Evaluating University Faculty Perceptions of AI in Higher Education: A National Survey

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Abstract

A paired-comparison questionnaire was developed to assess the importance of factors that university faculty have been noted to weigh in their deliberations regarding the use of generative artificial intelligence (AI). The goal of the study was to determine if there are considerations that are weighed more heavily when considering the integration of AI in classroom settings, in administration, or planning. The research team sought to determine which considerations are more important, and by doing so, afford some guidance on where spending or resources might be applied to ensure the integration of AI is successful.

Methods

This study applied Thurstone's Law of Comparative Judgement (Thurstone, 1931) to assess faculty perspectives on AI adoption in higher education. Faculty from two randomly selected departments at the two largest universities in each U.S. state were surveyed. The Qualtrics survey included:

- A **preliminary question** categorizing responses as proponents or skeptics of AI usage in higher education
- **Paired comparisons** of key factors influencing AI adoption, generating a comparative judgement matrix

The questionnaire presented each respondent with 10 comparisons to avoid respondent fatigue and resulting judgements were parsed into matrices.
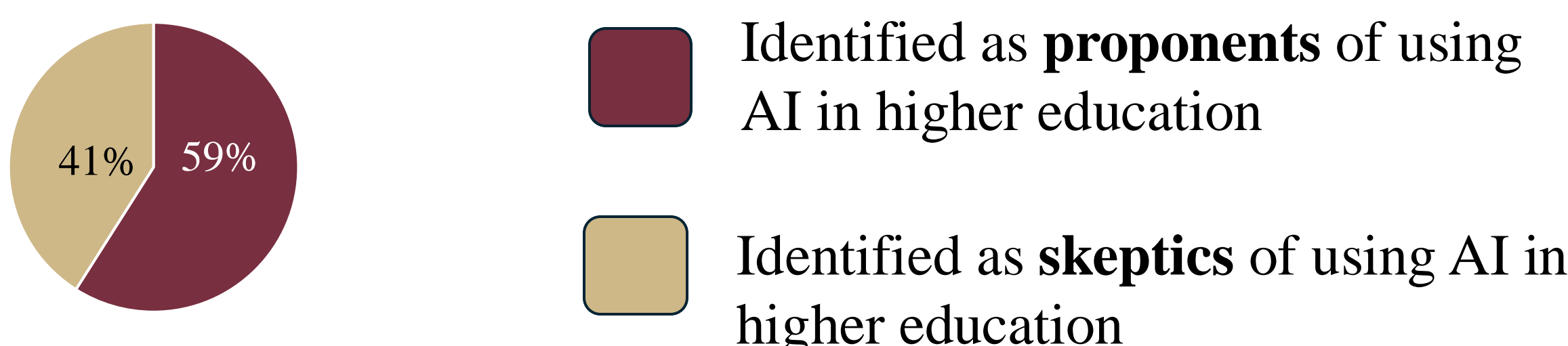
The results from the survey were first analyzed as raw-score, pairwise matrices. Overall rankings were calculated using SPSS as well as z-scores associated with each proportion. The low or high proportions are at the outskirts of a normal distribution, indicating some level of importance, but are difficult to interpret.

The z-scores, then, were used to obtain a scaled value for each, using the following formula to show the relative position of each proportion on a 0-100 continuum to show relative importance.

$$x = (\frac{Z\text{-}max - Z\text{-}min}{Z\text{-}score - Z\text{-}min}) \times (100-1)+1$$

Findings

The survey first asked respondents to identify themselves as either proponents or skeptics of AI in higher education, then directed them to their respective paired comparison questionnaire.

41% 59%

- Identified as **proponents** of using AI in higher education
- Identified as **skeptics** of using AI in higher education

Based on their initial choice, the survey continued with one of two paired-comparison tests. The analysis of mean scores for the various options, converted to a 100-point scale, reveals significant differences in the perceived impact on higher education.

Table 1: Weighted Scale for Paired Statements (Proponents)

Option	Mean Score	Z-score	100-point Scale
Personalized Learning	62.254	1.53	100
Facilitate and Accelerate Research	41.25	0.55	67.5
Lesson Planning (Content and Activities)	28.75	-0.03	47.6
Assignment Feedback Before Grading	15.25	-0.66	25.8
Automated Grading and Feedback	0.0	-1.37	1

With proponents, *Personalized Learning* was the most valued benefit, followed by *Facilitating Research* efforts and then *Lesson Planning*. The two options related to student feedback were ranked lowest, indicating proponents place less emphasis on AI's usage for grading, and value its potential to make learning more individual and increase efficiency with research.

Table 2: Weighted Scale for Paired Statements (Skeptics)

Option	Mean Score	Z-score	100-point Scale
Impact on Critical Thinking Skills	99.25	1.52	100
Risk to Academic Integrity	66.25	0.59	77.78
Ethical Implications (Bias, Privacy)	44.75	-0.01	50.43
Lack of Standardized Policies (Use, Access)	15.25	-0.84	27.93
Lack of Human Interaction	0	-1.26	1

Skeptics showcased the most concern regarding AI's potential impact on *Critical Thinking*, *Academic Integrity* and *Ethical Implications* also ranked high, reflecting apprehension about AI's effect on thinking, learning, and doing. In contrast, the *Lack of Human Interaction* was seen as less critical within the context of higher education.

Conclusion

Positive Perceptions of AI:
AI's potential for *Personalized Learning*, enhancing *Research Productivity*, and aiding in *Lesson Planning* highlight opportunities to tailor education and improve instructional design. The results reflect a strong interest in faculty to use the resources, once the appropriate tools are developed and processes defined.

Less positive Perceptions of AI:
The top concern is AI's potential to undermine *Critical Thinking*, and that over-reliance on AI may reduce students' independent problem-solving skills. The importance of *Ethical and Integrity Issues*: *Academic Integrity* risks such as plagiarism, data privacy, algorithmic bias, underscores the need for implementing clear guidelines, transparency, and providing ongoing faculty development.

Study Limitations:
Results of paired comparison tests are context-dependent, the relative importance of certain factors may vary based on the specific population surveyed. Fatigue may have impacted accuracy and consistency of responses.

Further Research:
Further longitudinal and qualitative studies that define faculty perceptions. A broader range of AI-related factors are needed to provide deeper insights into how AI is viewed across diverse academic contexts.

Acknowledgements

References