A Computational Analysis of Korean Women Leaders' Narratives Using Topic Modeling

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PROBLEM STATEMENT

- In the eight qualitative studies on Korean women leaders conducted:
  - We collected 200 narratives in diverse sectors
  - We identified their challenges in work-life balance, leadership development, and career development
  - We found that their challenges are largely attributed to the gendered workplace
- To counterbalance the subjective nature of qualitative studies, we felt a need to conduct quantitative analysis
- Few studies were conducted using computational analysis in the HRD field
- The integration of computation analysis to qualitative research offers a new opportunity to ensure reliability and trustworthiness of the study

PURPOSE & QUESTION

- Purpose: To reanalyze Korean women leaders' narratives using topic modeling to compare the results with research themes identified in eight qualitative studies and to provide implications for HRD research and practice
- Question: How do we compare research themes identified in qualitative studies with the key topics identified by the computational analysis using the topic modeling method?

LITERATURE REVIEW

- Computational grounded theory (Nelson, 2020): A computational analysis of qualitative data (Baumer et al., 2016) integrates a quantitative approach for the sake *of a high degree of reliability, trustworthiness, reproducibility*, and efficiency
- Topic modeling (Roberts et al., 2019) includes three steps: pattern detection, hypothesis refinement, and pattern confirmation. Pattern detection is conducted computationally, while the other two steps rely on qualitative interpretations

RESEARCH METHOD

To reanalyze a total of 200 narratives collected from the qualitative studies, we followed up the steps:

- Converted narratives into paragraphs for analysis and cleaned the data by removing stop-words, lemmatization, and NLP technique
- Identified keywords in identified topics using four indexes: highest probability, FREX, lift, and score
- Selected the optimal model of topics by using different low thresholds with different numbers of topics
- Labeled identified topics based on the keywords

PRELIMINARY FINDINGS

- We reached a consensus on 30 topic labels (e.g., women's promotion and work environment)
- Compared to the themes identified in the previous studies, identified topics by the topic modeling method included similar themes (e.g., women leadership, work-life balance)
- However, the topics were limited in capturing subtle and meaningful aspects of women leaders' experiences and challenges
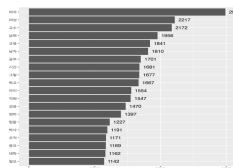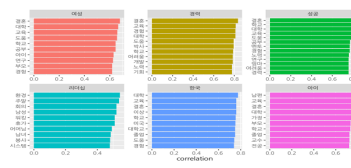

Figure 1. Top 20 most frequent words   Figure 2. Association among main keywords
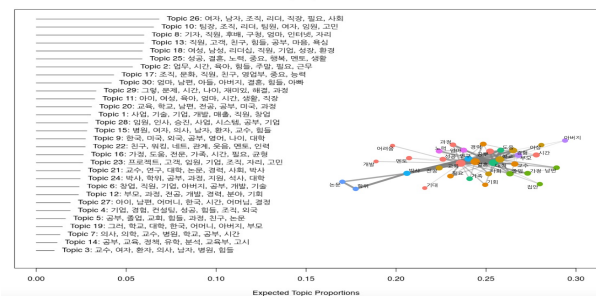

Figure 3. Top topics and networks among top keywords

IMPLICATIONS

- This study provides the possibility of exploring an uncharted area of a computational analysis to counterbalance the subjective nature of qualitative research
- In a computational analysis of 200 narratives, this study captured certain aspects of their experiences (e.g. living abroad and multicultural experience) might have been bypassed in the qualitative studies
- The challenges faced by women leaders across organizational contexts, as identified in this study, will contribute to the development of policies and programs that support women in the leadership pipeline and to gender equality in organizations
- Our effort to ensure the gender equality in organizations are aligned with the UN's Sustainable Development Goal 5 (Gender Equality) for all women and girls (United Nations, 2015)

SELECT READINGS

Baumer, E. P., Mimno, D., Guha, S., Quan, E., & Gay, G. K. (2017). Comparing grounded theory and topic modeling: Extreme divergence or unlikely convergence? *Journal of the Association for Information Science and Technology*, *68*(6), 1397-1410.

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Roberts, M. E., Stewart, B. M., & Tingley, D. (2019). Stm: An R package for structural topic models. *Journal of Statistical Software*, *91*(2), 1-40.

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