

Cluster Analysis of the Challenges of Teaching Korean to Immigrant Learners

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ABSTRACT

This study examined challenges Korean language teachers face in classroom teaching contexts, based on typologies derived from a cluster analysis. A total of 181 teachers teaching adult immigrants were surveyed on their challenges using a 24-item survey across the following five dimensions: (1) teaching contents and teaching methods, (2) curriculum design and resource development, (3) language ability assessment, (4) learner counseling, and (5) cultural education. The cluster analysis suggested a three-cluster pattern based on the degree of challenge. Results indicate that the clusters differed significantly in the degree and order of perceived challenges. In addition, when socio-demographic data were considered, results revealed contrasts in the motivation for pursuing professional development, teaching experiences, teaching region, and professional development experience. This study thus provides insight into the multifaceted challenges Korean language teachers face and holds important implications for future professional development.

Keywords: challenges of teaching Korean, immigrant learners, cluster analysis

1. Introduction

As a culturally homogeneous country, the massive influx of immigrants over the past few decades is a new phenomenon in Korea. The increase in migrant workers and international immigrants through marriage, along with the diversification of national origin, has brought linguistically and culturally diverse Korean language learners seeking permanent residence status (Kong et al., 2010). Multifarious changes and challenges accompany the teaching of immigrant language learners with diverse academic, linguistic, and social needs (Choi, 2002; Gebhard, 2006; Kang, 2011; Spener, 1988; Won, 2013). Consequently, teaching this population of immigrant learners is challenging for many Korean language teachers, and requires complex and demanding skills (Choi, 2008).

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Teacher education is metadiscourse in language education and is an essential, yet a relatively neglected aspect of research in the Korean language education context (Lee, 2011; Min, 2005; Won, 2013). More specifically, a modicum of research has sought to understand the challenges faced by Korean language teachers themselves (Kang, 2011; Lee, 2011). Most studies investigating the challenges of Korean language teachers are either fragmented into specific areas such as lesson plan (Jang, 2010), teaching writing (Yoon, 2013), and application of teaching methods (Kang & Jeon, 2016) or utilize the challenges to develop future program content for preparing Korean language teachers to become more professional (Park & Park, 2013; Kim et al., 2017; Kim et al., 2020).

Therefore, this study examines the dimensions of challenges Korean teachers confront in the classroom while teaching immigrant learners. It also aims to identify how these dimensions of challenges vary with the socio-demographic factors of teachers such as teacher experiences, training, and teaching region. Finally, this study determines the relationship between the dimensions of challenges faced by Korean language teachers and their motivation for future professional development opportunities.

Thus, based on the multifaceted and multilayered classroom challenges encountered by Korean language teachers, this study proposes the importance of considering the challenges as a focus of teacher education. We explore the following research questions.

RQ 1. How can we cluster the different patterns of challenges Korean language teachers experience in the classroom when teaching immigrant language learners?

RQ 2. How can we interpret each dimension from cluster analysis with respect to teacher-related variables (e.g., socio-demographic information, motivation of professional development)?

By examining these research questions, this study hopes to propose a more theoretically robust classification of challenges in teaching Korean combined with teacher characteristics to address the diverse issues of Korean language education.

2. Literature Review

The recent growth in learner diversity has radically transformed the educational landscape of Korean language classrooms. As a result, diverse, multicultural values

and social practices are inevitably present in all levels of Korean language education. While in the past, immigrants were predominantly women coming to Korea for marriage due to economic reasons (Bélanger et al., 2010; Seol, 2006), the recent influx of migrant workers and refugees (Ministry of Justice, 2019) has created drastic diversification along the cultural and societal dimensions. García (2017) stated that many language teachers in linguistic integration programs for migrants have traditional conceptions of language, bilingualism, and pedagogy. Without thinking of the sociopolitical and sociolinguistic dimensions of migrant learners, language teachers cannot enable immigrant language learners to thrive in Korean society.

Most adult immigrants aim to become self-reliant members of Korean society. Immigrants residing in Korea are required to complete a Korean language program to obtain citizenship or permanent residency (Lee, 2011). This mandatory Korean language education is designed to support the integration of immigrants by 1) promoting mutual cultural responsiveness between native Koreans and immigrants, 2) increasing educational and work opportunities, and 3) preventing marginalization and isolation.

Considering the unique motivations and needs of immigrants, Korean language teachers need to provide learning objectives that fulfil these needs. Formulation of learning objectives for immigrants encompasses teaching language skills for life, preparing them for better employment opportunities, and cultivating linguistic knowledge required to be a member of society (Choi, 2002; Heo et al., 2009; Kim & Kim, 2008; Lee, 2010). As such, Korean language teachers must be equipped with an acute appreciation for multiple teaching goals (Kim et al., 2017; Kim & Kim, 2020). They should thus be prepared to play versatile roles in language classrooms (Choi, 2002; Paik, 2017).

Paik (2017) argued that the current education for Korean language teachers provides little preparation for teaching culturally and linguistically diverse students. Formal bilingual teaching resources and methods do not fulfil the needs of culturally and linguistically diverse language learners. Another major challenge faced by Korean language teachers in preparation and professional development experience is due to unequal opportunities mostly concentrated in the capital area in Korea (Kim, 2012; Kim et al., 2017; Kim & Kim, 2020), which impedes competency in teaching Korean.

In addition, Jeong et al. (2012) highlighted that the composition of Korean language classrooms for adult immigrant learners could and often does present

challenges for teachers in constructing a productive learning environment. Most language programs accept students of varying ages and Korean language proficiencies from across the world. Another critical problem is the diversity of students' first languages and the roles they might play while participating in the Korean language integration program (García, 2017; Haznedar et al., 2018). Filled with immigrants from multiple countries and of varying proficiency levels, the lack of teaching materials, methods, and classroom management skills poses a further challenge for Korean language teachers (Lee et al., 2018; Hwang & Moon, 2017).

Low motivation is another issue Korean language teachers may face when teaching immigrants. Many immigrant learners of Korean are likely to be less motivated due to the burden of managing their lives, working, and nurturing children (Lee, 2010). Jeong et al. (2012) suggested that low motivation of language learners may cause attendance problems, which interfere with effective classroom management and curriculum design. Chronic absenteeism often leads to attrition, leading to a bifurcated challenge for language teachers: exacerbating level differences in the Korean language classroom and making it difficult to accommodate learners' language proficiency, as well as dampening teaching efficacy and motivation.

Furthermore, additional unexpected issues with adult immigrant learners, such as bringing their children to class, family problems, and young marriage immigrants running away from home due to a disjunction between ideal and reality in marriages, can be frustrating and can make the class less successful (Jeong et al., 2012). Many adult immigrants have nobody to consult while struggling between Korean language learning and managing their lives. Korean language teachers are often whom immigrants rely on for help, as they can understand their imperfect Korean language (Lee, 2010). Understanding the unique characteristics of counseling immigrants and the immigration policy entailed in teaching immigrants are also critical qualifications for second language teachers, which is another challenge (Heo et al., 2009).

Thus, Korean language teachers face multi-layered issues and challenges related to the educational context and their own competencies and teaching backgrounds. Teachers of the same affiliation with the same professional development and experiences may possess different teaching competencies and trajectories and confront different problems in their classrooms. Signaling a new direction in the field of education for Korean teachers, researchers have called for a unique, multidimensional understanding of classroom challenges facing Korean language teachers.

Despite its importance in the field of teacher education, not many studies have focused on the challenges Korean teachers confront in the field and the reasons behind them. The challenges Korean language teachers experience were investigated as a part of needs analysis to design and manage a professional development program (Kim et al., 2017; Kim et al., 2020; Park et al., 2010). Though studies purport to identify challenges regarding relevant teaching topics (e.g., course design, teaching methods, grading and assessment) to develop a professional development program for in-service Korean teachers, to the best of our research knowledge, to date, no study has attempted to provide a meaningful classification of the challenges of Korean language teachers.

3. Materials and Methods

3.1. Participants

A total of 181 Korean language teachers working with immigrants in South Korea participated in this study. All teachers are affiliated with government organizations established for teaching immigrants, such as the Korean Immigration and Integration Program (KIIP) or the Multicultural Family Support Centre. Their students are enrolled in the program to obtain Korean citizenship or permanent residency, which requires the students to pass a government-organized qualification test. Written informed consent was obtained from all participants. Their characteristics are summarized in Table 1.

Table 1. Socio-demographics of Korean language teachers

Item		Number (%)
Gender	Male	9 (4.97)
	Female	172 (95.03)
Age	20s	19 (10.50)
	30s	71 (39.23)
	40s	82 (44.75)
	50s	10 (5.52)
Education	Bachelor	89 (49.17)
	Master	73 (40.33)
	Ph.D.	17 (9.39)
	N/A	2 (1.10)

Table 1. Continued

Item		Number (%)
Teaching experience (years)	0-5	67 (37.02)
	6-10	90 (49.72)
	11-15	21 (11.60)
	15+	3 (1.66)
Position	Instructor	162 (89.5)
	Senior instructor	6 (3.31)
	(adjunct) Coordinator	2 (1.10)
	Manager	2 (1.10)
	N/A	9 (4.97)
Completion of professional development program (times)	0	0 (0.00)
	1	124 (68.51)
	2	42 (23.2)
	3	10 (5.52)
	4+	3 (1.66)

The majority of respondents (95.03%) were women in their 30s (38.67%) and 40s (45.3%). More than half of the participants had over five years of teaching experience (63.98%); however, 9.94% of teachers had less than a year of experience. Teachers were grouped into four categories based on experience: less than five years (37.02%), 6-10 years (49.72%), 11-15 years (11.60%), 15+ years (1.66%). Most of the teachers were instructors (89.5%); senior instructors accounted for 3.31%, followed by instructors, adjunct coordinators and managers, both at 1.10%. In terms of professional development programs provided by the government, only a small percentage of teachers participated in more than four programs (1.66%), while most respondents completed one or two professional development programs (91.71%).

3.2. Survey

3.2.1. Challenges Korean language teachers confront

Survey items in this study were carefully selected from Kim et al.'s (2017) work. They reviewed studies about language teachers' professional development, implemented the findings to the Korean language teachers' workshop for teaching immigrant language learners, and presented the results of the workshop based on the need analysis of Korean language teachers. Five subcategories were adopted from their study regarding Korean teachers' teaching competencies (Kim et al.,

2017): 1) Korean language teaching contents and teaching methods, 2) Korean language teaching curriculum design and resource development, 3) Korean language ability assessment, 4) Korean language learner counseling, and 5) Korean language and Korean cultural education. As a result, the challenges Korean language teachers face in the classroom (24 items) were developed into a questionnaire, as presented in Table 2.

Table 2. Survey about the challenges Korean language teachers face in classrooms

Dimensions	Item #	Survey Item
Teaching contents and teaching methods	TCM1	Pronunciation
	TCM2	Grammar
	TCM3	Vocabulary
	TCM4	Listening
	TCM5	Speaking
	TCM6	Reading
	TCM7	Writing
Curriculum design and resource development	TCR1	Select appropriate teaching resource
	TCR2	Develop Korean language drills
	TCR3	Develop language tasks and confirm the appropriateness
	TCR4	Use technologies required in teaching and learning
Language ability assessment	ASMT1	Understand assessment criteria and rubric
	ASMT2	Develop assessment items with validity
	ASMT3	Compose multiple-choice questions
	ASMT4	Understand the criteria and rubrics for an essay
	ASMT5	Understand the criteria and rubrics for an interview
Learner counseling	CNSL1	Communicate using the first language of the learner
	CNSL2	Demonstrate cultural sensitivity
	CNSL3	Understand curriculum and concepts related to students' lives
	CNSL4	Utilize counseling skills and strategies
Cultural education	CLTR1	Discuss and respect cultural differences
	CLTR2	Teach and share Korean culture
	CLTR3	Understand the home cultures of the learners
	CLTR4	Utilize culturally responsive teaching methods

3.2.2. Motivations for participating in a professional development workshop

Participants were requested to complete an additional survey regarding their motivations for participating in a future professional development workshop (Table 3). The scale consists of seven survey items, with a five-point Likert-type value range. The survey items start with “The reason I participate in this professional development workshop is to.”

Table 3. Motivations for participating in a future professional development workshop

Item #	Survey Item
MTV1	Develop multicultural competency
MTV2	Increase pedagogical content knowledge (PCK)
MTV3	Acquire diverse teaching methods
MTV4	Understand Korean teaching in other countries
MTV5	Build a teacher network
MTV6	Referred by other people
MTV7	Understand immigration policy

3.3. Data analysis

3.3.1. Cluster analysis

Cluster analysis subsumes a broad range of classification procedures that can be adapted to create a typology. Using multivariate statistics on a dataset for an ungrouped sample of individuals, cluster analysis empirically establishes clusters of highly similar entities (Aldenderfer & Blashfield, 1984). The design of a cluster refers to parameters such as cluster means, centers, variances, and covariances, along with a geometrical interpretation. Statistical characteristics divide a sample into a few groups, and results can be used to develop classification, hypothesis generation, and hypothesis testing to validate other methodologies.

This study utilized a cluster analysis to identify categories among the challenges Korean language teachers perceive. Although a substantial amount of research has been dedicated to issues related to teacher education curriculum and pedagogy, there still exists a need for sound classification criteria related to categories of

teacher education (Mindrila et al., 2017). This study utilized the k-means cluster analysis, one of the most popular clustering algorithms because of its simplicity, efficiency, and statistical scalability (Jain & Verma, 2014).

3.3.2. Cluster analysis using the k-means algorithm with R software

As suggested by Aldenderfer & Blashfield (1984), the steps in cluster analysis are 1) selection of a clustering sample, 2) selection of a set of features upon which to cluster, 3) computation of similarities among cases, 4) completion of clustering or grouping, and 5) calculation of the resultant clusters (Milligan & Cooper, 1987).

The k-means clustering method was used to classify the dataset. As a partitioning clustering method, k-means clusters group objects depending on feature values into K disjoint clusters. The number of clusters k needs is determined a priori. To select the optimal number of clusters, the NbClust package was applied in R (Charrad et al., 2014). This package provides 26 indices for determining the best clustering number and scheme. Twelve of the indices proposed three as the best number of clusters, eight proposed four, and three proposed six (Figure 1).

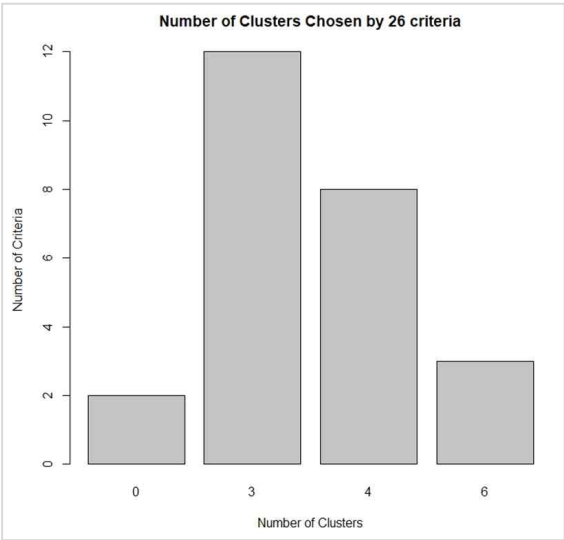


Figure 1. Number of clusters chosen by 26 Criteria (Charrad et al., 2014).

K-means cluster analysis yielded a meaningful three-cluster solution for our sample. The cluster sizes were $n_1 = 91$, $n_2 = 39$, and $n_3 = 51$. Initial results

display a distinction among cluster centroids.

4. Results

4.1. Initial cluster interpretation: Challenges by cluster

Descriptive statistics for the three clusters with the variables are displayed in Table 3. As can be seen in Table 4, the challenges of each cluster showed a similar pattern, indicating that the order of difficulty is the same while the perceptions of degree are different. Inspection of the means in Table 3 lends itself to the final cluster labelling: a) Mid-Challenge (Cluster 1), b) Low-Challenge (Cluster 2), and c) High-Challenge (Cluster 3). The identified groups of teachers showed no differences in the dimensions of challenges (Figure 2). The Mid-Challenge group was the largest (N = 91), with average mean factor scores. The High-Challenge group was the second largest (N = 51), facing the biggest challenges in the classroom. The Low-Challenge group was the smallest (N = 39) and reported relatively fewer challenges in most of the dimensions.

Table 4. Descriptive statistics for the three clusters

Part II. Challenges Korean language teachers face in classrooms									
Scale	Item #	Mean (SD)							
		Cluster 1 (n ₁ = 91)		Cluster 2 (n ₂ = 39)		Cluster 3 (n ₃ = 51)		Total (n = 181)	
TCM	TCM1	3.15	(0.84)	2.28	(0.89)	3.65	(0.79)	3.11	(0.96)
	TCM2	2.92	(0.75)	2.15	(0.78)	3.85	(0.87)	3.02	(0.99)
	TCM3	2.85	(0.73)	1.92	(0.70)	3.50	(0.61)	2.84	(0.88)
	TCM4	3.02	(0.68)	2.23	(0.78)	3.44	(0.70)	2.97	(0.82)
	TCM5	3.11	(0.66)	2.28	(0.72)	3.85	(0.67)	3.14	(0.87)
	TCM6	3.20	(0.69)	2.21	(0.52)	3.69	(0.58)	3.13	(0.81)
	TCM7	3.87	(0.7)	2.74	(0.88)	4.27	(0.69)	3.74	(0.92)
	Total	3.16	(0.39)	2.26	(0.41)	3.75	(0.39)	3.14	(0.65)

Table 4. Continued

Part II. Challenges Korean language teachers face in classrooms									
Scale	Item #	Mean (SD)							
		Cluster 1 (n ₁ = 91)		Cluster 2 (n ₂ = 39)		Cluster 3 (n ₃ = 51)		Total (n = 181)	
TR	TCR1	2.86	(0.69)	2.31	(0.77)	3.62	(0.77)	2.96	(0.87)
	TCR2	3.33	(0.68)	2.54	(0.85)	3.92	(0.71)	3.33	(0.87)
	TCR4	3.55	(0.97)	3.41	(0.91)	4.13	(0.69)	3.69	(0.93)
	Total	3.31	(0.48)	2.81	(0.63)	3.97	(0.47)	3.39	(0.66)
ASMT	ASMT1	3.13	(0.64)	2.31	(0.66)	3.63	(0.66)	3.10	(0.79)
	ASMT2	3.51	(0.67)	2.62	(0.67)	4.06	(0.54)	3.47	(0.81)
	ASMT3	3.23	(0.7)	2.54	(0.64)	3.75	(0.71)	3.23	(0.81)
	ASMT4	3.68	(0.63)	2.79	(0.70)	4.15	(0.61)	3.63	(0.80)
	ASMT5	3.58	(0.63)	2.79	(0.70)	4.15	(0.50)	3.58	(0.77)
	Total	3.43	(0.44)	2.61	(0.48)	3.95	(0.44)	3.40	(0.65)
CNSL	CNSL1	3.30	(0.91)	3.03	(0.99)	3.90	(0.80)	3.41	(0.95)
	CNSL2	2.65	(0.67)	2.38	(0.85)	3.13	(0.63)	2.73	(0.75)
	CNSL3	2.47	(0.62)	2.10	(0.79)	3.02	(0.73)	2.55	(0.76)
	CNSL4	2.74	(0.7)	2.18	(0.79)	3.60	(0.75)	2.86	(0.89)
	Total	2.79	(0.53)	2.42	(0.57)	3.41	(0.50)	2.89	(0.64)
CLTR	CLTR1	2.60	(0.65)	2.13	(0.61)	3.21	(0.72)	2.68	(0.76)
	CLTR2	2.56	(0.64)	1.97	(0.67)	3.02	(0.70)	2.57	(0.75)
	CLTR3	3.32	(0.76)	2.95	(0.89)	3.73	(0.66)	3.36	(0.81)
	CLTR4	3.18	(0.81)	2.59	(0.82)	3.79	(0.75)	3.23	(0.90)
	Total	2.91	(0.55)	2.41	(0.59)	3.44	(0.52)	2.96	(0.66)
Total		3.14	(0.67)	2.48	(0.73)	3.73	(0.65)	3.17	(0.67)

* TCM: Korean language teaching contents and teaching methods, TCR: Korean language teaching curriculum design and resource development, ASMT: Korean language ability assessment, CNSL: Korean language learner counseling, and CLTR: Korean cultural education.

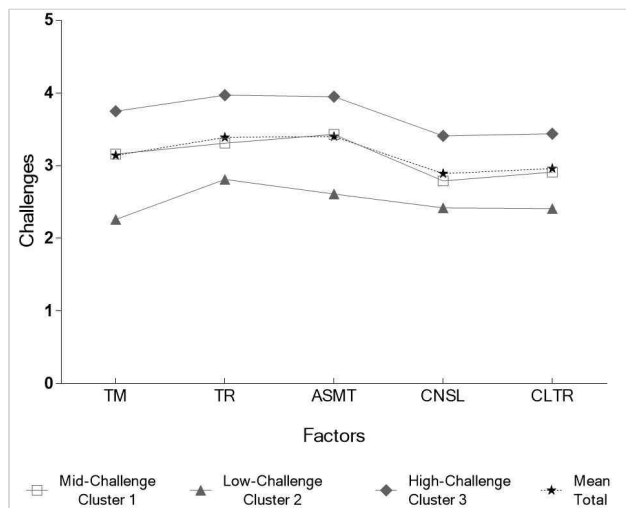


Figure 2. Means of self-reported challenges by cluster.

* TCM: Korean language teaching contents and teaching methods, TCR: Korean language teaching curriculum design and resource development, ASMT: Korean language ability assessment, CNSL: Korean language learner counseling, and CLTR: Korean cultural education.

4.2. Order (rank) of the challenges

To examine the biggest challenges for Korean language teachers, we analysed the order of the challenges by dimension and item. Regarding dimensions (Table 5),

Table 5. Order of the challenges cluster faces: by dimension

Rank	Challenges: dimension × cluster							
	Cluster 1 (n ₁ = 91)		Cluster 2 (n ₂ = 39)		Cluster 3 (n ₃ = 51)		Total (n = 181)	
	Factor	Mean	Factor	Mean	Factor	Mean	Factor	Mean
1	ASMT	3.43	TCR	2.81	TCR	3.97	ASMT	3.4
2	TCR	3.31	ASMT	2.61	ASMT	3.95	TCR	3.39
3	TCM	3.16	CNSL	2.42	TCM	3.75	TCM	3.14
4	CLTR	2.91	CLTR	2.41	CLTR	3.44	CLTR	2.96
5	CNSL	2.79	TCM	2.26	CNSL	3.41	CNSL	2.89

* TCM: Korean language teaching contents and teaching methods, TCR: Korean language teaching curriculum design and resource development, ASMT: Korean language ability assessment, CNSL: Korean language learner counseling, and CLTR: Korean cultural education.

the respondents reported challenges in finding appropriate teaching resources when teaching immigrants and assessing immigrant learners in all areas of Korean language learning. The next biggest challenge was teaching method, which relates to finding effective strategies for teaching immigrants in a multicultural, multilingual classroom. However, unlike the other clusters, the Low-Challenge Cluster indicated counselling immigrants from various cultures and cultural responsiveness as the most challenging.

Next, we examined the order of challenges by test item. The mean scores at an item level of challenges each cluster perceived are presented in Table 6. The top five items (TCM7: Writing, ASMT4: Understanding the criteria and rubrics of essay, ASMT5: Understanding the criteria and rubrics for an interview, TCR4: Using technologies required in teaching and learning, ASMT2: Develop assessment items with validity) are displayed identically for the Mid-Challenge and High-Challenge Clusters. Three items (TCR4: Using technologies required in teaching and learning, ASMT4: Understanding the criteria and rubrics of essay, ASMT5: Understanding the criteria and rubrics for interview) were perceived as challenging by all clusters.

Table 6. Order of the challenges cluster faces: by item

Rank	Challenges: item × cluster							
	Cluster 1 (n ₁ = 91)		Cluster 2 (n ₂ = 39)		Cluster 3 (n ₃ = 51)		Total (n = 181)	
	Factor	Mean	Factor	Mean	Factor	Mean	Factor	Mean
1	TCM7	3.87	TCR4	3.41	TCM7	4.27	TCM7	3.74
2	ASMT4	3.68	CNSL1	3.03	ASMT4	4.15	TCR4	3.69
3	ASMT5	3.58	CLTR3	2.95	ASMT5	4.15	ASMT4	3.63
4	TCR4	3.55	ASMT4	2.79	TCR4	4.13	ASMT5	3.58
5	ASMT2	3.51	ASMT5	2.79	ASMT2	4.06	ASMT2	3.47

* TCM: Korean language teaching contents and teaching methods, TCR: Korean language teaching curriculum design and resource development, ASMT: Korean language ability assessment, CNSL: Korean language learner counseling, and CLTR: Korean cultural education.

As can be seen in Table 6, TCM7: Writing was ranked as the greatest challenge for the Mid-Challenge and High-Challenge Clusters, while the Low-Challenge Cluster reported TDR4: Using technologies required in teaching and learning as their greatest challenge. Reported mean showed that ASMT4: Understanding the

criteria and rubrics for essays and ASMT5: Understanding the criteria and rubrics for interview are the next big challenges for the Mid-Challenge and High-Challenge Clusters. ASMT4 (rank 4) and ASMT5 (rank 5) also were high for the Low-Challenge Cluster.

Along with TCM7: Writing, the big challenge of ASMT4: Understanding the criteria and rubrics for essay, indicates that teachers in all clusters typically struggle with assessing and teaching writing. As we can see in Table 6, Korean language teachers perceive themselves as not prepared to 1) meet the diverse needs of immigrant Korean language learners, 2) provide sufficient instruction, and 3) assess the immigrant learners' Korean language writing.

Three items, ASMT4: Understanding the criteria and rubrics for essay, ASMT5: Understanding the criteria and rubrics for an interview, and ASMT2: Develop items with validity are included in the top five perceived challenges listed by Korean language teachers. This result identifies the overall challenge that assessment presents, suggesting the need of a specific orientation on assessment for Korean language teachers.

Unlike other clusters, the Low-Challenge Cluster shows a lack of preparedness for interacting with immigrants using their primary language (CNSL1: Understanding and communicating using the first language of learners) and understanding individual families to bridge home and classroom (CLTR3: Understand home cultures of the learners). Considering their overall perception of a low level of challenge, the perception of these items as challenging can be interpreted as a gap between reality and teachers' expectations of enacting cultural sensitiveness, rather than an absolute lack of pedagogy that responds to cultural diversity.

4.3. Cluster interpretation with socio-demographic characteristics of clusters

For a closer examination of cluster characteristics, we turned to socio-demographic information (Table 1) of the participants. While many variables are evenly distributed, there was a clear trend in gender and position, with most of the teachers women (N=172, 95.03%) and working as instructors (N = 162, 89.5%).

4.3.1. Teaching experience and professional development experience

The teaching experience and professional development experience are presented in Table 7. There was a statistically significant difference for the numbers of years

spent teaching, $F(2,178) = 330.6$, $p < 0.001$ and training time, $F(2,178) = 419.4$, $p < 0.001$ between clusters as determined by a one-way analysis of variance (ANOVA). A Bonferroni post hoc with multiple t-tests revealed clusters had distinctiveness for the number of years teaching and training time. The High-Challenge Cluster ($M = 3.66$, $SD = 0.14$) had significantly fewer years of teaching compared to the Mid-Challenge Cluster ($M = 6.26$, $SD = 0.86$), $t(178) = 22.96$, $p < 0.001$ and the Low-Challenge Cluster ($M = 6.68$, $SD = 0.43$), $t(178) = 21.93$, $p < 0.001$. With respect to professional development, the Mid-Challenge Cluster ($M = 3.27$, $SD = 0.92$) had more professional development involvement compared to Low-Challenge Cluster ($M = 0.61$, $SD = 0.22$), $t(178) = 29.63$, $p < 0.001$ and High-Challenge Cluster ($M = 0.28$, $SD = 0.08$), $t(178) = 36.44$, $p < 0.001$.

Table 7. Teaching experience and professional development experience

	Mean (SD)			
	Mid-Challenge Cluster 1 ($n_1 = 91$)	Low-Challenge Cluster 2 ($n_2 = 39$)	High-Challenge Cluster 3 ($n_3 = 51$)	Total Clusters ($n = 181$)
Teaching year	6.26 (0.86)	6.68 (0.43)	3.66 (0.14)	5.53 (0.51)
Professional development experience (times)	3.27 (0.92)	0.61 (0.22)	0.28 (0.08)	1.39 (0.36)

4.3.2. Teaching region

The region provides critical information about the teaching context, in that it affects the teaching environment, infrastructure, job satisfaction, motivation, and student composition (Klassen & Chiu, 2010; Lamb, 2012; Lin et al., 2012; Skaalvik & Skaalvik, 2011). In the Korean language educational context, big institutions and professional development opportunities are also centralized in capitalized areas. We separately coded the distribution of Korean language teachers; capital (and nearby states) and other states (non-metropolitan areas) (Table 8). As the education system is intensively centralized to Seoul, the capital city (Kim, 2004), most of the educational infrastructure and professional development opportunity (Kim, 2012; Kim et al., 2017; Kim & Kim, 2020) is concentrated in Seoul, the capital of South Korea. Therefore, researchers agreed upon binary coding (Capitalized area = 1, Other states = 0).

The descriptive statistics exhibit a sharp distinction of the teaching region between clusters. Each cluster was dominantly composed of either capitalized area or other states. In total, 87 Korean language teachers (48.07%) were teaching the Korean language in a Capitalized area and 94 Korean language teachers (51.93%) in other states. The Mid-Challenge Cluster 1 was mostly from a capitalized area (90.11%), whereas Low-Challenge Cluster 2 (92.31%) and High-Challenge Cluster 3 (94.23%) were mostly from other states.

Table 8. Teaching region

Teaching region	Number of teachers (%)			
	Mid-Challenge Cluster 1 (n ₁ = 91)	Low-Challenge Cluster 2 (n ₂ = 39)	High-Challenge Cluster 3 (n ₃ = 51)	Total Clusters (n = 181)
Capitalized area	82 (90.11)	3 (7.69)	2 (3.85)	87 (48.07)
Other states	9 (9.89)	36 (92.31)	49 (94.23)	94 (51.93)

4.3.3. Age

The ages of Korean language teachers are presented in Table 9. Teachers in the Mid-Challenge Cluster were mostly in their 40s and 50s. The Low-Challenge Cluster comprised teachers mostly in their 50s and 60s, while the High-Challenge Cluster included mostly teachers in their 30s. The Low-Challenge Cluster also

Table 9. Ages of Korean language teachers

Ages	Number of teachers (Total % / Cluster %)			
	Mid-Challenge Cluster 1 (n ₁ = 91)	Low-Challenge Cluster 2 (n ₂ = 39)	High-Challenge Cluster 3 (n ₃ = 51)	Total Clusters (n = 181)
30s	4 (2.21/4.4)	1 (0.55/2.56)	14 (7.73/27.45)	19 (10.50)
40s	40 (22.10/43.96)	7 (3.87/17.95)	24 (13.26/47.06)	71 (39.23)
50s	46 (25.41/50.55)	22 (12.15/56.41)	13 (7.18/25.49)	81 (44.75)
60s	1 (0.55/1.1)	9 (4.97/23.08)	0 (0/0)	10 (5.52)
Total (%)	50.28	21.55	28.18	100

experienced the greatest challenge with using technology (TCR4: Using technologies required in teaching and learning). Though we cannot assertively say that age is the explanatory variable accounting for struggles with technological skills, it may be an influencing factor, considering that teachers from this generation are not accustomed to digital literacy and technology-based educational resources.

4.3.4. Highest education

Table 10 shows the participants' highest education level. Most of the teachers in the Low-Challenge and Mid-Challenge Clusters had graduate-level education. The High-Challenge Cluster consisted mostly of teachers with bachelor's degrees. While the challenges cannot be entirely explained by the educational level of the teachers, descriptive statistics present remarkable distinctions in the highest level of education between the High-Challenge Cluster and the other clusters.

Table 10. Highest education of Korean language teachers

Ages	Number of teachers (Total % / Cluster %)			
	Mid-Challenge Cluster 1 (n ₁ = 91)	Low-Challenge Cluster 2 (n ₂ = 39)	High-Challenge Cluster 3 (n ₃ = 51)	Total Clusters (n = 181)
Bachelor	35 (19.34/38.46)	12 (6.63/30.77)	42 (23.2/82.35)	89 (49.17)
Masters	44 (24.31/48.35)	23 (12.71/58.97)	6 (3.31/11.76)	73 (40.33)
Ph.D.	12 (6.63/13.19)	4 (2.21/10.26)	1 (0.55/1.96)	17 (9.39)
N/A	0 (0/0)	0 (0/0)	2 (1.1/3.92)	2 (1.1)
Total (%/%)	91 (50.28/100)	39 (21.55/100)	51 (28.18/100)	100

4.3.5. Motivation by cluster

The level of challenges Korean language teachers perceive did not correspond to their motivation toward professional development. Table 11 presents the descriptive statistics for motivation for professional development. While the High-Challenge Cluster shows the highest motivation, the Mid-Challenge Cluster displayed

significantly higher motivation compared to the Low-Challenge Cluster. Considering their professional development experience (Table 7), experiences each cluster had during the professional development may have an effect on their motivation. In other words, the Mid-Challenge Cluster may have had unequal training opportunities due to the concentration of professional development programs in capitalized areas and big institutions and expressed high need and motivation for professional development.

Table 11. Motivation by cluster

	Mean (SD)			
	Mid-Challenge Cluster 1 (n ₁ = 91)	Low-Challenge Cluster 2 (n ₂ = 39)	High-Challenge Cluster 3 (n ₃ = 51)	Total Clusters (n = 181)
MTV1	3.81 (0.82)	4.36 (0.67)	4.63 (0.53)	4.16 (0.80)
MTV2	4.30 (0.61)	4.59 (0.60)	4.87 (0.34)	4.52 (0.59)
MTV3	4.34 (0.67)	4.67 (0.53)	4.89 (0.32)	4.57 (0.61)
MTV4	3.51 (0.89)	4.23 (0.87)	4.34 (0.76)	3.90 (0.93)
MTV5	3.45 (0.86)	4.08 (0.96)	4.08 (0.81)	3.76 (0.92)
MTV6	2.73 (1.15)	3.28 (1.26)	3.67 (1.13)	3.12 (1.23)
MTV7	4.03 (0.80)	4.36 (0.74)	4.48 (0.80)	4.23 (0.81)
MTV Total	3.74 (0.44)	4.22 (0.55)	4.42 (0.44)	4.04 (0.55)

* MTV1: Develop multicultural competency, MTV2: Increase Korean PCK, MTV3: Learn diverse teaching methods, MTV4: Understand teaching status of other states, MTV5: Build a teacher network, MTV6: Referred by other people, and MTV7: Understand immigration policy.

The motivation order was almost the same across clusters (Figure 3): MTV3: Learning diverse teaching methods, MTV2: Increasing Korean PCK, MTV7: Understanding immigration Policy, MTV1: Developing multicultural competency, MTV4: Understanding teaching in other countries, MTV5: Building a teacher network, and MTV6: Referred by other people. However, the High-Challenge Cluster showed a switched order for MTV1 and MTV7.

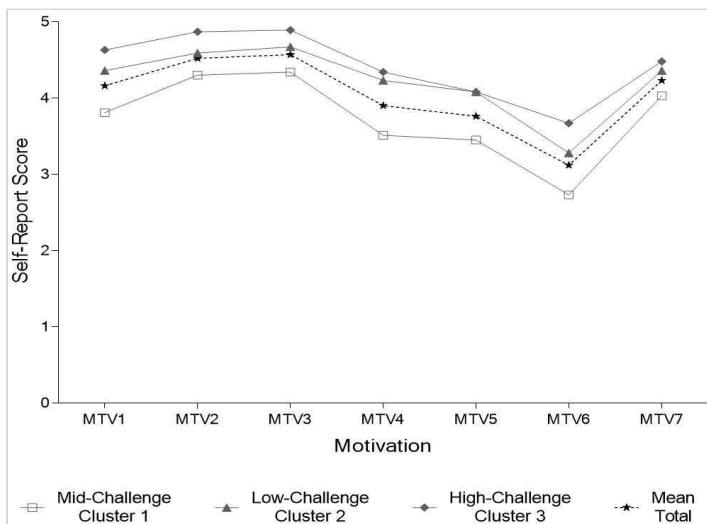


Figure 3. Self-reported motivation by cluster.

* MTV1: Develop multicultural competency, MTV2: Increase Korean PCK, MTV3: Learn diverse teaching methods, MTV4: Understand teaching status of other states, MTV5: Build a teacher network, MTV6: Referred by other people, and MTV7: Understand immigration policy.

This investigation of motivations by cluster contributes to a better understanding of expectations of Korean language teachers when participating in professional development. While most of the motivational dimensions of all clusters were high, MTV6: Referred by other people was the lowest among all motivational dimensions. Hence, teachers appear to be generally less motivated by external recommendations. This follows the findings of Richards & Farrell (2005), suggesting that language teachers are generally self-motivated to continue their professional development.

Reported motivation levels were generally high among all clusters, marked by the distinguished motivation of MTV3: Learning diverse teaching methods and MTV2: Increasing Korean PCK. Despite the fact that language teachers' needs and interests are fluid (Richards & Farrell, 2005), the dissemination of theoretical and practical resources on current trends in effective teaching methods and language acquisition is crucial and worthy of being included in teacher training. In addition, teachers desired to explore developments in pedagogical content required for Korean language teachers (e.g., pedagogical grammar, general theory regarding linguistic competence areas, and basic language skills).

A one-way ANOVA showed a statistically significant correlation between cluster and motivation means ($F(2,1253) = 132.5, p < 0.001$). Multiple *t*-tests were followed

to examine the correlation of clusters with each motivation item. Significant differences are shown in Table 12.

Table 12. Comparison between clusters

Comparison between Mid-Challenge Cluster 1 vs. Low-Challenge Cluster 2							
	p-value	Mean 1	Mean 2	Differences	SE of differences	t-ratio	df
MTV1	< 0.001	3.81	4.36	- 0.55	0.06	8.80	128
MTV2	< 0.001	4.30	4.59	- 0.29	0.08	3.56	128
MTV4	< 0.001	3.51	4.23	- 0.72	0.07	10.97	128
MTV5	< 0.001	3.45	4.08	- 0.63	0.08	8.20	128
MTV6	< 0.001	2.73	3.28	- 0.55	0.12	4.45	128
Comparison between Low-Challenge Cluster 2 vs. High-Challenge Cluster 3							
	p-value	Mean 1	Mean 2	Differences	SE of differences	t-ratio	df
MTV7	< 0.001	4.48	4.36	0.12	0.02	4.94	89
Comparison between Mid-Challenge Cluster 1 vs. High-Challenge Cluster 3							
	p-value	Mean 1	Mean 2	Differences	SE of differences	t-ratio	df
MTV1	< 0.001	3.81	4.63	- 0.82	0.07	12.12	141
MTV2	< 0.001	4.30	4.87	- 0.57	0.10	5.96	141
MTV3	< 0.001	4.34	4.89	- 0.55	0.12	4.42	141
MTV4	< 0.001	3.51	4.34	- 0.83	0.06	13.75	141
MTV5	< 0.001	3.45	4.08	- 0.63	0.10	6.03	141
MTV6	< 0.001	2.73	3.67	- 0.94	0.16	5.90	141
MTV7	< 0.001	4.03	4.48	- 0.45	0.13	3.46	141

* MTV1: Develop multicultural competency, MTV2: Increase Korean PCK, MTV3: Learn diverse teaching methods, MTV4: Understand teaching status of other states, MTV5: Build a teacher network, MTV6: Referred by other people, and MTV7: Understand immigration policy.

As can be seen in Table 12, the Mid-Challenge Cluster showed lower motivation compared to the Low-Challenge and High-Challenge Clusters. The Mid-Challenge Cluster showed significantly low motivation in most of the dimensions except for MTV3 (Acquiring diverse teaching methods) and MTV7 (Understanding immigration

policy). Selective motivation toward specific programs shows specified needs of experienced, well-trained teacher group's professional development needs. The Low-Challenge and High-Challenge Clusters did not show any difference except for MTV7. Both clusters reported high motivation in all dimensions, marked by strong need for PCK and teaching methods. Compared to other scores, both clusters showed strong motivation in learning immigration policy (MTV7).

5. Discussion

Identifying the challenges and needs of language teachers is the start of a strategic approach towards professional development. Understanding the struggles of teachers serves to effectively determining the areas for training and strategies recommended for helping teachers achieving their goals (Johnson, 1989; Richards & Farrell, 2005; Roberts, 2016; Yates & Muchisky, 2003). The multifaceted characteristics of and challenges faced by Korean language teachers provide meaningful puzzle pieces lending insight when assembled through cluster analysis, yielding meaningful implications as a complete picture.

For all the clusters, central to teachers' challenges in the Korean language classroom is the paucity of teaching resources and qualification assessment required for immigrants. As noted earlier, lack of teaching resources for adult immigrant learners reveals a mismatch between a soaring heterogeneous immigrant population in need and Korean language teaching materials that do not fulfil educational needs. The qualification assessment deciding the residence status of immigrants can be critical for both teachers and students. If a teacher cannot effectively help students prepare for the exam, immigrant students' unstable immigration status is prolonged, potentially shrinking their motivation for Korean language learning, possibly even causing them to drop out of language programs. This central role of assessment in immigrant education presents further challenges for all clusters of teachers.

The Mid-Challenge Cluster was the teacher group living in capitalised districts with a more affluent and higher-educated populace, better funding, and better educational opportunities, including professional development programs and resources. This cluster was composed of experienced teachers ($M = 6.26$, $SD = 0.86$), mostly in their 40s (43.96%) and 50s (50.55%), with multiple experiences of professional development ($M = 3.27$, $SD = 0.92$). This cluster reported strong

challenges related to teaching resources, especially writing. Despite facing a medium level of challenges, their overall motivation was the lowest. Frequently provided opportunities for professional development may cause this group of teachers to be less motivated generally, while being motivated in specific fields, such as (a) learning diverse teaching methods and (b) augmenting the understanding of immigration policy. As such, facilitating professional development for this group should tailor to their needs, such as need-based workshops with focus on specific problems.

The Low-Challenge Cluster was mostly teaching in non-metropolitan areas of South Korea, situated in extremely challenging environments. Non-metropolitan areas had less chance of professional development opportunities and though provided; teachers cannot participate in the program due to the lack of teacher resources (Kim, 2012). They were mostly in small under-funded institutions with less professional development program participation ($M = 0.61$, $SD = 0.22$), which may explain their high motivation for professional development. Their highest motivation for professional development was to learn diverse teaching methods. In terms of teaching experiences, they were the most experienced ($M = 6.68$, $SD = 0.43$) and aged group (56.41% of the teachers were in the 50s, and 23.08% were in the 60s). In general, they reported facing the least challenge of the three clusters regarding teaching itself, which may be attributed to their teaching experiences. However, this cluster showed a salient struggle in using technologies required for teaching and learning. Previous research confirms that, compared with novice teachers, experienced teachers tend to have less digital competence (Ulvik & Langørgen, 2012). In addition, this cluster reported particular challenges with (a) preparing themselves in communicating with learners using their primary languages and (b) understanding the cultures of the learners. Though this can be interpreted as deficits of Cluster 2, it also can be identified as a desire for culturally responsive teaching. In response to the needs and challenges, (a) more professional development opportunities hosted in non-metropolitan areas and (b) in-depth pedagogical resources and teaching practices for culturally responsive teaching can be provided for successful Korean language teaching.

The High-Challenge Cluster is the most inexperienced group, with half having less than a year of experience. This cluster's challenges are twofold, including struggles from lack of experience and a dearth of support in small isolated institutions in non-metropolitan areas. As the results showed, this cluster faces tremendous challenges overall (Table 3). Two crucial challenges they perceived

were inadequate PCK required in Korean language teaching and teaching methods. Considering their lack of experience, the challenges with teaching methods can be interpreted as a concern regarding their own skills rather than seeking new or alternative methods of teaching. As noted earlier, Korean language teachers working with immigrants deal with a lack of adequate materials and resources applicable to diverse classrooms. As previous studies have shown, contextual factors such as lack of professional support (Algozzine et al., 2007; Andrews et al., 2007) and teacher education (Elfers et al., 2006) lead to teacher attrition; therefore, working through these contextual factors is a priority for a quality teaching workforce. For this cluster, professional development should function as a supportive teacher education opportunity, which compensates for the teachers' lack of experience and deals with the struggles by including vicarious experience (e.g., providing teaching observation opportunities of experienced professional teachers, online resources of professional teaching methods, etc.). In framing the problem of teachers' challenges in isolated regions, (a) access to various teaching resources and (b) networking with experienced teachers are important for solo practitioners where collaborative work is not supported.

6. Conclusion

This study has elaborated on the challenges faced by Korean language teachers educating immigrant students based on a cluster analysis. Challenges were explored with a 23-item survey of 181 Korean language teachers across five dimensions: 1) teaching contents and teaching methods, 2) curriculum design and resource development, 3) language ability assessment, 4) learner counseling, and 5) cultural education. The findings show that the degree and order of perceived challenges were segmented into three clusters. Indeed, the clusters showed significant differences for professional development experience, teaching experience, teaching region, and motivational variables.

This research constitutes a useful basis for creating professional development programs for Korean language teachers, presenting ways to effectively organise program contents and understand the group-based characteristics of Korean language teachers working with immigrants. Although the challenges analyzed in the paper are specific to the immigrant adult teaching context, examining multiple categories of the challenge itself can provide more in-depth insights to

understand the struggles based on groupings. While studies in Korean language teacher education focused on various factors (e.g. teaching experience, education, and psychological variables) to explain the different challenges they may face (Park & Choi, 2010; Park & Park, 2013), one single quantitative variable cannot comprehensively explain the multifaceted challenges faced by Korean language teachers. In a real classroom, myriads of factors and challenges are inextricably intertwined, posing a threat to effective teaching. Language teachers can learn many things through self-observation and critical reflection. However, a professional development program for language teachers should go beyond mere reflection (Richards & Farrell, 2005). By revealing trends among Korean language teachers working with immigrants, we expect that researchers can consider various factors affecting the perception of challenges and provide better professional development context.

Although our study was supported by survey data drawn from a Korean language teacher population working with immigrants, self-perception may distort the reality they experience in classrooms. In light of the importance of empirical studies elaborating the aspects of challenges of Korean language teachers, future research should examine the challenges from multiple perspectives.

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Received: June 17, 2021

Revised version received: July 29, 2021

Accepted: August 23, 2021