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CURVILINEAR RELATIONSHIP BETWEEN AI-ASSESSED VALUE CONGRUENCE AND WORKPLACE INNOVATION: A LONGITUDINAL STUDY [EXTENDED ABSTRACT]

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ABSTRACT

Aim/Purpose	This research aims to investigate whether value congruence and workplace innovation follow a curvilinear relationship rather than a linear one, and to determine if AI-assisted assessment systems can more accurately identify this optimal point than human evaluators.
Background	Traditional research on value congruence has predominantly assumed a linear relationship with positive work outcomes, suggesting higher value congruence between employees and the organizations invariably leads to better results. This assumption fails to account for potential drawbacks of excessive similarity, such as group thinking and reduced cognitive diversity. With

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	artificial intelligence (AI) increasingly deployed in the talent assessment, understanding its comparative effectiveness in predicting innovative behavior becomes crucial.
Methodology	The study will employ a mixed-methods, longitudinal design following 300-500 employees from recruitment through mid-career development (3-5 years). Quantitative data will include surveys measuring perceived value congruence, innovation metrics, and assessment scores from both AI and human evaluators. Qualitative data will be collected through semi-structured interviews with a subset of 30-40 participants and HR professionals. Analysis will employ polynomial regression and response surface methodology to test for curvilinear relationships, structural equation modeling for mediation effects, and multilevel modeling to account for nested data structure.
Contribution	This study challenges fundamental assumptions in value congruence research.-It also challenges the linear paradigm in value congruence literature by proposing and testing a curvilinear model that identifies an optimal point of congruence for innovation. It integrates person-environment (PE) fit theory with innovation research while examining how AI technology transforms traditional assessment approaches. The study also adds a temporal perspective by tracking how value congruence effects evolve from recruitment to mid-career stages.
Findings	As this is a research proposal, findings are anticipated rather than confirmed. While our primary hypothesis suggests an inverted U-shaped relationship between value congruence and workplace innovation, we recognize the inherent uncertainty in predicting relationship patterns in complex organizational phenomena. Our research design incorporates methodological flexibility to detect various possible relationship patterns that may emerge (linear, curvilinear, or other functional forms). Specifically, we expect to find: (1) A curvilinear relationship between value congruence and workplace innovation. A polynomial regression analyses will be adopted to test for various functional forms, including linear, quadratic, and higher-order relationships. If the data do not support a curvilinear relationship, we will thoroughly analyze alternative patterns (such as linear positive, linear negative, or more complex relationships) and their theoretical implications (2) AI-assisted assessments demonstrating higher accuracy in identifying optimal congruence levels compared to human evaluations, with particular focus on the capability to detect nuanced patterns in employee-organization value congruence. (3) Significant moderation effects of organizational climate (Newman et al., 2020) and leadership support (Gumusluoglu & Ilsev, 2009) on the relationship between value congruence and innovation, with supportive environments potentially extending the range in which value congruence remains beneficial; and

	(4) Employees' perceived psychological safety (Edmondson, 1999) serving as a key mediator in the value congruence-innovation relationship, particularly in explaining how moderate levels of value congruence might facilitate psychological conditions conducive to innovation.
Recommendations for Practitioners	Organizations should reconsider the assumption that maximizing value congruence is optimal for innovation (Mitchell et al., 2012). HR professionals should explore AI-assisted assessment tools while maintaining appropriate human oversight in the evaluation process. Leaders should work to identify the "golden zone" of value congruence that effectively balances shared values with necessary cognitive diversity. Implementation of AI assessment systems should be accompanied by comprehensive efforts to build user acceptance and address ethical concerns regarding algorithmic decision-making.
Recommendation for Researchers	The linear assumptions in organizational behavior research could be challenged. More attention should be given to investigating curvilinear relationships in value congruence studies. Longitudinal research designs should be employed to capture how relationships evolve over time. Integration of AI into theoretical frameworks is needed to understand how technology transforms existing theories rather than merely applying them.
Impact on Society	This research can lead to more balanced organizational cultures that value both cohesion and diversity, potentially reducing homogeneity in workplaces. It can help mitigate AI biases in HR processes by identifying optimal rather than maximum value congruence. The findings might also contribute to more innovative and adaptable organizations better equipped to address complex societal challenges. Additionally, the study can inform ethical guidelines for AI application in human resource management (HRM).
Future Research	Future studies could examine how the optimal value congruence point differs across industries, cultures, and organizational contexts. Researchers could explore the dynamic interplay between different types of fit (e.g., person-organization, person-team, person-job) and their collective impact on innovation. Investigation into the ethical implications of using AI for value assessment is warranted. Cross-cultural studies could determine the universality of the curvilinear relationship in diverse cultural contexts.
Keywords	value congruence, workplace innovation, artificial intelligence (AI), person-environment (PE) fit, curvilinear relationship, similarity-attraction hypothesis, longitudinal study, problematization methodology, organizational climate, psychological safety

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Meng Ye holds dual master's degrees in Business Administration and Management from the University of Wollongong, Australia. Her current research focuses on the curvilinear relationship between AI-assessed value congruence and workplace innovation, challenging the traditional linear assumption. Through a longitudinal design, she seeks to identify the optimal balance of value congruence that maximizes innovation, integrating person–environment fit theory with cutting-edge AI applications. As a co-founder of an Australian AI firm, Meng Ye combines rigorous academic inquiry with practical implementation, with a particular emphasis on the ethical deployment of generative AI in people-analytics.

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