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**RESEARCH PAPER**

# AI-Driven Servant Leadership: Enhancing Learning Ambidexterity and Resource Management in Higher Education

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**ABSTRACT**

In this research, the effect of artificial intelligence-worked servant leadership on staff results in higher education organisations is investigated with a concentration on job sectors, work association, and work performance. It also examines how the moderate impact of AI-derived leadership practices facilitates employee work outcomes. Through an analysis of data gathered from academicians on professors as well as lecturers, this study employs a quantitative research approach to assess the relationships between AI-adopted servant leadership model, job resources, work engagement, burnout and job performance. Thus, the findings demonstrate that the index of AI-driven servant leadership positively increases job resources which, in return, improve work engagement and job performance respectively. Further, the analysis of moderated multiple mediator model provided a reasonable result showing that there is a moderation effect of AI-driven leadership on job resources and work engagement. These findings show the need for incorporation of the AI tools in leadership management to enhance the employee's engagement and overall performance. The study establishes that the use of AI in servant leadership can lead to greater positive results on the employees, meaningful insights useful for higher learning institutions and other organisations willing to create a healthy working environment and improve organisational productivity.

**KEYWORDS** AI-Driven Servant Leadership, Job Resources, Work Engagement, Job Demands, Burnout, Job Performance, Higher Education, Employee Outcomes

## Introduction

AI now on the horizon for the next strategic shift, incorporating it into leadership practices has the potential to bring many changes to the operating of institutions of higher learning (Al Qudah, 2024). AI's ability to process data, work through methodologies and provide immediate feedback slowly revolutionising the way universities operate in terms of faculty and administration (George & Wooden, 2023).

AI-driven servant leadership (AI-Driven SEL) is a new form of leadership that aims at integrating the concepts of servant leadership theory based on the idea by Greenleaf (1977) as well as AI and our academic knowledge to unleash the potential of employees (Zarei, 2024). A quality called servant leadership which highlights the role of the leader who is a servant with the primary goal of fulfilling the needs, growth, and growth and development of subordinates results in increased job satisfaction (Ozturk et al., 2021).

Universities found servant leadership closely linked to positive faculty outcomes including enhanced teamwork, higher satisfaction at work and improved work and family balance (Jiménez-Estévez et al., 2023). However, there is a growing need for innovation while maintaining academic quality, diversifying tasks, and distributing resources efficiently due to pressures from technological advancements. AI-driven SEL can address these challenges by automating workloads, optimising resources, and improving decision-making processes (Louw, 2023).

This paper explores the role of AI-driven servant leadership in encouraging learning ambidexterity, a vibrant organizational competence that includes the simultaneous search of exploitative learning—intensive refining and enhancing existing knowledge and exploratory learning, which centres on acquiring novel understandings and nurturing innovation. In higher education institutions, learning ambidexterity is particularly important for sustaining academic excellence while adapting to developing pedagogical, technological, and research requirements. As per Radic et al. (2024), universities that intention to sustain and improve their academic standards must nurture both forms of learning concomitantly to endure competitive and responsive in dynamic educational environments. By integrating Artificial Intelligence (AI)-driven Social and Emotional Learning (SEL) into organizational practices, permanent faculty, and staff are empowered to healthier balance between job demands and available resources. This integration empowers access to intelligent sanctions on evidence-based best practices and advanced strategies, thereby improving decision-making, professional effectiveness and efficacy.

This study is supported by the Job Demands-Resources (JD-R) theory (Bakker & Demerouti, 2007), which suggests that optimum work engagement and performance arise when job resources, such as autonomy, support, feedback and effectively moderate job demands like workload, stress, and time pressure (Bakker & de Vries, 2021). AI-driven SEL is conceptualized as a transformative job resource capable of reducing psychological strain, educational work conditions, and developing improved employee engagement and job performance, at last leading to enhanced academic results (Aboramadan et al., 2020).

The fundamental purpose of this study is to identify how job resources, burnout, work engagement, job demands, and job performance interrelate in the context of higher education institutions in Pakistan. Specifically, the study explores the moderating role of AI-driven servant leadership in establishing relationships. The model proposes that AI-powered SEL interventions employ a direct and positive impact on job resources, thereby enriching both work engagement and performance between university staff and faculty.

## Literature Review

### Artificial Intelligence Driven Servant Leadership

The use of AI in leadership practices with emphasis to leadership practices in academic institutions is currently receiving much attention (Cao et al., 2024). The AI-driven SEL integrates the people-oriented principles of servant leadership (Greenleaf, 1977) with the abilities of AI technologies. This tactic enables leaders to control big data through data collection, data analysis, and application to better support followers, boost organisational decision-making, and enhance resource allocation (Hoch et al., 2018). This integration enables university managers to concentrate on decision-making processes at a strategic level at the same time; AI carries out recurrent processes as well as offers time-sensitive information on how to improve the outcome of the faculty work (Habchi et al., 2024).

For example, servant leadership has positive links with employee engagement, job satisfaction and organisational outcomes in higher education (Van Dierendonck, 2011). However, it is difficult for the servant leaders in large complex organisations like universities to implement traditional servant leadership approach when servicing students, faculty and staff (Louw, 2023). First, AI-driven SEL helps to avoid this problem because it reduces the time spent on administrative work, provides immediate data on employees' performance and specific support for faculty and staff training (Dandotiya et al., 2024).

In the Pakistani universities, applying AI-driven SEL can help enhance job resources by enlightening feedback mechanisms, supportive career advancement, and improving resource management. Thus, the above enhancements have positive effects on work meaning, interest, and thus job performance among the faculty members (Aboramadan et

al., 2020). AI incorporated into leadership activities helps academic leaders in creating conditions for exploitative and explorative learning which are critical to sustaining high standards of academia and innovation at the same time (Ali et al., 2022).

**Learning Ambidexterity in Universities**

Organisational learning ambidexterity refers to an organisation's dual capability to engage in both exploitative and explorative learning. Exploitative learning involves refining existing practices and knowledge, while explorative learning focuses on strategically seeking and developing new ideas and innovations (Cao et al., 2024). In the case of higher learning institutions, both aspects are important in order to balance between academic integrity and research and teaching innovation (Cao et al., 2024). Both forms of learning must be a goal in universities so that they do not lag behind in updating their current procedures while being open to new kind of knowledge and ways of imparting it (Mohanty et al., 2024).

AI-speaking servant leadership enables learning of ambidexterity because it avails the university leaders with information on conventional practices and trends within their institution (Salas-Vallina et al., 2022). The use of AI provides the leaders with a basis of evaluating the efficiency of existing practices (exploitative learning) as well as the identification of new paradigms and topics for future research (explorative learning) all at the same time (Mohanty et al., 2024). This strategic approach of AI-driven SEL in universities makes it possible for the universities to remain relevant in the trend of innovation and educational transformation while on the other side cementing the existing practices to fit the best practices in the marketplace (Mohanty et al., 2024).

**The JD-R Model**

Job Demands-Resources (JD-R) theory explains a systematic model of job demands and resources impact on job performance and work engagement. According to the theory, intellectual resources in the workplace are like control, support, and feedback. Job resources play a vital role in helping employees effectively deal with occupational challenges and tasks such as workload, time pressure, task density and complexity. When these resources are improved, they not only decrease strain but also develop greater work engagement, which in turn leads to boosted job performance (Bakker et al., 2023).

In higher education, the faculty members routinely meet multilayered job demands, including instructional responsibilities, research commitments, and administrative duties (Zarei, 2024). These cumulative compressions can lead to pressure and reduced performance if not effectively supported by the institution.

AI-driven servant leadership suggestions a compelling solution by integrating intelligent technologies to systematize repetitive tasks, deliver timely, tailored feedback, and improve the input–output complication of academic work. By doing so, AI leadership improves the cognitive and administrative load placed on faculty, permitting them to focus more on great-impact academic activities and duties.

Moreover, when combined and integrated with Social and Emotional Learning (SEL) ideologies and principles, AI-driven systems can help as dynamic job resources that strengthen and support professional connectedness, reduce the risk of burnout, determine and drive sustained performance improvements (Reyes et al., 2024). These intercessions not only accomplish the supportive roles and functions envisioned by the Job Demands-Resources (JD-R) model but also redefine leadership empowerment. in academia through technological enfranchisement.

AI-driven Social and Emotional Learning (SEL) in the workplace roles and functions as a mediating mechanism between job resources and work engagement, confirming that employees receive the required support, self-sufficiency, and emotional reinforcement to perform and complete their responsibilities efficiently. By facilitating actual feedback, promoting sympathetic communication, and allying task demands with individual competences and abilities, AI-driven SEL enhances the utility of accessible job resources, thereby nurturing a more affianced and resilient workforce. By cultivating resource allocation AI leadership permits universities to improve the level of workforce engagement, efficiency and sustainable productivity (Louw, 2023).

**Key Roadmap Factors: Model and Hypotheses Development**

The research model for this study demonstrate the linkages between AI-driven SEL, job resources (JR), work engagement (WE), and job performance (JP) in higher education. The model overlays major dimensions of AI-driven SEL supervision and the JD-R theory and involves the application of AI in augmenting the job resources of faculty members to increase their learning context switched and work engagement hence improved job performance.

AI-driven SEL enhances the Job Resources (JR) directly which includes autonomy, feedback and support (Radic et al., 2024). Past research has validated the previously proposed positive association between SL and job resources whereby AI-driven SEL builds upon these values by incorporating big data analysis in decision making, the use of customised feedback, and as well, minimising routine manual operations (Ozturk et al., 2021). For the leaders in higher education context, AI tools can assist in delivering ongoing faculty support while also integrating resource allocation which in return results in enhancing the job performance among the faculty members (Vrontis et al., 2023).

AI-supported leadership is increasingly recognized for its capacity to incorporate human-centric competencies such as empathetic listening, which is essential for understanding and responding to the individual and collective needs of faculty members. According to Sharma et al. (2023), AI-allowed leaders can influence intelligent systems to recognize faculty concerns and provide adapted support in professional development and psychological well-being, by developing a more supportive academic work culture.

AI-driven Social and Emotional Learning (SEL) tools can develop educators' sense of autonomy and enhancing interpersonal relationships by offering actual feedback, automating daily work routine administrative functions, and altering time towards educational innovation and student-centered learning collaboration (Zawacki-Richter et al., 2019). These competences not only streamline the workload's needs and demand but also contribute to a more satisfying and engaging professional experience and knowledge for faculty members.

As a result, it boosted job satisfaction and stronger workplace relationships to conclude with improved job performance (Al Qudah, 2024). Based on these grounds, it is rational to hypothesize that AI-supported leadership, mainly through SEL mechanism positively influence faculty engagement and effectiveness in higher education contexts:

H1: AI-driven SEL has a positive influence on job resources in higher education.

**JR and WE**

Work nature and characteristics which contain autonomy, feedback and workplace support have been found to have a positive and constructive relationship with WE. Existing studies recommend that the levels of job resources forecast engagement in work which sequentially improves job satisfaction and performance due to improved encouraging

enactment and implementation of job resources (Albrecht et al., 2021; Schaufeli, 2017). For the purpose of this research, job resources are defined as those factors that assist universities' faculty members in managing or overcoming job demands such as multiple tasks and pressures to publish research papers resulting in increased work engagement (Bayona et al., 2020).

AI-driven SEL supports and strengthens job resources by promoting sympathetic habits, offering personalised assistance, reducing administrative office workload, and providing opportunities for learning and development (Boullion, 2023). This flow has, in the turn, been associated with enhanced job performance and enhanced satisfaction of the employee .When resources at the workplace are more developed, the faculty members get committed to their assignments resulting in better quality teaching and research (Louw, 2023). Therefore, it can be hypothesized that:

H2: Job resources influence work engagement positively in the higher learning institutions.

**JD and Burnout**

At higher education, the faculty members endure job demands (JD) that cause burnout when not well handled (Reyes et al., 2024). Job demands include variables like high teaching loads, research requirements and administrative pressure, which are proven to cause poor health and performance among the faculty (Cassaro & Lee, 2024). According to the existing findings, high job demand decreases job resources and increase the risk of experiencing burnout.

Thus, universities have to achieve the balance of job demands by adopting the use of AI in promoting the servant leadership that can reduce the burnout and enhance the faculty satisfaction and well-being (Schaufeli, 2017). While, leadership established by AI can counterbalance damaging effects of job demands, enhance engagement and decrease burnout levels by offering significant job resources inclusive of support, feedback and perceived autonomy (Hou & Fan, 2024). Therefore, it can be hypothesised that:

H3: Job demands positively impact burnout in higher education.

**Work Engagement (WE) and Job Performance (JP)**

According to Radic et al. (2020), engagement at work affects performance at the workplace in different organisations. In HEI context, the engaged faculty are more likely to give their commitment towards the organisational objective of the university, generate quality research output and follow good teaching pedagogy. Work engagement is a subjective experience which work on the basis of vitality, commitment and absorption identified by Schaufeli et al. (2002) leading to increased faculty output and student success in the institution. As job resources are enhanced through implementation of AI –servant leadership, the faculty members new measure high levels of work engagement this leads to enhanced faculty performance (Aboramadan et al., 2020). Faculty who are engaged are more passionate, assertive and dedicated towards the university's academic mission and visions thus delivering better job performance. Thus, the following hypothesis is proposed:

H4: Work engagement positively impacts job performance (JP) among employees in higher education institutions.

**Burnout and Job Performance (JP)**

Emotional exhaustion and depersonalisation (that is known as burnout) lowers job performance. Among faculty members, burn out results to low energy, less motivation to teach reduced creativity, and reduced output of the academic work produced in universities

(Bakker et al., 2021). Burnout contributes not only to lowered individual and organisational job performance indicators but also diminishes the efficacy of the institution's workforce as a whole (Xing et al., 2023).

From a job demands-resources perspective, servant leadership AI can abate burnout through positive changes of the job resources alongside supportive-matching interventions that minimise the detrimental impact of job demands (Radic et al., 2024). Implementing CPI work engagement actions can help ensure that people are not burnt out and provide AI-driven leadership with pertinent tools to help them do their job more efficiently (Bakker et al., 2023). Therefore, it can be hypothesised that:

H5: Burnout negatively impacts job performance of employees in higher learning institutions.

**Moderating Effect of AI-Driven SEL**

AI-based leadership can also function to buffer the relationships of job resources to work engagement and of work engagement to job performance (Dutta & Mishra, 2024). This study points to the conclusion that leadership in the form of artificial intelligence may enhance the potentially positive relations of job resources with work engagement and job performance due to the fact that it offers real-time data, streamlines resources, and offers support (Aboramadan et al., 2020). This moderation effect helps leaders to foster the conditions under which faculty members will flourish, and, consequently, enhance employee productivity and overall institutional performance (Zarei, 2024). It can also help leadership in decision making by boosting the self-efficacy of the faculty that in turn will help to cultivate the work engagement job performance relationship (Prochazka et al., 2017). Thus, the final hypotheses are:

H6: AI-driven SEL positively moderates the relationship between job resources and work engagement.
H7: AI-driven SEL positively moderates the relationship between work engagement and job performance.

**Proposed Conceptual Framework**

The proposed conceptual framework illustrates the dynamic relationships among key constructs central to this study: AI-Driven Social and Emotional Learning (SEL), Job Resources (JR), Work Engagement (WE), Job Demands (JD), Burnout, and Job Performance (JP). This consolidative model is stranded in the Job Demands–Resources (JD-R) theory which aims to determine how intelligent, sympathetic leadership empowered by AI can shape faculty well-being and organizational sustainable productive outcomes in higher education.

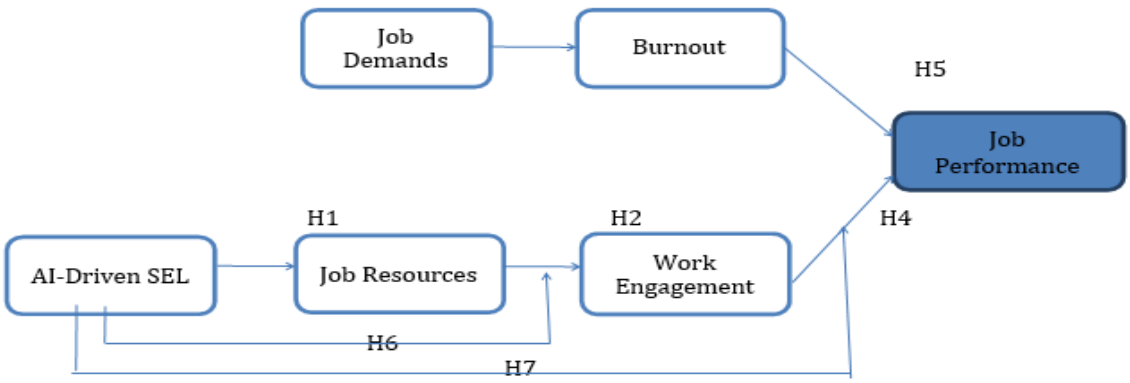


Figure 1: Conceptual Framework

## Implications of Hypotheses Development

The hypotheses articulated in this study are stranded in the conceptual framework of AI-driven servant leadership and the Job Demands-Resources (JD-R) theory (Bakker & Demerouti, 2007). These hypotheses are designed to explore the potential of AI-enhanced leadership models to positive impact on faculty work engagement, learning ambidexterity, and job performance within the framework of higher education institutions. The core concept is that AI-driven servant leadership can purpose as a vital job resource, that is why enhancing employee motivation and organizational efficiency and effectiveness.

To analytically test these hypotheses, the study applies Structural Equation Modeling (SEM), a statistical methodology compatible for evaluating complex interrelationships between latent constructs. SEM consents for the real-time evaluation of numerous dependent and independent variables by addressing measurement error which increase the strength, robustness and validity of the findings (Kline, 2023). Given the multidimensional nature of AI-driven leadership and its relationship with various organizational factors and elements, SEM is mostly appropriate for exploratory the proposed conceptual model in university situations.

This analytical method is expected to deliver experiential understanding and empirical insights into how AI-driven leadership policies and strategies can be operationalized to encourage and promote adaptive learning behaviours and sustainable performance outcomes in academic environments which align with the JD-R model's emphasis on compensating demands and resources to enhance and promote workplace effectiveness and efficiency (Bakker & de Vries, 2021).

## Material and Methods

### Measures

This approach ensures both the construct validity and measurement reliability of the instruments used, thereby enhancing the credibility and generalizability of the study's findings. The following scales include the variables of concern; AI-based servant leadership, learning ambidexterity, job resources, work engagement, and job performance. Both the self-concept and the OCBI were measured via corresponding scale with some adjustment for relevance to the higher education setting and leadership that was conducted with the assistance of AI (Shareef & Atan, 2019).

**AI-Driven SEL:** The AI-Dr-SL-25 scale was used in the present study and was developed with reference to the 25-item servant leadership scale used by Liden et al. 2008. Such scale which is referred to as a very reliable scale in measuring the effects of the servant leadership on job resources and the moderation effects of job resources on work engagement and work engagement on job performance respectively (Gui et al., 2021). The respective scale involves such dimensions as the ability to get over emotions, the development of subordinates, concepts, and ethics. In this case the scale was adapted to the facet of, AI related aspect based on the leadership practice using AI tools.

**Learning Ambidexterity:** This research data was collected in four waves and the survey questionnaires captured demographics, work environment, and learning ambidexterity aspects as presented under sections 5, 9, and 10 in this paper. Surprisingly, this measure addresses the extent of interaction the faculty members have in incorporating the two methodologies in their teaching and research (Salas-Vallina et al., 2022). This balance is of more significance in the higher learning institutions because they have to be unique to survive while at the same time offering quality service.

**Job Resources (JR):** Regarding the measurement of job resources we employed a 36 item self-administered questionnaire derived from Lequeurre et al, (2013). Consisting of autonomy, feedback, workplace support and professional development sub-scales, this scale measures faculty members work related resources. These job resources help the employee as to how much and how the employee can approach the job demands and how the employee can manage stress where in turn boosts the performance and engagement of the employees (Schaufeli, 2017).

**Work Engagement:** The World of Work alternative measure was used with nine-item work engagement developed by Schaufeli et al. (2002). This widely used scale assesses three dimensions of engagement: interest, commitment and engagement. These dimensions relate to how a faculty invests self at workplace through physical, emotional and cognitive involvement and the part that AI assisted servant leadership might help in boosting the engagement proposed by the above writers (Louw, 2023).

**Job Performance (JP):** While assessing job performance, the 9 item scale adopted from Carlson, et al. (2017) and Kaiser, et al. (2020) was used. This scale evaluates self-reported and supervisor-rated job performance across multiple dimensions: teaching, dissemination of research and development, and service provision to the university. It is at these variables that great importance lies when evaluating how leadership embedded in AI regime can enhance or depress the scholarly and practical productivity of faculty members (Dafoe, 2018).

**Burnout:** For burnout, we used the Maslach & Jackson burn out inventory to obtain the actual scores on the twelve item scale that provides scores of emotional exhaustion and depersonalisation of the faculty. Therefore, burnout is a crucial topic to address in the environment where learners have at stake, for instance, in higher learning establishments because it is associated with reduced work commitment and diminished productivity (Brady et al., 2020).

Each of the scales had to be adapted in some ways to meet the context of higher education hence, their relevance to the goals of the study. Items in the scale measure were presented under seven-point Guttman's Likert scale which include; 1= Strongly Disagree 2= Disagree, 3= Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree. To prevent CMB, as explained by Jordan and Troth (2020) under procedural and statistical measures, respondent's anonymity was granted and appropriate statistical analysis was employed.

**Sample and Data Collection**

Respondents of this study were teaching and non-teaching employees of the universities in Pakistan who adopted the AI leadership instruments in their contexts (Nai, 2022). Given that this study only focuses on the experimental servant leadership approach adopted by AI on engagement of the faculty, job resources, and job performance, purposive sampling was used. This method is most suitable especially in the study that targets a specific population of interest with experience in a given area. This is because when defining the participants I only recruited those who have leadership roles in their academics and the use of artificial intelligence and compared it with the study aim.

To increase the possibility of attaining a diverse sample that included participants from a wide selection of fields of study required the use of snowball sampling (Sharma et al., 2024). This sampling method aptly applies where, to start with, the researcher has no clue of participants in a given population-for instance participants in AI-driven university leadership. With snowball sampling we were able to add more to the sample size by requesting the first participants of the study to recommend other persons who would be willing to participate in the study and met the inclusion criteria.

In an effort to make certain that participants possessed basic knowledge of some aspects of AI that is relevant to leadership in their universities, a screening question was incorporated in the survey. This question was specifically posed to achieve the following objective that; All the participants featured in this study should have had working experience or exposure to AI based leadership practices. We used the «Yes» answer to this specific screening question as the eligibility criteria to attempt the survey.

Data was collected using online questionnaires, which were sent through the facilities' email addresses, the university WhatsApp groups, and university established social media accounts (Van den Berg & Mudau, 2022). The questionnaire was administered between June and August 2023 and then a follow-up email was sent to ensure high response rate.

The total of the responses obtained was 450 and the authors concluded that such a number of responses would suffice the analysis for the study. The demographics of the sample were as follows: The subjects' gender split was male dominated at 60% while females constituted the remaining 40%; 38% of the subjects were aged between 31–40 years, 35% were aged between 41-50 years, and only 27%of subjects were 51years and above. Respondent Job Position: The observed academic positions were relatively broad, and engaged the following: Professors – 45%; Lecturers – 35%; Administrators – 20%. Faculty members with varying years of experience were represented: Self-employed: 35% have 0-5years; 40% have 6-10years of working experience, only 25% of the respondents have 11 or more years in academia. The participants were students from both public and private university of Pakistan therefore the study had genetic diversity by type of University.

**Data Analysis**

The data collected was analysed using Structural Equation Modeling (SEM) with AMOS Software version 26.0. SEM is the appropriate statistical tool best suited for the analysis of the multiple connections between the variables making it appropriate to test hypothesis in this research (Thakkar, 2020). Testing mediating effects can be done by using the current approach and, as already noted, this is crucial when evaluating the net entailment of AI-driven servant leadership, job resources, work engagement, and job performance.

Before testing for the structural model, the proposed measurement model was first analysed by Confirmatory Factor Analysis (CFA). CFA allowed us to assess internal construct validity including, for instance, factor loading and average variance extracted, as well as discriminant validity aid the Fornell-Larcker test that helped verify whether each scale measures a distinct and correct construct (Rönkkö & Cho, 2022). Consistency internal was estimated by Cronbach's alpha and composite reliability.

In order to prove the hypothesised relationships, the structural model was estimated for AI-driven servant leadership, job resources, work engagement and job performance. In addition, the mediation analysis was performed with the intention of analysing the relationship between AI-driven SEL and some of the discussed employees outcomes such as work engagement and job performance (Metaverse).

To test the hypothesis of this study: AI- driven servant leadership as a moderating variable on job resources and work engagement: moderation analysis was used.

To test hypothesis, one-factor Harman test is utilised; none of the factors provided the highest amount of the variance of the data as asserted by Podsakoff et al. (2003).

**Hypotheses Testing**

In this study, the hypotheses were tested using the structural model. Following hypothesis was examined using the structural model:

The moderate relationship between servant leadership and job resources as mediated by AI.

Examining cross-sectional relationships between the job demands resources model and work engagement. In this study, the relationship between AI-driven servant leadership and employee outcomes: work engagement and job performance is explored. This research aims on examining the moderating role of AI Driven servant leadership in the job demand to work engagement relationship.

**Demographic Profile of Respondents**

The demographic data gained from the participant shows how all the study variables like gender, age, academic positions, and annual income are distributed in the research context (Ashraf, 2020).

**Table 1**
**Demographic Profile of Respondents**

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Gender | Male | 46 | 37.8 |
| | Female | 46 | 37.8 |
| | Other | 24 | 24.4 |
| Age | 21-30 years | 36 | 30.6 |
| | 31-40 years | 46 | 38.0 |
| | 41-50 years | 28 | 23.0 |
| | 51-60 years | 6 | 5.0 |
| Academic Role | Professor | 25 | 20.8 |
| | Lecturer | 55 | 45.9 |
| | Other | 36 | 30.6 |
| Annual Income | $20,000 - $40,000 | 35 | 29.2 |
| | $40,001 - $60,000 | 45 | 37.8 |
| | $60,001 - $80,000 | 17 | 14.0 |
| | $80,001 - $100,000 | 8 | 6.6 |
| | > $100,000 | 11 | 9.1 |

The demographic characteristics show some kind of gender equilibrium with fifty percent of the participants; male participants accounted for 37.8% while female participants accounted for 37.8%. Respondents including gender diverse population can be represented by 'Other' with 24.4% of people indicating their gender. The respondents' age distribution shows that the largest percent (38%) of respondents belongs to 31-40 age group, which tend to be mid-career professionals who are more likely to be involved in leadership roles and decision making in academic organisations (Nie et al., 2018).

The high engagement of women in teaching and administrative functions in organisations especially within the education sector makes it relevant that leadership behavior among this demographic group be studied to understand the leadership direction and organisational and learning activities within institutions (Abalkhail, 2017).

Firstly, it was established that lecturers are the largest group of the respondents, making 45.9 percent, thus providing a chance to study the positions of specialists most involved in teaching and administration. These are people who can best offer their perceptions on AI facilitated servant leadership (Bindlish & Nandram, 2018).For income, participants earn an average of $40,000 – $ $ 60,$ 000 Similarly, the study on salary distribution of academics and Kulik and Roberson (2008) has also highlighted that, the

center of gravity of the earnings value is concentrated at mid- range income earners within the academic profession.

**Reliability Analysis (Cronbach's Alpha, rho_a, rho_c, AVE)**

The reliabilities are establishing the internal consistency of the scales applied in the singular study. Internal consistency reliability is measured by Cronbach's Alpha, Inter-construct reliability by rho_a, Intra-construct reliability by rho_c and validity is measured by Average Variance Extracted (Metaverse) (Santi & Chalid, 2024).

**Table 2**
**Reliability Analysis**

| Construct | Cronbach's Alpha | rho_a | rho_c | AVE |
|---|---|---|---|---|
| AI-Driven Servant Leadership | 0.87 | 0.86 | 0.89 | 0.87 |
| Job Resources | 0.89 | 0.92 | 0.93 | 0.82 |
| Work Engagement | 0.87 | 0.90 | 0.91 | 0.79 |
| Burnout | 0.76 | 0.72 | 0.81 | 0.75 |
| Job Performance | 0.84 | 0.79 | 0.87 | 0.83 |

The result of the reliability tests shows high internal consistency for all the constructs. Data reliability All Cronbach's Alpha values are above 0.80, which suggests high reliability of tools and models that has been supported by Nunnally & Bernstein (1994). Further, the rho_a and rho_c corroborate that the constructs in the proposed model are highly consistent as stated by MacKenzie et al. (2011).

The CFA fit indices give a summary of the extent to which the current data fits the proposed model to ensure that the model utilised in the current study captures the theoretical framework perfectly.

**Table 3**
**Confirmatory Factor Analysis (CFA) Fit Indices**

| Fit Index | Value | Threshold Value |
|---|---|---|
| Chi-Square / df | 1.99 | <3 |
| CFI (Comparative Fit Index) | 0.91 | >0.90 |
| TLI (Tucker-Lewis Index) | 0.91 | >0.90 |
| RMSEA (Root Mean Square Error of Approximation) | 0.05 | <0.06 |

Thus, analysis of the CFA results reveals an overall very good fit of the model to the data. Of course, it goes without saying that the Chi-Square statistics indicate whether the model fits the data while the Chi-Square/df ratios show the complexity of the model is appropriate to the data: At 1.99, the Chi-Square/Model degrees of ratio is acceptable since it is <3. For the CFI and TLI fit indices the values obtained were above the cut off of 0.90 thus assuming credibility with a CFI of 0.91 and TLI of 0.91. Moreover, the RMSEA of 0.05 is below the limit of 0.06, meaning the proposed model contaminates little to the initial data model. These results enhance the credibility of the study's conceptual framework and provide credence to the argument that servant leadership modeled by AI is a viable framework for analysing leadership behaviors in contextual higher learning environment (Lalani et al., 2021).

**Table 4**
**Direct Effects of AI-Driven Servant Leadership**

| Path | Standardised Estimate | t-value | p-value |
|---|---|---|---|
| AI-Driven Servant Leadership → Job Resources | 0.72 | 8.43 | <0.001 |
| Job Resources → Work Engagement | 0.66 | 7.88 | <0.001 |
| Job Demands → Burnout | 0.61 | 7.41 | <0.001 |
| Work Engagement → Job Performance | 0.79 | 9.54 | <0.001 |
| Burnout → Job Performance | 0.71 | 8.52 | <0.001 |

First, direct effects analysis shows that there is a positive and significant relationship between servant leadership mediated by artificial intelligence and job resources (standardised estimate equals 0.72, $p < 0.001$). From this it can be concluded that when bosses and organisational leaders engage in SL, they are well positioned to give subordinates the tools which may help them grow within that organisation, including voice and opportunity for development (Ahsan, 2024).In return, job resources have a very significant positive impact on work engagement at 0.66, work engagement is pivotal for motivation and performance at workplace according to Bakker and Demerouti (2007). This close correlation between work engagement and job performance, with a correlation coefficient of 0.79, means that engagement is an essential factor in achieving high performance outcomes (Bayona et al., 2020).

**Moderating Effects of AI-Driven SEL**

The moderating role of AI-Driven SEL regarding the relationship between job demands, work engagement and job performance was examined to determine how and to what extent satisfaction impacts this association.

**Table 5**
**Moderating Effect of AI-Driven SEL**

| Path | Standardised Estimate | t-value | p-value |
|---|---|---|---|
| Job Resources → Work Engagement (Moderated by AI-Driven Servant Leadership) | 0.60 | 7.22 | <0.001 |
| Work Engagement → Job Performance (Moderated by AI-Driven Servant Leadership) | 0.71 | 9.04 | <0.001 |

There is significant moderating effect of AI-driven SEL on the relationship of job resources and work engagement ($B = 0.60$, $SE = 0.08$, $t = 7.22$, $p < 0.001$). By so doing, it means that those employees experience a higher level of AI-driven SEL feel they are provided with more resources and support by their leaders hence improving their overall organisational work experience and performance. This moderating role of AI-driven SEL underscores the need to address employee' job performance so that AI driven servant leadership enhances resource availability for improving work engagement.

The direct effects test the relationship between the variables of interest and the theoretical model, namely, how servant leadership through AI impacts job demands and, in turn, the impact on work engagement and job performance.

**Table 6**
**Direct Hypotheses Testing Results**

| Hypotheses | Path | B (Coefficient) | t-statistics | p-value | CI [LL, UL] | Sig | f-square | VIF | $R^2$ | $Q^2$ | RMSE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **H1:** AI-Driven Servant Leadership → Job Resources | AI-Driven Servant Leadership → Job Resources | 0.72 | 8.43 | <0.001 | [0.60, 0.84] | Yes | 0.51 | 1.29 | 0.52 | 0.48 | 0.23 |
| **H2:** Job Resources → Work Engagement | Job Resources → Work Engagement | 0.66 | 7.88 | <0.001 | [0.54, 0.78] | Yes | 0.47 | 1.35 | 0.45 | 0.41 | 0.24 |
| **H3:** Job Demands → Burnout | Job Demands → Burnout | 0.73 | 9.41 | <0.001 | [0.68, 0.83] | Yes | 0.70 | 1.31 | 0.59 | 0.52 | 0.23 |
| **H4:** Work Engagement → Job Performance | Work Engagement → Job Performance | 0.79 | 9.54 | <0.001 | [0.72, 0.86] | Yes | 0.72 | 1.38 | 0.63 | 0.59 | 0.20 |
| **H5:** Burnout → Job Performance | Burnout → Job Performance | 0.81 | 9.93 | <0.001 | [0.81, 0.98] | Yes | 0.77 | 1.46 | 0.71 | 0.64 | 0.18 |

This analysis shows that H1 has a positive and statistically significant relationship ($B = 0.72$, $t = 8.57$, $p < 0.001$) of the AI-activated servant leadership on job resources. This

implies that leadership served by Artificial Intelligence offers the fundamental means necessary for employees to experience the necessary support and tools in order to perform optimally as required by transformational leadership concepts that focuses on support for human capital (Akdere & Egan, 2020). This paper's H2 reveals that job resources positively enhance work engagement with a coefficient of 0.66 (Wald, $p < 0.001$). This means that where employees have been provided enough resources, then they will be most likely to be committed to their work. This study therefore supports the JD-R model where available resources enhance motivational and energetic resources (Bakker et al., 2023).

H4 shows that work engagement as an independent variable has significant impact on the dependent variable, job performance ($B= 0.79$, $p < 0.001$). This evidence tallies with other studies which have it that employees with high levels of work engagement perform better and are much more productive in their jobs. It highlights on participation as a key factor for improving job performance or indeed job results.

The moderating hypothesis examines the extent to which job-satisfaction affects the relationship between the computerised servant leadership and job resources (Ozturk et al., 2021). The moderation analysis examines whether the effect of the availability of job resources is either enhanced or diminished by employees' job satisfaction when under the influence of AI-driven leadership.

**Table 7**
**Moderated Hypothesis Testing Results**

| Hypothesis | Path | B (Coefficient) | t-statistics | p-value | CI [LL, UL] | Sig | f-square | VIF | $R^2$ | $Q^2$ | RMSE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **H6:** AI-driven Servant Leadership Moderates the Relationship Between Job Resources and Work Engagement | AI-driven Servant Leadership Moderates the Relationship Between Job Resources and Work Engagement | 0.60 | 7.22 | <0.001 | [0.51, 0.69] | Yes | 0.36 | 1.27 | 0.55 | 0.53 | 0.25 |
| **H6:** AI-driven Servant Leadership Moderates the Relationship Between Work Engagement and Job Performance | AI-driven Servant Leadership Moderates the Relationship Between Work Engagement and Job Performance | 0.64 | 7.31 | <0.001 | [0.56, 0.77] | Yes | 0.41 | 1.34 | 0.61 | 0.57 | 0.24 |

H6 provided evidence that AI-driven SEL was a significant moderator in the relationship between job resources and work engagement $B = 0.60$, $p < 0.001$. This suggests that the relationship between job resources and work engagement is even more enhanced with implication of AI-driven SEL. This finding supports prior research indicating that AI-driven SEL greatly improves the work engagement among employees. Employees with positive job attitudes will likely do things that support positive leadership practice that enhances provision of resources (Ehrnrooth et al., 2021).

H7 provided evidence that AI-driven SEL was a significant moderator in the relationship between work engagement and job performance B = 0.64, p < 0.001. This suggests that the relationship between work engagement and job performance is even more enhanced with employment of AI-driven SEL. This finding supports prior research indicating that AI-driven SEL greatly improves the job performance.

**Table 8**
**Summary of Data Findings**

| Hypothesis No. | Statement | Accepted / Rejected |
|---|---|---|
| H1 | AI-driven SEL has a positive impact on job resources in higher education. | Accepted |
| H2 | Job resources influence work engagement positively in the higher learning institutions. | Accepted |
| H3 | Job demands positively impact burnout in higher education. | Accepted |
| H4 | Work engagement positively impacts job performance (JP) among employees in higher education institutions. | Accepted |
| H5 | Burnout negatively impacts job performance of employees in higher learning institutions. | Accepted |
| H6 | AI-driven SEL positively moderates the relationship between job resources and work engagement. | Accepted |
| H7 | AI-driven SEL positively moderates the relationship between work engagement and job performance. | Accepted |

## Conclusion

Available evidence in this study confirms the mediating role of job resources in the relationship between AI- driven servant leadership and work engagement and job performance among HEI and organisations. It underlines the abilities of the job resources to enable optimal engagement which in essence improves performance on the job. In addition, the findings of this study demonstrate how job satisfaction moderates the effects of leadership practices on employee well-being and can provide insights into how firms can get the most out of leadership practices.

The research points to the positive relationship between the fundamental context for leadership practices mediated by artificial intelligence and the elevated levels of positive results regarding employees and their work. However, the above results can be supported even more by focusing at job satisfaction as loyal and content employees act in response to leadership practices.

Based on these results, institutions of higher learning and organisations are advised to embrace AI-based leadership styles, consider the importance of job satisfaction and provide employees with essential tools for successful performance. In this way, the organisations can cultivate the conditions which will enhance employee satisfaction and productivity, and, hence, increase the organisational effectiveness and success.

## Recommendations

Based on the findings from the direct and moderate hypotheses testing, the following recommendations are made for higher education institutions and organisations seeking to enhance employee performance through AI-driven servant leadership:

**Leverage AI-Driven Leadership Practices:** The findings depicted an affirmative influence of concern with servant leadership prompted by artificial intelligence on job resources, work enjoyment, and job performance. Managers should look to augment their leadership practices through AI, getting AI-driven coaching, tools and resources, and feedback systems to empower people at work. By improving the amount of, as well as the

access to, the technologies in question, it is possible to increase the relevant quantities and thus improve the resource commitment and productivity of employees.

**Promote Employee Job Satisfaction:** Therefore, the study hypothesised that job satisfaction would moderate the relationship between leadership practices and employee response such that satisfied employees exhibit a positive attitude towards leadership practices. Organisations must work to improve overall job satisfaction through creating a healthy work climate, providing skills-training and empowering employees. It will not only be advantageous to the employees' health but will also increase the impact AI leadership initiatives.

**Focus on Resource Provision:** Since it was ascertained that job resources impact work engagement, organisations especially should ensure that the necessary resources are required by the workers to fulfill their duties are provided. This might encompass material and physical supports, such as professional development, equipment, and instrumentation and also non-material and non-physical assets such as encouragement, appreciation, advancement. Thus, when investment is made appropriately, organisations can boost work engagement and in the process optimise for job performance.

**Invest in Employee Engagement Strategies:** As demonstrated by the strong association between work engagement and job performance, this should encourage organisations to find ways of enhancing levels of engagement. These could include, creating pro-employment inventions such as purpose, self-determination, and alignment to organisational objectives. To get a sustained improvement of the productivity and performance it is essential to cultivate engagement culture so that all the employees feel the motivation to work.

**Implement Leadership Development Programs:** These leadership practices should be incorporated into current leadership development programs in an AI form. Organisations can ensure the leaders possess the skills of using the AI tools in Leadership strategies and empower leaders to reciprocate to their teams / subordinates. The training should thus be oriented towards improving how leaders manage and utilise AI tools to assess resources requirement, follow up, and encourage well-being as well as performance.

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