



Designing flashcards as media for learning Korean Hanja vocabulary

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ABSTRACT

Although Sino-Korean (Hanja-based) words make up some of the Korean lexicon and dominate academic and formal registers, many learners of Korean as a foreign language struggle to master them because Hanja is rarely taught systematically and appropriate learning media remain limited. This study aims to develop Hanja flash cards as a learning medium for Korean Hanja vocabulary and evaluate their validity and feasibility. Employing a descriptive qualitative approach, the research follows the ASSURE instructional design model, encompassing learner analysis, objective formulation, media selection, material utilization, learner engagement, and evaluation. Validation was conducted through expert assessments and user feedback, including questionnaires distributed to 30 intermediate Korean language learners at a public university in Bandung, followed by in-depth interviews with 15 selected participants. Results demonstrated high feasibility, with material experts rating the flash cards at 93.3% ("Very Feasible") and media experts at 81.67% ("Very Feasible"). Student feedback further affirmed the design's effectiveness, yielding a 92.7% score ("Very Feasible"). The findings indicate that the Hanja flash cards are well-aligned with their learning objectives and can significantly support Hanja vocabulary acquisition. This study contributes to the development of practical tools for enhancing Korean language education, particularly in mastering Hanja.

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1. INTRODUCTION

Korean vocabulary has been shaped extensively by Chinese. Before the creation of Hangul, Koreans wrote with Chinese characters (Hanja), and centuries of contact left a lasting mark on the lexicon. Sino-Korean words now make up roughly sixty percent of Korean vocabulary (Grant, 2015; Sohn, 1999), and they dominate academic, administrative, and formal registers. Even basic grammar reflects this layer: Korean has two numeral systems, a native one and a Sino-Korean one derived from Chinese characters. Each Hanja-based syllable carries a stable meaning that recurs across many compounds. For example, 학 (學, “learning”) appears in 학생 (student), 학교 (school), and 과학 (science). Knowledge of these morphemes therefore works much like knowledge of Latin and Greek roots in English: it lets learners infer, connect, and retain the meanings of new words (Nation, 2013). Empirical evidence supports this view. Non-Sinosphere learners of Korean who were taught the meanings of Hanja-based syllables recalled more of the words containing those syllables (Muscanto, 2019). Hanja is thus learned not as an end in itself but as a route to mastering more complex Korean vocabulary (Seo, 2019).

Hanja has high character complexity because it has many lines and complex shapes. So to remember these characters requires more time and effort. Hanja is learned to master more complex Korean vocabulary (Seo, 2019). As stated by Chaer (in Ardiyanti et al, 2018, p. 177) shows that mastery of vocabulary is important when learning a foreign language, because vocabulary includes all words that contain the sound system and meaning in a language which is the wealth or treasure of the language itself. Hanja has high character complexity because it has many lines and complex shapes. So to remember these characters requires more time and effort. Hanja is learned to master more complex Korean vocabulary (Seo, 2019). As stated by Chaer (in Ardiyanti et al, 2018, p. 177) shows that mastery of vocabulary is important when learning a foreign language, because vocabulary includes all words that contain the sound system and meaning in a language which is the wealth or treasure of the language itself.

Through the provision of Hanja to Korean language learners can provide more knowledge and understanding of Korean vocabulary. The high complexity of Hanja makes Korean learners experience difficulties in learning it. This is supported by the results of a survey that has been conducted to 2019 students majoring in Korean Language Education at one of the state universities in Bandung who have completed the Hanja course. Using a Likert scale of 1 - 5 with a statement strongly disagree to strongly agree. Out of 48 students, 10 students chose strongly agree (scale 5) and 15 students chose agree (scale 4) that they experienced difficulties in the learning process of the Hanja course. The remaining 15 people chose neutral (scale 3), 7 people chose disagree (scale 2) and 1 person chose strongly disagree (scale 1). Korean vocabulary has a great influence from Chinese. Even today, Korean vocabulary is inseparable from Chinese characters. This is because Chinese characters have been used by Koreans for a long time. Before the formation of the Korean script system (hangul) Korean people used Chinese characters in their writing. The Chinese language itself had an early influence on the formation of the Korean language, borrowed vocabulary from Chinese now comprises about sixty percent of Korean vocabulary (Grant, 2015). For example, there are two numeral systems in Korean: the native Korean numeral system and the Sino-Korean numeral system. The Sino-Korean numeral system is a numeral system adapted from Chinese characters.

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For character-based scripts, dual coding theory holds that information encoded both verbally and as imagery is better retained than information encoded in one channel (Paivio, 1991). Multimedia learning research translates this into design principles: pair words with relevant images, place related text and image close together, and exclude decorative elements that add extraneous load (Mayer, 2020). Studies of Chinese character learning confirm that imagery-based and pictographic mnemonics improve recall of character meanings among learners of Chinese as a foreign language (Kuo & Hooper, 2004; Shen, 2010). Because many Hanja originated as pictographs or as combinations of meaningful components, a card that visualises the image underlying a character's form aligns directly with these principles. Finally, how learners actually use flashcards matters. Learners often drop cards too early once they recall them once, which underlines the need for usage guidance built into the medium (Wissman et al., 2012).

Previous studies have reported positive outcomes of flashcards in foreign language vocabulary learning. Komachali and Khodareza (2012) found that vocabulary flashcards improved Iranian EFL learners' vocabulary knowledge. Nakata (2011) reviewed flashcard software against principles from learning research and showed that programs differ widely in how far they support retrieval, spacing, and learner control. In the closest parallel to Hanja, studies of Japanese kanji instruction in Indonesia reported that flashcards helped learners remember vocabulary and write it in kanji (Astami, 2010), and that PowerPoint-based flashcards improved kanji reading (Prasetyani, 2013). These studies have three limitations relevant to the present research. First, most focused on testing learning outcomes and said little about how the cards were designed or why particular design decisions were made. Research on Hanja for Korean learners has examined instructional approaches, such as teaching Hanja syllable meanings (Muscanto, 2019), rather than the systematic development of learning media. Also, Commercially available Hanja card sets are typically designed for learners who already read Chinese characters or Korean fluently, not for Indonesian learners working from Indonesian.

Therefore, researchers designed a Hanja learning media that will support Korean learners to better understand and master Korean Hanja vocabulary. Flash cards were chosen as learning media because according to Indriana (in Iswari, 2017, p. 121) flash cards are practical media to carry and use. Several lines of theory inform the design of flashcards. In vocabulary research, word cards are an efficient form of deliberate learning because they enable retrieval practice, in which learners recall a meaning or form rather than simply re-reading it (Nation, 2013). Retrieval strengthens long-term retention more than repeated study (Karpicke & Roediger, 2008). Spacing repetitions over time is more effective than massed study, and this holds for flashcard learning specifically (Kornell, 2009; Nakata, 2011).

The design of flash card learning media is aimed at learning Korean Hanja vocabulary. Given that Hanja strokes are formed from the visualization of an image, this is in line with flash card learning media where this media has an image/visual component to facilitate learning. Flash cards were also chosen because this learning media is usually used to enrich vocabulary knowledge and remember it (Arsyad, 2017).

The study seeks to answer two research questions:

- 1) How can Hanja flashcards be effectively designed as vocabulary learning media?
- 2) What is the feasibility of Hanja flashcards as a medium for vocabulary acquisition?

By investigating these questions, this research contributes to the development of more effective Hanja instruction methods, particularly for intermediate learners transitioning from basic Hangul literacy to advanced Korean proficiency. The findings provide valuable insights for Korean language educators and materials developers seeking to enhance Hanja pedagogy.

2. METHOD

The methods used in this research are quantitative and qualitative methods. According to Tohirin (in Puti and Citra, 2019, p. 51) qualitative research methods are research that intends to understand a phenomenon about what the object of research experiences. In this study, the learning media

design process used the ASSURE model by Heinich et al (1982), namely, analyze learners' characteristics, state objectives, select or modify media, utilize materials, require learner response, evaluate/revise. In this process, it observed how the characteristics of students who are the target of learning media.

2.1. Qualitative Method: ASSURE Model for Design and Development

The learning media design process follows the ASSURE instructional design model (Heinich et al. in Arsyad, 2017), which consists of six stages:

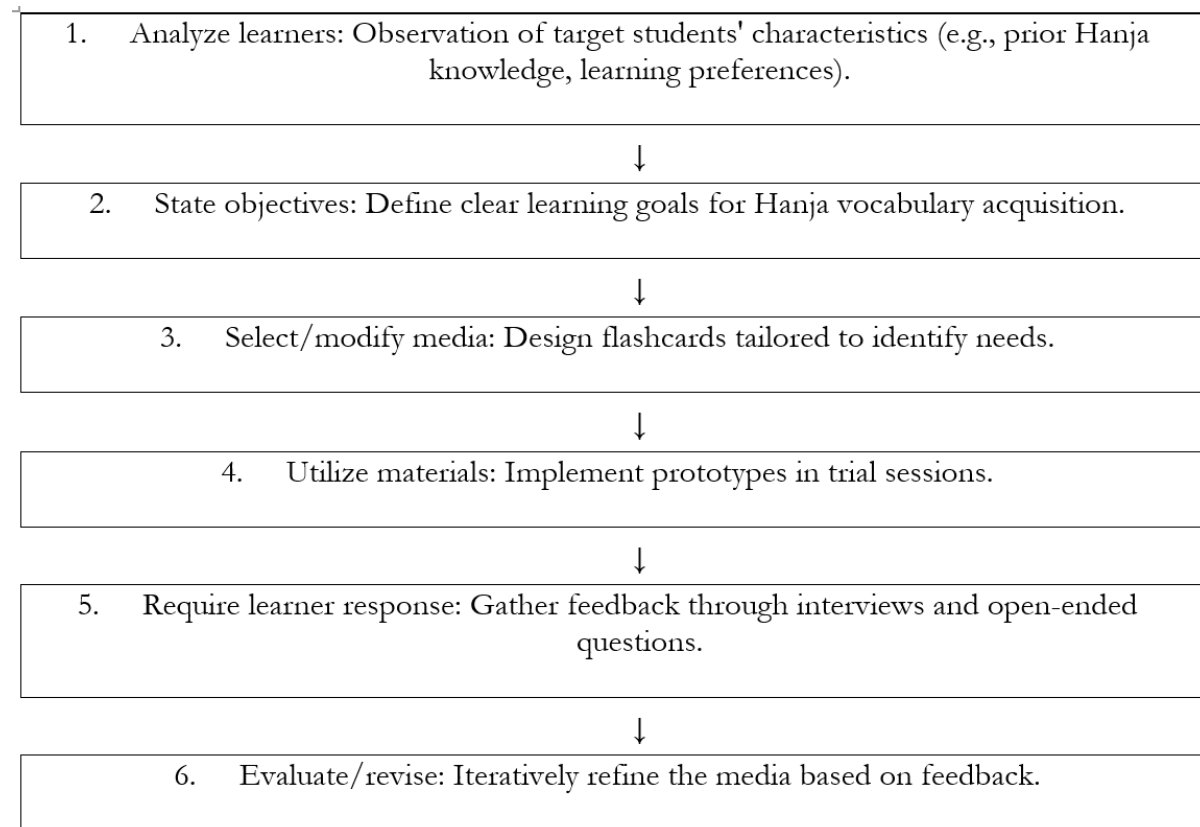


Figure 1. Research design

This qualitative approach provides insights into the phenomenological aspects of Hanja learning, capturing learners' challenges and preferences (Tohirin, 2019).

2.2. Quantitative Method: Feasibility Validation

Quantitative method is a method based on concrete data, research data in the form of numbers that were measured using statistics as a test tool for calculations which then produces a conclusion (Sugiyono, 2010). This quantitative method was chosen to measure the feasibility of the Hanja flash card learning media that has been designed. The data that has been obtained were described descriptively where the description of the data is carried out descriptively to provide a more in-depth description of a symptom or phenomenon (Priyono, 2008, p. 37).

The instrument used in this research is a validation questionnaire sheet. The validation questionnaire sheet is a tool used in collecting feasibility validation data by material experts, media experts, and 30 Korean language learning students who take Hanja courses in the even semester of 2023/2024.

Data collection in this study was carried out by literature study to design the learning media, distributing questionnaires to obtain validation assessments, and interviews with material experts, learning media experts, as well as 15 students selected based on the questionnaire results. Students

who gave the lowest, medium, and highest scores were selected to get more in-depth and varied data.

The questionnaire results were analyzed using the following formula:

$$\text{Percentage} = \frac{\text{Total Score obtained}}{\text{Maximum Score}} \times 100$$

The feasibility of the developed learning media was assessed using the following interpretation scale:

Table 1.

Interpretation scale criteria (Arikunto, 2009)

Score Range	Criteria
<21%	Highly Inappropriate
21%-40%	Inappropriate
41%-60%	Moderately Appropriate
61%-80%	Appropriate
81%-100%	Highly Appropriate

The learning media were considered feasible if it achieves a percentage score $\geq 61\%$. The calculation results were then be descriptively explained in narrative form.

2.3. Data Collection and Analysis

The study employed multiple data collection strategies to ensure robust findings. First, a comprehensive literature review was conducted to establish foundational knowledge for flashcard development, with particular attention to Hanja structural components including stroke-order principles and frequently used radicals.

For quantitative data gathering, structured questionnaires were administered through digital platforms to enable efficient data collection. Respondent feedback was numerically coded to facilitate statistical evaluation of the flashcards' effectiveness.

The qualitative component involved in-depth interviews with a strategically selected cohort of 15 participants, comprising:

- 1) Five students demonstrating low engagement with the materials
- 2) Five showing average performance levels
- 3) Five exhibiting high proficiency

This stratified sampling approach enabled the capture of diverse learning experiences and perspectives. This integrative analytical approach, following Creswell's (2014) mixed-methods framework, allowed for comprehensive interpretation of results and strengthened the validity of conclusions drawn from the research data.

3. FINDINGS AND DISCUSSION

3.1. Initial Design Phase of Hanja Flashcards for Korean Vocabulary Learning

The development process began with a comprehensive analysis of learner characteristics. The target demographic consisted of intermediate-level Korean language students aged 20-23, all sixth-semester majors who had completed advanced coursework using the textbook "Integrated Korean for Indonesians Level 6" and TOPIK II preparation classes. Among the 30 participants, assessment data revealed varied Korean language proficiency levels: 13 students had attempted the TOPIK II exam (4 passing at level 4, 1 at level 5, and 8 not passing), while 3 had taken TOPIK I (2 passing at level 2 and 1 at level 1). The remaining 14 participants had no TOPIK examination experience. Notably, the cohort demonstrated strong academic performance with an average cumulative GPA of 3.6, indicating their preparedness for Hanja study.

The subsequent objective-setting phase established clear pedagogical goals for the flashcard media. Through careful examination of the Hanja course syllabus and consultation with the instructor, two primary learning objectives were identified: (1) expanding Hanja vocabulary

knowledge and (2) improving retention of Korean Hanja vocabulary. This focused approach aligns with the instructional design principles advocated by Hasan et al. (2021), who emphasize that effective learning media should target specific competencies rather than attempting to address multiple learning objectives simultaneously. By concentrating on these two fundamental aspects of Hanja acquisition, the flashcards were designed to provide maximum support for these particular learning outcomes while maintaining instructional coherence and avoiding the dilution of effectiveness that can occur with overly broad educational tools.

The development of Hanja flashcards (*select and modify*) was guided by preliminary survey data collected from students who had completed the Hanja course. Among 48 respondents, a significant majority (27 students, representing 56.25%) expressed a preference for visual learning materials in their Hanja studies. This finding directly informed the media selection process, leading to the creation of thematic flashcards targeting essential vocabulary categories: size (크기), direction (방향), daily life (일상생활), nature and humans (자연과 인간), and body parts (몸). The final set comprised 30 carefully selected Hanja characters distributed across these categories (5 for direction, 6 for size, 5 for daily life, 5 for nature and humans, 4 for family, and 5 for body parts), ultimately incorporating 300 vocabulary terms with 10 items per card. All lexical content was rigorously sourced from authoritative references including the Naver Online Dictionary and the "Talk to Me in Korean" textbook series to ensure linguistic accuracy and pedagogical relevance.

To maximize learning effectiveness, an interactive flashcard methodology was developed featuring three key phases: preparatory study of card contents, visual display of Hanja mnemonics (either in group or individual settings), and active recall practice where learners verbally produce vocabulary terms corresponding to the displayed characters. This approach is theoretically grounded in dual-coding theory, effectively combining visual and verbal cognitive processing to enhance memory retention, while also incorporating principles of active recall and spaced repetition that have been empirically shown to strengthen long-term knowledge retention. The survey results clearly demonstrate students' preference for visual learning supports, validating the flashcard format's appropriateness for Hanja instruction. By focusing on high-frequency thematic vocabulary and incorporating interactive elements, the designed materials address both the practical needs of intermediate learners and the cognitive challenges inherent in Hanja acquisition. This pedagogical tool shows particular promise for addressing the well-documented difficulties students face in memorizing and retaining Hanja characters, though further research is needed to assess its longitudinal impact on vocabulary retention and application in real-world language use contexts. The current implementation serves as a valuable foundation for future developments in Korean language instructional materials.

During the Select or Modify Media stage, a structured gameplay method was developed to enhance memory retention and vocabulary acquisition. The designed flashcard activity follows these steps:

- 1) Preparation: Before starting, players should first study the Hanja characters and vocabulary presented on each flashcard.
- 2) Display: The front side of the card (featuring visual illustrations) should be shown—if playing in a group, reveal it to opponents; if studying individually, display it to yourself.
- 3) Recall: After viewing the front, the player (or individual learner) must verbally recall and pronounce one corresponding vocabulary term listed on the back of the card.

This interactive approach combines visual learning with active recall, reinforcing Hanja recognition and vocabulary retention through repetitive practice.

3.2. Design Phase of Hanja Flashcards for Vocabulary Learning

The flashcard design was developed using Canva, a graphic design platform selected for its robust features that optimally support the creation of educational flashcards. This application provides versatile templates, image editing tools, and layout options that facilitate the production of visually engaging and pedagogically effective learning materials.

Frontside Design Components

a. Hanja Character

The top section displays the Chinese character (Hanja) or its stroke composition. This serves as the primary visual focus of each card.

b. Illustration

This section features redesigned images sourced from Naver Online Dictionary, enhanced for visual appeal and thematic consistency. Each illustration visually interprets the meaning of the corresponding Hanja strokes above it. These images are included because while vocabulary acquisition is the primary focus, understanding the semantic roots of Hanja characters deepens learners' comprehension before studying derived vocabulary.

c. Pronunciation

The Korean pronunciation (Hangeul) of the Hanja character appears prominently on the card face. This placement supports the gameplay mechanics where opponents first vocalize the character's pronunciation before learners recall associated vocabulary.

d. Meaning

Complementing the pronunciation, this section provides the Korean language meaning of the Hanja character. Together with the pronunciation component, it forms a complete phonetic-semantic unit for comprehensive character recognition

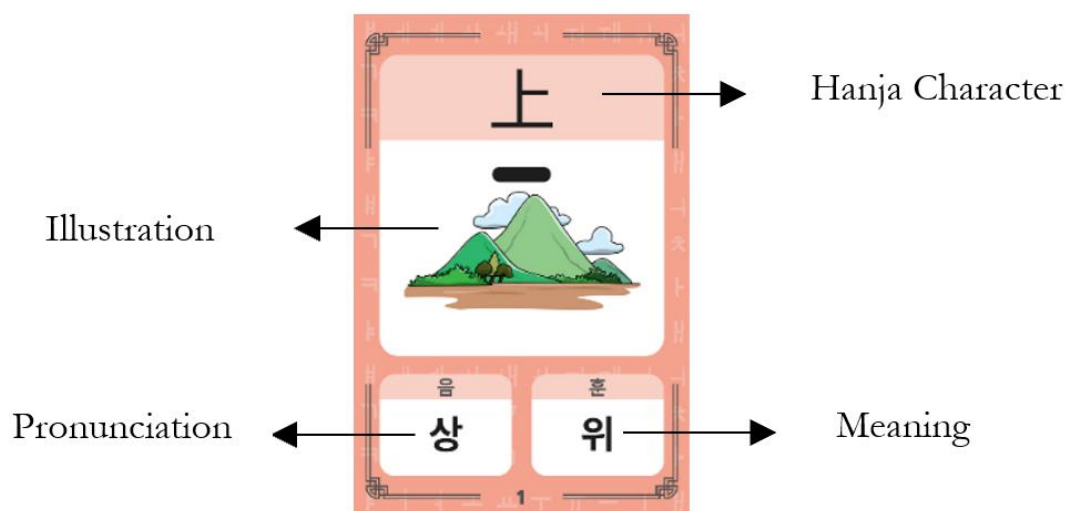


Figure 2. Flashcard frontside design

Meanwhile, the back side of the card features the following design elements:

Backside Design Components

a. Indonesian Meaning

This section provides the Indonesian translation of the Hanja character. For instance, as shown in the example, the Hanja "上" means "상" in Korean and translates to "atas" (above/up) in Indonesian.

b. Vocabulary Table

The reverse side of each flashcard presents a systematically organized vocabulary table containing 10 key terms. This table displays each vocabulary item in three parallel columns: (1) the modern Korean term in Hangeul script, (2) its corresponding Hanja character representation, and (3) the precise Indonesian translation. This tri-column format enables comprehensive vocabulary acquisition by simultaneously developing character recognition (Hanja), modern usage (Hangeul), and conceptual understanding (Indonesian meaning). The selection of 10 terms per card follows optimal cognitive load principles for effective memorization.

c. Page Numbering System

A sequential numbering system (Cards #1 through #30) appears consistently on both faces of each flashcard. This numbering serves three crucial organizational purposes: first, it maintains the integrity of the learning progression when cards are used in varying sequences; second, it allows immediate verification of complete sets; and third, it facilitates efficient reorganization after group study sessions or independent practice. The numbering is positioned conspicuously yet unobtrusively to avoid interfering with the primary learning content while remaining easily visible during use.

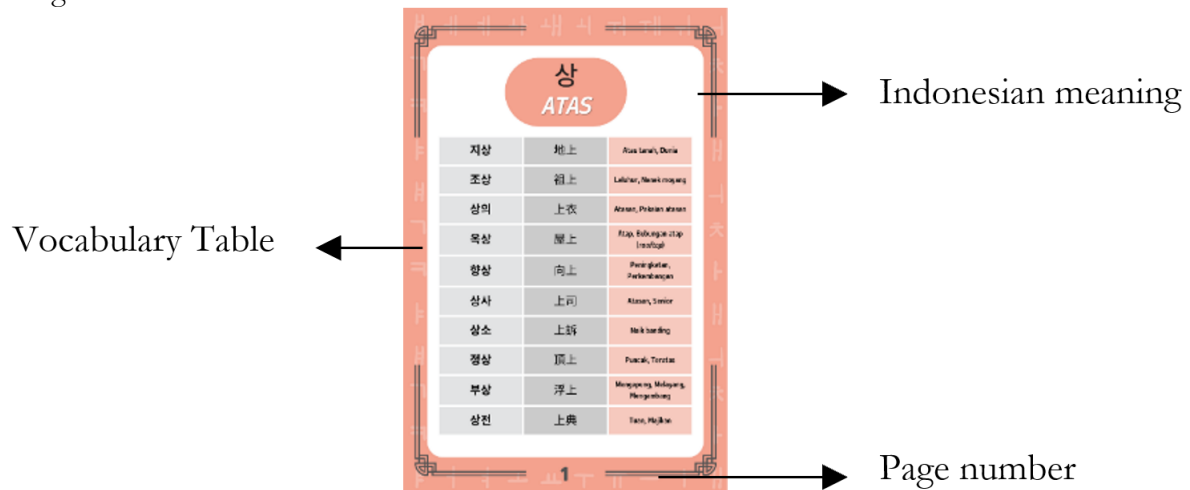


Figure 3. Flashcard backside design

Here is an example of how five colors are applied in Hanja flash cards:



Figure 4. Colors applied to flashcards

The set also comes with a **specially designed flashcard box** for convenient card storage.

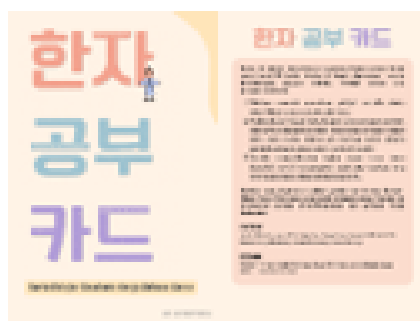


Figure 5. Hanja flashcard box design

The card box is labeled "한자 공부 카드" (Hanja Study Cards) along with the Indonesian description "Kartu Belajar Kosakata Hanja Bahasa Korea" (Korean Hanja Vocabulary Learning Cards). On the back of the box, there are instructions on how to use the cards, as well as references to the source materials used in creating them. The cards themselves feature a bright-colored background to ensure strong contrast with the text, enhancing readability.

3.3. Validation Results of Hanja Flashcard Design as a Learning Medium for Korean Hanja Vocabulary

The validation process involved 1 subject matter expert, 1 instructional media expert, and 30 university students. After distributing questionnaires, interviews were conducted to obtain deeper evaluations and validation. Below are the validation results from the subject matter and instructional media experts.

Table 2.

Material validation results

No.	Indicator	Percentage	Feasibility Level
1.	Alignment with syllabus	100%	Highly Suitable
2.	Clarity of images and tables	90%	Highly Suitable
3.	Appropriateness of language used	86.67%	Highly Suitable

Overall, the material in the flashcards was deemed "Highly Suitable" by the subject matter expert, with a final feasibility percentage of 93.3%. Based on these results, the content has been validated as highly suitable for use. The expert agreed that the flashcards effectively focus on Hanja vocabulary learning but suggested that future versions could include additional content, such as the origins of Hanja characters or how vocabulary is formed, to further enhance learning.

Table 3.

Instructional media validation results

No.	Indicator	Percentage	Feasibility Level
1.	Appropriateness of color, font type, and size	80%	Highly Suitable
2.	Image quality	90%	Highly Suitable
3.	Color harmony	75%	Suitable
4.	Layout design	80%	Highly Suitable
5.	Flashcard size	100%	Highly Suitable

The overall media feasibility score given by the instructional media expert was 81.67%, classified as "Highly Suitable." However, the expert provided several suggestions for improvement:

- 1) Background color consistency – Using multiple colors without clear thematic separation may cause distraction. A single background color was recommended.
- 2) Contrast issues – On purple backgrounds, text in tables was not clearly visible due to the dark shade.

- 3) Game plan clarity – The usage instructions (e.g., group vs. individual study) should be more explicitly defined, even if flexible in practice.
- 4) Missing content overview – The back of the card box lacks a description of the material covered in the flashcards.

Table 4.

Student validation results

No.	Indicator	Percentage	Feasibility Level
1.	Alignment with syllabus	89.7%	Highly Suitable
2.	Encourages curiosity	89.3%	Highly Suitable
3.	Design motivates learning	96%	Highly Suitable
4.	Appropriateness of typography	95.3%	Highly Suitable
5.	Image quality	93%	Highly Suitable
6.	Color harmony	92.3%	Highly Suitable
7.	Facilitates understanding	89.7%	Highly Suitable
8.	Ease of use	94.3%	Highly Suitable
9.	Flashcard size	95.3%	Highly Suitable

Students rated the flashcards 92.7% ("Highly Suitable"), indicating a positive reception for Hanja vocabulary learning. This is aligned with Fitriyani & Nulanda (2017), who found that flashcards help students focus and recognize words more easily. Field observations also confirmed increased enthusiasm and engagement among learners.

Based on the validation result above, the Hanja flashcards have been validated as highly effective by experts and students, with minor improvements suggested for color contrast, instruction clarity, and content descriptions. The design successfully supports Hanja vocabulary acquisition, making it a promising tool for Korean language learners.

4. CONCLUSION

This study aimed to develop and validate a set of Hanja flashcards as an instructional medium for learning Korean Hanja vocabulary. The research findings demonstrated that the designed learning materials received overwhelmingly positive evaluations from both experts and students. The subject matter expert rated the flashcards with a 93.3% feasibility score, categorizing them as "Highly Suitable." Similarly, the instructional media specialist evaluated the design at 81.67%, also deeming it "Highly Suitable." Student validation yielded particularly strong results, with a 92.7% feasibility rating and the same "Highly Suitable" designation. These consistent validation results across all evaluator groups confirm the effectiveness of the flashcards as a learning tool. Based on these outcomes, the researcher recommends further development of Hanja learning media, suggesting both the creation of additional instructional materials and potential refinements to the current flashcard design to enhance its educational value. The study's results strongly support the implementation of these flashcards in Korean language education, particularly for Hanja vocabulary acquisition.

The triangulation of these validation results from three distinct stakeholder groups provides compelling evidence for the effectiveness of the flashcard design. The consistently high ratings across all evaluation metrics suggest that the materials successfully bridge the gap between pedagogical requirements and learner preferences. Based on these findings, the study recommends several directions for future development: first, the expansion of the flashcard system to cover additional Hanja vocabulary sets; second, the potential adaptation of the design for digital platforms; and third, the incorporation of supplementary materials that could further enhance the learning experience, such as mnemonic devices or contextual usage examples.

These research outcomes have important implications for Korean language education, particularly in the often-challenging area of Hanja instruction. The demonstrated effectiveness of the flashcards suggests they could serve as a valuable resource for both classroom instruction and independent study. Furthermore, the study's methodology provides a replicable framework for

developing and validating similar language learning materials for other challenging linguistic components. The positive reception from students indicates that such well-designed, research-based materials can significantly impact learner engagement and outcomes in foreign language acquisition.

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