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

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Abstract

Over the past eight years, we have conducted eight qualitative studies on women leaders in South Korea (Korea) from the lens of work-life balance and career and leadership development, using semi-structured interviews. Given the women leaders' 200 narratives, we felt a strong need to reanalyze the interview data to tackle the subjectivity issue in qualitative research using topic modeling that is a computational technique to mining a large volume of texts. The purpose of this study, therefore, was to reanalyze women leaders' narratives and to examine the research themes identified through a computational analysis. As a result, we identified key research topics on Korean women leaders' narratives, compared those with the research themes from the previous qualitative studies, and provide implications for HRD research and practice for the future.

    Keywords: women leaders' narratives, computational analysis, topic modeling, South Korea

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South Korea (Korea) has achieved unprecedently remarkable economic growth by taking up the 12th largest economy in the world since Korean War in 1950 that had shattered the country to pieces; however, its women's status has not. The World Economic Forum's (2023) global gender gap, which shows a country's state of global gender diversity and equality, ranked Korea 105th out of 146 countries, neighboring with Senegal (104th), and Cyprus (106th) by global standards of economic participation, educational attainment, health and survival, and political empowerment, as shown in Table 1.

Table 1

Global and Korea's Gender Gap Index (2023)

	Global Gender Gap Index	Sub-Index			
		Economic Participation	Educational Attainment	Health & Survival	Political Empowerment
Global	0.684	0.601	0.952	0.96	0.221
Korea	0.68	0.597	0.977	0.976	0.169

Table 1 shows that Korea's gender gap index (0.68) has not reached the global gender gap index (0.684), particularly in terms of economic participation (0.597) including the lowest index in legislator, senior officials, and managers and political empowerment (0.169) including low indices in women in parliament and ministerial positions. The numbers indicate that Korea's low gender gap index largely comes from the lack of women leaders in government, politics, and business.

Why has South Korea's remarkable economic success failed to translate into women's corresponding status? To answer this driving question, we have explored lived experiences of Korean women leaders in the workplace in their own voices and have collected a total of 200

narratives in diverse contexts: business, academic medicine, multinational corporations, entrepreneurship, higher education, and others, since 2014. In eight qualitative studies, we found that women leaders experience difficulties in work-life balance, leadership development, and career success due to a gendered workplace where organizational constraints and traditional values coexist, such as informal networking (e.g., after-work drinking) is encouraged for team building purposes. We also found differences in women leaders' narratives by position (team leaders and executives) and marital status (married and singles) concerning support, challenges, and leadership and by gender (women versus men) in defining career success. The study findings also revealed that the gender divide is manifested in women's roles in the home as opposed to men's roles at work is unconsciously translated to the gendered workplace where men take up leadership roles and women occupy supporting roles.

However, due to the qualitative nature of the studies, we did not examine any associations and relationships between research constructs reviewed and thus we are not sufficiently confident if the study findings are reproducible and generalized to other contexts beyond Korea. Although generalizability is not the goal of qualitative research, examining research topics that can be identified through topic modeling as a new analysis method in comparison with research themes identified from qualitative studies might give us the opportunity to revisit women leaders' narratives from the lens of quantitative analysis. To that end, we will use the topic modeling method that is a computational technique to mining a large volume of texts and compare the key results of the topic modeling method with qualitative study findings. Similarities and differences found from comparing themes and topics identified in qualitative studies and computational text mining will help find key methodological consideration points in interpreting the interview data collected.

Topic Modeling

Method

The purpose of this study was to reanalyze Korean women leaders' narratives using the topic modeling method, a computational analysis and to provide implications for HRD research and practice. The following research question guided our inquiry: how do we compare research themes identified in qualitative studies with key topics identified from topic modeling, a computational analysis?

Original Studies

Table 2 (below) shows research purposes, theoretical backgrounds, themes identified, and the number of participating women leaders involved in the eight qualitative studies.

Table 2

Original Studies on Women Leaders in Korea 2015-2022

	Research Purpose	Theoretical Background	Theme	Interview Participants
Cho et al. (2015)	To explore Korean women leaders' challenges and opportunities that they face in the process of balancing work and family and developing leadership	Work-family balance, women's leadership development, and cultural context	Commitment to work, struggles for a balance, defining success, gender identity, being a role model, and need for support	18 women leaders in diverse sectors
Cho et al. (2016)	To investigate the lived experience of women leaders in Korean companies who manage their work and life and develop their leadership	Cultural context, work-life balance, and leadership development	Convergence (gendered workplace, work-life imbalance, leadership development, and definitions of success) and divergence (position and marital status)	50 women leaders in business
Cho et al. (2017)	To compare Korean female executives' definitions of career success with those of male executives	Career success, tokenism theory, and cultural context	Definitions of career success, success factors, and career development strategies	15 male and 15 female executives in business
Han et al. (2018)	To investigate the lived experiences of Korean women physicians in academic medicine and social and cultural influences on the gendered process of their career journeys	Women's career challenges, social and cultural contexts, and the Korean context	Gender discrimination in their early career, no work-life balance and identity crises, being 'othered' by social and cultural values, a lack of leadership aspirations and limited networking and mentoring, and pursuing individual	21 female physicians in academic medicine

			excellence without organizational support	
Cho et al. (2019)	To explore how multinational corporations' (MNCs) women leaders in Korea have become CEOs	Career success, Korean culture, and organizational culture	Becoming a CEO, Key success factors, MNC culture, career challenges, and career development strategies	14 women CEOs in MNCs
Cho et al. (2020)	To conduct a case study of three Korean women entrepreneurs in the IT industry	Motivations, factors for business development, and Korean context	Case 1 (Business partnership with husband), Case 2 (Business principles and dreaming big), and Case 3 (Strong commitment with religious faith)	3 women entrepreneurs
Cho et al. (2021)	To investigate women entrepreneurs' motivations, challenges, and career success	Motivational factors, challenges and opportunities, career success, and cultural context	Quantitative analysis and qualitative analysis (motivations, challenges and opportunities, and career success)	23 women entrepreneurs
Cho et al. (2022)	To explore how highly educated women respond to career chance events in a Korean context	Career chance events, career interruptions, and Korean context	Before obtaining a doctoral degree, during and after the doctoral study, and responses to chance events	50 highly educated women with doctoral degrees

We conducted eight studies independently with different participating women leaders,

using a basic qualitative study design (Merriam & Tisdell, 2016) to explore lived experiences of

women leaders from the lens of work-life balance, career and leadership development, tokenism

theory, and career success and chance in diverse contexts including business, high education,

academic medicine, entrepreneurship, multinational corporations (MNCs), and others.

Data

Table 2 shows a total of 94 interview participants involved in the eight qualitative

studies. We added six more narratives that were collected but not added to final eight qualitative

studies including

Analysis

We will go through the following steps to analyze 200 narratives collected from the eight

qualitative studies as follows:

- The dataset, comprising 200 interview transcripts, will be subjected to anonymization, followed by the creation of ancillary metadata encompassing interviewee identifiers (ranging from 2015-1 to 2022-50), industrial affiliations, designations, tenure, familial composition, and support structures. This anonymized metadata will be instrumental in discerning demographic-based patterns pertaining to female leadership.

- The topic modeling methodology will be deployed on a representative subset of the interview transcripts to ascertain its congruence with the data. In instances of informational lacunae within the metadata, deliberations will ensue on strategies to address such discrepancies before proceeding.

- Upon attaining consensus, the topic modeling methodology will be systematically applied to the entire dataset, utilizing computational methodologies delineated in the ensuing data analysis schema.

- As the computational outcomes materialize, an interdisciplinary consortium of researchers will embark on an evaluative discourse concerning the validity and reliability of the topic modeling outcomes. This analysis will entail juxtaposition against findings from the eight antecedent studies. The validation process will engage three researchers involved in previous qualitative investigations and a doctoral student who has joined the research team. The objective is to unearth latent research themes concerning women in leadership in Korea, harnessing the computational acuity of topic modeling to supplement the qualitative analysis. This amalgamation of computational and interpretative approaches is anticipated to yield less biased, robust, and reproducible research themes, thereby catalyzing future scholarly exploration and pragmatic applications.

The data analysis protocol is bifurcated into four cardinal stages: data assimilation and reformatting, data purification, preprocessing, and modeling. Initially, the 200 transcripts will undergo conversion to textual files and subsequently be structured into data frames within an Excel environment. This structure will demarcate interview questions, responses, and anonymized metadata. The second phase encompasses data cleansing, during which data validation is performed to ensure type fidelity and to ascertain the presence of any voids in the dataset. The preprocessing phase, which distinguishes text mining from traditional qualitative and quantitative analyses, involves transforming the text into an analyzable corpus. Techniques such as n-gram generation, stop-word filtering, and part-of-speech tagging are employed to construct tokenized word lists. Finally, structured topic modeling (STM) based on Latent Dirichlet Allocation (LDA) is applied to the processed data, yielding a matrix of topics and their associated probabilities. The model also affords criteria for the optimization of the number of topics. The research consortium will then undertake the responsibility of ascribing semantic labels to the topics, predicated upon keyword co-occurrence patterns.

Findings

Implications for HRD Research and Practice

Significance of the Study

Research

Practice

Study Limitations

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