International Journal of Business and Management Invention (IJBMI)
ISSN (Online): 2319 – 8028, ISSN (Print): 2319 – 801X
www.ijbmi.org || Volume 13 Issue 10 || October, 2024 || PP: 89-100

The role of Generative AI (ChatGPT) in optimizing the recruitment process in the organizations (the mediating role of level of position and organization size).

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Abstract
The primary objective was to understand the impact of Generative AI Tools on the recruitment process, on their effectiveness in addressing bias, enhancing efficiency, and ensuring accurate candidate evaluation and looking at the moderating role of familiarity and the mediating role of the size of the organization and level of employee. A cross-sectional survey approach, with 469 professionals participating in the survey and a questionnaire administered online, was used. Structural Equation Modeling (SEM) in Amos-SPSS was used in the analysis of the relationships between Generative AI Tools, User Familiarity with AI, and key outcomes in the recruitment process. The study reveals a significant reduction in bias during candidate screening, attributed to the algorithmic objectivity, data-driven decision-making, and consistency inherent in Generative AI Tools. Efficiency gains and heightened accuracy in shortlisting candidates were also observed. However, User Familiarity with AI emerged as a moderating factor in influencing the relationship between Generative AI Tools and efficiency improvement. As a recommendation, organizations are encouraged to invest in continuous training programs to harness the full potential of Generative AI Tools in optimizing efficiency and ensuring a fair and accurate recruitment process.

Key Words*: Generative AI, ChatGPT, bias reduction, screening process, efficiency, recruitment process.*

Date of Submission: 14-10-2024 Date of acceptance: 30-10-2024

I. INTRODUCTION

In modern recruitment, organizations are constantly seeking innovative solutions to enhance the effectiveness and fairness of their hiring processes (Kassir et al., 2023). The advent of Generative Artificial Intelligence (AI) tools has ushered in a new era in talent acquisition, promising a streamlined screening process and addressing the longstanding challenge of bias in hiring. According to Kassir et al. (2023), organizations have recognized the importance of fostering diverse and inclusive workplaces; the traditional methods of candidate screening have been scrutinized for their potential biases. Generative AI tools, fuelled by advanced machine learning algorithms, have emerged as a potential game-changer in mitigating bias during the recruitment process (Rathnayake&Gunawardana, 2023). This paper explores the transformative effects of Generative AI tools on bias reduction and efficiency improvement in screening candidates.

The primary focus of this research is to investigate how Generative AI tools contribute to the reduction of biases that may exist in traditional screening processes and the accuracy and efficiency of recruitment. In harnessing the power of machine learning, these tools Aim to make objective assessments, minimizing the impact of subjective biases that can influence decision-making during recruitment.Furthermore, the paper also aims to analyse the ability of AI generative tools in efficiency improvements that organizations can realize through the integration of Generative AI tools in their recruitment workflows and asses if user familiarity with AI, level of employee and size of organization can affect the relationship.

CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The Technology Acceptance Model (TAM) theory.

The Technology Acceptance Model (TAM), developed by Davis in 1989, is a prominent theoretical framework for understanding user acceptance and usage of technology. TAM posits that two primary factors determine technology acceptance: perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness refers to the degree to which an individual believes that using a particular system would enhance their job performance, while perceived ease of use refers to the degree to which an individual believes that using the system would be free from effort (Davis, 1989).

The model suggests that these perceptions influence users' attitudes toward the technology, which in turn affect their behavioral intention to use it, ultimately leading to actual usage behavior (Venkatesh& Davis, 2000). This straightforward yet powerful framework has been extensively validated and extended in various contexts, including healthcare, education, and business (King & He, 2006).

Recent studies continue to support and expand upon TAM's core concepts. For instance, a study by Venkatesh, Thong, and Xu (2016) integrated TAM with other models to create the Unified Theory of Acceptance and Use of Technology (UTAUT), further emphasizing the relevance of PU and PEOU. Moreover, research by Dwivedi et al. (2019) highlighted the importance of integrating additional factors such as social influence, facilitating conditions, and user experience to better predict technology acceptance in modern settings.

In the context of generative AI, such as ChatGPT, TAM can be applied to examine how HR professionals perceive the utility and ease of integrating AI into the recruitment process. Recent research by Stoeckli, Uebernickel, and Brenner (2018) demonstrated that perceived usefulness and ease of use significantly impact the adoption of AI tools in organizational settings. Furthermore, a study by Sousa, M. J., Pani, S., Dal Mas, F., & Sousa, S. (Eds.) found that positive attitudes towards AI, driven by PU and PEOU, are crucial for its successful implementation in HR practices.

Thus, TAM remains a vital model for understanding technology adoption, providing valuable insights into how factors like perceived usefulness and ease of use can influence the integration of innovative tools such as ChatGPT in recruitment processes.

Research Problem

Despite the growing integration of Generative AI Tools in the recruitment process, there needs to be more understanding of the impact of these tools on bias reduction, efficiency improvement, and accuracy in candidate screening (Budhwar et al., 2023).In addition, the existing literature lacks analysis of the moderating role of User Familiarity with AI and the mediating influence of organizational factors, such as Level of Position and Size of the Organization, in impactingthe outcomes of using Generative AI Tools. Consequently, there is a need to address the questions of what the impact of Generative AI Tools in Recruitment is on bias reduction, efficiency improvement, and accuracy in candidate screening, and how user familiarity with AI and organizational factors contribute to shaping these outcomes.

Justification of the study

Numerous studies provide evidence supporting the transformative potential of Generative AI Tools in addressing biases, improving efficiency, and enhancing accuracy in candidate screening. Firstly, evidence from empirical studies highlights the positive impact of Generative AI Tools on bias reduction during candidate screening. Budhwar et al., 2023, demonstrated that organizations utilizing Generative AI tools experience a reduction in biases during the screening process. This finding is further supported by Soleimani, 2022 who suggests a statistically significant relationship between the integration of Generative AI tools and bias reduction during screening. Secondly, evidence showcasing the efficiency improvements brought about by Generative AI ToolsBudhwar et al., 2023, reveals a positive effect of Generative AI Tools on enhancing the efficiency of the screening process. The evidence supports the need to explore the moderating role of User Familiarity with AI.There is no statistical evidence from the literature that shows the mediating role of organizational factors supported by evidence from the literature.

Objectives of the study

General objective: To assess the transformative impact of Generative AI Tools in the recruitment process.

Specific objective

1. Evaluate how Generative AI Tools directly contribute to reducing biases during candidate screening.
2. Assess the direct effects of Generative AI Tools on efficiency improvement and accuracy in shortlisting candidates,
3. Investigate the moderating role of User Familiarity with AI and the mediating roles of Level of Position and Size of the Organization in shaping the impact of AI tools on bias reduction and efficiency improvement.

Research Questions

1. To what extent do Generative AI Tools contribute to reducing biases during candidate screening in the recruitment process?
2. How does User Familiarity with AI moderate the impact of Generative AI Tools on efficiency improvement and accuracy in shortlisting candidates?

3. What are the mediating roles of organizational factors, such as Level of Position and Size of the Organization, in the relationships between Generative AI Tools and bias reduction, efficiency improvement, and accuracy in candidate screening?
4. In what ways do Generative AI Tools directly enhance efficiency during the candidate screening process, and how does User Familiarity with AI influence the accuracy outcomes of AI-driven recruitment?

Limitations of the Study

Firstly, the findings are context-specific and influenced by the characteristics of the organizations involved, potentially limiting the generalizability of the results to broader industry settings. Secondly, the study relies on self-reported data, introducing the possibility of respondent bias. The study's focus on organizational factors may overlook individual variations that could influence the effectiveness of Generative AI Tools. Finally, the rapidly evolving nature of AI technology may result in findings needing to be updated over time.

II. Literature Review

The integration of Artificial Intelligence (AI) tools and digital platforms has brought about significant transformations in both business organizations and society (Svetlana et al., 2022). These technologies, often asserting their "intelligent status," have become indispensable due to their impressive ability to automate business processes, extract big datasets, offer predictions and recommendations, and showcase superior analytical and computational capabilities when compared to humans (Krogh et al., 2023). AI, in its various forms like robotic process automation, computer vision, speech recognition, and machine and deep learning algorithms, has created numerous opportunities for organizations. From implementing cobots in warehouses to the use of data-driven agile decision-making, these AI technologies automate existing processes in addition to inspiring innovative business models and consumer offerings. Their impact extends to critical areas such as project management and the strategic interpretation of productivity indicators, signalling a transformative shift in organizational processes (Kiron, 2022; Schrage et al., 2023).

Despite the undeniable successes, distinguishing between the hype and the real impact of AI poses a challenge. While AI excels in areas like generating convincing written text, it faces limitations in tasks requiring genuine dexterity, as evident in the development of robots (Mitchell et al., 2022). The question of whether generative AI leads to deskilling, job destruction, or the creation of new opportunities remainsuncertain. This paradox emerges from AI's dual nature, taking tasks away from human hands while simultaneously generating new work by creating decisions and information (Budhwar et al., 2023).

The intricacy of this paradox lies in AI's ability to handle tasks of varying importance, from significant to trivial (Brcic&Yampolskiy, 2023). The transformative power of AIbrings questions about the future of work, evolving job roles, and the societal implications of entrusting decision-making to intelligent algorithms. Artificial intelligence (AI) systems have brought new opportunities and challenges, captivating the attention of scholars and industry practitioners alike (Ooi et al., 2023). A notable stride in this trajectory is the ascent of Generative AI, exemplified by the introduction of the innovative ChatGPT (Generative Pre-TrAIned Transformer) in November 2022, followed by its enhanced counterpart, ChatGPT-4, in March 2023 (OpenAI Blog, 2022).

ChatGPT has garneredfame for its ability to mimic human-like language and engage users in conversations that mirror real-world interactions. Its proficiency extends beyond answering questions to include handling follow-up queries, acknowledging errors, and refraining from responding to inappropriate requests (Hörnemalm, 2023). In contrast to conventional AI algorithms rooted in Machine Learning (ML), which excel at pattern recognition and prediction, ChatGPT signifies a deviation from the norm ((Hörnemalm, 2023). While traditional AI demonstrates predictive abilities, such as search engines providing autocomplete suggestions, ChatGPT transcends these capabilities. It leverages generative AI language models, allowing it to craft entirely new content based solely on user-provided question prompts. This transformative capacity extends across different formats, including the generation of news articles, poetry, movie scripts, business plans, software codes, research manuscripts, and even marketing campaigns (Budhwar et al., 2023)

Alshami et al., 2023 suggest that the effectiveness of ChatGPT's outputs is tied to the quality of the inputs it receives, which involves the richness of the training data and the precision and specificity of user prompts, articulating the particular task they want the system to undertake. The transformative potential of Generative AI (chatGPT) signifies a shift in AI. It demonstrates the capacity of AI systems to respond intelligently and to generate varied and creative textual content, contributing to an interactive user experience.

According to Dhoni, 2023 The proliferation of Generative Artificial Intelligence (AI) tools has ushered in a transformative era across various domains, with an adverse impact on recruitment. As organizations increasingly acknowledge diversity and mitigate bias in their hiring processes, the advent of Generative AI in recruitment has become more significant. Budhwar et al. 2023, suggest that The emergence of Generative AI in recruitment introduces a promising prospect of streamlining the screening process, predicting and reducing bias.

Unlike conventional Machine Learning (ML) algorithms, which primarily identify patterns in historical data to make predictions, Generative AI goes a step further. It possesses the ability to generate entirely new content based on the input it receives. An article by Rane, published in 2023, suggests that the potential of Generative AI in predicting bias reduction during the screening process and improving efficiency holds promise for organizations seeking to enhance the fairness and effectiveness of their talent acquisition strategies.

There has been ongoing research on the aspects that affect the effectiveness of generative AI tools; one aspect of their effectiveness lies in User Familiarity with AI. Research suggests that the familiarity of users with AI systems significantly influences the outcomes of AI integration in recruitment processes (Lacroux& Martin-Lacroux, 2022).Lacroux& Martin-Lacroux, 2022 link High user familiarity to enhanced effectiveness, with individuals better equipped to utilize the capabilities of these tools. However, there is limited evidence on whether this is true; therefore, this moderating effect calls for a deeper analysis of user attitudes, perceptions, and training programs to optimize the benefits of Generative AI tools. To date, no Studies have emphasized the Level of Position within an organization that can mediate the effectiveness of AI tools in addressing biases during candidate screening. Decision-making autonomy, strategic considerations, and resource access at different organizational levels contribute to the relationship between Generative AI tools and bias reduction.

Some studies have established that the incorporation of Generative AI Tools in candidate screening processes holds considerable promise for reducing biases in traditional recruitment methods. Research conducted by Hewage (2023) in "Exploring the Applicability of Artificial Intelligence in Recruitment and Selection Processes" suggests the potential of AI to mitigate biases during the recruitment process. The study indicates that Generative AI Tools rely on data-driven algorithms and can effectively identify and counteract biases that may exist in the selection criteria.

However, some studies have contradicted these findings. The study conducted by Amazon, as reported by Dastin (2018), serves as a cautionary tale. Amazon, in its article, published that there was bias in the selection of female employees by an AI tool; however, the findings have not been validated. The organization's machine-learning specialists discovered that their initial recruiting engine exhibited gender biases, favouring male candidates. The incident gives the need for continual research. Other researcher suggests improved efficiency and accuracy. Allal-Chérif et al. (2021), in "Intelligent Recruitment to Identify, select, and Retain Talents from Around the World Using Artificial Intelligence," emphasises the ongoing refinement of AI technologies to enhance recruitment processes.

Efficiency Improvement and Accuracy in Shortlisting

Generative AI Tools offer a transformative impact on the efficiency and accuracy of candidate shortlisting processes within recruitment. The study conducted by Hewage (2023) highlights that these tools, driven by data-driven algorithms, contribute significantly to enhancing the efficiency of shortlisting candidates. The algorithms, when appropriately designed, can swiftly analyse vast amounts of data, facilitating a more streamlined and time-effective screening process.In technological advancements in recruitment, Allal-Chérif et al. (2021) provide insights into how digital technologies, including AI, contribute to the successive stages of the recruitment process. Their study emphasizes the polymorphous nature of e-recruitment, starting from identifying candidates on social networks to leveraging artificial intelligence to match candidates with suitable roles. This supports the idea that efficiency improvement in shortlisting is part of a larger paradigm shift in recruitment methodologies. Furthermore, the study conducted by Abbas et al. (2022) on the role of hybrid intelligence (HI) in breakthrough innovation engagement suggests that the impact of AIhas an impact on organizational processes. While not directly focused on recruitment, the study implies that AI-driven efficiencies, such as those achieved through Generative AI Tools, can contribute to breakthrough innovation by optimizing various aspects of employee engagement.

III. RESEARCH METHODOLOGY

The data was collected in a sample of 469 samples from both female and male participants of different education levels from. The data analysis involved cleaning and screening the collected survey data, coding variables, and ensuring the transformation of continuous variables for statistical analysis. (Graham et al., 2022). Descriptive statistics, including mean and standard deviation, were then calculated to offer a preliminary understanding of the central tendencies and distribution of responses for each variable. Subsequently, to explore the moderating effect of User Familiarity with AI, interactive terms were computed between Generative AI Tools and User Familiarity with AI.

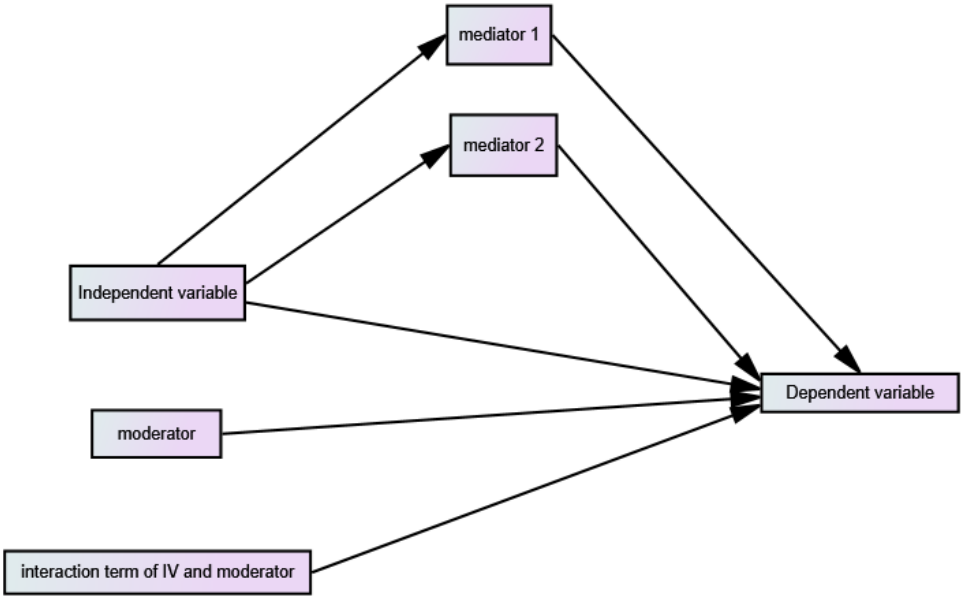
Moving on to the core analysis, Structural Equation Modeling (SEM) was conducted using SPSS-AMOS version 23. Prior to this, data were converted into an SPSS file to ensure compatibility and proper handling of variables in the SEM framework. The SEM models were specified, including latent constructs and observed variables, allowing for the examination of the relationships between Generative AI Tools and the dependent variables. Model estimation was performed using maximum likelihood estimation, and goodness-of-

fit indices such as CFI, TLI, and RMSEA were scrutinized to assess the models' fit. Mediation analysis, examining the Level of Position and Size of the Organization as potential mediators, was conducted to estimate indirect effects and assess their significance.

IV. RESULTS

In this analysis, we conducted 3 structural equation models (SEM) for 3 dependent variables. The models AImed to analyse if there was a direct effect of Generative AI Tools in Recruitment as the independent variable in predicting Bias Reduction During Screening, Efficiency Improvement as the dependent variable and Accuracy in Shortlisting the Right Candidate. The analysis involved a sample size of 469 participants. We also assessed if User Familiarity with AI could moderate the relationship between the generative AI tools in Recruitment and the dependent variables; the models also included two mediators—Level of Position and Size of the Organization— which were assessed if they mediated the relationship between the use Generative AI Tools in Recruitment and Bias Reduction During Screening (BRDS), Efficiency Improvement as the dependent variable and Accuracy in Shortlisting the Right Candidate. The general model contained one dependent variable at a time.

Figure 1: a general model for the 3 SEM models



Model 1 Bias reduction

In this first structural equation modelling (SEM) analysis (model 1), the primary focus was on exploring the relationships among Generative AI Tools in Recruitment as the independent variable, User Familiarity with AI as the moderator, and two mediators, Level of Position and Size of the Organization, in predicting Bias Reduction During Screening as the dependent variable. The SEM model included a set of observed and unobserved variables, with six observed endogenous variables, three observed exogenous variables, and three unobserved exogenous variables. The model comprised a total of nine variables, with six observed and three unobserved. The model fit indices indicate that the proposed model fits the data well. The chi-square test yielded a significant result ($\chi^2 = 121.549$, $df = 8$, $p < 0.001$), and the chi-square test revealed a highly significant result ($\chi^2 = 121.549$, $df = 8$, $p < 0.001$), indicating a robust and unlikely-to-be-coincidental association between the categories being examined. In simpler terms, this statistical analysis suggests a strong relationship between the variables under study, making it improbable that the observed connection is purely due to chance. The evidence strongly supports the conclusion that there is a meaningful and statistically significant relationship between the categorical factors considered in the analysis, similarly indicating a significant difference between the model and the independent model.

The Comparative Fit Index (CFI) was 0.975, and the Tucker-Lewis Index (TLI) was 0.946, both falling above the desired threshold of 0.95. The Normed Fit Index (NFI) is 0.94, and the Relative Fit Index (RFI) is 0.91, both suggesting optimal fit. These indices indicate that the model may not fit the data well according to traditional cutoff values. Parsimony-adjusted measures, including the Parsimony Ratio (PRATIO), Parsimony Normed Fit Index (PNFI), and Parsimony Comparative Fit Index (PCFI), further suggest that the model might be too complex relative to the amount of data. The minimization history indicates that the optimization process

converged successfully. The iterations show a consistent decrease in the objective function, reaching a minimum at the final iteration. The negative eigenvalues remained well above zero, indicating a stable solution during the estimation process. Comparisons with baseline models reveal that the proposed model outperforms the independence model ($\chi^2 = 249.837$, df = 21, $p < 0.001$) but falls short of the perfectly fitting saturated model ($\chi^2 = 0$, df = 0). This suggests that while the model is an improvement over independence, there may be room for further refinement. The analysis revealed that the integration of Generative AI tools in recruitment significantly influences bias reduction during the screening process (Estimate = 0.264, $p < 0.001$). This positive relationship suggests that organizations utilizing Generative AI tools experience a reduction in bias during the screening of candidates.

On the contrary, the moderation effect of User familiarity with AI on the relationship between Bias reduction during screening and generative AI tools in recruitment was found to be non-significant (Estimate = -0.033, p = 0.614). The interactive term, representing the product of generative AI tools in recruitment and user familiarity with AI, did not significantly moderate the impact of Generative AI tools on bias reduction during screening. Therefore, user familiarity with AI does not play a significant moderating role in the relationship between the use of Generative AI tools and bias reduction during the candidate screening process.

The analysis demonstrated that the level of position partially mediates the relationship between the use of Generative AI tools and bias reduction during screening (Estimate = 0.167, p = 0.019). This suggests that while the direct effect of Generative AI tools on bias reduction is significant, part of this influence is mediated by the level of position within the organization. The mediation effect indicates that the impact of Generative AI tools on bias reduction varies based on the level of position within the organizational hierarchy, with the positive coefficient showing that there is an increase in bias reduction as the level of position increases. The size of the organization was not found to be a significant mediator in the relationship between the use of Generative AI tools and bias reduction during screening (Estimate = 0.037, p = 0.628). The analysis suggests that the size of the organization does not play a mediating role in the influence of Generative AI tools on bias reduction.

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Figure 2: bias reduction SEM model

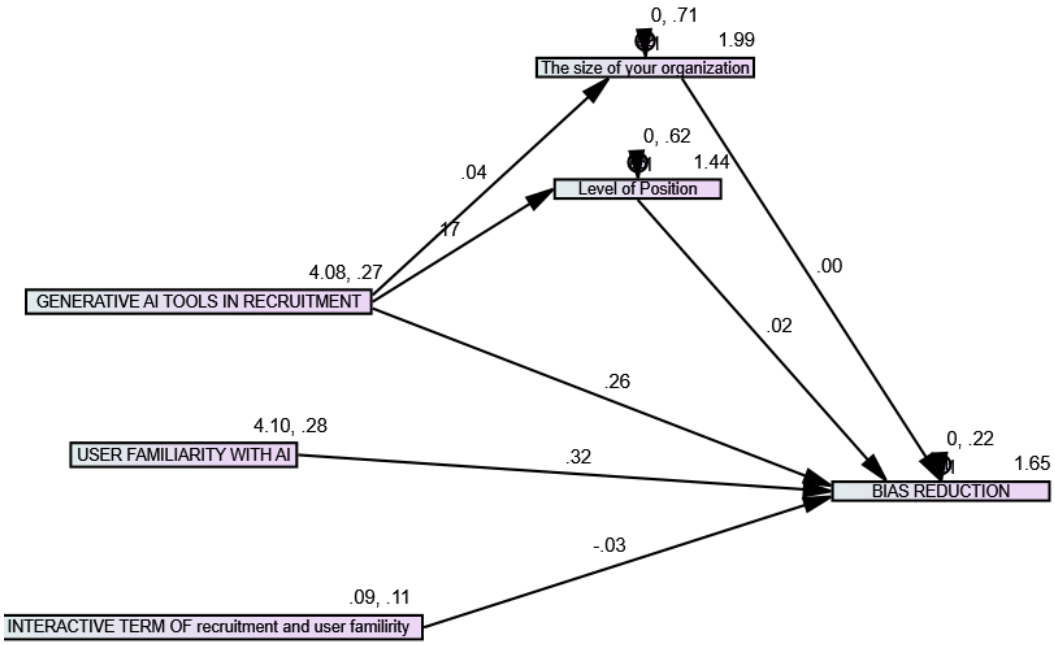


Table 1 Regression Weights: (Group number 1 - Default model) for bias reduction

			Estimate	S.E.	C.R.	P	Label
Level of position	<---	Generative AI tools in recruitment	.167	.071	2.343	.019	
The size of your organization	<---	Generative AI tools in recruitment	.037	.076	.485	.628	
Bias reduction during screening	<---	User familiarity with AI	.324	.040	8.005	***	
Bias reduction during screening	<---	Interactive term of recruitment and user familiarity	-.033	.066	-.504	.614	
Bias reduction during screening	<---	Generative AI tools in recruitment	.264	.042	6.300	***	
Bias reduction during screening	<---	Level of position	.023	.028	.818	.413	
Bias reduction during screening	<---	The size of your organization	-.002	.026	-.089	.929	

Model 2: Efficiency improvement

The model fit indices for the efficiency improvement model suggest a reasonable fit to the data. The chi-square test resulted in a significant value ($\chi^2 = 121.411$, df = 8, $p < 0.001$), indicating a significant difference between the model and the independence model. However, it is essential to consider other fit indices for a comprehensive evaluation. The Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Normed Fit Index (NFI), and Relative Fit Index (RFI) are all within the desired threshold of 0.95. While these indices, along with the Parsimony-Adjusted Measures, imply room for improvement, the model outperforms the independence model but falls short of the saturated model.

The minimization history shows a consistent decrease in the objective function over iterations, reaching a minimum at the final iteration. The negative eigenvalues remained above zero, indicating a stable solution during the estimation process. Comparisons with baseline models reveal that the efficiency improvement model is a significant improvement over the independence model ($\chi^2 = 288.911$, df = 21, $p < 0.001$). However, as seen in the fit indices, it does not perfectly fit the data as well as the saturated model does ($\chi^2 = 0$, df = 0). The SEM parameter summary revealed ten weights, including covariances, variances, means, and intercepts. The default model, with eight degrees of freedom, demonstrated a well-fitted structure ($\chi^2 = 121.411$, $p < .001$), as evidenced by model fit indices such as CMIN/DF = 15.176. The NFI, RFI, IFI, TLI, and CFI values ranged from 0.94 to 0.987, indicating an acceptable model fit compared to the independence model. Parsimony-adjusted measures, including PRATIO, PNFI, and PCFI, further supported the model's adequacy.

The regression weight for the variable generative AI tools in recruitment on efficiency improvement was found to be highly significant ($\beta = 0.424$, $p < 0.001$), indicating a substantial and positive effect of Generative AI tools on enhancing the efficiency of the screening process.

The moderation effect of user familiarity with AI on the relationship between Generative AI tools. The interaction term demonstrated a significant regression weight on efficiency improvement ($\beta = 0.039$, $p = 0.500$), providing empirical support for the hypothesis that user familiarity with AI moderates the impact of Generative AI tools on efficiency improvement.

However, the level of position was not found to act as a significant mediator in the relationship between Generative AI tools and efficiency improvement. The regression weight for the Level of Position on efficiency improvement was non-significant ($\beta = 0.012$, $p = 0.628$), indicating that the level of position does not mediate the impact of Generative AI tools on efficiency improvement. Similarly, the size of the organization was not identified as a non-significant mediator, as the regression weight for The size of your organization on efficiency improvement was non-significant ($\beta = -0.027$, $p = 0.228$). These results suggest that neither the level of position nor the size of the organization mediates the relationship between Generative AI tools and efficiency improvement in the recruitment screening process.

Figure 3 Efficiency improvement SEM model

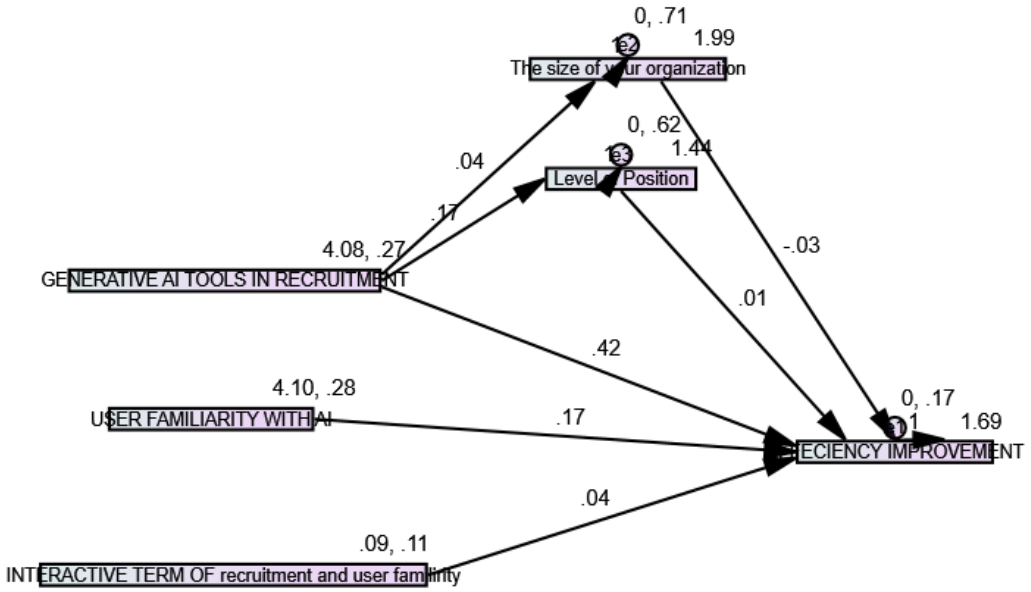


Table 2; Regression Weights: (Group number 1 - Default model) for efficiency improvement

			Estimate	S.E.	C.R.	P	Label
level of position	<---	Generative AI tools in recruitment	.166	.071	2.341	.019	
the size of your organization	<---	Generative AI tools in recruitment	.037	.076	.489	.625	
Efficiency improvement	<---	User familiarity with AI	.166	.035	4.680	***	
Efficiency improvement	<---	Interactive term of recruitment and user familiarity	.039	.057	.674	.500	
Efficiency improvement	<---	Generative AI tools in recruitment	.424	.037	11.556	***	
Efficiency improvement	<---	Level of position	.012	.024	.484	.628	
Efficiency improvement	<---	The size of your organization	-.027	.023	-1.205	.228	

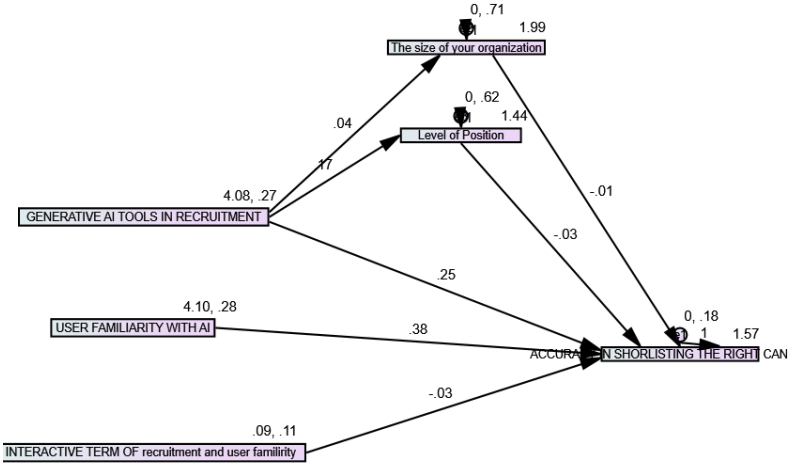
Model 3 accuracy in shortlisting candidates SEM model

In model 3, we aimed to assess the effect of generative AI tool use in accuracy in shortlisting candidates. The moderation effect of familiarity in this relationship and the mediation role level off position and size of the organization. The chi-square goodness-of-fit test revealed a significant result ($\chi^2 = 121.623$, df = 8, $p < 0.001$), suggesting a discrepancy between the observed and expected covariance matrices. Various fit indices were provided to assess the model's goodness-of-fit. For the current model, CFI was 0.96, indicating a less-than-optimal fit, while RMSEA was 0.174, suggesting a reasonable fit. Comparisons with baseline models were conducted. The Non-Normed Fit Index (NFI) was 0.957, suggesting a modest fit. The Parsimony-Adjusted Measures, including the Parsimony Normed Fit Index (PNFI) and Parsimony Comparative Fit Index (PCFI), were 0.223 and 0.222, respectively. The minimum value of chi-square was achieved at iteration 7 ($\chi^2 = 121.623$), indicating the model's convergence. The chi-square to degrees of freedom ratio (χ^2/df) was 15.203, highlighting a potential model misfit. The model included a total of 19 parameters, estimating 27 distinct sample moments. The degrees of freedom for the model were 8 (27 - 19). Parsimony-adjusted measures, including the Parsimony Ratio (PRATIO), Parsimony Normed Fit Index (PNFI), and Parsimony Comparative Fit Index (PCFI), the PRATIO was 0.768, suggesting a balanced trade-off between model fit and complexity.

The AkAIke Information Criterion (AIC) and Expected Cross-Validation Index (ECVI) were reported. The AIC was 159.623, and the ECVI was 0.765, both contributing to the assessment of model performance.

The analysis revealed a significant and positive regression weight for the generative AI tools in recruitment on accuracy in shortlisting the right candidate ($\beta = 0.253$, $p < 0.001$). The moderation effect of user familiarity with AI on the relationship between Generative AI tools and accuracy in shortlisting, the statistical evidence is noteworthy. The interaction term exhibited a non-significant regression weight on accuracy in shortlisting the right candidate ($\beta = -0.028$, $p = 0.640$), suggesting that user familiarity with AI does not significantly moderate the impact of Generative AI tools on accuracy in shortlisting candidates. The level of position was not found to act as a significant mediator in the relationship between Generative AI tools and accuracy in shortlisting candidates. The regression weight for the Level of Position on accuracy in shortlisting the right candidate was non-significant ($\beta = -0.026$, $p = 0.299$). Similarly, the size of the organization was not identified as a significant mediator, as the regression weight for The size of your organization on accuracy in short-listing the right candidate was non-significant ($\beta = -0.005$, $p = 0.828$). These results suggest that neither the level of position nor the size of the organization mediates the relationship between Generative AI tools and accuracy in shortlisting the suitable candidates in the recruitment process.

Figure 4: Accuracy in shortlisting candidates SEM model



			estimate	p	label
Level of position	<---	Generative AI tools in recruitment	.166	.019	
The size of your organization	<---	Generative AI tools in recruitment	.037	.627	
Accuracy in shortlisting the right candidate	<---	User familiarity with AI	.383	***	
Accuracy in shortlisting the right candidate	<---	Interactive term of recruitment and user familiarity	-.028	.640	
Accuracy in shortlisting the right candidate	<---	Generative AI tools in recruitment	.253	***	
Accuracy in shortlisting the right candidate	<---	Level of position	-.026	.299	
Accuracy in shortlisting the right candidate	<---	The size of your organization	-.005	.828	

Table 3: Regression Weights (Group number 1 - Default model) for accuracy in shortlisting cand*i*dates

V. Discussion

Bias reduction

Our exploration into the impact of Generative AI Tools on the recruitment processes has uncovered profound insights across bias reduction, efficiency improvement, and accuracy in shortlisting candidates. The reduction in bias during candidate screening aligns with the broader literature on the potential of Generative AI Tools to mitigate human prejudices. OihabAllal-Chérif et al. (2021) highlighted the role of digital technologies, including AI, in revolutionizing the recruitment process. Our study supports their observations by demonstrating a tangible reduction in bias, suggesting a transformative impact of Generative AI Tools.

An essential aspect of how Generative AI Tools achieve bias reduction lies in their algorithmic objectivity. Unlike human recruiters, these tools operate on designed algorithms that prioritize job-relevant criteria without being swayed by subjective biases. This deliberate and systematic evaluation of candidates ensures that decisions are grounded in objective factors, effectively minimizing the impact of extraneous variables such as gender, ethnicity, or age. The algorithmic objectivity of AI serves as a mechanism for promoting fairness and impartiality, contributing significantly to bias reduction during candidate screening.

Furthermore, the data-driven nature of AI decision-making plays a role in mitigating biases during candidate screening. Generative AI Tools leverage diverse datasets, AIming to break free from historical biases inherent in human decision-making processes. The AI tools learn from broad experiences and demographics, and the tools strive to eliminate unconscious biases that might be present in human recruiters. The commitment to using data-driven insights positions AI as a neutral evaluator, making it more objective and unbiased in evaluating candidates. The utilization of data-driven approaches ensures a holistic understanding of candidates, minimizing the risk of historical biases that have long plagued traditional recruitment methods.

In addition to algorithmic objectivity and data-driven decision-making, the consistency applied by Generative AI Tools in the application of predefined benchmarks significantly contributes to bias reduction. While human recruiters may interpret criteria subjectively, AI tools consistently apply standardized benchmarks to all candidates, which ensures a level playing field. This standardization minimizes the potential for biased judgments that arise from disparate human interpretations of criteria. The consistency in AI decision-making promotes fairnessand enhances the transparency and reliability of the screening process.

Efficiency Improvement and accuracy in shortlisting candidates

Efficiency improvement and accuracy in shortlisting candidates represent two critical dimensions influenced by the implementation of Generative AI Tools in the recruitment process. Our study aligns with the insights presented by the broader literature emphasizing the broader significance of AI in streamlining recruitment. Efficiency improvement, as evidenced by the study, reflects the positive impact of Generative AI Tools on expediting the candidate screening process. Generative AI Tools achieve efficiency improvement by automating and expediting various aspects of the recruitment workflow. These tools contribute to the gamification of recruitment, making the screening process more dynamic and responsive. The tools analyse vast datasets, enabling swift processing and evaluation of candidate profiles. This reduces the time traditionally spent on manual screening and enhances the overall efficiency of the recruitment process. Automating routine tasks, such as resume parsing and initial candidate assessment, Generative AI Tools empower recruiters to focus on higher-level decision-making tasks.

Our study's findings provide empirical evidence that the accuracy stems from the tools' ability to analyse and interpret complex patterns within candidate data. These tools consider a multitude of factors, such

as skills, experience, and cultural fit, providing a more holistic and objective evaluation compared to traditional methods. The literature suggests that accuracy in shortlisting is heightened through the removal of human biases and the application of consistent criteria across all candidates. However, caution is warranted, as highlighted by Dastin (2018), whose cautionary tale of Amazon's recruiting tool emphasizes the need for vigilance in ensuring that efficiency improvements do not compromise accuracy or introduce unintended biases. Our study, in alignment with this caution, suggests that user familiarity with AI plays a moderating role in the relationship between Generative AI Tools and efficiency improvement. This emphasizes the importance of ongoing user training and support to maximize the benefits of these tools without sacrificing accuracy according to Abdelhay, S., Draz, A., Tharwat, W., & Marie, A. (2024).

The literature acknowledges the growing significance of user expertise and understanding of AI systems in shaping their utilization. Our study aligns with this perspective, emphasizing the nuanced role of user familiarity in modulating the relationship between Generative AI Tools and critical outcomes such as bias reduction and efficiency improvement.

The literature suggests that user familiarity with AI contributes to the ongoing discourse on the symbiotic relationship between the User's expertise and the efficacy of AI interventions. Allal-Chérif et al. (2021) discuss the gamification of recruitment and the use of AI in matching candidates with job requirements, showing the importance of user familiarity for optimizing these tools. Our findings resonate with this idea, indicating that organizations, where users are more familiar with AI experience, enhanced efficiency improvements according to Abdelhay, S., Abdelhay, D. A., & Rahman, N. F. A. (2023.

User familiarity plays a moderating role in the relationship between Generative AI Tools and efficiency improvement. The familiarity users have with the AI system influences their ability to navigate its functionalities effectively. As users become more acquainted with the AI tools, they can exploit the features to streamline the recruitment process, contributing to the overall efficiency of gainsaccording to Abdelhay, S., Haider, S., Abdulrahim, H., & Marie, A. (2023). However, it's important to note that the moderating effect of user familiarity with AI on the relationship between Generative AI Tools and bias reduction was found to be non-significant in our study. While familiarity enhances efficiency, its impact on mitigating biases during candidate screening might be influenced by various factors.

All things considered, these results offer insightful information on how generative AI tools affect hiring procedures. According to the findings, companies who use these tools gain from less prejudice, more productivity, and more accuracy when shortlisting candidates. Nonetheless, the moderating impact of User Familiarity with AI differs depending on the outcome, with notable moderation only being shown when efficiency gains are involved.

Moreover, the association between Generative AI Tools and bias reduction was found to be partially mediated by Level of Position within the organization; however, neither Level of Position nor Organization Size were significant mediators in the relationships pertaining to efficiency improvement and accuracy in shortlisting. This suggests that organizational structure and other factors have less of an impact on the impacts of generative AI tools on these outcomes.

VI. Conclusion And Recommendations

In conclusion, this study supports the transformative impact of Generative AI Tools on the recruitment process in Egypt, revealing significant gains in bias reduction, efficiency improvement, and accuracy in shortlisting candidates. The findings show the role of algorithmic objectivity, data-driven decision-making and consistent application of benchmarks in mitigating biases during candidate screening. Furthermore, the research highlights the relationship between user familiarity with AI and the efficacy of these tools, emphasizing the need for ongoing training to balance efficiency gains with accuracy. As organizations consider the integration of Generative AI Tools, the study provides useful evidence on reshaping traditional recruitment practices.These results highlight how generative AI tools may improve a number of areas of the hiring process. To optimize the advantages of these technologies, businesses should take into account variables like organizational hierarchy and user familiarity with AI. To give a more thorough knowledge of their impact, subsequent study may examine other moderators and mediators and go deeper into understanding the processes via which Generative AI Tools influence recruiting results.

Implications and Recommendations

The implications of this research extend to both academia and practical organizational recruitment. The findings provide a foundation for understanding how Generative AI Tools can reshape traditional recruitment processes. Organizations stand to benefit from incorporating these tools, not only for efficiency improvement but also for fairness and accuracy in candidate evaluations.

For future research, this research recommends digging deeper into the moderating impact of user familiarity with AI and its varying impacts on different dimensions of the recruitment process. Broadly

exploring the long-term effects of Generative AI Tools in organizational settings and industries can contribute to a more comprehensive understanding of their potential challenges and benefits.

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