

Conference Name: Beijing International Conference on Teaching, Education & Learning, 17-18 May 2026
Conference Dates: 17-May- 2026 to 18-May- 2026
Conference Venue: Inner Mongolia Hotel, Chaoyang, Beijing
Appears in: PUPIL: International Journal of Teaching, Education and Learning (ISSN 2457-0648)
Publication year: 2026

Bora Başaran, 2026

Volume 2026, pp.170-171

DOI- <https://doi.org/10.20319/ictel.2026.170171>

This paper can be cited as: Başaran, B. (2026). Integrating Artificial Intelligence into Comparative Bibliometric Studies: Family Representations in Doctoral Research (Turkey–Germany, 2019–2024). Beijing International Conference on Teaching, Education & Learning, 17-18 May 2026. Proceedings of Teaching & Education Research Association (TERA), 2026, 170-171

INTEGRATING ARTIFICIAL INTELLIGENCE INTO COMPARATIVE BIBLIOMETRIC STUDIES: FAMILY REPRESENTATIONS IN DOCTORAL RESEARCH (TURKEY–GERMANY, 2019–2024)

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Abstract

This research expands upon a previous comparative analysis of family representations in doctoral dissertations from Turkey and Germany, (Cöre Güzeller & Pöhl, 2020) through the inclusion of artificial intelligence (AI) in the bibliometric and thematic analysis processes. More than 300 dissertations (2019–2024) from the Turkish Council of Higher Education Thesis Center and from the Deutsche Nationalbibliothek form the corpus of research. A mixed-methods research framework, assisted by AI, is used which utilises large language models (LLMs), cross-lingual semantic analysis and human-controlled validation. Using natural language processing and topic modelling, the AI identifies underlying thematic clustering such as value transmission, family-school collaboration and migration and integration, as well as mapping their disciplinary distribution. Further, a multilingual embeddings model (Sentence-BERT) allows for analysis of semantic proximity between discourses on the family in Turkish and German language research, revealing common and differing conceptual trends. The study finds that AI-supported semantic clustering supports the depth, rapidity and intercoder

reliability of comparative bibliometric processes, found by the high Cohen's κ scores obtained against manual coding. The study finds that Turkish dissertations see the family as primarily a pedagogical and sociocultural phenomenon, while German dissertations emphasise psychological and social work approaches, particularly in terms of migration and inclusion context. The use of artificial intelligence in partnership with human interpretation results in the creation of an AI-assisted model for comparative educational research, supporting evidence-based policy making and the Türkiye 2025 "Family Year" initiative.

Keywords:

AI-Assisted Bibliometrics, Comparative Education, Doctoral Research, Family Representation, Semantic Analysis, Cross-Lingual Modeling