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INVISIBLE ERRORS, HUMAN FALLOUT: CHATBOT PERFORMANCE AND ITS CONSEQUENCES FOR BPO EMPLOYEES

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Abstract: In recent years, chatbots have become an essential part of customer service in the Business Process Outsourcing (BPO) sector. They are designed to improve efficiency, reduce workload, and provide quick responses to customers. However, behind this technological convenience, there are subtle errors in chatbot performance that often go unnoticed. These "invisible errors" may appear minor, but they gradually shift the burden of problem-solving onto human employees. This study explores how chatbot performance and its limitations impact the daily work experiences of BPO employees. The research focuses on the increased workload, emotional strain, and stress faced by employees when they are required to manage customer dissatisfaction caused by chatbot failures. A quantitative research approach was adopted, and data was collected from employees working in the BPO sector through structured questionnaires. The findings reveal that chatbot errors frequently lead to repeated customer interactions, frustration, and escalations, which directly affect employee performance and well-being. Many employees experience increased stress, emotional exhaustion, and pressure to maintain service quality despite technological limitations. While chatbots are intended to support human work, they often create additional hidden responsibilities. The study concludes that the integration of chatbot technology must consider its human impact alongside operational efficiency. Addressing these invisible challenges through better system design, employee support, and organizational awareness can help create a more balanced and sustainable work environment.

Keywords: *Chatbot Performance, Invisible Errors, BPO Employees, Emotional Labour, Workload Stress, Customer Service, Employee Well-being, Human–Technology Interaction*

I. INTRODUCTION

A customer reaches out for support expecting a quick solution. Instead, they interact with a chatbot that provides incomplete or incorrect responses. By the time the issue reaches a human employee, the customer is already frustrated. What appears to be a simple technological delay often becomes a complex human challenge. This is the everyday reality in many Business Process Outsourcing (BPO) environments.

The use of chatbots in customer service has grown rapidly in recent years. Organizations rely on them to handle large volumes of queries, reduce operational costs, and provide instant assistance. While these systems improve efficiency on the surface, they are not always accurate or context-aware. Small errors, misunderstood queries, or irrelevant responses often go unnoticed at the system level but create significant challenges during human intervention.

These unnoticed issues can be described as "invisible errors." They do not immediately disrupt operations, but they gradually shift the burden onto employees. When customers receive unsatisfactory responses from chatbots, they turn to human agents with higher expectations and frustration. Employees are then required to manage not only the issue itself but also the emotional state of the customer. This increases their workload and adds emotional pressure to their role.

In the Indian BPO sector, where efficiency and customer satisfaction are critical, these challenges become more intense. Employees are expected to resolve issues quickly while maintaining professionalism and empathy. However, repeated exposure to dissatisfied customers, combined with system limitations, can lead to stress, emotional exhaustion, and reduced job satisfaction. Over time, this can impact both individual well-being and organizational performance.

Although technology is often seen as a solution for improving productivity, its hidden consequences on human workers are not always fully explored. Many studies focus on the benefits of automation, but fewer examine how technological gaps affect employees who work alongside these systems. The everyday experiences of BPO employees, especially in handling chatbot-related challenges, remain underrepresented in research.

This study, "Invisible Errors, Human Fallout: Chatbot Performance and Its Consequences for BPO Employees," aims to explore this overlooked dimension. It focuses on how chatbot errors influence employee workload, emotional labour, and overall well-being. By bringing attention to these invisible challenges, the research seeks to highlight the need for a more balanced approach where technological efficiency is aligned with human sustainability.

II. REVIEW OF LITERATURE

The growing use of chatbot technology in customer service has transformed the way organizations interact with customers. Studies have shown that chatbots improve efficiency by handling repetitive queries and reducing response time. However, research by Huang and Rust (2021) highlights that these systems still lack the ability to understand complex and emotionally sensitive situations. When chatbots fail to interpret customer needs accurately, it often leads to dissatisfaction and repeated interactions.

Research on automation and artificial intelligence suggests that while technology reduces certain types of workload, it can also create new forms of pressure for employees. According to Brynjolfsson and McAfee (2014), technological advancements often shift responsibilities rather than eliminate them. Employees are required to handle more complex and escalated cases, which increases cognitive demand and problem-solving pressure.

In customer service environments, especially in the BPO sector, emotional labour plays a significant role. Hochschild (1983) explains that employees are expected to manage their emotions while interacting with customers, regardless of the situation. When chatbot errors occur, customers often approach human agents with frustration, making interactions more challenging. This increases emotional strain and affects employee well-being.

The issue of emotional exhaustion and burnout has been widely discussed in organizational studies. Maslach and Jackson (1981) found that continuous exposure to stressful work conditions leads to emotional fatigue and reduced job satisfaction. In technology-supported environments, this effect may intensify as employees must compensate for system inefficiencies while maintaining performance standards.

Furthermore, studies indicate a gap between technological implementation and human experience. Davenport and Ronanki (2018) argue that organizations focus heavily on efficiency and cost reduction, often overlooking the human impact of such technologies. These hidden challenges remain difficult to measure but significantly influence employee performance and satisfaction.

Overall, existing literature suggests that while chatbot technology offers operational benefits, it also creates unintended consequences for employees. However, there is limited research that specifically examines how "invisible errors" in chatbot performance affect the daily experiences of BPO employees. This study attempts to address this gap by focusing on the connection between technology and its human impact.

III. RESEARCH GAP AND JUSTIFICATION

Existing research highlights that chatbot technology has significantly improved efficiency and reduced operational workload in customer service environments. Many studies focus on the technical capabilities of chatbots, their role in automation, and their contribution to organizational productivity. At the same time, research in the BPO sector has explored employee stress, emotional labour, and burnout as separate areas of study.

However, there is limited research that connects these two dimensions. Very few studies examine how chatbot performance, especially its subtle or "invisible" errors, directly affects the daily experiences of

employees who work alongside these systems. While technological limitations are often acknowledged, their impact on employee workload, emotional strain, and job satisfaction remains underexplored.

In the context of the Indian BPO sector, this gap becomes even more important. Employees are expected to manage high volumes of customer interactions while maintaining service quality and emotional control. When chatbot errors lead to customer dissatisfaction, the responsibility of managing these situations shifts to human agents. This creates additional pressure that is not always visible at the organizational level.

This study addresses this gap by focusing on the human consequences of chatbot performance. It explores how invisible errors contribute to increased workload, emotional labour, and stress among BPO employees. By examining this connection, the research provides a more balanced understanding of technology adoption, where both efficiency and employee well-being are considered.

Understanding this gap is important for organizations aiming to build sustainable work environments. Without recognizing these hidden challenges, technological advancements may continue to improve systems while unintentionally affecting the people who rely on them.

IV. RESEARCH METHODOLOGY

1. Objectives

- To understand the impact of chatbot performance on the daily work experiences of BPO employees.
- To examine how invisible errors in chatbot responses influence employee workload and task complexity.
- To explore the level of emotional labour and stress experienced by employees while handling customer interactions affected by chatbot limitations.
- To assess the relationship between chatbot-related challenges and employee well-being.
- To identify the need for organizational support in managing the human impact of technology.

V. RESEARCH DESIGN

This study adopts a quantitative research design to understand the impact of chatbot performance on employees working in the BPO sector. The approach focuses on capturing measurable patterns related to workload, stress, emotional labour, and employee well-being. It helps in identifying how technological challenges influence human performance in customer service roles.

1. Questionnaire (Quantitative Method)

Target Group: BPO employees involved in customer service roles

Purpose: To assess chatbot performance, employee workload, emotional strain, and overall work experience

Tool: Structured questionnaire with close-ended and Likert-scale questions

Analysis: Percentage analysis and basic statistical interpretation to identify patterns and trends

2. Data Collection & Ethical Considerations

Method: Data was collected through direct interaction with respondents using structured questionnaires

Ethics: Participation was voluntary. Respondents were informed about the purpose of the study, and confidentiality and anonymity were maintained throughout

3. Universe, Sample, and Sampling Method

Universe: Employees working in the Business Process Outsourcing (BPO) sector

Sample: A selected group of employees engaged in customer service roles

Sampling Method: Convenience sampling was used to collect responses from accessible participants within the BPO sector

VI. FINDINGS

The findings of the study reveal that chatbot technology, while designed to simplify customer service, often creates hidden challenges for employees working in the BPO sector. Many respondents shared that interactions handled by chatbots frequently require human intervention due to incomplete or incorrect responses. By the time these cases reach employees, customers are often frustrated, which makes the interaction more difficult to manage.

A large number of employees reported that chatbot errors increase their workload. Instead of handling fresh queries, they are required to resolve already complicated issues that have been escalated from the system. This not only consumes more time but also demands greater attention and effort. Repeated explanations, corrections, and customer dissatisfaction make routine tasks more exhausting.

Emotional strain emerged as a significant concern. Employees are expected to remain calm and professional even when customers express frustration or anger caused by chatbot failures. Many respondents indicated that managing customer emotions is often more challenging than solving the actual problem. Over time, this leads to emotional fatigue and reduced motivation.

The study also highlights that employees experience pressure to maintain performance standards despite system limitations. Targets related to response time and customer satisfaction remain unchanged, even when chatbot errors increase the complexity of interactions. This creates a sense of imbalance, where employees feel responsible for issues beyond their control.

Another important finding is that these challenges often remain unnoticed at the organizational level. Since chatbot errors are not always directly visible in performance metrics, the additional effort required by employees is rarely acknowledged. As a result, many employees continue to manage these hidden pressures without adequate support.

Overall, the findings suggest that while chatbot technology improves operational efficiency, it also introduces invisible burdens for employees. Increased workload, emotional labour, and performance pressure collectively affect employee well-being and job satisfaction. These insights highlight the need to recognize and address the human impact of technology in customer service environments.

VII. CONCLUSION

This study highlights an important yet often overlooked reality in the BPO sector. While chatbot technology is introduced to improve efficiency and reduce workload, it also creates hidden challenges for employees. These challenges are not always visible in systems or reports, but they are clearly experienced in everyday work interactions.

Employees are not only responsible for resolving customer issues but also for managing the frustration caused by chatbot errors. This adds an emotional layer to their work, increasing stress and mental fatigue over time. Even though chatbots are designed to support human roles, their limitations often shift additional responsibility onto employees rather than reducing it.

The findings also show that employees continue to meet organizational expectations despite these challenges. However, constant exposure to high-pressure situations, combined with limited control over system performance, can affect their well-being and job satisfaction. These effects may not appear immediately, but they build gradually and influence long-term performance and engagement.

At the same time, this study does not reject the value of technology. Instead, it emphasizes the need for a more balanced approach. Organizations must recognize that technological efficiency and human well-being are closely connected. Ignoring the human impact of chatbot performance can lead to unintended consequences within the workforce.

In conclusion, understanding and addressing these “invisible errors” is essential for creating a sustainable work environment. When organizations acknowledge employee experiences and provide appropriate support, technology can truly enhance both performance and well-being rather than creating hidden burdens.

VIII. SUGGESTIONS/ RECOMMENDATIONS

The study suggests that organizations in the BPO sector should adopt a more balanced approach while implementing chatbot technology. It is important to regularly monitor chatbot performance and identify recurring errors so that they can be corrected at an early stage. Improving the accuracy and contextual understanding of chatbots can reduce the number of escalated cases and ease the burden on employees.

Employees should be provided with adequate support to manage the challenges created by chatbot limitations. This can include training programs focused on handling difficult customer interactions,

emotional resilience, and stress management. When employees feel prepared and supported, they are better able to manage both technical and emotional aspects of their work.

Organizations should also recognize the additional effort required in handling chatbot-related issues. Performance evaluation systems need to consider the complexity of interactions rather than focusing only on speed and output. A more flexible and empathetic approach can help reduce pressure and improve job satisfaction.

Creating open communication channels within the workplace is equally important. Employees should have the opportunity to share their experiences and report system-related challenges without hesitation. This can help organizations gain better insight into ground-level issues and take corrective measures more effectively.

Finally, there is a need to promote employee well-being as a priority. Providing access to counselling support, encouraging breaks during high-pressure periods, and fostering a positive work environment can help reduce stress and prevent burnout. When organizations value both technology and human experience, they create a more sustainable and productive work culture.

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