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Analyzing Gender Differences in Information Systems Research using Topic Modeling with Machine Learning

Research-in-Progress

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ABSTRACT

As we navigate through the digital age, information system (IS) plays an increasingly vital role in transforming businesses, shaping societal structures, and driving innovation. However, despite its importance, IS research is not immune to the widespread gender disparities found in many academic disciplines. A critical aspect of these disparities lies in the research topics pursued by men and women (Masiero & Aaltonen, 2020). Several factors contribute to these gender-based topic preferences. Societal and cultural influences often play a fundamental role in shaping the research interests of scholars. From early socialization processes to societal norms, gender-based distinctions can direct individuals towards specific interests and career trajectories, ultimately influencing their choice of research topics (Muraya et al., 2019). However, the implications of gender differences in research topics go beyond mere representation. A diversity of research perspectives in IS research, driven by balanced gender participation, is integral to fostering innovation and ensuring a holistic understanding of IS research (Vessey et al., 2002). Moreover, studies reveal that women in STEM, including IS, face pressures to conform to conventional research interests, sidelining more human-centric topics (Leslie et al., 2015). This underscores the need to reassess our valuation of research and push for greater topic diversity in top-tier academic journals (Loiacono et al., 2016). Therefore, this brings us to our central research inquiry: “How do the research topics in IS differ between men and women scholars, and what are the implications of these differences on the evolution and innovation within the IS domain?”

To shed light on this issue, the study employs an unsupervised machine learning-based approach to identify and analyze trends and gender differences in topics of IS research papers, specifically Latent Dirichlet Allocation (LDA) (Blei et al., 2003). Our research sources data from the Web of Science, focusing on papers from Basket journals. Additionally, we incorporate a dataset that gathers gender data from various online and self-reported resources. After refining the abstracts and aligning them with the gender data, we apply LDA to subsets of abstracts written by men and women, aiming to reveal gender-specific topics. Significant differences in the topics pursued by men and women authors are anticipated, potentially highlighting areas of research that are gender biased. This study aims to provide insights into the distribution of research topics by gender, contributing to the discourse on gender disparities in academia. The application of machine learning, particularly topic modeling, can illuminate the landscape of gender disparities in academic authorship. By understanding the gender differences in research topics, we push forward discussions and initiatives to ensure equal representation and equity in IS academia.

Keywords

Gender differences, research focus, topic modeling, machine learning.

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