

Artificial Intelligence and Academic Well-Being: Conceptual Framework and Research Design of an Institutional Study

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Abstract. The rapid integration of artificial intelligence (AI) into higher education has generated both enthusiasm for innovation and concern regarding stress, institutional pressure, and professional uncertainty. While research has primarily focused on student use of AI, comparatively less attention has been devoted to the well-being of academic staff during this transformation. This paper presents the conceptual framework, measurement design, and preliminary descriptive observations of an ongoing institutional study examining AI-related empowerment, AI-related anxiety, institutional support, and general well-being among university staff. Grounded in the Job Demands-Resources (JD-R) framework, the study conceptualizes AI experiences as multidimensional and context-dependent. Early descriptive findings indicate variability in both benefit- and threat-related perceptions. Full inferential analyses are currently underway and will be reported in a subsequent publication.

Keywords: artificial intelligence, higher education, academic well-being, institutional support, job demands-resources

1 Introduction

Artificial intelligence (AI), particularly generative AI systems, has rapidly entered higher education, transforming teaching, assessment, research practices, and academic communication. Faculty members are increasingly required to redesign assessment strategies, address academic integrity challenges, and integrate AI tools into their workflows. [4] While AI promises efficiency gains and pedagogical innovation, it also introduces uncertainty, stress, and shifting professional expectations.

Existing scholarship emphasizes that AI in higher education is not merely an efficiency-enhancing technology but a structural innovation that challenges epistemic authority and professional roles. [5] Faculty must navigate concerns related to academic misconduct, cognitive offloading, and evolving ethical norms. For instance, AI-related academic integrity issues have been identified as a growing source of stress for educators. [7] Such concerns are explicitly reflected in survey items such as “AI-related academic integrity issues increase my stress levels”.

Despite increasing debate about AI in higher education, research has largely focused on student behavior and regulatory frameworks. [1, 13] The well-being of academic staff during AI integration remains comparatively underexplored. This conference paper presents the conceptual model and research design of an ongoing institutional study addressing this gap.

The primary aim of the project is to examine how AI-related empowerment, AI-related anxiety, and perceived institutional support relate to general well-being among academic staff. [14] While data collection is ongoing, this paper outlines the theoretical framework, measurement structure, and selected descriptive observations.

2 Theoretical Framework

2.1 AI as Job Resource and Job Demand

The study is grounded in the Job Demands-Resources (JD-R) model, which posits that occupational well-being is shaped by the balance between job demands (aspects of work requiring sustained effort) and job resources (aspects supporting motivation, engagement, and growth). [2]

Within this framework, AI integration can function both as a resource and as a demand.

AI as a Job Resource. AI may enhance professional functioning by increasing efficiency, creativity, and perceived competence. This dimension is captured through items such as:

- “I enjoy AI support in my work.”
- “There are parts of my job that AI does particularly well.”
- “AI tools reduce the time I spend on teaching preparation.”
- “I feel confident in my ability to use AI tools in my teaching practice.”
- “I believe AI can enhance creativity and innovation in engineering education.”
- “My overall job satisfaction has improved due to the availability of AI tools.”

These statements operationalize the construct of AI Empowerment, reflecting perceived benefit and professional enhancement.

AI as a Job Demand. At the same time, AI may introduce stress, uncertainty, and role-related concerns. This dimension is operationalized through items such as:

- “When I think about AI, I feel incompetent in my work.”
- “I am afraid that AI could take over my job.”
- “AI-related academic integrity issues increase my stress levels.”
- “I feel pressure from my institution to incorporate AI into my courses.”
- “I am concerned that AI may negatively affect students' learning depth.”
- “I worry that AI may eventually reduce the need for university lecturers in engineering.”

These items form the construct of **AI Anxiety**, capturing perceived threat and psychological strain. [6]

Recent literature highlights that regulatory uncertainty and ambiguity surrounding AI use may amplify stress and reduce well-being. Clear and transparent regulation is therefore frequently emphasized as essential in managing AI-related transformation. [11]

2.2 Institutional Support as Contextual Resource

Beyond individual AI perceptions, institutional context plays a central role. The study conceptualizes Institutional Support as a contextual resource, operationalized through items such as:

- “Clear institutional AI policies reduce my uncertainty and improve my psychological comfort.”
- “I feel adequately supported by my institution in learning how to use AI tools.”

Institutional clarity and support may shape how AI-related changes are experienced and interpreted, potentially influencing both empowerment and anxiety perceptions.

2.3 Conceptualization of Well-Being

To move beyond narrow job satisfaction measures, the study assesses general well-being through global self-report items:

- “How would you rate your current general well-being?”
- “How would you rate your current mental health?”
- “The availability of AI has a positive impact on my overall well-being”.

This broader well-being perspective enables examination of psychological functioning beyond task-specific attitudes. Overall, this framework allows examination of whether AI integration operates primarily through demand-related strain, resource-related motivation, or contextual institutional factors.

3 Research Design

3.1 Objectives

To structure the empirical investigation, the following research questions guide the study:

RQ1: How are AI-related benefit perceptions (AI Empowerment) and threat perceptions (AI Anxiety) distributed among academic staff?

RQ2: How are AI Empowerment, AI Anxiety, and Institutional Support associated with general well-being?

RQ3: To what extent do AI-related perceptions and institutional context jointly shape psychological adaptation to AI integration?

These research questions clarify the analytical direction without disclosing inferential outcomes.

3.2 Participants and Procedure

Participants were academic staff members at Óbuda University, including lecturers, researchers, and doctoral candidates. The current sample comprises $N = 66$ respondents. The mean academic experience is approximately 14 years. Of the

respondents, 47% identified primarily as lecturers, 13% as researchers, and 39% reported engaging in both teaching and research activities.

Data were collected via an anonymous online questionnaire distributed through institutional channels. Participation was voluntary. The survey included closed-ended Likert-scale items and a limited number of open-ended questions regarding AI use. Data collection is ongoing to increase statistical power for subsequent inferential analyses.

3.3 Measurement Structure

All Likert-scale items are measured on a four-point scale unless otherwise indicated. Composite indices for AI Empowerment, AI Anxiety, and Institutional Support are calculated by averaging relevant items.

AI Use and Attitudes. Measured using frequency indicators (e.g., frequency of AI use in everyday life and teaching) and evaluative items assessing general attitudes and concerns regarding AI.

AI Empowerment. Measured using items such as “I enjoy AI support in my work” and “AI tools reduce the time I spend on teaching preparation”.

AI Anxiety. Measured using items such as “AI-related academic integrity issues increase my stress levels” and “I feel pressure from my institution to incorporate AI into my courses”.

Institutional Support. Measured using items such as “Clear institutional AI policies reduce my uncertainty and improve my psychological comfort” and “I feel adequately supported by my institution in learning how to use AI tools”.

General Well-Being. Assessed through global self-report items consistent with the WHO-5 conceptualization of mental well-being.

Reliability analyses indicate acceptable internal consistency for the multi-item scales (details available upon request). The descriptive structure supports the conceptual distinction between empowerment and anxiety dimensions.

3.4 Planned Analyses

Preliminary analyses focus on descriptive statistics and bivariate associations. Subsequent analyses will examine structural relationships among job demands, job resources, contextual support, and well-being using regression-based and structural modeling approaches.

4 Preliminary Descriptive Observations

Descriptive statistics indicate substantial variability in both AI exposure and evaluative attitudes. AI use in general and AI use in teaching are strongly related, suggesting behavioral consistency in technology integration. General attitudes toward AI are moderately associated with exposure, and concern about AI tends to decrease as exposure and positive attitudes increase. These patterns suggest that AI engagement and evaluation form a coherent but not uniform cluster.

Descriptive analyses reveal that:

- AI Empowerment and AI Anxiety are moderately negatively associated, indicating conceptual distinction rather than simple polarity.
- Institutional Support shows positive associations with both AI Empowerment and general well-being.
- AI Anxiety shows a modest negative association with well-being.

These patterns support the multidimensional conceptualization of AI experiences. Faculty may simultaneously perceive AI as enhancing aspects of their work (e.g., efficiency or creativity) and experience institutional or integrity-related pressures.

Importantly, preliminary descriptive associations suggest that institutional context plays a meaningful role in shaping psychological outcomes, consistent with the JD-R framework. However, detailed inferential modeling is ongoing and will be presented in a subsequent publication

5 Contribution and Future Directions

This study contributes to the literature by integrating AI-related benefit perceptions, threat perceptions, and institutional context within a unified JD-R framework. By grounding well-being in a broader mental health perspective, the study moves beyond narrow job satisfaction measures and situates AI integration within a socially embedded organizational transformation.

Future analyses will further examine the structural relationships among AI-related demands, resources, and contextual support. These results will be re-reported in a forthcoming full empirical article.

Conclusion

AI integration in higher education represents not only technological development but also an organizational and psychological transition. Preliminary descriptive observations from this ongoing study highlight the multidimensional nature of faculty experiences, encompassing empowerment, anxiety, and perceptions of

institutional context. Understanding academic well-being during this transformation requires attention to the interplay among these dimensions. Continued empirical investigation will further clarify how AI-related perceptions and organizational factors shape well-being in higher education.

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