Extending the High-Performance Work Systems Approach with AI Use: Testing Relationships towards Performance

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Abstract

High Performance Work Systems (HPWS) are HR practices "designed to enhance employees' skills, commitment, and productivity" (Datta et al., 2005, p. 135). HPWS influence employee's knowledge, skills, and abilities and has the potential to increase "motivation, reduce shirking and enhance retention of quality employees while encouraging nonperformers to leave the firm" (Huselid, 1995, p. 635). The HPWS field enjoys meta-analytic support at the firm level (Combs et al., 2006; Zhai & Tian, 2019). There are consistent and strong employee level studies also, and while study focus on HPWS varies, common bundles include factors around job design, recruitment and selection etc. (e.g., Datta, 2005; Haar & Harris, 2023). However, one area that has received no attention in the HPWS literature is Artificial Intelligence (AI). This is despite growing attention around AI use in the workplace (Mariani & Dwivedi, 2024). Some have argued AI can reshape human reality (Mickunas & Pilotta, 2023) and change work roles (Przegalinska et al., 2025).

The present study explores HPWS which are widely viewed as beneficial (Combs et al., 2006; Zhai & Tian, 2019), and applies this to AI, in the context of the 4th industrial revolution. Social Exchange Theory is used to understand effects and is a common theoretical approach in HPWS research (Delery & Roumpi, 2017), defined as voluntary actions of individuals that are motivated by the returns they are expected to bring and typically do in fact bring from others" (Blau, 1964, p. 91). Haar and Spell (2004) note that under SET, employees experience a felt obligation to respond when they receive a valued organizational practice. This aligns well with HPWS and AI use, especially HR practices that provide desirable training and development around AI use. Theoretically, employees become obligated to reciprocate with stronger work attitudes and behaviors.

Ultimately, a moderated mediation model is tested with HPWS-AI as the predictor, AI use at work is the mediator, and three performance indicators are used. These include organizational citizenship behaviors [OCBs] targeting (a) individuals (e.g., co-workers) and (b) organizations. Finally, (c) innovative work behaviors [IWBs]. Beyond these direct and mediation effects, HPWS-traditional (5 bundles: job design, recruitment and selection, training and development, as well as performance, and compensation) is included as the moderator. Self-reported data from 1002 New Zealand employee representative of the New Zealand workforce by age, gender, and geographical location, is used to test hypotheses. Overall, HPWS-AI is found to positively influence AI use at work ($p<.0001$), OCBs Individual ($p<.0001$), OCBs Organization ($p<.0001$) and IWBs ($p<.0001$). Further, AI use at work is significantly and positively related to all performance indicators (all $p<.0001$) and partially mediates the direct effects of HPWS-AI on performance. In all models, HPWS-AI retains a significant direct effect. Finally, traditional-HPWS are directly related to performance (all $p<.0001$) and interact significantly with HPWS-AI towards all outcomes (all $p<.05$). Graphing interaction effects shows high HPWS-AI and high HPWS-traditional leads to the highest AI use at work, OCBs (both dimensions), and IWBs. Finally, significant moderated mediation effects are found, showing the indirect effects of HPWS-AI are positively related to all performance indicators and increases in strength as traditional-HPWS becomes higher.

Keywords

Artificial Intelligence, High-Performance Work Systems, Job Performance, New Zealand, Moderated Mediation.