EVALUATING THE IMPACT OF CHATGPT IMPLEMENTATION ON HR PERFORMANCE SKILLS: A CASE STUDY OF ACADEMIC INSTITUTIONS IN OMAN

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ARTICLE INFO

ABSTRACT

Academic institutions increasingly integrate AI-driven tools like ChatGPT to enhance HR performance. However, the effectiveness of such adoption depends on various factors. The study investigates the impact of ChatGPT implementation on HR performance skills in Omani academic institutions, with user training, system usability, and cultural factors as moderating variables. Using a structured questionnaire, this study employs survey data collected from 791 HR staff from five academic institutions. Structural Equation Modeling (SEM) was used to examine direct and indirect relationships within the proposed framework and test the conceptual model. The outcomes show that implementing ChatGPT enhances the performance of HR skills predictably (B = 0.092, P = 0.003). User training showed a partial mediation effect (B = 0.090, t = 4.615, P = 0.000), which is evident as a key facilitator of the relationship between ChatGPT adoption and HR outcomes. In the same way, system usability was found to have a lesser but significant partial mediation effect (B = 0.019, t = 1.715, P = 0.043). However, organizational culture did not moderate the relationship significantly, B = 0.005, t = 0.922, P = 0.178. The findings of this study suggest that integrating AI-enabled tools like ChatGPT in academic HR settings requires a user-centered system development approach and targeted training. The results contribute to the literature by establishing a theoretical foundation for understanding how technology applications influence institutional efficiency and goal attainment, particularly in regions where education significantly impacts socio-economic development.

INTRODUCTION

Businesses use artificial intelligence to transform human resource management systems, including recruitment practices, employee decision-making capabilities, and interaction methods (Pandey, Singh, Arora, & Batta, 2024). International companies invest in AI recruitment platforms and workforce management tools that workforce management tools that enhance process automation and operational efficiency (Mamuli et al., 2025). The assessment of ChatGPT and similar AI language models for HR performance advancement has not been extensively researched. Current research explores machine learning use in recruitment and HR decision-making (Budhwar et al., 2023; Ajayi & Udeh, 2024; Thakral et al., 2023) yet omitted essential insights about the full effects on staff development as well as strategic human capital management functions from ChatGPT adoption. Facing a worldwide growth trend of educational institutions adopting ChatGPT, professionals now have the opportunity to enhance their HR performance capabilities, particularly in talent recruitment and staff evaluation, along with employee retention initiatives. HR departments use artificial intelligence models to analyse unstructured employee feedback, enhancing their ability for qualitative workforce evaluation and improved decision-making (Chukwuka & Dibie, 2024). The success of ChatGPT in HRM functions depends on three key elements, including system usability alongside user training and organizational culture, which shape how the system is adopted and its resulting performances. This research addresses the knowledge gap regarding the effect of ChatGPT on human resource performance throughout academic institutions in Oman by providing empirical findings. Successful integration of AI technology by HRM

departments depends on solving three main challenges between tool usability, technical support, and cultural acceptance. HR performance enhancement through AI lacks enough research about how user training measures interact with system usability features and organizational cultural backgrounds (Vrontis et al., 2022; Ardichvili, 2022). This research investigates how implementing ChatGPT affects HR performance skills within Omani academic institutions by evaluating user training, system usability, and organizational culture as essential moderating variables. The analysis of this research focuses on ChatGPT's contribution to executive decisions and task solving and its effects on employee productivity. This research evaluates the human resource practices at academic institutions in Oman to demonstrate how artificial intelligence can enhance HR competency among Gulf-region universities. The paper follows this structure: Section 2 surveys literature about AI in human resources management, Section 3 describes the research design, and Section 4 shows analysis results, after which Section 5 examines future study directions.

LITERATURE REVIEW

This paper thoroughly analyses existing research through multiple subsections before establishing connections between study questions and hypothesis development with available theoretical knowledge.

AI Applications in HR and Chabot's

Research into AI applications for HR, mainly Chabot's, has primarily focused on their role in recruitment and selection (Panday et al., 2024; Majumder & Mondal, 2021; Jierasup & Leelasantitham, 2024; Vassilakopoulou et al., 2023). Studies indicate that Chabot interviews create favorable outcomes for both companies and candidates, improving efficiency in government recruitment. Chabot supports HR functions such as onboarding, staff engagement, training, and development. These findings align with H1, which hypothesizes that the effective implementation of ChatGPT systems improves HR performance skills.

AI-driven HR management systems (HRMS) are becoming critical for HR operations, with security experts recognizing Chabot's as essential for secure and efficient human resource management (Pandey, Singh, Arora, & Batta, 2023). Given the importance of system usability in HR Chabot applications, these studies support H3, which proposes that ChatGPT usability moderates the relationship between system implementation and HR performance skills.

HR Performance Skills in Academic Institutions

Academic institutions require advanced HR capabilities to maintain competitiveness in a knowledge-based economy (Alam, 2022; Kutieshat & Farmanesh, 2022; Hossain, 2024). HR processes integrated with technology allow for strategic decision-making and improved value generation in education and research (Rangriz et al., 2011; Khotimah et al., 2024). This aligns with RQ1, which evaluates the impact of ChatGPT systems on HR performance skills in academic institutions in Oman.

Training and assessment methodologies play a crucial role in HR skill development and reinforce the importance of H2, which highlights user training as a moderating factor (Lussier, 2019). Additionally, motivated and well-trained HR professionals drive productivity and competitiveness (Singh et al., 2024), which links to RQ2, which examines how user training, system design, and cultural factors moderate ChatGPT's impact.

AI and HR: Opportunities and Challenges

AI in HR streamlines hiring, training, payroll management, and employee engagement (Savastano et al., 2024). AI-driven HR systems enhance performance management and career development (Hajrizi & Shaqiri, 2024; Pande, Moon, & Haque, 2024). These studies relate to RQ3, which seeks to identify the most effective ChatGPT components for improving HR performance.

Small and mid-sized organizations increasingly use AI-driven bots for HR functions such as employee servicing and survey management (Mamuli et al., 2025; Chukwuka & Dibie, 2024). Automating repetitive HR tasks allows professionals to focus on strategic initiatives. AI-driven Chabot also collects and analyzes confidential HR data (Kooli, 2023), supporting H4, which suggests that organizational culture moderates the ChatGPT-HR performance relationship.

ChatGPT and AI-Driven HR Solutions

Advancements in Chabot technology, particularly ChatGPT, have enabled AI to handle multiple HR tasks (Luo et al., 2022). AI-driven HR platforms improve response accuracy and operational effectiveness (Szandała, 2025). Institutions integrating AI solutions into HR processes experience improved workforce management and service delivery. These studies support RQ4, which explores how aligning ChatGPT systems with institutional goals impacts HR performance outcomes.

The optimization of Chabot communications through machine learning depends on selecting appropriate responses and maintaining effective interactions (Sharma et al., 2022). AI technology promises to revolutionize HR operations within academic institutions, reinforcing H1 regarding the impact of ChatGPT implementation on HR performance skills.

Higher Education and HR Development in Oman

Oman's higher education institutions focus on quality curricula, research, and community engagement (Raj et al., 2023). Institutional success depends on motivated HR professionals with intense training and development programs (Almamari et al., 2025). With increasing student enrollment and faculty development initiatives, Oman's institutions benefit from AI-driven HR solutions (AlHarthi, 2024; Hajrizi & Shaqiri, 2024; Jahan, 2023). These findings align with RQ1, which examines ChatGPT's impact on HR performance skills.

Implementing ChatGPT in Oman's HR Departments
Omani academic institutions implementing ChatGPT in HR aim to enhance recruitment, employee engagement, and workflow efficiency (Thottoli et al., 2025). ChatGPT's interactive capabilities support candidates and staff by improving communication and operational processes. These findings support RQ4, exploring how ChatGPT's alignment with institutional goals affects HR performance.

The literature review highlights how AI can enhance HR functions, particularly ChatGPT. By linking past research to the research questions, objectives, and hypotheses, this review establishes a strong foundation for investigating ChatGPT's role in HR performance within academic institutions in Oman.

MATERIALS AND METHODS
The study investigates how ChatGPT systems affect performance skills among HR professionals working in academic institutions in Oman through a case study approach. When contemporary phenomena exist within their real-world context, it is best to use a case study method that handles unclear boundaries between the subject and its surrounding elements. Multiple studies employ it as an effective tool to develop and verify these theories while extracting generalized findings. The research incorporated qualitative and quantitative data collection through the case study approach for detailed analysis of intricate matters.

Research Design
This study uses a mixed-methods approach for its research methodology. Both qualitative and quantitative data collection methods form part of the research design.
- A series of focus groups analyzed HR practices, including performance barriers and challenges higher education staff members face.
- A survey confirmed the conceptual framework presented in Figure 1 and all the hypotheses derived from published research. HR professionals and academic staff members from Oman were selected as participants.
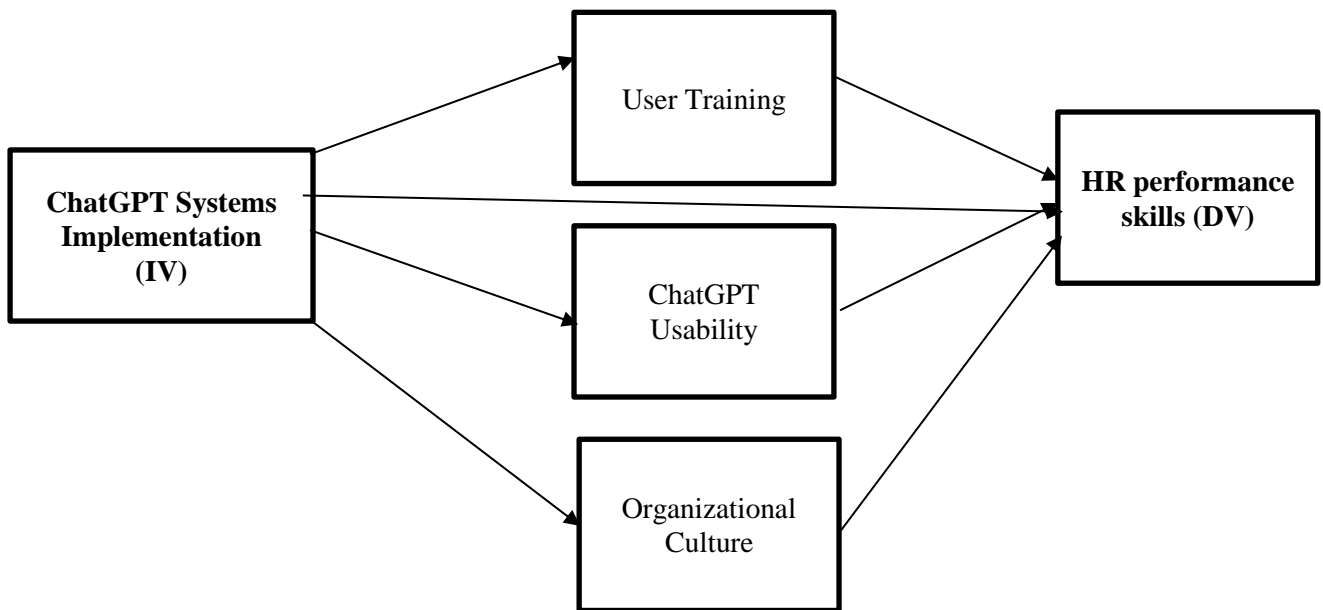

Figure 1. The proposed conceptual framework

Research Questions
The following question will be of particular importance regarding this research topic;
- What is the evaluation of the impact of ChatGPT systems implementation on the performance skills of the Academic institutions in Oman HR?
- What roles do user training, system design, and cultural issues play in moderating the relationship between ChatGPT systems and HR performance skills?
- Which particular components of ChatGPT systems are most effective in improving the ability of HR performance skills?
- How does the alignment of ChatGPT systems to deliver institutional goals impact HR performance results?

Research Objectives
- This study aims to examine the results of implementing its systems on performance skills in human resources at the Academic institutions in Oman HR.
- To test the mediating effect of user training, system usability, and organizational culture regarding the link

between ChatGPT systems and HR performance skills.
- To determine the details of causation, we need to know what ChatGPT systems effectively improve HR performance skills.
- To test the impact of the ChatGPT systems alignment with the institutional goals on HR performance output.

Hypotheses
- H1: Effective implementation of ChatGPT systems improves performance skills in HR.
- H2: User training plays a moderating role in the relationship between the implementation of ChatGPT systems and the level of performance skills among organizational human resources.
- H3: ChatGPT usability moderates the link between implementing ChatGPT systems and HR performance skills.
- H4: Some organizational culture plays a middle role in modulating the correlation between ChatGPT systems implementation and HR performance skills.

Mapping of Research Questions, Objectives, Variables, and Hypotheses
The study establishes connections between its research inquiries and objectives, process variables, and established hypotheses.
Figure 2 shows how research questions produce corresponding objectives and variables while developing hypotheses that create a systematic framework for this study.
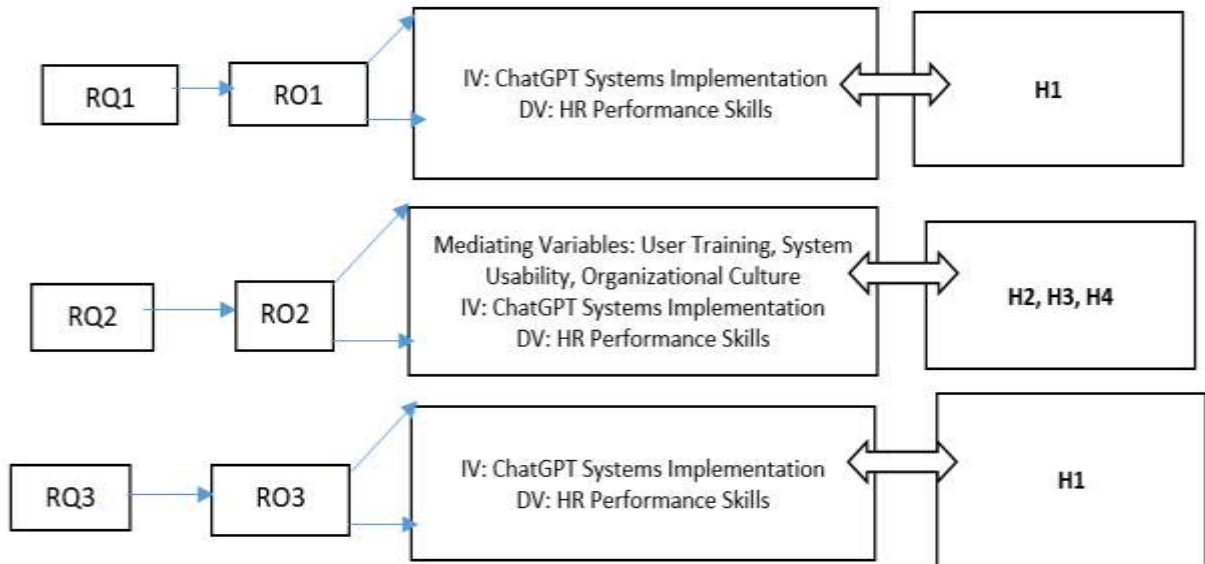

Figure 2. Mapping Research Questions, Objectives, Variables, and Hypotheses

Data Collection
Seven91 academic staff members from five institutions in Oman took part in the study using a survey questionnaire available in *ChatGPT Implementation and HR Performance* (2024). Research data collection used quantitative methods, with surveys administered before and after system implementation for participants to report their views on ChatGPT system deployment.
        The questionnaires contained the General Training Scale (GTS), which served as a tool for examining HR performance levels. Employee confidence ratings and their understanding and perception of ChatGPT's usefulness went under evaluation through the GTS measurement system. The research gathered information about participant demographics through data points that included their job position alongside HR experience and gender in addition to age range, educational attainment, and specific ChatGPT usage habits. The research also received open-ended feedback from participants. Qualitative data came from six HR staff and leadership members who regularly utilized ChatGPT for HR services. The individuals contributed important information by taking surveys and examining service logs and call records.

Cleaning Data
Responses' quality assessments preserved their position within the approved five-point Likert scale values (1–5). The analysis of missing data revealed no critical data errors. Standard deviation (SD) examined for data outliers revealed results where SD-Min equaled 0.470 and SD-Max reached 1.523. The standard deviation calculations demonstrated that the collected data was appropriate for additional analysis.
        The study employed descriptive statistics to check that skewness and kurtosis values met Structural Equation Modeling (SEM) data analysis requirements. The data showed appropriate measurement readiness for analysis based on acceptable skewness and kurtosis values, according to (Hair et al., 2021).

Strengths and Limitations

The research benefits from its dual qualitative and quantitative methodology, which yields a complete understanding of Human Resources performance and ChatGPT system functions. The dual use of focus groups and survey data allowed researchers to combine multiple resources for better results.

Relying solely on participants' self-reported data could compromise the research results due to potential user bias effects. The research focused exclusively on academic institutions across Oman, which created boundaries for its ability to present findings applicable to diverse settings.

Data Analysis

Assessment Model: Validity and Reliability

Reliability and validity were used using 'Cronbach's Alpha' and 'Composite Reliability (CR).' On using factor analysis, any item that had a factor loading of less than 0.700 was eliminated from the study. The following items have been excluded due to factor loadings below the threshold of 0.7:

(DV) HR-Performance_Skills 0.581, (IV) ChatGPT_Implementation 0.645, (Mv1) User_Training0.457,1 (Mv2) ChatGPT_Usability 0.411, (Mv3) Organaizational_Culture0.551,2. (DV) HR-Performance_Skills 0.688. A similar process has also been followed for all opportunities less than 0.700. Figure 3 below shows the data obtained with all the other items included. Figure 4 below shows the data after excluding the remaining items.

This was arrived at after analyzing several tests ranging from AVE to HTMT. Table 1 shows the reliability and validity of the remaining items and the factor loading each item. All alpha values and CRs exceeded the recommended cut-off of 0.700, making reliability highly desirable. For the convergent validity, tests such as AVE and CR were used, all of which had to be more than or equal to 0.500 and 0.700. Convergent and discriminant validity was established through the analysis of the cross-loadings of the items, revealing that factor loadings were higher than the cross-loadings, thus suggesting discriminant validity. Moreover, 'multicollinearity' was checked separately for each indicator by using VIF values less than 5, showing no 'multicollinearity' problems. Applying the same tastes about factor loadings more than cross-loadings, as indicated in Table 2 and Table 4, provided an affirmation of the discriminant validity of all items.
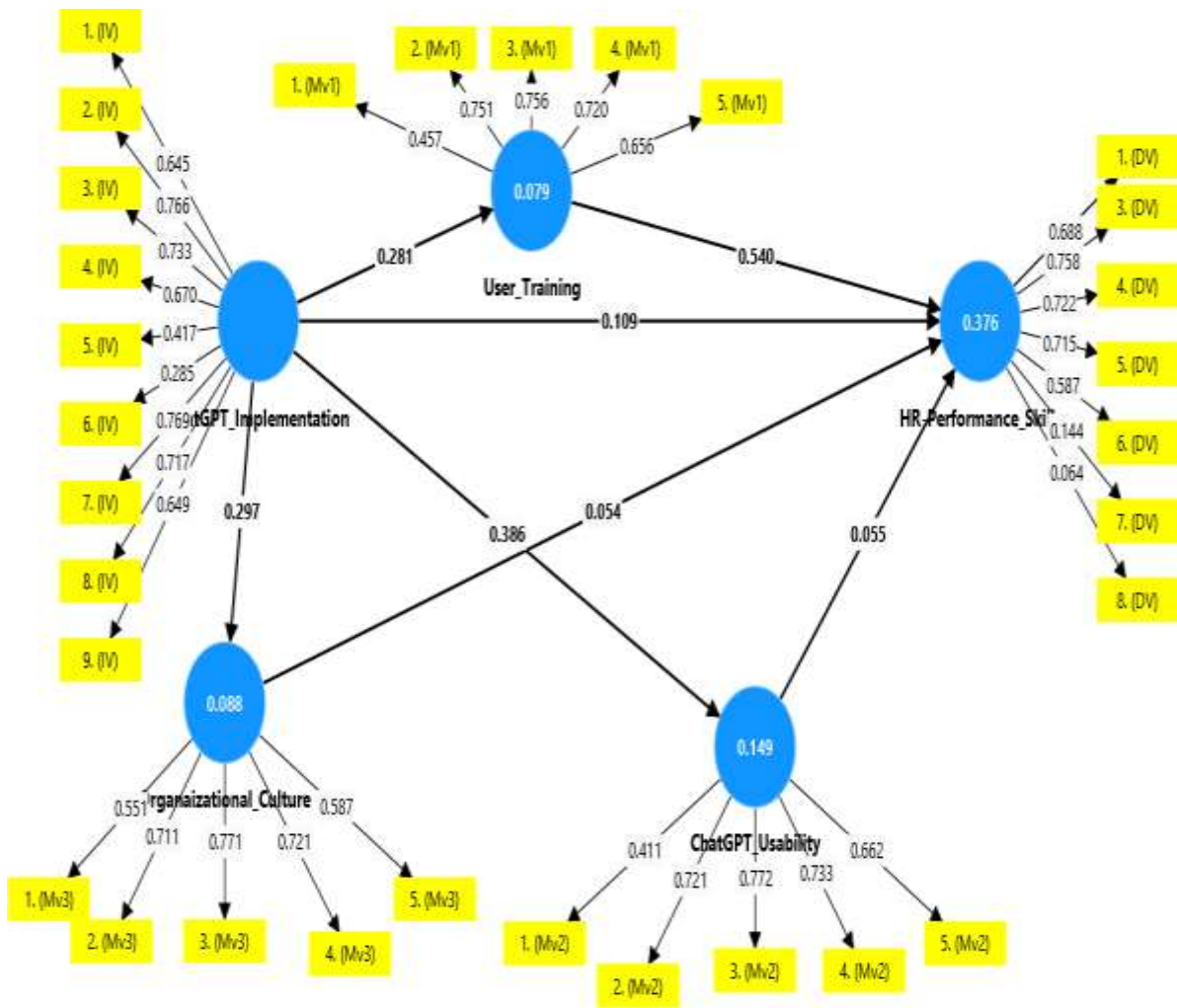

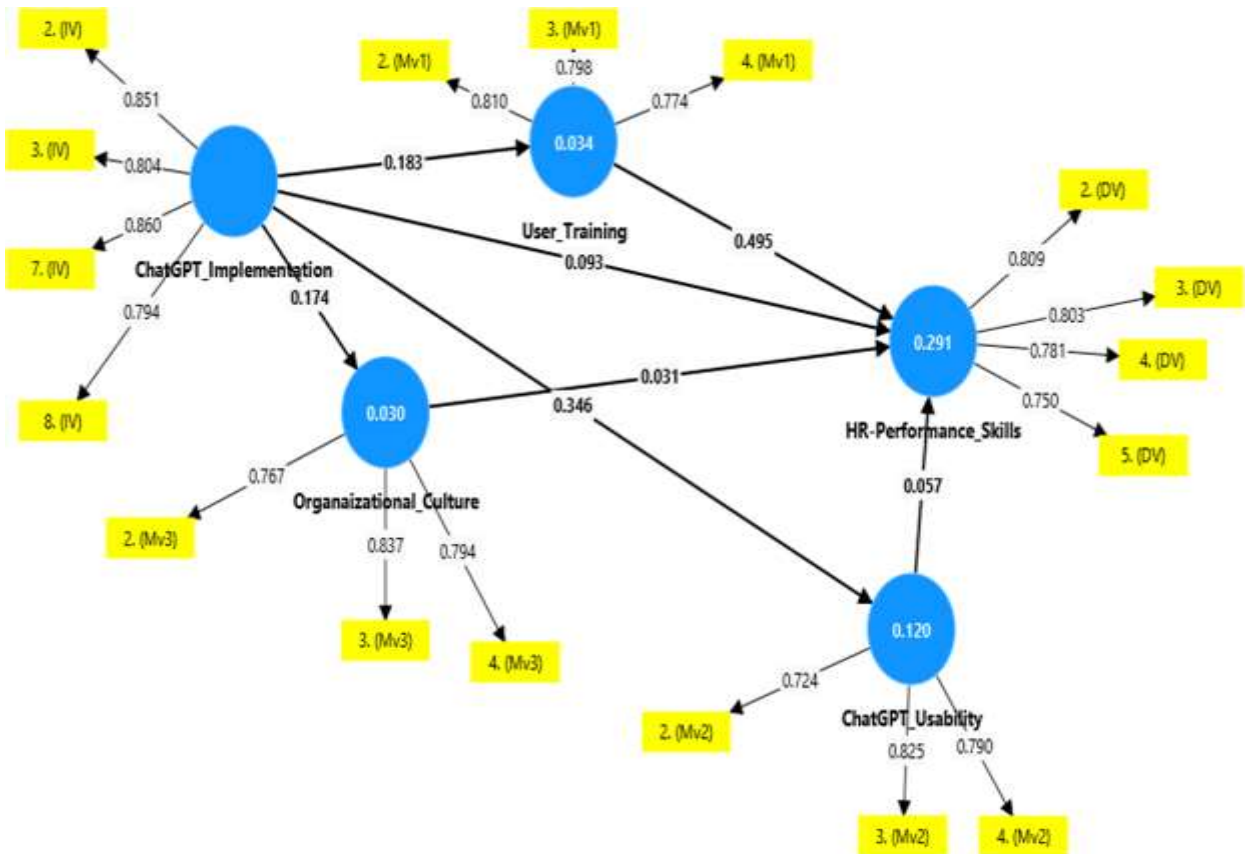Figure 3. Conceptual Model before removing indicators below 0.7

Figure 4. Conceptual Model after removing indicators below 0.7

Table 1. Item Loadings, Reliability, and Validity

	Factor Loading	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
1.(IV) ChatGPT_Implementation		0.847	0.851	0.897	0.685
2. (IV)	0.850				
3. (IV)	0.803				
7. (IV)	0.859				
8. (IV)	0.794				
2. (DV) HR-erformance_Skills		0.794	0.799	0.866	0.618
2. (DV)	0.809				
3. (DV)	0.803				
4. (DV)	0.781				
5. (DV)	0.750				
3. (Mv1) User_Training		0.708	0.711	0.837	0.631
2. (Mv1)	0.810				
3. (Mv1)	0.798				
4. (Mv1)	0.774				
4. (Mv2) ChatGPT_Usability		0.688	0.712	0.824	0.610
2. (Mv2)	0.724				
3. (Mv2)	0.825				
4. (Mv2)	0.790				
5. (Mv3) Organaizational_Culture		0.723	0.744	0.842	0.640
2. (Mv3)	0.767				
3. (Mv3)	0.837				
4. (Mv3)	0.794				

Discriminant Validity
Further discriminant validity was checked using the Heterotrait-Monotrait method (HTMT) and Fornell & Larcker criteria, with detailed output shown in Table 2 and Table 3.

Table 2. Heterotrait-monotrait ratio (HTMT)

	ChatGPT_Implementation	ChatGPT_Usability	HR-Performance_Skills	Organaizational_Culture	User_Training
ChatGPT_Implementation					
ChatGPT_Usability	0.438				
HR-Performance_Skills	0.251	0.189			
Organaizational_Culture	0.222	0.257	0.171		
User_Training	0.235	0.144	0.691	0.224	

Table 3. Fornell-Larcker criterion

	ChatGPT_Implementation	ChatGPT_Usability	HR-Performance_Skills	Organaizational_Culture	User_Training
ChatGPT_Implementation	0.828				
ChatGPT_Usability	0.346	0.781			
HR-Performance_Skills	0.208	0.143	0.786		
Organaizational_Culture	0.174	0.180	0.138	0.800	
User_Training	0.183	0.098	0.523	0.163	0.794

Structural Model
The next step in the current sequence of studies was to assess the structural models to test hypotheses postulated in this study. As for testing the hypotheses, especially in mediation analysis, the role of the Structural Model is played. This configuration of effects in the present study is aligned within a theoretical structure to distinguish between a variable's direct, indirect, and total impact to identify its moderating role as an intermediate between an independent and dependent variable. This method assesses the degree of such associations and their significance, which expands an understanding of the factors that explain the outcomes noted. There were potential issues with mediation probing; thus, mediation analysis was necessary to investigate the mechanisms and reasons behind specific effects, which might occur in the model. A bootstrapping process was done to test and present all 6 proposed hypotheses. Figure 5 shows the results of the bootstrapping analysis, while the results of the hypothesis testing are determined in Table 4 and Table 5.
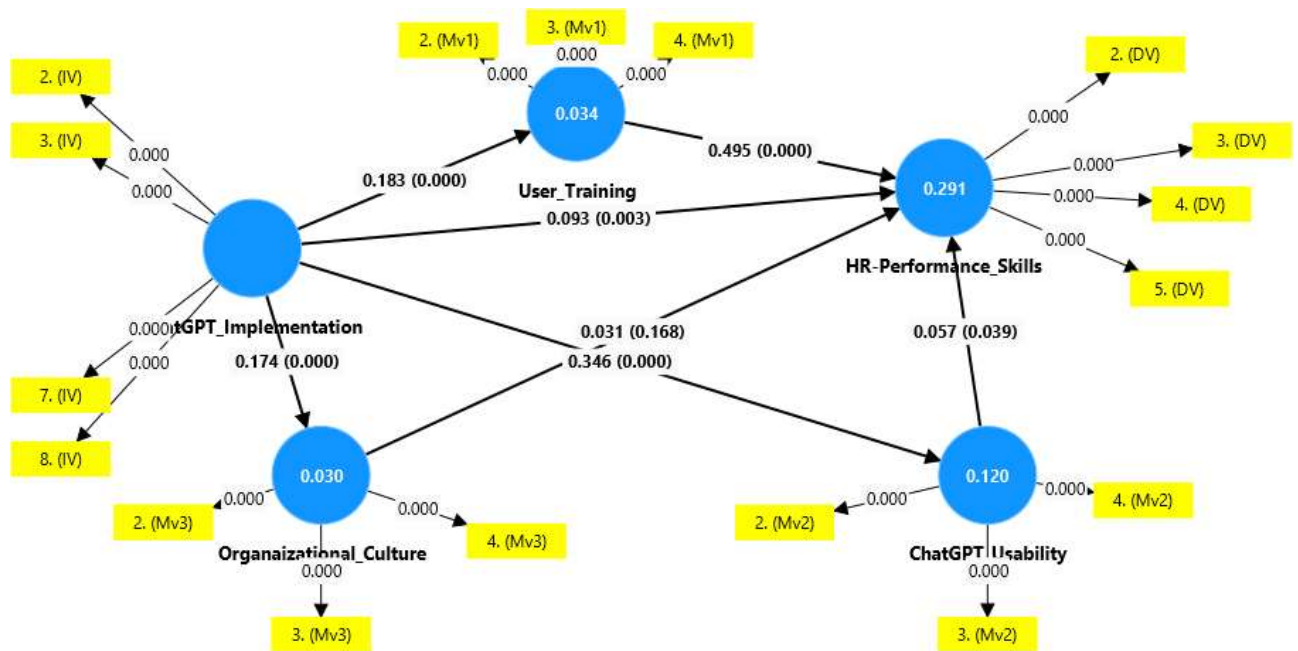

Figure 5. Bootstrapping process

RESULTS

Table 4 demonstrates the results of testing the direct hypothesis: "The effective implementation of ChatGPT systems improves performance skills in HR."

Table 4. Testing direct hypothesis (H1)

H1	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
ChatGPT_Implementation -> HR-Performance_Skills	0.093	0.034	2.742	0.003

As presented in Table 4, H1 confirms a positive correlation between the implementation of ChatGPT and HR performance skills. The original sample coefficient is 0.093, indicating a small effect, whereas the T statistic is 2.742. The p-value of 0.003 supports the hypothesis (H1) at a 5 percent significance level.

Table 5 contains the results of testing mediation hypotheses (H2, H3, and H4) by evaluating total effect, direct effect, and specific indirect effect analysis. It displays results, including hypothesis coefficients B, their t-values t, upper and lower boundaries UL and LL, and P values.

Table 5. Testing Mediation hypothesis (H2, H3 and H4)

Total effect		Direct Effect		Specific indirect effect							
B	P	B		Hypothesis	B	t	UL	LL	P	Results	
0.183	0.000	0.092	0.003	H2 ChatGPT_Implementation -> User_Training -> HR-Performance_Skills	0.090	4.615	0.06	0.125	0.000	Partial Mediation	H2: Accepted
0.345	0.000	0.092	0.003	H3 ChatGPT_Implementation -> ChatGPT_Usability -> HR-Performance_Skills	0.019	1.715	0.001	0.039	0.043	Partial Mediation	H3: Accepted
0.173	0.000	0.092	0.003	H4 ChatGPT_Implementation -> Organaizational_Culture -> HR-Performance_Skills	0.005	0.922	-0.004	0.015	0.178	No Mediation	H4: Rejected

DISCUSSIONS

Table 5 tests the mediation effect of User Training, ChatGPT Usability, and Organizational Culture on the relationship between ChatGPT Implementation and HR Performance Skills. The study evaluates the full mediation power and direct and indirect effects between variables to understand attribute involvement in hypothesis relationships.

The research shows that training users effectively leads the path to connecting the new implementation of ChatGPT with enhanced human resources performance capabilities. The relationship between ChatGPT Implementation and HR Performance Skills produces a significant influence (B = 0.183, P = 0.000). An evaluation confirms that user training substantially indirectly impacts the relationship (B = 0.090, t = 4.615, P = 0.000). Previous studies confirm that practical user training improves technological system adoption and utilization. The training provided to users results in improved performance through building confidence and increased competence within the organization. User Training is substantive in the results alongside ChatGPT Implementation, which maintains its impact on HR Performance Skills.

The mediational power of ChatGPT Usability (H3) stands lower than the overall relationship. Usability partially mediates the connection between ChatGPT Implementation and HR Performance Skills by having an indirect impact of 0.019 (B = 0.019, t = 1.715, P = 0.043). The total effect of this implementation method remains strong (B = 0.345, P = 0.000). Despite its importance, Usability does not have a similar impact on User Training, according to the findings. According to the results, a user-friendly design is essential in boosting HR Performance Skills through its significant mediation effect.

The evaluation revealed that Organizational Culture (H4) failed to demonstrate significance as a mediating factor in this research. The sizeable relationship between ChatGPT Implementation and HR Performance Skills (B = 0.173, P = 0.000) shows no substantial connection with Organizational Culture (B = 0.005, t = 0.922, P = 0.178). Organizational Culture does not act as a mediator based on confidence intervals ranging from 0.015 to -0.004 in this study, thus indicating cultural factors may have less impact than training and Usability when moderating the relationship between ChatGPT Implementation and HR Performance Skills. Contrary to other studies, this research shows cultural alignment did not play a significant role in achieving technology adoption success despite its known importance for cultural alignment.

The analysis results create essential implications for all research questions within the study. The findings show that implementing ChatGPT increases HR Performance Skills according to RQ1. The study results demonstrate significance regarding both total and direct effects, which indicates ChatGPT has strong potential to boost HR productivity, decision-making, and coordination talent. According to research findings, User Training is an effective moderator to improve the connection between ChatGPT systems and HR performance skills. The impact of Usability on the relationship remains weaker than training when it comes to ChatGPT. The relationship between ChatGPT systems and HR performance skills remains unaltered when Organizational Culture is evaluated as a mediator in this context.

The evaluation reveals that User Training and Usability are the most effective elements of ChatGPT systems when enhancing HR performance abilities. According to previous research findings, training, and system usability can predict successful technology adoption with user satisfaction. The minimal research exposure to organizational culture requires

additional study since previous investigations show that cultural fit is essential for technology adoption and performance effects.

The results imply that ChatGPT systems must align with institutional goals before fully maximizing their impact on HR performance. However, direct testing was not conducted for RQ4. According to the study results, system effectiveness increases when organizations align their objectives with the system, where direct and total effects demonstrate strong support.

This study's findings support previous research about the essential nature of training for technology adoption as established by literature. Research has established that training enhances user abilities and confidence, improving performance outcomes. According to the established literature, system usability acts as a mediator since researchers repeatedly highlight system usability as vital for user satisfaction and task performance. In this study, the non-significance of Organizational Culture indicates the relative insignificance of cultural factors toward technology adoption. This research suggests that successfully integrating ChatGPT might prioritize training along with usability components rather than organizational culture at the same level.

According to research results, organizations should create detailed training programs for their HR staff to use ChatGPT systems effectively. Investments in improving user interface designs while ensuring the system supports HR functions will boost this system's effectiveness. Even though organizational culture did not show statistically significant effects in this study, promoting technology adoption remains beneficial among employees.

CONCLUSIONS

The research examined ChatGPT deployment's effects on strengthening human resources performance capabilities for academic Omani institutions. The research findings demonstrate that ChatGPT implementation positively affects HR operational performance, while User Training and System Usability partially explain this impact. User training is an integral component in enhancing both the adoption and effectiveness of ChatGPT in HR functions, but system usability provides supplementary benefits.

The present research adds value by analyzing how User Training and Usability function as middle factors connecting ChatGPT deployment to HR performance outputs. Organizations must invest in quality training and user-friendly system design to reach ChatGPT's maximum potential when implemented in HR operations.

The research provides theoretical growth to existing studies about technology implementation and adoption by showcasing the essential role that training programs and system design play in technology integration success. Managers and HR practitioners need to focus their investments on system usability combined with training programs to achieve improved HR performance together with effective AI tool implementation like ChatGPT.

The research includes some restraining factors that need consideration. The research evaluation applies explicitly to academic institutions in Oman and does not establish broader applicability across different industries or geographic areas. Additional research should explore the restricted use of Organizational Culture as a mediation variable because cultural influences may exceed its function in new contexts.

Further research should investigate organizational culture and consider alternative factors that affect how well ChatGPT implementation succeeds in other situations. Research improvements can be achieved by analyzing a broader scope of industries across different regions to confirm the worldwide validity of these results.

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