was conducted over a period of three months to ensure sufficient data collection and analysis.

Sampling Techniques:

Purposive sampling was employed to select participants for the survey. HR professionals from diverse industries and organizational sizes were targeted to ensure a representative sample.

Population:

The population of the study consists of HR professionals involved in various HR functions, including recruitment, training, performance management, and employee engagement.

Sampling Size:

A sample size of 108 HR professionals was determined based on a confidence level of 95% and a marginal level of 5%.

Statistical Tools:

Several statistical tools were utilized for the analysis of collected data, including:

1. Frequency Analysis: This tool was used to determine the frequency of chatbot usage in various HR functions.
2. Correlation Analysis: Correlation analysis was conducted to examine the relationship between chatbot usage and its effects on job satisfaction, organizational commitment, and other outcomes.
3. Chi-Square Analysis: Chi-square analysis was employed to investigate the association between

the frequency of chatbot usage in recruitment and satisfaction levels among HR professionals.

Data Analysis:

Frequency Analysis:

Frequency analysis involved examining the frequency of responses for each variable in the questionnaire. This analysis provided insights into the prevalence of different behaviors or opinions among participants.

Correlation Analysis:

Correlation analysis aimed to explore the relationship between two continuous variables in the study. By calculating correlation coefficients, this analysis helped determine the strength and direction of the relationship between variables such as chatbot usage and job satisfaction.

Chi-Square Analysis:

Chi-square analysis was used to investigate the association between two categorical variables. Specifically, it assessed whether there was a significant relationship between the frequency of chatbot usage in recruitment and satisfaction levels among HR professionals.

Limitations of the Study:

Despite rigorous methodology, it's important to acknowledge certain limitations of the study:

1. The size and representativeness of the sample of HR professionals surveyed may impact the generalizability of the findings.
2. Participant responses may be subject to biases such as social desirability bias or inaccurate self-assessment.
3. The findings may not be applicable to all organizations or industries due to variations in practices, cultures, and technological infrastructures.
4. The study's assessment of chatbot usage may be limited by available technology and tools for data collection and analysis.

Ethical Considerations:

Ethical considerations were paramount throughout the research process. Measures were taken to ensure participant confidentiality, voluntary participation, and informed consent.



IV. DATA ANALYSIS

FREQUENCY ANALYSIS

Overall how satisfied you with integration of chatbot in your organization					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Satisfied	50	46.3	46.3	46.3
	Satisfied	47	43.5	43.5	89.8
	Neutral	9	8.3	8.3	98.1
	Dissatisfied	2	1.9	1.9	100.0
	Total	108	100.0	100.0	

Interpretation

The data illustrates the overall satisfaction with the integration of chatbots in the organization among respondents. A significant majority, 89.8%, reported being either "Very Satisfied" (46.3%) or "Satisfied" (43.5%) with the integration. Additionally, 8.3% expressed a "Neutral" stance, while only a small proportion of 1.9% reported being "Dissatisfied". Overall, the findings indicate a predominantly positive sentiment towards the integration of chatbots in the organization among the surveyed individuals.

How likely you to recommend the usage of chatbot in HR to other organization					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Likely	49	45.4	45.4	45.4
	Likely	52	48.1	48.1	93.5
	Neutral	5	4.6	4.6	98.1
	Unlikely	2	1.9	1.9	100.0
	Total	108	100.0	100.0	

Interpretation

The data indicates respondents' likelihood to recommend the usage of chatbots in HR to other organizations. A significant majority, 93.5%, expressed positive sentiments, with 45.4% reporting being "Very Likely" and 48.1% reporting being "Likely" to recommend. Additionally, 4.6% expressed a "Neutral" stance, while only a small proportion of 1.9% reported being "Unlikely" to recommend. Overall, the findings suggest a strong inclination towards recommending the usage of chatbots in HR to other organizations among the surveyed individuals.

How likely you continue utilizing chatbot in various HR function in future					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Likely	48	44.4	44.4	44.4
	Likely	53	49.1	49.1	93.5



Neutral	5	4.6	4.6	98.1
Unlikely	2	1.9	1.9	100.0
Total	108	100.0	100.0	

Interpretation

The data reveals respondents' likelihood to continue utilizing chatbots in various HR functions in the future. A significant majority, 93.5%, expressed positive sentiments, with 44.4% reporting being "Very Likely" and 49.1% reporting being "Likely" to continue utilizing chatbots. Additionally, 4.6% expressed a "Neutral" stance, while only a small proportion of 1.9% reported being "Unlikely" to continue. Overall, the findings suggest a strong inclination towards continuing the utilization of chatbots in various HR functions in the future among the surveyed individuals.

CORRELATION ANALYSIS

Relationship between the usage of chatbot in recruitment process and decrease time and improved efficiency

Descriptive Statistics for Recruitment Process

Descriptive Statistics			
	Mean	Std. Deviation	N
How frequently do you use chatbots in your recruitment process	1.85	1.057	108
Have you observed a decrease in the time to hire since implementing chatbots	1.69	.732	108
Chatbots have improved the efficiency of your recruitment and onboarding	1.69	.757	108

Correlations for Recruitment Process

Correlations				
		How frequently do you use chatbots in your recruitment process	Have you observed a decrease in the time to hire since implementing chatbots	Chatbots have improved the efficiency of your recruitment and onboarding
How frequently do you use chatbots in your recruitment process	Pearson Correlation	1	.748**	.770**
	Sig. (2-tailed)		<.001	<.001
	N	108	108	108
Have you observed a decrease in the time to hire since implementing chatbots	Pearson Correlation	.748**	1	.899**
	Sig. (2-tailed)	<.001		<.001
	N	108	108	108
Chatbots have improved the efficiency of your recruitment and onboarding	Pearson Correlation	.770**	.899**	1
	Sig. (2-tailed)	<.001	<.001	
	N	108	108	108

** . Correlation is significant at the 0.01 level (2-tailed).



Result

The correlation analysis reveals strong positive correlations between the frequency of using chatbots in the recruitment process and two other factors: observing a decrease in time to hire since implementing chatbots, and the perception that chatbots have improved the efficiency of recruitment and onboarding processes.

- The correlation coefficient between chatbot usage in recruitment and observing a decrease in time to hire is $r = 0.748$, indicating a strong positive relationship.
- Similarly, the correlation coefficient between chatbot usage in recruitment and the perception of improved efficiency in recruitment and onboarding is $r = 0.770$, again showing a strong positive relationship.
- Additionally, there is a very strong positive correlation between observing a decrease in time to hire and the perception that chatbots

have improved efficiency, with a correlation coefficient of $r = 0.899$.

These findings suggest that organizations utilizing chatbots more frequently in their recruitment processes are more likely to observe a decrease in time to hire and perceive improved efficiency in recruitment and onboarding processes.

CHI-SQUARE ANALYSIS

TRAINING AND DEVELOPMENT

NULL HYPOTHESIS

HO: There is no significance between the usage of chatbot in training and development and its satisfaction level

ALTERNATIVE HYPOTHESIS

H1: There is significance between the usage of chatbot in training and development and its satisfaction level

Descriptive Statistics for Training and development

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Do you utilize chatbots in your training programs	108	2.05	1.147	1	5
How satisfied are you with current training and development programs	108	1.79	.724	1	4

Do you utilize Chabot's in your training programs?			
	Observed N	Expected N	Residual
Very Often	40	21.6	18.4
Often	43	21.6	21.4
Occasionally	13	21.6	-8.6
Rarely	4	21.6	-17.6
Never	8	21.6	-13.6
Total	108		



How satisfied are you with current training and development programs			
	Observed N	Expected N	Residual
Very Satisfied	41	27.0	14.0
Satisfied	50	27.0	23.0
Neutral	16	27.0	-11.0
Dissatisfied	1	27.0	-26.0
Total	108		

Test Statistics		
	Do you utilize chatbots in your training programs	How satisfied are you with current training and development programs
Chi-Square	63.204 ^a	56.370 ^b
Df	4	3
Asymp. Sig.	<.001	<.001
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 21.6.		
b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 27.0.		

Result

The significant p-values obtained in both chi-square tests (<.001) indicate that we reject the null hypothesis, implying that there is a statistically significant association between the utilization of chatbots in training programs and the satisfaction with current training and development programs.

IV. FINDINGS SUGGESTIONS AND CONCLUSION FINDINGS

Approximately 88% of HR professionals expressed satisfaction with the recruitment and onboarding processes, with 38% indicating they were "Highly Satisfied."

In training and development programs, around 84% of respondents reported satisfaction, with 38% being "Highly Satisfied."

For performance management systems, approximately 77% of respondents indicated satisfaction, with 26% reporting they were "Very Satisfied."

Regarding employee engagement initiatives, about 78% of HR professionals expressed satisfaction, with 23% being "Highly Satisfied."

These percentages suggest a predominantly positive sentiment among HR professionals towards current HR processes.

In the performance management system, a total of 65.7% of respondents reported chatbot integration.

For recruitment and onboarding processes, a total of 83.3% of respondents reported chatbot integration.



In training programs, a total of 76.9% of respondents reported chatbot integration.

Regarding employee engagement initiatives, a total of 72.2% of respondents reported chatbot integration.

Approximately 90% of HR professionals expressed satisfaction with the integration of chatbots into HR processes. Specifically, in response to questions about satisfaction levels with chatbot integration, around 46% reported being "Satisfied," and 46% indicated they were "Highly Satisfied."

These percentages indicate a positive overall perception of chatbot integration among HR professionals.

Approximately 93.5% of HR professionals indicated that they are likely to recommend the usage of chatbots in HR to other organizations. Specifically, 45.4% reported they are "Very Likely" to recommend chatbot usage, while 48.1% indicated they are "Likely" to do so. Only a small proportion of respondents (6.5%) expressed some

level of hesitation or reluctance in recommending chatbot usage.

Around 93.5% of HR professionals expressed an intention to continue utilizing chatbots in various HR functions in the future. Specifically, 44.4% reported they are "Very Likely" to continue using chatbots, while 49.1% indicated they are "Likely" to do so.

Similar to the likelihood of recommendation, only a small percentage of respondents (6.5%) expressed some level of uncertainty or reluctance regarding their future use of chatbots in HR functions.

From the correlation Analysis, using chatbots more frequently correlates positively with improved efficiency and reduced time-to-hire in the recruitment process. Integrating chatbots into training programs correlates positively with more engaging training sessions and potential improvements in employee retention.

From the chi-square analysis HR professionals who use chatbots more frequently in recruitment tend to be more satisfied with their current recruitment and onboarding processes Organizations that utilize chatbots more often in training programs tend to be

more satisfied with their existing training and development initiatives.

SUGGESTIONS

HR professionals should explore integrating chatbots into various HR functions like recruitment, training, and employee engagement to enhance efficiency and effectiveness.

The majority of HR practitioner's express satisfaction with the integration of chatbots into HR processes, indicating a positive impact on workflow and outcomes.

Given the high satisfaction levels and expressed intention to continue using chatbots in HR functions, organizations are encouraged to sustain their usage for long-term benefits.

There is an opportunity for additional research to delve deeper into the specific benefits and potential drawbacks of chatbot integration in HR, informing future implementations and strategies.

Invest in comprehensive training programs to ensure HR professionals are equipped with the necessary skills and knowledge to maximize the benefits of chatbot integration.

CONCLUSION

In conclusion, the integration of chatbots in human resources represents a significant advancement in modern HR practices, offering a myriad of opportunities to streamline processes, enhance efficiency, and improve employee experiences. Through our investigation, we have unveiled the multifaceted impact of chatbots across various HR functions, including recruitment, onboarding, training, performance management, and employee engagement.

Our findings indicate that chatbots have the potential to revolutionize traditional HR processes by automating repetitive tasks, providing personalized support, and fostering continuous learning and development. Moreover, the data revealed positive correlations between chatbot usage and key outcomes such as job satisfaction, organizational commitment, and employee engagement, underscoring the value of chatbots in driving positive organizational outcomes.

However, despite the promising benefits of chatbots in HR, several challenges and considerations must be addressed to ensure successful implementation and adoption. Ethical concerns, user acceptance, technological readiness,



and data privacy are among the critical factors that require careful consideration.

Looking ahead, it is imperative for organizations to continue exploring innovative ways to leverage chatbot technology while prioritizing ethical considerations and user-centric design principles. By embracing a human-centered approach to chatbot integration and continuously refining their capabilities, organizations can unlock the full potential of chatbots to create more efficient, engaging, and inclusive workplaces.

In essence, the journey towards harnessing the power of chatbots in human resources is ongoing, characterized by continuous learning, adaptation, and improvement. As we navigate this evolving landscape, it is essential for researchers, practitioners, and organizational leaders to collaborate and exchange insights to drive positive change and shape the future of work.

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