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AI-DRIVEN EMPLOYEE ENGAGEMENT: BALANCING AUTOMATION AND HUMAN CONNECTION IN BANI ENVIRONMENTS

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ABSTRACT

Introduction: Higher education is undergoing a transformation driven by technological advancements, evolving student expectations, and the complexities of BANI (Brittle, Anxious, Nonlinear, and Incomprehensible) environments. AI-powered technologies are being increasingly integrated into higher education institutions to enhance administrative efficiency, improve teaching quality, and support employee experiences. While these tools provide significant benefits, maintaining the human aspects of engagement remains critical in fostering a positive work culture.

Objectives: The research aims to examine the relationship between AI-driven automation and employee engagement in BANI environments. Then, to assess the impact of AI-driven human connection on employee well-being and trust in BANI environments.

Methods: The study is based on a quantitative research design with a descriptive approach. Cluster sampling is used to select the sample of employees working in diverse organizational settings that have implemented AI-driven tools. The structured questionnaires were analyzed to draw meaningful insights about the role of AI in employee engagement.

Results: The findings indicate that AI-driven tools significantly improve administrative efficiency and personalized learning experiences, reducing faculty workload and enhancing student support. However, concerns regarding over-reliance on automation, trust in AI systems, and the need for meaningful human interactions persist. Trust and collaboration emerged as crucial factors in maintaining a positive work culture, emphasizing the need for a balanced approach in AI integration.

Conclusion: AI-driven technologies offer substantial opportunities to enhance higher education, but preserving human engagement remains essential. Higher education leaders must adopt strategies that prioritize trust and collaboration, ensuring that AI serves as a tool to support rather than replace human interactions. The study provides insights and recommendations for integrating AI effectively while maintaining the core human connection vital to employee engagement.

Keywords: AI in higher education; Employee engagement; BANI environments; Faculty well-being; Technological integration

INTRODUCTION

Organizations face several challenges in engaging and retaining top talent in today's rapidly evolving business landscape. Employee engagement, defined as the emotional commitment and enthusiasm employees have toward their organization and its goals, has become essential for achieving organizational success (Kahn, 1990; Saks, 2006). Research indicates that higher levels of engagement are related to increased productivity, better employee retention, and enhanced innovation, all of which are critical for maintaining a competitive edge (Macey & Schneider, 2008). With the ongoing technological transformation of workplaces, Artificial Intelligence (AI) has emerged as a powerful enabler for improving employee engagement. Through routine tasks automation, tailored feedback systems, and enhanced communication tools, AI has the potential to streamline workplace operations and elevate the employee experience (Chui et al., 2018). Regardless of these benefits, the integration of AI into employee engagement strategies presents significant challenges. Organizations must carefully balance the advantages of automation with the requisite to maintain meaningful human

interactions. This balance is especially critical in BANI (Brittle, Anxious, Nonlinear, and Incomprehensible) environments, where uncertainty, complexity, and rapid changes demand thoughtful and adaptive approaches (Boin & van Eeten, 2020). Mismanagement of this balance can lead to disengagement, as employees may feel alienated or undervalued in an overly automated environment. AI's role in enhancing employee engagement spans several key areas. One of the most prominent applications is the automation of repetitive administrative tasks. AI-powered systems can manage activities such as scheduling, payroll processing, and data entry, freeing employees to focus on meaningful and strategic work. This not only increases job satisfaction but also reduces the risk of burnout by minimizing the cognitive load associated with mundane tasks (Binns, 2019). Also, AI-driven performance management systems provide personalized, real-time employee feedback. These systems analyze performance metrics to identify strengths, weaknesses, and skill gaps, recommending tailored training programs that align with individual employee goals. This level of personalization fosters a sense of professional growth and empowerment.

Another crucial application of AI is its ability to analyze large volumes of data to gauge employee sentiment. AI tools can process data from surveys, emails, and even social media to generate insights into the collective and individual mood of the workforce (Caldwell, 2020). These insights enable managers to identify potential issues early, such as declining morale or dissatisfaction, and take proactive steps to address them. Predictive analytics further enhance this capability by identifying patterns that signal disengagement, allowing organizations to intervene before problems escalate (Gartner, 2021). AI plays a crucial role in enhancing internal communication and creating personalized employee experiences. Tools such as AI-driven chatbots can provide prompt responses to employee queries, improving accessibility to resources and support. Predictive analytics can tailor recommendations for career development or well-being initiatives based on employee preferences and past behavior, fostering a sense of inclusion and belonging. Additionally, AI can assist in creating dynamic team compositions by analyzing individual skills and preferences, ensuring employees are placed in roles where they can thrive and contribute most effectively. However, as AI adoption becomes more widespread, organizations must address potential risks and limitations. Over-reliance on AI for engagement could inadvertently erode the human connections that are vital for building trust and loyalty. Employees value genuine interactions with leaders and colleagues, which cannot be entirely replaced by technology. In AI algorithms, certain ethical considerations includes data privacy and potential bias must also be managed carefully to ensure fairness and transparency in engagement practices. AI offers transformative opportunities to enhance employee engagement by automating monotonous tasks, delivering tailored feedback, and providing data-driven acumens into employee sentiment. However, its adoption requires a balanced approach that prioritizes human connections and ethical considerations. By leveraging AI thoughtfully, organizations can create a workplace environment that is both efficient and emotionally fulfilling, enabling employees to thrive in an era of rapid change and complexity.

AI offers significant benefits, but organizations operating within BANI environments face unique challenges. BANI, a term that builds on the concept of VUCA (Volatile, Uncertain, Complex, and Ambiguous), emphasizes the added dimensions of fragility, anxiety, and the difficulty in making sense of rapid and unpredictable changes (Boin & van Eeten, 2020). In such environments, the disruption of traditional business models and the unpredictability of external and internal factors can create a sense of

insecurity and unease among employees. These challenges require careful management of AI deployment to avoid exacerbating anxieties about job security and organizational change (Agarwal et al., 2023). If employees consider AI as a threat than an enhancement tool, it could result in disengagement, a breakdown in trust toward leadership, and a decline in overall well-being (Binns, 2019). While AI excels at processing huge data and generating actionable insights at scale, it inherently lacks the emotional intelligence and nuanced understanding that human leaders contribute to fostering organizational culture (Kane, 2021). This gap highlights the importance of maintaining authentic human connections, which are critical for effective employee engagement, particularly during periods of stress or upheaval (Caldwell, 2020). For example, during times of rapid change, employees often seek empathy, reassurance, and clear communication from their leaders, qualities that AI systems cannot provide. This underscores the need for AI to be used not as a substitute for human interaction but as a complementary tool that supports and enhances the work of human leaders.

Leaders can leverage AI to improve employee engagement by allowing it to handle repetitive, administrative, or data-intensive tasks. This creates opportunities for managers and employees to emphasis on complex, creative, and relational facets of work, which are crucial for building trust and fostering engagement (Chui et al., 2018). If AI-driven tools can efficiently analyze employee sentiment or performance metrics, providing leaders with insights that help them identify issues and respond proactively. However, such insights must be acted upon with genuine human understanding and communication to ensure employees feel heard and valued. Building a culture of trust is essential for successfully integrating AI into BANI environments. Managers must ensure that AI systems are designed and implemented transparently and ethically, considering concerns such as data privacy and fairness. Employees need to understand how AI tools are used and how they enhance, rather than replace, their roles within the organization (Agarwal et al., 2023). Transparent communication about the benefits and limitations of AI can alleviate fears and foster a sense of shared purpose. The combination of AI-driven automation and thoughtful human leadership creates a powerful synergy. By streamlining routine tasks, AI frees up time for human leaders to focus on relational aspects of management, such as mentoring, team building, and addressing individual employee concerns. This balance can help employees feel supported, valued, and engaged, even amidst uncertainty and rapid change. Organizations that successfully navigate this integration will be better positioned to thrive in BANI environments, where adaptability and resilience are paramount.

LITERATURE REVIEW

Employee engagement is a critical factor in driving organizational success, particularly in today's dynamic and unpredictable business environments. Engaged employees contribute to enhanced productivity, innovation, and retention, making engagement strategies a key priority for organizations navigating complex challenges. The integration of Artificial Intelligence (AI) into the workplace has transformed the way companies approach employee engagement in recent years. AI's ability to analyse bulk data, automate repetitive tasks, and personalize experiences has introduced new opportunities for fostering engagement. The effectiveness of AI in achieving meaningful and sustained employee engagement largely depends on how well it is balanced with human-centric practices. The adoption of AI-driven tools in employee engagement strategies has seen significant advancements. For example, AI systems can process data from surveys, emails, and social interactions to provide real-time insights into employee

sentiment, allowing managers to tailor their approaches to individual needs. Predictive analytics can identify disengagement patterns early, enabling timely interventions to boost morale and satisfaction. Chatbots and virtual assistants improve communication by providing employees with instant access to resources and support, enhancing their overall experience. These technologies free up human leaders to focus on creative tasks that foster deeper connections within teams.

Even thoughwith its potential, the use of AI in various aspects of employee engagement is not without challenges, particularly in the context of BANI (Brittle, Anxious, Nonlinear, and Incomprehensible) environments. BANI environments emphasize fragility, anxiety, and the difficulties in interpreting and responding to rapid changes. Employees in such contexts often feel vulnerable and uncertain, making it essential for organizations to approach AI integration with care. If AI systems are perceived as replacing human roles rather than augmenting them, employees may experience heightened anxiety and diminished trust in leadership. This can lead to disengagement and negatively impact organizational culture. A key limitation of AI in engagement is its inability to replicate the emotional intelligence and empathy that human leaders bring to the workplace. While AI can provide data-driven insights, it lacks the contextual understanding needed to address complex interpersonal dynamics and respond to the nuanced emotions of employees. For example, during times of crisis or organizational upheaval, employees often seek reassurance, compassion, and genuine communication from their leaders' qualities that cannot be delivered by technology alone.

To maximize the potential benefits of AI, organizations need a balanced strategy. Transparent communication on the role of AI in engagement strategy is key to trust-building. Employees need to see how AI tools are deployed to augment, not replace, their efforts (Davenport &Ronanki, 2018). Furthermore, AI systems need to be ethically and transparently built with consideration for privacy, fairness, and inclusion (World Economic Forum, 2020). By engaging employees in conversations around the implementation of AI, organizations are able to dispel anxieties and encourage a shared sense of ownership (Brynjolfsson & McAfee, 2017).

It is the role of leaders to ensure that AI complements and doesn't replace human connections. Leaders need to prioritize developing a supportive organization where technology helps them invest in relational elements of management, such as mentoring, teamwork, and personalized support (West, 2018). By integrating AI in a thoughtful way, organizations are able to build a space where employees are valued, engaged, and supported even in times of uncertainty and high-speed change. The review highlights the potential of AI in revolutionizing employee engagement, particularly in BANI organizations. It underlines the requirement for a complementary strategy where the strengths of AI are utilized while keeping core human-centered practices at the forefront (Bani & Kaplan, 2021). Organizations are able to navigate the complexity of contemporary business ecosystems and build resilient, engaged employees who are prepared for future success by achieving this balance.

AI in Employee Engagement: Opportunities and Benefits

Artificial Intelligence (AI) has greatly changed the landscape of employee engagement by automating routine tasks, providing personalized experiences, and delivering data-driven insights that improve decision-making. One of the key ways AI enhances engagement is by minimizing mundane and repetitive tasks like scheduling, data entry, and performance tracking. This allows employees to concentrate on more strategic, creative, and relationship-focused work (Sharma & Kapoor, 2022). Such a shift not only boosts productivity and efficiency but also helps alleviate job dissatisfaction and

burnout, which are prevalent issues in high-pressure work environments that demand constant adaptability (Binns, 2019). In addition to automating tasks, AI is vital for personalized employee development. It analyzes extensive datasets to customize learning opportunities, career growth plans, and feedback mechanisms. AI-driven platforms can evaluate individual career goals, learning styles, and past performance to suggest development programs that align with an employee's ambitions (Chui, Manyika, &Miremadi, 2018). This degree of personalization cultivates a stronger sense of value and recognition, which is essential for driving engagement. AI systems that emphasize real-time feedback ensure that employees receive ongoing performance insights, enabling them to make timely adjustments and feel more connected to their professional growth (Caldwell, 2020). Moreover, AI improves employee sentiment analysis by processing large volumes of employee interactions across various platforms, including emails, surveys, and internal communications. These insights allow managers to assess employee mood, concerns, and engagement levels in real-time, empowering organizations to proactively tackle potential issues and refine their engagement strategies (Kane, 2021). By understanding employee sentiment on a larger scale, businesses can foster more inclusive, responsive, and supportive work environments, ultimately enhancing overall employee loyalty and satisfaction (Agarwal, Gupta, & Khatri,2023).

AI as a Tool for Personalized Employee Engagement

A significant benefit of AI in employee engagement is its ability to provide personalized experiences that enhance individual employee satisfaction and productivity. Personalized learning and development programs powered by AI are one of the most prominent ways in which AI can improve employee engagement. According to Sharma and Kapoor (2022), AI-powered platforms can analyze vast amounts of employee data to recommend personalized learning pathways based on individual career goals, learning preferences, and past performance. AI-driven learning systems offer employees continuous feedback, ensuring that development is ongoing rather than episodic, which is crucial in fast-moving industries. This helps increase engagement by making employees feel valued, understood, and supported (Agarwal, Gupta, & Khatri, 2023). The personalized feedback delivered through AI can help employees understand their strengths and weaknesses, providing them with the tools to enhance their performance and drive their own career progression. While personalization is a significant advantage, Binns (2019) cautions that employees may perceive AI systems as too impersonal if not designed with human nuances in mind. Thus, human oversight is necessary to ensure that AI-driven personalization enhances engagement without creating a sense of detachment or over-reliance on technology. Beyond learning and development, AI enhances personalized feedback mechanisms, providing employees with real-time insights into their strengths and areas for improvement. Unlike traditional performance reviews, which are often annual and subjective, AI-driven feedback is immediate, objective, and actionable. This helps employees take proactive steps in refining their skills and progressing in their careers, leading to higher job satisfaction and long-term engagement. Also, AI-powered virtual assistants and chatbots facilitate on-demand coaching and mentorship, enabling employees to access resources and guidance tailored to their unique needs (Sharma & Kapoor, 2022).

AI and the Future of Performance Management

The integration of Artificial Intelligence (AI) into performance management is transforming how organizations assess, develop, and engage employees. Traditional performance management systems have relied on periodic, subjective evaluations such as annual reviews, which are often prone to biases, inconsistencies, and delays in feedback

(Pulakos et al., 2019). AI-driven performance management, however, enables continuous, data-driven assessments that provide real-time insights into employee productivity, engagement, and overall performance. By leveraging AI tools, companies can shift from infrequent evaluations to a more dynamic and transparent feedback system, ultimately improving employee trust and motivation (Chui et al., 2018). AI enhances performance management by aggregating and analyzing data from multiple sources, including work-related interactions, productivity metrics, and employee behavioral patterns. This data-driven approach helps organizations develop comprehensive and objective performance profiles, reducing human biases and promoting fairness in evaluations (Chui et al., 2018). By detecting trends in employee performance, AI can identify high-potential employees for leadership development while also recognizing at-risk employees who may require additional support, training, or mentorship (Liu et al., 2021). Early detection of disengagement, such as declining collaboration or reduced task completion, allows companies to take proactive measures before productivity is significantly impacted (Bersin, 2020).

AI faces limitations when assessing performance in creative and strategic roles, where qualitative factors such as innovation, emotional intelligence, and interpersonal skills play a crucial role (Kane, 2021). While AI can track efficiency and output, it struggles to capture the nuances of human creativity and problem-solving. Additionally, excessive AI-driven monitoring may lead to increased stress and anxiety among employees, potentially harming engagement and workplace morale (Glikson& Woolley, 2020). To mitigate these concerns, organizations must ensure that AI complements rather than replaces human judgment by incorporating qualitative insights from managers, peer feedback, and self-assessments into performance evaluations. Beyond performance tracking, AI also plays a key role in delivering personalized interventions to enhance employee development. By analyzing individual performance trends, AI can recommend tailored learning opportunities, coaching programs, workload adjustments, and mentorship initiatives to optimize employee growth and prevent burnout (Huang & Rust, 2021). These AI-driven insights enable organizations to create a more supportive and adaptive work environment, fostering a culture of continuous improvement and engagement. AI is revolutionizing performance management by making it more data-driven, transparent, and personalized. However, for AI-driven performance management to be truly effective, businesses must balance automation with human insights, ensuring that technology is used to support rather than replace human decision-making. Organizations can create a more engaged, high-performing workforce while maintaining the essential human connection that drives motivation and innovation.

AI and Employee Well-Being in BANI Environments

In BANI environments, maintaining employee well-being becomes even more challenging. AI can support employee well-being by offering tools for mental health monitoring, stress management, and work-life balance. Boin and van Eeten (2020) argue that in uncertain, employees are likely to experience stress, burnout, and anxiety. Binns (2019) discusses how AI can provide tailored well-being programs that address individual employee needs, whether through AI-driven mental health apps, fitness trackers, or mindfulness tools. Binns and Tindall (2020) highlight the critical role AI can play in promoting employee well-being by offering personalized support through wellness apps, mental health tools, and stress management platforms. AI must be used with care to avoid privacy concerns, especially when dealing with sensitive employee data related to well-being. Binns (2019) stresses that organizations must pair technological interventions with human support, such as counseling services or direct engagement with managers.

Role of Trust in AI-Driven Engagement

As Artificial Intelligence (AI) getting integrated into employee engagement strategies, the role of trust emerges as a cornerstone for successful implementation. Trust serves as the foundation upon which employees' acceptance and engagement with AI systems are built. Ethical considerations, transparency, and accountability in AI design and deployment are critical to fostering this trust. Research by Sharma and Kapoor (2022) highlights that AI-driven systems must be transparent, fair, and accountable to ensure that employees feel confident in their use. Without trust, even the most advanced AI tools may fail to achieve their intended outcomes, as skepticism or resistance from employees could hinder adoption and engagement. A vital aspect of creating a trust building in AI is transparency. Organizations must clearly communicate how AI tools collect, process, and analyze employee data. Agarwal et al. (2023) stress the importance of outlining the decision-making processes behind AI-generated insights. Employees need to understand how AI recommendations are formulated and how these insights impact organizational decisions, such as performance evaluations, promotions, or resource allocation. This level of openness helps alleviate fears of bias or misuse, allowing employees to feel more comfortable interacting with AI systems.

In addition to transparency, providing employees with agency in the AI adoption process is critical. Employees should be able to provide feedback on AI tools and voice concerns about their experiences. Creating feedback loops not only enhances the usability and effectiveness of AI systems but also demonstrates that employee input is valued. When employees perceive themselves as active participants in shaping how AI is utilized, they are more likely to view these tools as empowering rather than threatening. Kane (2021) emphasizes that ethical considerations in AI design extend beyond functionality to include inclusivity and fairness. AI systems need to be evaluated to ensure they do not reinforce existing biases or create new ones. For example, algorithms used to evaluate performance or predict engagement levels must account for diverse employee demographics and experiences to avoid disadvantaging specific groups. Organizations must establish governance frameworks that hold AI systems accountable, ensuring alignment with ethical standards and organizational values. Empowerment is also a vital component of trust in AI-driven engagement. Employees should feel that AI tools are designed to support and enhance their roles, rather than replace them. AI should be positioned as a partner that enables employees to focus on higher-value tasks, such as creative problem-solving or strategic planning. This collaborative approach fosters a sense of inclusion and reinforces the perception of AI as a beneficial resource.

Building trust also requires leadership commitment. Leaders play a critical role in bridging the gap between technological innovation and human-centric engagement. By modeling transparency and actively engaging with AI tools themselves, leaders can set a positive example for employees. Additionally, leaders must ensure that AI systems are implemented with a focus on human connection. While AI can analyze employee sentiment or automate routine tasks, it should not replace authentic interactions, such as one-on-one conversations or empathetic responses to concerns. Trust is essential to the success of AI-driven employee engagement strategies. By prioritizing transparency, fostering employee agency, adhering to ethical standards, and emphasizing empowerment, organizations can create a culture of trust that supports AI adoption. As AI continues to reshape workplace dynamics, building and maintaining trust will ensure that these systems enhance, rather than undermine, the human aspects of work. This balance is essential for creating meaningful engagement and sustaining organizational success in an increasingly technology-driven world.

The Importance of Balancing Automation and Human Connection

The key to successful AI-driven employee engagement in BANI environments lies in finding the appropriate balance among automation and human connection. AI can enhance operational efficiencies, it is crucial that AI be considered as a tool for enhancing human potential, not replacing it. As Caldwell (2020) suggests, AI should not be used to monitor or control employees but rather to empower them by automating time-consuming tasks and providing tailored support. Boin and van Eeten (2020) highlight the need for organizations to adopt a mindset of human-centered AI in BANI environments, where leaders and managers must use AI as a tool to augment, than a replacement of human capabilities. As Agarwal et al. (2023) note, employees' trust in AI systems is crucial for engagement, and this trust is built through transparency, ethical use of data, and consistent efforts to integrate AI in a way that complements human work rather than undermining it. Sharma and Kapoor (2022) emphasize the importance of human-AI collaboration, suggesting that the most effective employee engagement strategies will be those that combine the strengths of both AI and human leadership. Kaufman and Parikh (2022) highlight the importance of ethical frameworks in the development and deployment of AI systems, particularly when it comes to employee engagement. The concept of human-AI collaboration, as proposed by Laureate and Weitz (2020), offers a potential pathway for enhancing employee engagement through AI. They argue that AI systems should be designed not to replace human workers but to augment their capabilities. For an organizational culture where AI tools are seen as partners in the workplace, enabling employees to achieve greater productivity and satisfaction without feeling threatened. The literature on AI-driven employee engagement emphasize the transformative potential of AI in enhancing workplace experiences, and points to significant challenges in its implementation, related to BANI environments.

OBJECTIVES OF THR STUDY

1. To examine the relationship between AI-driven automation and employee engagement in BANI environments.
2. To assess the impact of AI-driven human connection on employee well-being and trust in BANI environments.

The objectives were tested using the hypothesis such as,

1. There is a significant relationship between AI-driven automation and employee engagement.
2. AI-driven human connection has significant effect on employee well-being or trust in AI tools.

METHODS

The study is based on a quantitative research design with a descriptive approach. The primary objective is to measure the relationship among AI-driven automation, human connection through AI, and employee engagement outcomes, such as well-being, trust, and overall work satisfaction. Cluster sampling is used to select a representative sample from a population of employees working in diverse organizational settings that have implemented AI-driven tools. The quantitative data collected through structured questionnaires was analyzed to draw meaningful insights about the role of AI in employee engagement. In the study, the clusters consists of faculty members working in colleges that have AI-driven tools for employee engagement, well-being, and task automation. Once the population is divided into clusters, a random selection of clusters is made, ensuring that the sample is representative of different organizational settings. From each selected cluster, employees are then randomly chosen to participate in the study. The

sample size consists of 124 respondents, are having experience using AI-driven tools that are part of their daily work routine. This ensures that the data tend to reflect the experiences and perceptions of individuals directly impacted by AI technologies in the workplace. The Likert-type scale was used indicating the extent to which they agree with statements related to AI's impact on their work environment. Data analysis was conducted using descriptive statistics to summarize the survey results. Pearson's correlation analysis was used to examine the relationships between key variables, such as the correlation between AI-driven automation, employee engagement, and well-being. Path analysis via Structural Equation Modeling - SEM was used to assess the causal pathways and direct/indirect effects between AI tools, employee engagement, and well-being outcomes. The analysis will provide insights into the extent to which AI contributes to enhancing employee engagement in BANI environments, as well as the direction of the significant relationship between the study constructs measured. Ethical guidelines were strictly monitored throughout the research process. From all participants, informed consent was obtained to ensure that they understand the study objectives, the nature of their participation, and their rights to anonymity and confidentiality. The data was stored securely and used exclusively for research purposes. All the participants was assured that responses provided will not influence their relationship with their employer.

RESULTS

The objective 1 is to examine the relationship between AI-driven automation and employee engagement in BANI environments, Pearson's Correlation was used and the results are presented in the table 1.

Table 1 - Pearson's Correlation Results

Variable 1	Variable 2	r	p-value
AI-driven Automation	Employee Engagement	0.75	0.0001

Source - Primary Data

The pearson correlation coefficient of 0.75 suggests a positive relationship between AI-driven automation and employee engagement. A positive correlation indicates that automation does contribute to engagement, it is substantial enough to suggest that automation has a meaningful impact on engagement. The p-value of 0.0001 indicates that the correlation between AI-driven automation and employee engagement is statistically significant at the typical 0.05 threshold. This means that the relationship observed between these two variables is unlikely to be due to random chance, and there is strong evidence to support the idea that AI-driven automation contributes to employee engagement in the workplace.

The objective 2 is to assess the impact of AI-driven human connection on employee well-being and trust in BANI environments, Path Analysis was used and the results are presented in the table 2.

Table 2 - Path Analysis Results

Path	Estimate (β)	Standard Error	p-value
AI-driven Human Connection → Employee Well-being	0.35	0.08	0.001
Employee Well-being → Trust in AI tools	0.50	0.07	0.000

Source - Primary Data

The path coefficient (β = 0.35) indicates a moderate positive effect of AI-driven human connection on employee well-being. The p-value (0.001) indicates statistical significance ($p < 0.05$), meaning the relationship is significant. The path coefficient (β = 0.50) indicates a moderate to strong positive effect of employee well-being on trust in AI tools. The p-value (0.000) is highly statistically significant ($p < 0.01$), indicating that the relationship is robust and not due to random chance. Fig. 1 shows the relationship between AI-driven human connection on employee well-being and trust in BANI environments.

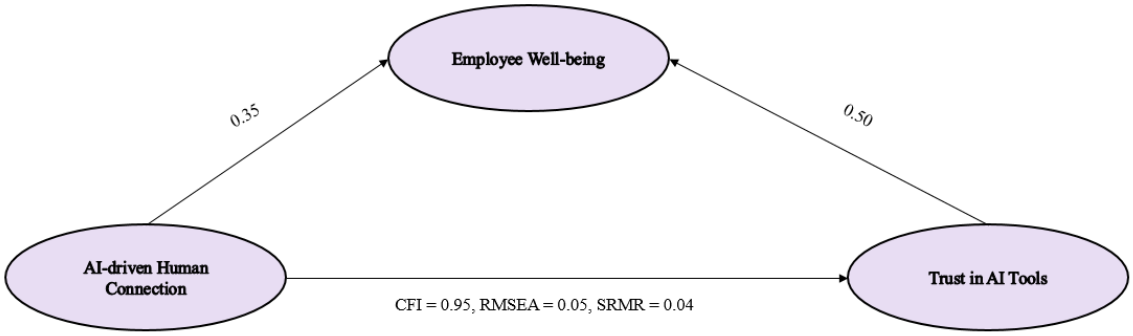

Fig. 1 - Path Analysis

Table 3 - Model Fit Indices (for SEM)

Fit Index	Value	Interpretation
CFI	0.95	Good model fit (values > 0.90 indicate a good fit)
RMSEA	0.05	Acceptable fit (values < 0.08 are considered good)
SRMR	0.04	Excellent fit (values < 0.08 indicate good fit)

Source - Primary Data

The fit indices (CFI = 0.95, RMSEA = 0.05, SRMR = 0.04) suggest that the SEM model fits the data very well, providing confidence in the results.

DISCUSSION

In the modern workplace, the integration of AI-driven automation and human connection through AI offers significant potential to enhance employee engagement and well-being, especially in the face of a rapidly evolving and uncertain environment like the BANI world. The statistical analysis using Pearson's Correlation Coefficient and Path Analysis helps to validate the relationships between key variables in the conceptual framework. There is a positive relationship between AI-driven automationand employee engagement (Pearson's $r = 0.75$, $p < 0.0001$). This supports the hypothesis that AI tools, especially those that automate routine and administrative tasks, enhance employee engagement by allowing workers to focus on higher-value, more meaningful tasks. The positive relationship between AI-driven automation and employee engagement is supported by existing literature, which emphasizes that automation can reduce burnout, increase job satisfaction, and foster greater productivity (Aguirre, Mela, & Sittig, 2021). This shift is critical in enhancing engagement, as employees are more likely to feel valued and motivated when they can contribute meaningfully to the organization's goals.

The next key finding from the statistical analysis comes from Path Analysis (SEM), where the relationship between AI-driven human connection and employee well-being was found to be moderate ($\beta = 0.35$, $p = 0.001$). This path suggests that AI systems designed to promote social connection, such as chatbots, virtual assistants, and AI-enabled communication tools, have a significant positive impact on employee well-being. The statistical significance of this path ($\beta = 0.35$, $p = 0.001$) indicates that AI-driven human connection is a powerful predictor of employee well-being, suggesting that organizations can leverage AI not only for productivity but also as a tool for emotional support.

Further analysis revealed a strong positive path coefficient ($\beta = 0.50$, $p = 0.000$) between employee well-being and trust in AI tools. The results align with findings from Kaufman and Parikh (2022), who suggest that well-being is a key driver of technology acceptance, particularly in contexts where AI tools are designed to augment human capabilities rather than replace them. The strong statistical relationship between employee well-being and trust in AI ($\beta = 0.50$, $p = 0.000$) demonstrates that fostering a positive work environment, characterized by well-being, directly influences the trust employees place in AI tools.Statistical analysis reveals a robust relationship between trust and engagement, with a positive path coefficient indicating that higher trust in AI is associated with higher employee engagement. The positive relationships identified in the statistical analysis ($r = 0.45$, $\beta = 0.35$, $\beta = 0.50$) provide strong evidence that AI tools, when properly implemented, have the potential to drive higher levels of engagement and well-being among employees.

The study has provided a comprehensive exploration of the intersection between AI-driven automation, human connection through AI, and employee engagement in the BANI environment. The results shows the significant relationships between AI tools, employee well-being, trust in technology, and overall engagement. It demonstrates that AI-driven automation positively influences employee engagement by enabling employees to focus on higher-level tasks, whereas AI-driven human connection fosters employee well-being, which in turn builds trust in AI tools. This trust is crucial for enhancing engagement and driving overall organizational performance. The research findings reveal that AI can serve as a powerful tool for optimizing workflows and improving efficiency, but its true potential lies in its ability to create meaningful human connections. In BANI environments, where volatility, uncertainty, complexity, and ambiguity create heightened levels of stress and disengagement, AI systems that prioritize empathy, and personalization can play a critical role in sustaining employee trust and fostering a deeper sense of engagement. The emphasis on AI as both a cognitive and emotional ally aligns with the growing need for organizations to balance automation with human-centered approaches to technology implementation. The research contributes to a nuanced understanding of how AI, when strategically deployed, can transform employee experiences, particularly in environments marked by rapid change and uncertainty. The study also reveals the complexities involved in integrating AI into the workplace, highlighting that AI systems must be designed and implemented in ways that promote trust, ethical use, and employee autonomy. Future research could explore how AI-driven tools can foster resilience in employees, particularly in highly volatile and uncertain industries. Research could investigate whether AI's capacity to provide real-time support, facilitate skill development, or offer decision-making insights can enhance employees' adaptability and resilience in the face of rapid technological and environmental changes.

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