



Predicting AI Adoption Intention in Hospitality and Tourism Education: The Role of ARCS, TAM, TPB, and Perceived AI Competencies with Perceived Risk as a Moderator

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INTRODUCTION

With the increasing integration of AI applications in tourism and hospitality education, it is crucial to explore how students adopt and engage with AI-driven learning environments. STEM education, which emphasizes science, technology, engineering, and mathematics, plays a vital role in equipping students with the necessary technological competencies to navigate the evolving industry landscape. However, the effectiveness of AI-driven STEM learning depends on several psychological and behavioral factors, which can be understood through three key theoretical models proposed in this study.

ARCS Model

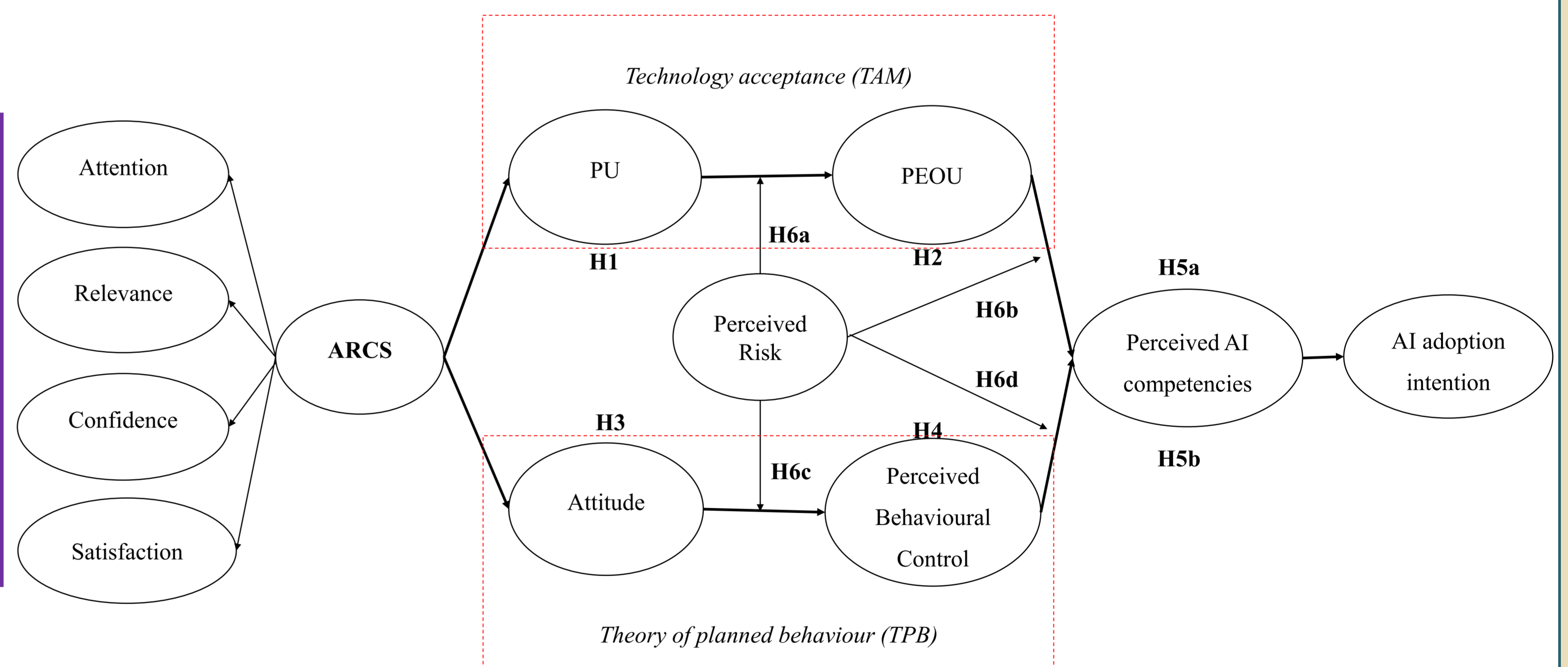
- A motivational framework designed to enhance learner engagement and persistence.
- AI-based learning environments must capture students' interest to sustain engagement.
- Well-structured AI-assisted learning activities can improve students' self-efficacy.
- This study applied the ARCS model to the utilization of AI tools for STEM learning within the scope of hospitality and tourism.

Technology Acceptance Model

- TAM helps educators identify barriers to AI adoption, ensuring that AI technologies are designed and implemented in ways that encourage student engagement and usability.
- Davis (1989) proposed validated measurements to predict intentions to use of new technology highlighting perceived usefulness (PU) and perceived ease of use (PEOU) as fundamental in determining acceptance of user.

Theory of Planned Behavior Model

- TPB model focuses on how attitudes and perceived behavioral control influence students' intentions to engage with AI technology in STEM learning.
- AI influences willingness to use it in coursework and asserted that if students feel they have the necessary skills and resources to work with AI, they are more likely to integrate it into STEM education.

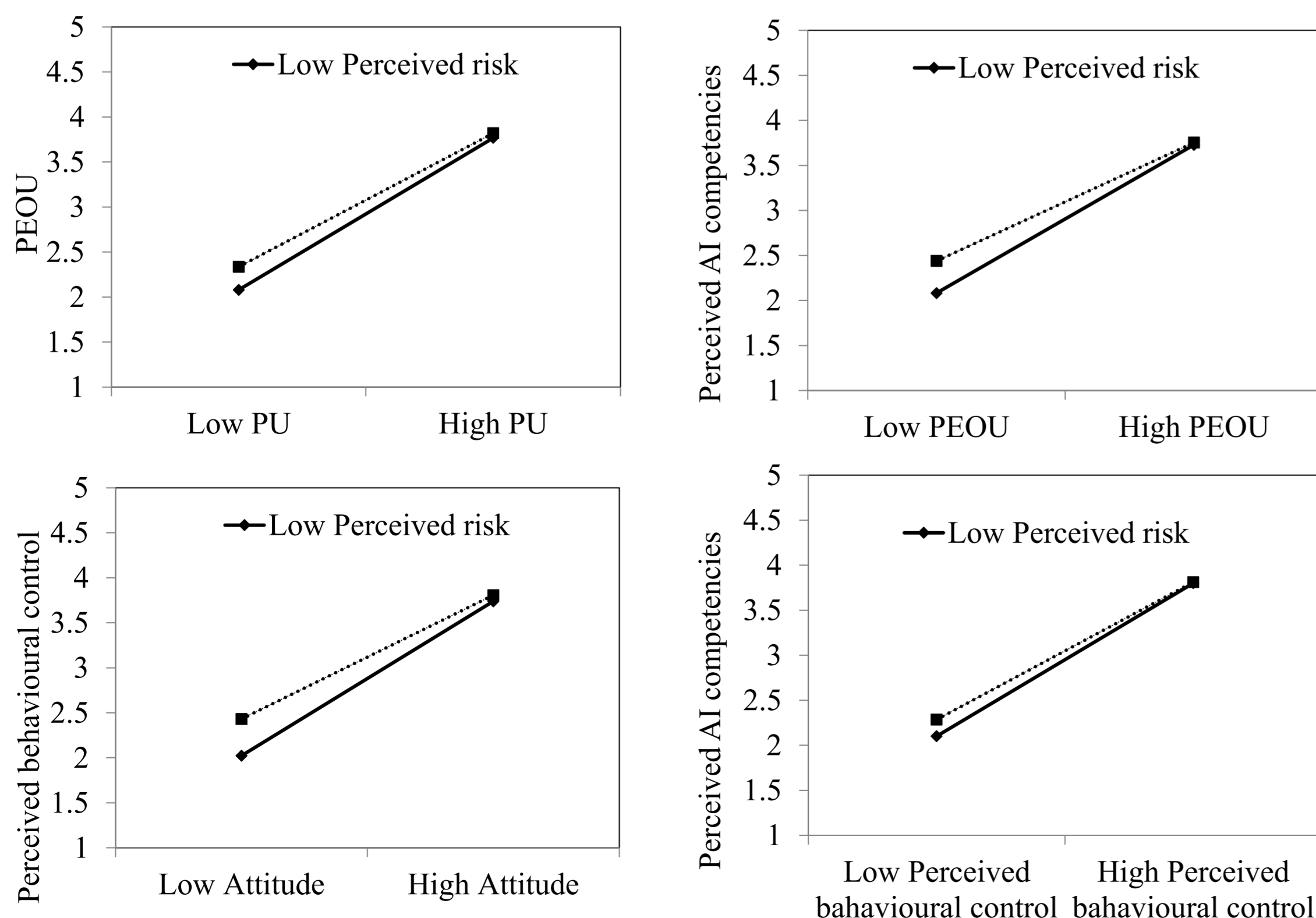


RESULTS

H1-H5

Overall findings supported the proposed mediation hypotheses (Results of the mediation analysis were positive and without any zero in between the 95% CI).

H6



CONCLUSION

- The results indicated that integrating AI-based STEM modules into tourism and hospitality programs can improve students' technological preparedness for the evolving.
- By leveraging TAM principles, educator and institutions should provide hands-on AI training and real-world applications of AI in hospitality settings to reinforce students' confidence and perceived behavioral control (as per TPB).
- Addressing perceived risk and technological uncertainty, this study asserted that universities should implement strategies to reduce AI-related fears
- By bridging theory and practice, the results of this study aims on collaborative efforts between academia and industry can provide students with exposure to real-world AI applications in hospitality and tourism, improving their readiness for AI-driven workplaces.