Human Element, Employee Experience and High Physical & Psychological Engagement Levels to Mitigate Potential Negative Impacts in the AI Era: Opportunities and Challenges for HRD

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ABSTRACT

This research aims to study the relationship between AI-driven HRD strategies, Employee Engagement, and Employee Retention within Bangkok, Thailand. The samples of this study were 120 HR Staff in 17,013 Medium Enterprises in Bangkok, Thailand. The data analysis revealed that the model fit with the empirical data ($\chi2 = 38.083$, df = 40, $\chi2$ /df = .952, p = .557, GFI = .951, AGFI = .904, CFI = 1.000, TLI = 1.006, RMSEA = .000, RMR = .013, NFI = .936) The research reveals that the context of AI with the potential to enhance HRD efficiency and offer personalized learning opportunities; its implementation can inadvertently cause discomfort among employees, leading to a decline in Employee Engagement. This discomfort may happen from employees' perception of AI tools as impersonal or invasive, potentially leading to disconnection from their work. Such negative impacts on Employee Engagement can indirectly influence Employee Retention negatively, as disengaged employees are often less satisfied and motivated. However, the study also affirms the positive relationship between Employee Engagement and Employee Retention, emphasizing the need for high engagement levels for bolstering retention, even in an increasingly AI-driven environment. Limitations of the study include its restricted geographical scope, skewed demographic representation, and cross-sectional design that does not capture potential changes in perceptions over time. Future research could expand the geographical area, balance demographic representation, and use longitudinal designs. Organizations should implement AI judiciously, focusing on the human element and employee experience and maintaining high engagement levels to mitigate potential negative impacts.

Keywords: AI-Driven Strategies, Employee Engagement, and Employee Retention.

I. INTRODUCTION

In the current, rapidly evolving world of work, driven by digital advancements and technological innovation, Artificial Intelligence (AI) has become ubiquitous across various business operations [1]. A binding domain experiencing transformational shifts under the influence of AI is Human Resource Development (HRD), a function responsible for aligning and optimizing employee performance with an organization's strategic objectives [2]. In this ever-changing landscape, one key area within HRD where AI is making its mark is employee engagement and retention, which are vital indicators of a company's health and contributors to productivity, profitability, and overall employee satisfaction [3]. However, as with any technological integration, incorporating AI in HRD is challenging. Concerns around privacy, ethical dilemmas, and the risk of human skill obsolescence arise, potentially impacting employees' engagement levels and their intention to stay with the organization [4]. Conversely, AI presents numerous opportunities, including enhanced data processing capabilities, personalized learning and development, and improved talent management, revolutionizing HRD functions [5].

Understanding these opportunities and challenges becomes pivotal as organizations adopt and leverage AI technologies worldwide. Hence, this research will critically explore the impact of AI on employee engagement and retention within the context of HRD. The aim is to illuminate both the potential benefits and the difficulties associated with AI integration in HRD practices. The insights garnered from this study will be of significant value to HRD professionals, organizational leaders, and policymakers as they navigate the intricate landscape of AI

integration in HRD. By providing a comprehensive understanding of AI's influence on employee engagement and retention, this research will empower stakeholders to make informed decisions, develop effective strategies, and foster a more engaging and sustainable work environment [6]. Thus, the study holds profound implications for shaping the future of work and organizational performance in an increasingly AI-driven world.

Research objectives

1. To Explore the Impact of AI on HRD Practices: Investigate the effect of integrating AI into HRD, focusing specifically on how AI technologies transform HRD functions, including recruitment, training, performance evaluation, and employee engagement programs.

2. To Examine the Effect of AI on Employee Engagement and Retention: Analyze the influence of AI-driven HRD strategies on employee engagement and retention, gauging how these new technological advancements impact employees' commitment to work and their intent to stay with the organization.

3. To exhibit Guidelines for Employee Retention in the Context of AI in HRD: Propose and detail effective strategies and guidelines to retain employees, focusing on leveraging AI opportunities, such as enhanced data processing and personalized learning. Concurrently, the policies will address the challenges and risks of AI implementation, including privacy concerns, ethical issues, and potential skill obsolescence.

II.   LITERATURE REVIEW

1.   AI-driven HRD Strategies

Artificial Intelligence (AI) has permeated various facets of business operations, marking a pivotal shift in traditional organizational practices [1]. One area significantly influenced by these developments is Human Resource Development (HRD), which is undergoing a radical transformation under AI's impact [2].

1.1 AI and HRD Functions

AI's potential to revolutionize HRD is well documented. [7] notes that AI's enhanced data processing capabilities facilitate a more strategic approach to talent management, allowing for more accurate employee assessment, selection, and placement. Furthermore, AI can contribute to personalized learning and development opportunities, fostering a more adaptable and skilled workforce. Likewise, Davis, Challenger, Jayewardene, and Clegg (2014) argue that AI is poised to transform critical HRD functions. They note that AI can significantly streamline and improve performance evaluations by providing unbiased and data-driven assessments. AI also has the potential to revolutionize learning and development initiatives, allowing for personalized and adaptive learning experiences that can significantly improve knowledge retention and skills development.

1.2 Challenges of AI in HRD

Despite the promising prospects of AI, its integration into HRD is challenging. Brougham and Haar (2018) highlight the privacy concerns arising from increased AI adoption. AI in HRD involves processing vast amounts of personal data, raising critical questions about data security and privacy. Furthermore, Makridakis (2017) discusses the ethical dilemmas that AI presents. He points out that as AI systems become increasingly sophisticated and autonomous, it becomes harder to establish accountability for decisions made by these systems. This can lead to ethical quandaries, primarily when AI is used in performance evaluations and promotions. In addition to privacy and ethical concerns, there is also the risk of human skill obsolescence [4]. With AI systems performing tasks traditionally handled by humans, there is a concern that human skills may become obsolete, leading to job losses and a reduced need for human intervention.

1.3 Benefits of AI in HRD

Despite these challenges, AI holds substantial promise for HRD. [8] Maintain that HRD professionals can leverage AI to optimize employee performance. By providing real-time feedback, facilitating personalized learning, and offering data-driven insights, AI can contribute to more effective HRD strategies and practices. Further, Harter,

Schmidt, and Hayes (2002) argue that implementing AI-driven HRD strategies can enhance organizational performance and employee satisfaction. They contend that AI can streamline HRD functions, increasing efficiency and productivity. In conclusion, the studies suggest a complex yet promising landscape for AI in HRD. As organizations increasingly embrace AI technologies, it is crucial to understand their impact on HRD practices and the potential challenges that need to be addressed.

Therefore, AI-driven HRD strategies have been posited to influence employee engagement significantly. AI can streamline HRD functions, making them more efficient and personalized [5]. This includes personalized learning and development programs, performance management, and real-time feedback mechanisms, which can enhance an employee's connection and commitment to their work [9]. AI can provide a more enriched and dynamic work environment, promoting continuous learning and development [8]. These practices can increase employee engagement as individuals feel more valued and invested in their roles and the organization.

H1: AI-driven HRD strategies positively affect Employee Engagement

2. Employee Engagement

Employee engagement has been widely explored as a critical factor influencing various organizational outcomes, including productivity, employee satisfaction, and retention [9]. Defined broadly, employee engagement refers to an employee's psychological investment in and connection to their work [10].

2.1 Nature and Importance of Employee Engagement

Schaufeli, Salanova, González-Romá, and Bakker (2002) describe engagement as a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption. It is critical for enhancing organizational effectiveness, as engaged employees are often more productive, provide better customer service, and are less likely to leave the organization [10].

2.3 Factors Influencing Employee Engagement

Several factors have been identified as influencing employee engagement. These include job characteristics, leadership behavior, organizational culture, and opportunities for learning and development [11]. Furthermore, HRD practices are vital in fostering an environment conducive to employee engagement. Chinnasot and Srisorn (2022) suggested that Training, performance feedback, career development opportunities, and the perception of a supportive work environment can all enhance engagement [8].

2.4 Employee Engagement and Retention

The engagement has a positive effect on retention. Engaged employees are less likely to leave their employer than those who are not engaged [10]. Furthermore, the strength of the relationship between engagement and retention appears consistent across different industry sectors and types of jobs [12]. This underscores the importance of employee engagement as a strategic lever for enhancing employee retention.

H2: Employee Engagement positively influences Employee Retention

3. Employee Retention

Employee retention has been a keen interest for scholars and practitioners alike. Defined as an organization's ability to retain employees over time, employee retention is a crucial indicator of organizational health [13].

3.1 Importance of Employee Retention

Employee retention is vital for several reasons. Retaining talented employees is less expensive than hiring new ones, ensuring continuity and preserving organizational knowledge [16]. High employee turnover can lead to decreased productivity, reduced morale, and increased recruitment and training costs [14].

3.2 Factors Influencing Employee Retention

Several factors can influence employee retention. They range from individual-level characteristics such as job satisfaction and commitment to the organization to broader organizational-level factors such as HRD practices, work environment, and leadership quality [15].

Specifically, HRD practices such as training and development opportunities, performance feedback, and career advancement opportunities have significantly influenced employees' intention to stay [3]. A positive and supportive work environment, characterized by fair treatment, open communication, and respectful relationships, can also enhance retention [16].

3.3 Employee Engagement and Retention

Employee engagement has emerged as a significant factor in influencing employee retention. Engaged employees are likelier to stay with the organization due to increased job satisfaction, commitment, and loyalty [10].

3.4 AI and Employee Retention

With the advent of AI, new dimensions have been added to employee retention. AI-driven HRD strategies can influence employee engagement and, in turn, retention by offering personalized learning experiences and efficient performance management [5]. However, potential challenges associated with AI, such as privacy and job security concerns, could negatively impact retention if not appropriately managed [17].

Therefore, While AI-driven HRD strategies might not directly impact employee retention, their indirect effect through employee engagement is noteworthy. By enhancing employee engagement, AI-driven HRD strategies can contribute to higher retention rates [1]. An engaging work environment, bolstered by effective HRD practices, can improve employees' satisfaction and commitment, making them more likely to remain with the organization [10]. However, it is crucial to note that AI integration's potential challenges and drawbacks, such as privacy concerns and potential skill obsolescence, may negatively influence employees' perception of their work and organization, affecting their engagement and retention [17] [4].

H3: AI-driven HRD strategies indirectly influence Employee Retention through their effect on Employee Engagement.

Conceptual Framework

Drawing from the literature review, the researchers have constructed a conceptual framework that explores the interconnections of various components. This includes the influence of AI-driven HRD strategies on Employee Engagement, the subsequent impact of Employee Engagement on Employee Retention, and the indirect effect exerted by AI-driven HRD strategies on Employee Retention through the mediating role of Employee Engagement (Figure 1).
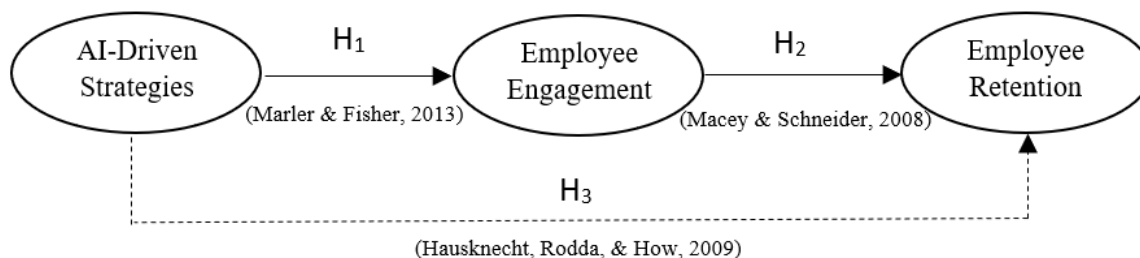

Figure 1 Conceptual Framework

III. RESEARCH METHODOLOGY

The researchers focused on 17,013 Medium Enterprises in Bangkok, Thailand [18]. The sample size was established for a Structural Equation Model (SEM) analysis. The determination of the sample size was guided by the principle that the number of observed variables in the model should have a ratio of 10-20:1, as suggested by [19]. Given the 12 observed variables in this study, the sample group should include at least 120 to 240 samples. As such, the researchers stipulated a minimum piece of 120 obtained through stratified random sampling from 50 districts in the Bangkok area. This division resulted in an approximate representation of 3-4 individuals per area.

Data Collection The researchers created and disseminated the instrument among the selected participants to gather data. It was shared with the respondents via an online Google form. The process of analyzing the data spanned a period of five months, stretching from January through May 2023.

Data Analysis

This study analyzed the data using Statistical Package for Social Science (SPSS) version 25.0. and AMOS version 21.0 (Copyright). The descriptive analysis: frequency, percentage, mean, and standard deviation were applied in analyzing the demographical data of the respondents. The structural Equation Model (SEM) was used to examine the linkage between each latent variable.

Questionnaire Design

In this research, the questionnaire includes three parts: Part one focuses on the basic information of respondents, and part two, which is the core of this questionnaire, focuses on twelve measurement items about the above three explanatory variables. The 5-Point Likert Scale was adopted for the survey and the items about the linkage of the three latent variables. However, some adjustments were made to the research model in this paper. Table 1 presents the questionnaire in detail.

Table 1 Variables and measurement items

| Variable	No.	Measurement Item	References
Ai Driven Strategies	AI1	Data Processing Capabilities	[8]
	AI2	Personalized Learning & Development	
	AI3	Talent Management	
	AI4	Performance Evaluation	
	AI5	Ethical & Privacy Considerations	
	AI6	Risk of Skill Obsolescence	
Employee Engagement	EE1	Enhanced Work Involvement	[12]
	EE2	Improved Job Satisfaction	
	EE3	Increased Organizational Commitment	
Employee Retention	ER1	Job Satisfaction	[15]
	ER2	Career Progression Opportunities	
	ER3	Rewards and Recognition	

IV. FINDING AND ANALYSIS

Descriptive Data

The study's participants comprised 120 HR department staff members from Bangkok, Thailand. A majority of the participants were male (68.3%), followed by females (29.2%) and LGBTQI+ individuals (2.5%). When categorized by job titles, HR Directors comprised 55% of the sample, HR Managers comprised approximately.

26.7%, HR Supervisors comprised around 16.7%, and HR Specialists comprised roughly 1.7%. Regarding income, the highest % of participants, 44.2%, earned more than 35,001 Baht. Moreover, a significant % of the participants, 57.5%, had over 5 years of work experience, as shown in Table 2.

Table 2 Demographic Characteristics of Respondents

Information	Items	Frequency	Percentage
Gender	Male	82	68.3%
	Female	35	29.2%
	LGBTQI+	3	2.5%
Job Title	HR Director	66	55.0%
	HR Manager	32	26.7%
	HR Supervisor	20	16.7%
	HR Specialist	2	1.7%
Income	Lower 20,000 baths	5	4.2%
	20,001 – 30,000 baths	42	35.0%
	30,001 – 35,000 baths	20	16.7%
	Greater than 35,001	53	44.2%
Experience	1-2 years	33	27.5%
	3-4 years	18	15.0%
	More than 5 years	69	57.5%

The outcomes demonstrated a solid fit between the model and the collected data ($\chi2 = 38.083$, df = 40, $\chi2$ /df = .952, p = .557, GFI = .951, AGFI = .904, CFI = 1.000, TLI = 1.006, RMSEA = .000, RMR = .013, NFI = .936). It was established that AI-driven strategies primarily influence Employee Engagement and positively affect Employee Retention. Furthermore, AI-driven systems indirectly and positively impact Employee Engagement, as depicted in Figure 2.
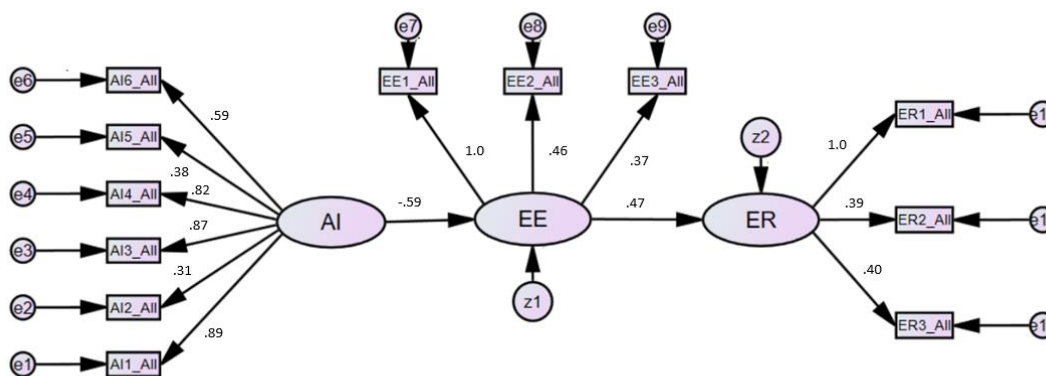
$\chi2 = 38.083$, df = 40, $\chi2$ /df = .952, p = .557, GFI = .951, AGFI = .904,

CFI = 1.000, TLI = 1.006, RMSEA = .000, RMR = .013, NFI = .936

Figure 2 Structural Equation Model (SEM)

V. CONCLUSION

The research provides insights into Employee Engagement and Retention during the Artificial Intelligence (AI) era, indicating that AI-driven HRD strategies might inadvertently contribute to a decline in Employee

Engagement. This could be due to employees perceiving AI tools as impersonal or invasive, potentially undermining their roles and capabilities and decreasing satisfaction and connection to their work. Furthermore, the research suggests that such strategies indirectly influence Employee Retention negatively, as reduced engagement levels could result in less satisfied and motivated employees, potentially increasing turnover rates. Contrarily, when employees are highly engaged and exhibit passion, commitment, and discretionary effort toward their work, they are more likely to remain within the organization. Hence, enhancing engagement could be a strategic approach to bolster employee retention. While implementing AI in HRD can lead to increased efficiency, improved decision-making capabilities, personalized learning opportunities, and an enhanced employee experience, it also presents several challenges. These include ethical issues concerning privacy and data security, potential biases in AI algorithms, skill gaps in AI tools, and employee resistance due to perceptions of AI as a threat to job security or impersonality in HR processes. Moreover, AI tools' reliability and accuracy are paramount to preventing erroneous decision-making [4]. Therefore, the benefits of AI in HRD must be judiciously balanced with these challenges to ensure its effective utilization.

In summary, while AI offers advantages to HRD, organizations should be mindful of its potential impacts on employee engagement and retention. A careful implementation strategy, focusing on the human element and employee experience, is vital. Keeping employee engagement high remains crucial to mitigate the potential negative impacts of AI, thereby improving retention rates in an increasingly AI-driven environment.

VI. DISCUSSION

The findings of this research emphasized the complex dynamics between AI-driven HRD strategies, Employee Engagement, and Employee Retention. Our results indicate that AI-driven HRD strategies can negatively impact Employee Engagement, mirroring the sentiments reflected in previous research, suggesting that adopting AI technologies may inadvertently lead to discomfort or unease among employees [17]. This discomfort emanates from perceptions of AI as impersonal, intrusive, or threatening to their roles and skills, leading to decreased engagement levels [4]. Consequently, this decrease in engagement levels can indirectly lead to lower Employee Retention, as disengaged employees tend to exhibit lower satisfaction, motivation, and organizational commitment [10]. Nevertheless, the findings affirm a positive relationship between Employee Engagement and Retention, corroborating previous research suggesting that employees are more likely to remain with the company [11]. Thus, even with the rise of AI in HRD, organizations should strive to foster a highly engaging environment that nurtures employee commitment and passion [3]. Incorporating AI in HRD while unlocking opportunities such as improved efficiency, personalized learning experiences, and enhanced decision-making capabilities [20] also ushers in many challenges. These challenges include ethical considerations regarding privacy and data security, potential biases in AI algorithms, skill gaps among HR professionals in handling AI tools, and employee resistance due to job security concerns or perceptions of impersonality in HR processes [2]. Therefore, organizations must cautiously consider these factors while integrating AI into HRD.

In conclusion, the study emphasized the importance of balancing using AI-driven strategies and fostering employee engagement. While AI can enhance HRD practices, it is imperative to recognize the human element [21]. By ensuring that employees feel valued, heard, and comfortable with AI technologies, organizations can boost their engagement and, in turn, bolster retention rates, even amidst the increasing implementation of AI [1]. Therefore, future research should explore strategies that can assuage the negative impacts of AI on employee engagement and retention while maximizing its potential benefits in HRD.

VII. OPPORTUNITIES AND CHALLENGES

The research presents compelling insights into the opportunities and challenges associated with implementing AI in HRD strategies, particularly concerning employee engagement and retention.

1. The Enhancement of Employee Engagement and Retention Strategies through AI: AI presents unique opportunities to augment HRD practices and can potentially improve employee engagement and retention. When applied judiciously, AI can increase efficiency, improve decision-making capabilities, and provide personalized learning experiences for employees [22]. It could streamline HRD processes, freeing up human resources to focus

on more strategic and employee-oriented tasks. By providing accurate data analysis and personalized learning pathways, AI could facilitate more informed decision-making, practical skills development, and targeted employee growth strategies, thereby potentially enhancing job satisfaction and engagement, which positively impacts retention [23].

2. Challenges in Implementing AI in HRD and Suggested Solutions: However, incorporating AI in HRD is challenging. These include concerns about privacy and data security, potential biases in AI algorithms, skill gaps among HR professionals in handling AI tools, and employee resistance due to perceptions of AI as a threat to job security or an impersonal approach to HR processes [2]. Organizations must adopt a balanced approach to AI integration to address these challenges. Privacy and data security concerns can be mitigated through robust and transparent data handling policies. Potential biases in AI algorithms can be minimized through ongoing testing and fine-tuning of AI systems.

Organizations should also invest in upskilling their HR professionals to proficiently handle AI tools and make informed decisions based on AI-generated insights. Furthermore, to reduce employee resistance, organizations need to communicate transparently about the role of AI in HRD and provide reassurances about job security. They should also strive to maintain the human touch in HR processes, ensuring employees perceive AI as something other than an impersonal replacement [24].

In conclusion, while AI can offer considerable advantages to HRD, its implementation must be balanced with consideration for its potential impacts on employee engagement and retention. It is crucial to address these challenges and leverage AI's benefits to enhance HRD practices, potentially improving employee engagement and retention.

VIII.   LIMITATION OF RESEARCH

This study presents several limitations that should be acknowledged. The major rule is its geographical scope. The research was conducted exclusively within the context of Bangkok, Thailand. This geographical restriction may limit the generalizability of the findings to other regions or countries with different cultural, economic, or technological contexts. The work cultures, labor laws, levels of technology acceptance, and organizational structures can significantly vary across regions, potentially influencing the impact of AI-driven HRD strategies on employee engagement and retention. Further, due to the specific demographic makeup of the sample, the findings may only partially represent the perceptions of all staff levels or various demographic groups within HR departments. Most participants held higher-level positions, such as HR Directors or Managers, which might skew the perception towards a more AI-favorable stance instead of including a more comprehensive representation from all staff levels. Similarly, gender representation was also uneven, with a significantly higher proportion of male participants. Lastly, as the study used a cross-sectional design, it provides a snapshot at a specific point in time. Therefore, it needs to capture potential changes in perceptions or the impact of AI-driven HRD strategies on engagement and retention over time. Considering the fast-paced evolution of AI technology and its growing implementation in HRD, perceptions and effects may evolve rapidly, and this study may not reflect those dynamic changes.

Future research should address these limitations by expanding the geographical scope, ensuring a more balanced demographic representation, or employing a longitudinal design to track changes over time.

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