



A Data-Driven Analysis of Teacher Job Satisfaction and Its Impact on Institutional Performance: Evidence from Early Childhood Education

Pratibha Barsing¹

Student, MBA Department
Dhole Patil College of Engineering, Pune

Dr. Vidya Bhandwalkar²

Project guide, MBA Department
Dhole Patil College of Engineering, Pune

Author Email:Pratibha.waghmare2112@gmail.com | ORCID: <https://orcid.org>

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Abstract—

Teacher job satisfaction has emerged as a critical factor influencing teaching effectiveness, employee retention, and overall institutional performance in early childhood education. Despite the implementation of various human resource practices, many institutions continue to rely on generalized management approaches that fail to address the diverse needs of teachers. Additionally, although large volumes of teacher-related data are generated through institutional processes, they are often underutilized due to the absence of structured analytical frameworks. This study aims to address this gap by adopting a data-driven approach to analyze teacher job satisfaction and its impact on organizational outcomes.

The research employs a quantitative and analytical design using both primary and secondary data sources. Primary data was collected through a structured questionnaire administered to 130 teaching staff, while a larger dataset comprising 41,188 records with 21 variables was used for in-depth analysis. Various statistical techniques, including descriptive analysis, exploratory data analysis, correlation, and hypothesis testing, were applied to identify key factors influencing satisfaction and their relationships with performance indicators.

The study contributes to the field of Human Resource Management by providing a structured, data-driven framework for improving talent

management practices. It highlights the importance of integrating HR analytics with involvement-based strategies to enhance employee well-being and achieve sustainable organizational success.

Keywords-

Strategic Talent Management ,High involvement work practice, teacher engagement, Employee retention, Pedagogical involvement, organizational performance. Educational data analytics, workforce development, Digital tools in education.



I. INTRODUCTION

The role of Human Resource Management in education has undergone a significant transformation in recent years, particularly with the growing integration of data analytics and strategic talent management practices. In early childhood education, teacher job satisfaction has emerged as a critical determinant of teaching effectiveness, student development, and overall institutional performance. Despite continuous investments in training, engagement initiatives, and supportive work environments, many institutions still struggle to achieve consistently high levels of teacher satisfaction and retention. This indicates a deeper structural issue in how talent is managed and evaluated within educational organizations.

Traditional HR practices in preschool settings have largely relied on generalized approaches, where teachers are managed uniformly without sufficient consideration of individual needs, behavioral patterns, or levels of involvement. Such approaches often fail to capture the complexity of teacher experiences, leading to reduced engagement, increased workload stress, and inefficient utilization of human capital. At the same time, modern educational institutions generate substantial amounts of data through teacher feedback systems, performance evaluations, parent interactions, and digital communication platforms. However, this data remains underutilized due to the absence of structured analytical frameworks that can convert raw information into actionable insights.

In 2026, the relevance of this study is particularly significant due to the rapid evolution of educational practices and workforce expectations. The post-digital transformation era has accelerated the adoption of technology in education, making data-driven decision-making an essential component of institutional management. Teachers today operate in increasingly complex environments that require balancing pedagogical responsibilities, administrative tasks, digital engagement, and parent communication. As a result, traditional HR approaches are no longer sufficient to address these multidimensional challenges.

Moreover, the global emphasis on quality early childhood education has intensified the need for effective teacher management strategies. Institutions are now expected to deliver not only strong learning outcomes but also maintain high levels of employee well-being and engagement. In this context, integrating **strategic talent management with HR analytics** provides a sustainable pathway for improving both employee satisfaction and organizational performance.

This study is highly relevant as it responds to these contemporary challenges by proposing a **data-driven, multi-factor analytical framework** for understanding teacher job satisfaction. By combining structured data analysis with practical implementation insights, the research aligns with current trends in HR innovation and contributes to the development of more adaptive, efficient, and evidence-based management practices in early childhood education.

II. LITERATURE REVIEW

The study of teacher job satisfaction and its relationship with organizational performance has gained increasing attention within the broader domain of Human Resource Management (HRM), particularly in education. Over time, the literature has evolved from basic descriptive analyses to more integrated, data-driven approaches that combine behavioral insights, organizational practices, and analytical frameworks.

Strategic Talent Management (STM) has emerged as a critical function in modern organizations, including educational institutions. It focuses on aligning human resource practices with organizational goals to improve performance and sustainability. In the context of education, STM involves managing teacher recruitment, development, engagement, and retention in a structured manner.

Existing studies suggest that effective talent management practices contribute significantly to improved teaching quality and institutional effectiveness. Training and development initiatives, performance evaluation systems, and supportive management practices have been identified as key drivers of teacher performance.



However, a major limitation in the literature is the lack of empirical studies that demonstrate how these practices can be systematically implemented using data-driven approaches, particularly in early childhood education settings.

High Involvement Work Practices (HIWP) refer to organizational strategies that actively involve employees in decision-making, problem-solving, and core work processes. In educational contexts, HIWP includes teacher participation in curriculum planning, event management, parent interaction, and institutional decision-making.

Research indicates that HIWP positively influences employee engagement, motivation, and job satisfaction. Teachers who are actively involved in institutional activities tend to exhibit higher levels of commitment and effectiveness. Despite its proven benefits, the application of HIWP in preschool environments remains underexplored. Most studies focus on general education sectors, leaving a gap in understanding how involvement practices can be tailored to early childhood institutions.

Human Resource Analytics has emerged as a powerful tool for improving organizational decision-making. By analyzing employee data, organizations can identify patterns, predict outcomes, and develop targeted strategies for performance improvement.

In the education sector, the application of HR analytics is still in its early stages. While some studies highlight its potential in improving teacher performance and retention, there is limited empirical research demonstrating its practical implementation in early childhood education. This gap is particularly evident in studies that attempt to link teacher satisfaction with institutional performance using large-scale data analysis.

Digital platforms and app-based systems are increasingly utilized to facilitate communication, data collection, and performance assessment. While these tools enhance efficiency and transparency, their effectiveness depends heavily on proper training and managing the resulting workload balance.

Factors Influencing Satisfaction: Several studies have isolated critical variables affecting job satisfaction, including:

Pedagogy Involvement: Opportunities for teachers to engage in curriculum planning significantly improve satisfaction.

Workload Management: Balancing administrative and teaching tasks is vital to preventing dissatisfaction and burnout.

Supportive Environment: Continuous training, supportive management, and structured feedback mechanisms are primary drivers of a positive work culture.

III. METHODOLOGY

This study adopts a **quantitative and analytical research design** to examine teacher job satisfaction and its impact on teaching effectiveness and institutional performance in early childhood education. The research is both descriptive and explanatory in nature, as it seeks to identify patterns in teacher-related data while also analyzing the relationships between various organizational, behavioral, and operational factors influencing job satisfaction. A data-driven approach is employed to ensure objectivity, integrating principles of Human Resource Analytics with traditional research methods to generate reliable and actionable insights.

The study utilizes a combination of **primary and secondary data sources** to ensure a comprehensive analysis. Primary data was collected directly from teaching staff through a structured questionnaire designed to capture their perceptions regarding job satisfaction, workload, involvement, and institutional support. Secondary data was obtained from institutional records, academic literature, and relevant research studies, which provided additional context and supported the validation of findings. Furthermore, observational insights from the institutional environment were incorporated to better understand real-world practices related to teacher engagement, classroom interaction, and participation in organizational activities.

The sample for the survey consisted of **130 respondents**, representing teaching staff within the institution. In addition to the survey data, a larger analytical dataset comprising **41,188 records with 21**



variables was utilized to perform in-depth analysis. The dataset included both categorical and numerical variables, allowing for a comprehensive examination of factors influencing teacher satisfaction. Prior to analysis, the data underwent systematic preprocessing, including cleaning to remove inconsistent or biased responses, handling of neutral or incomplete values using appropriate statistical methods, and encoding of categorical variables into numerical formats. These steps ensured that the dataset was accurate, consistent, and suitable for further analysis.

A range of statistical and analytical techniques was applied to interpret the data effectively. Descriptive statistics, such as frequency distribution and percentage analysis, were used to summarize demographic characteristics and response patterns. Exploratory Data Analysis (EDA) was conducted to identify trends, variations, and relationships among variables. Correlation analysis was used to examine the strength and direction of relationships between key factors, while comparative analysis helped in understanding differences in satisfaction levels across various groups. Additionally, hypothesis testing using the Chi-square test was performed to determine associations between selected variables.

IV. RESULTS AND DISCUSSION

The **demographic analysis** indicates that the majority of respondents were female (53.1%), reflecting the gender composition typically observed in early childhood education. In terms of age distribution, most participants belonged to the 35–45 age group (33.8%), followed by those in the 29–35 range. Regarding educational qualifications, a significant proportion of respondents were postgraduates (38.5%), suggesting a relatively well-qualified teaching workforce. Income distribution revealed that the majority of respondents fell within the ₹3–5 lakh annual income bracket, indicating moderate compensation levels within the sector.

The analysis of **recruitment and selection practices** shows that institutions predominantly rely on external recruitment sources (43.8%), with advertisement-based hiring being the most common method (40.8%). Personal interviews were identified as the primary selection method (60.8%), and most respondents reported being satisfied or very satisfied

with the recruitment process. Additionally, the findings indicate that institutions clearly define job roles and objectives during recruitment, contributing positively to employee clarity and initial satisfaction.

In terms of **technological adoption**, the results suggest that basic tools such as telephone communication are widely used (53.8%), while more advanced digital tools like online platforms and video conferencing are less frequently utilized. Although digital tools enhance communication and efficiency, their limited adoption may restrict the full potential of data-driven management practices.

The **core findings related to teacher job satisfaction** reveal that satisfaction is strongly influenced by multiple interrelated factors. Teachers who reported higher levels of involvement in pedagogical activities, institutional decision-making, and parent communication demonstrated greater satisfaction. Conversely, excessive workload and lack of balanced work-life conditions were associated with lower satisfaction levels. This highlights the importance of workload management and supportive institutional practices.

The implementation of **High Involvement Work Practices (HIWP)** emerged as a significant factor in enhancing satisfaction. Teachers who actively participated in events, curriculum planning, and institutional activities showed higher engagement and motivation levels. This indicates a strong positive relationship between involvement and satisfaction.

V. CONCLUSION

This study set out to examine teacher job satisfaction within early childhood education using a structured, data-driven approach and to understand its impact on institutional performance. The findings confirm that teacher satisfaction is not a single-dimensional construct but is shaped by a combination of organizational, behavioral, and operational factors. Key determinants such as workload balance, pedagogical involvement, management support, and effective parent-teacher communication play a crucial role in influencing overall satisfaction levels.

The results demonstrate that institutions adopting **High Involvement Work Practices (HIWP)**—where teachers actively participate in decision-making, curriculum planning, and institutional activities—experience higher levels of engagement,



motivation, and performance among staff. Furthermore, the study establishes a strong positive relationship between teacher job satisfaction and institutional outcomes, including improved teaching effectiveness, better classroom engagement, and higher retention rates. These findings reinforce the idea that human resource practices are directly linked to core organizational success in the education sector.

Another important conclusion is the value of **data-driven decision-making** in Human Resource Management. By utilizing structured data and analytical techniques, institutions can move beyond traditional, generalized approaches and implement targeted strategies that address the specific needs of their workforce. This not only enhances employee well-being but also improves efficiency and long-term sustainability

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