Development of the Kanji Stacko Board Game as a Kanji Learning Medium

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Abstract

Kanji learning remains one of the major challenges for students in the Japanese Language Education Study Program due to the large number of kanji characters, multiple readings, and the limited availability of interactive learning media. Therefore, an engaging learning medium is needed to support the learning process. This study aimed to develop the Kanji Stacko Board game as a learning media for kanji and to evaluate its feasibility.

This study employed a user-centered design approach. The development process included analyzing JLPT N5-N4 kanji materials, designing the game concept and media, developing the prototype, preparing the evaluation instrument, and conducting a feasibility assessment followed by revisions based on the validators' suggestions. The feasibility assessment involved one media expert and one subject matter expert using a five-point Likert scale questionnaire. The data were analyzed descriptively using percentage analysis. The results showed that the Kanji Stacko Board game was successfully developed as a board game-based learning media. The media expert and subject matter expert evaluations obtained feasibility scores of 94% and 96%, respectively, both categorized as highly feasible. Therefore, the Kanji Stacko Board game is considered highly feasible for use as a kanji learning media.

Keywords: *board game, learning media, kanji, Kanji Stacko, prototype.*

1. Introduction

Kanji is one of the essential elements in Japanese language learning because it plays an important role in understanding vocabulary commonly used in texts and everyday communication. Therefore, kanji proficiency is a competency that needs to be acquired by students of Japanese Language Education, particularly at the beginner level. However, learning kanji remains challenging due to the large number of kanji that must be learned, the variety of readings, and the complexity of forming vocabulary through combinations of multiple kanji. Kristania et al. (2022) found that 97.1% of Japanese Language Education students experienced difficulties in learning kanji, particularly in terms of readings, stroke order, and the large number of kanji that need to be mastered (Kristania et al., 2022).

In addition to the complexity of the material, kanji learning is still dominated by the use of textbooks and memorization methods, which tend to place students in a passive role in the learning process. This condition makes learning less engaging and may reduce students' learning motivation. Therefore, learning media that can provide a more interactive learning experience are needed so that students can actively engage in the learning process.

Various studies have developed game-based learning media to support kanji learning. Prayoga (2023) developed the J-KYOU board game as a learning medium for N5-level kanji. Fajar (2020) developed the digital learning medium Kanji Quest Typed to support independent kanji learning. Syifa' and Parastuti (2020) utilized Uno Stacko as a learning medium for

Japanese vocabulary, while Madani (2025) developed the Daimyo Kanji card game to improve students' kanji proficiency. The results of these studies indicate that game-based learning media can improve students' motivation, activity, and engagement in the learning process.

Nevertheless, research on learning media in the form of board games with a stacking game mechanism specifically designed for learning two-character kanji vocabulary at the JLPT N5–N4 levels remains limited. Most previous studies have used card-based or digital media, and therefore, there have been relatively few studies developing learning media based on stacking blocks that combine physical activity with kanji learning.

Based on these conditions, this study develops the Kanji Stacko board game as a learning medium for two-character kanji vocabulary at the JLPT N5–N4 levels. This medium adapts the concept of a stacking game, requiring students not only to maintain the balance of the blocks but also to recognize kanji, state their readings, and form correct vocabulary. This study aims to produce a design for the Kanji Stacko board game and determine its feasibility as a kanji learning medium for beginner students of the Japanese Language Education Study Program.

2. Methodology

This study is a development research study that uses the User-Centered Design (UCD) approach to design a learning medium in the form of the Kanji Stacko board game (Tham, 2022). This approach was chosen because it focuses on users' needs, allowing the developed medium to be adapted to the characteristics of learners. The study was conducted in 2026 at the Japanese Language Education Study Program, Faculty of Languages and Arts, Universitas Negeri Semarang. The study was limited to the prototype design and feasibility testing stages.

The development process consisted of six stages: (1) analyzing JLPT N5–N4 kanji materials to be used in the game; (2) designing the game concept and rules; (3) designing the learning medium and its game components; (4) developing the Kanji Stacko board game prototype; (5) developing an assessment instrument in the form of a questionnaire; and (6) conducting a feasibility test and making revisions based on feedback from the validators. The kanji material analysis was conducted with reference to Basic Kanji Book Vol. 1 and the Japanese Kanji Study application, while the media design was carried out using Canva. The prototype was made using wooden blocks as the main components of the game.

The feasibility test was conducted to determine the feasibility level of the Kanji Stacko board game as a learning medium before it was used in kanji learning. The assessment was conducted by one media expert and one material expert using a five-point Likert scale questionnaire, consisting of a score of 5 (very good), 4 (good), 3 (fair), 2 (poor), and 1 (very poor). The assessment data were analyzed using descriptive quantitative analysis by calculating the percentage of the obtained score relative to the maximum score. The resulting percentage was then interpreted based on the feasibility criteria proposed by Akbar (2013) to determine the feasibility level of the developed medium.

3. Result

The result of this study is the Kanji Stacko board game, which was developed as a learning medium for JLPT N5 to N4 kanji. The medium adapts the concept of a stacking game combined with kanji learning activities. The resulting product consists of 39 game blocks, comprising 35 kanji blocks and 4 special もう一度 (Mou Ichido) blocks, and is equipped with a storage box and a game guide sheet. The Kanji Stacko board game can be played by two to six players.



Figure 1. Kanji Stacko Board Game

The main components of the game are wooden blocks measuring 2.5 × 1.5 × 7.5 cm, with each block displaying one kanji character. In addition to the game blocks, the product is also equipped with a storage box made of 310 gsm ivory paper and a game guide sheet containing the game rules and other supporting information.

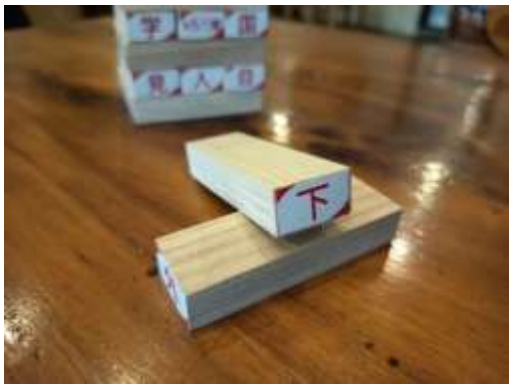


Figure 2. Appearance of the Kanji Stacko Blocks

During the game, players take turns removing a block from the game structure, stating the kanji and its reading, and then connecting it with the kanji held by the previous player to form a two-kanji vocabulary item. If a player is unable to continue the game, the player may use a もう一度 (*Mou Ichido*) block starting from the third round. The game ends when the block structure collapses, and the player who causes the structure to collapse is declared the loser, while the last remaining player becomes the winner.



Figure 3. Initial Game Setup

To determine the feasibility of the medium, a validation test was conducted by one media expert and one material expert using a five-point Likert-scale questionnaire. The validation by the media expert resulted in a score of 47 out of a maximum score of 50, or 94%, which falls into the Highly Feasible category. The detailed results of the media expert's assessment are presented in Table 1.

Table 1. Media Expert Validation Results

No	Question	Score	Description
1.	The board game design is attractive for use in learning.	5	Very Good
2.	The text and kanji size on the medium are easy to read.	5	Very Good
3.	The colors and visual design of the medium are well designed.	4	Good
4.	The game instructions and rules are easy for users to understand.	5	Very Good
5.	The game mechanism is clearly presented and not confusing.	5	Very Good
6.	The medium is easy to use in teaching and learning activities as well as for independent learning.	4	Good
7.	The board game creates an interactive and enjoyable learning atmosphere.	4	Good
8.	The design does not interfere with the focus on the kanji being played.	5	Very Good
9.	The quality of the materials and game components is good.	5	Very Good
10.	The *board game* is feasible for use as a learning medium for N5–N4 kanji.	5	Very Good
Total Score		47/50	Very Good

The validation by the material expert resulted in a score of 48 out of a maximum score of 50, or 96%, which falls into the Highly Feasible category. The detailed results of the material expert's assessment are presented in Table 2.

Table 2. Material Expert Validation Results

No	Question	Score	Description
1.	The selection of kanji is appropriate to students' needs.	4	Good
2.	The kanji displayed on the learning medium can be read clearly.	5	Very Good
3.	The difficulty level of the material is appropriate for beginner students.	5	Very Good

4.	The use of kanji in the game is easy to understand.	4	Good
5.	The material presented supports the understanding of N5–N4 kanji.	5	Very Good
6.	The material in the *board game* supports students' independent learning.	5	Very Good
7.	The material presented is relevant to kanji learning in university courses.	5	Very Good
8.	The content presented in the medium can increase students' interest in learning kanji.	5	Very Good
9.	The selection of kanji in the medium is appropriate.	5	Very Good
10.	The learning medium is feasible for use as a learning medium for N4–N5 kanji.	5	Very Good
Total Score		48/50	Very Good

In addition to providing assessments, the validators also provided several suggestions for improving the medium, including adding more detailed game instructions, providing information on N5 and N4 kanji levels, and including a list of kanji or an answer key. Based on these suggestions, revisions were made by adding a game guide sheet along with supporting information to the product packaging, resulting in a refined final product.



Figure 4. *Kanji Stacko* Game Guide Sheet

4. Discussion

This study aimed to produce a learning medium design in the form of the Kanji Stacko board game for two-kanji vocabulary at the JLPT N5–N4 levels and to determine its feasibility. Based on the research results, both objectives were achieved through the development of the medium using the User-Centered Design (UCD) approach and the results of the feasibility test, which indicated that the medium was categorized as Highly Feasible. The development of this medium was based on the needs of students who still experience difficulties in learning kanji due to the large number of characters, the variety of readings, and the limited availability of engaging learning media. This condition was also identified in the study by Kristania et al. (2022), which stated that kanji learning remains one of the difficulties faced by Japanese language learners.

Unlike most learning media that adapt card games, Monopoly, Snakes and Ladders, or Ludo, the Kanji Stacko board game was developed by adapting a stacking game mechanism. This mechanism was selected to provide a more varied learning experience because players are required not only to understand kanji material but also to consider the balance of the block structure when deciding which block to remove. Thus, the game does not focus solely on learning activities but also incorporates elements of strategy and carefulness, making the game more interactive and less monotonous. This concept shares similarities with the study by Prayoga (2023), which developed a board game-based learning medium by utilizing games as a means of learning. However, the Kanji Stacko board game has a different characteristic because it uses a stacking game mechanism that adds the challenge of maintaining the balance of the tower throughout the learning process.

The game mechanism was also designed so that each turn is connected to the learning objectives. Players are not only required to take a block and read the kanji but also to connect the kanji obtained with the kanji held by the previous player to form a two-kanji vocabulary item. The use of two-kanji combinations was intended to keep the game rules simple and easy to understand while also adapting to the game mechanism, which uses only one block per turn. In addition, this study introduced special もう一度 (*Mou Ichido*) blocks as a mechanism to maintain the continuity of the game when players have difficulty finding a vocabulary combination. The use of these blocks is only permitted starting from the third round so that the challenge at the beginning of the game is maintained. On the other hand, using a もう一度 block still carries the consequence of taking one additional block, thereby maintaining the balance of the game and requiring players to plan their next move strategically.

Compared with previous studies, the Kanji Stacko board game has several distinguishing characteristics. Prayoga (2023) developed a board game-based medium for kanji learning, while Madani (2025) developed a card-based game medium. This study combines kanji learning with a stacking game mechanism, requiring players not only to practice recognizing and forming two-kanji vocabulary items but also to consider the balance of the tower, determine which block to remove, and develop strategies that may affect the next player's turn. These characteristics provide a more dynamic playing experience because the learning and strategic aspects of the game take place simultaneously.

The results of the feasibility test, which indicated a Highly Feasible category, suggest that the developed medium fulfilled the aspects assessed by the validators, both in terms of the medium and the learning material. The feedback provided by the validators was also used as a basis for improving the product by adding more detailed game instructions, information on N5–N4 kanji levels, and a vocabulary answer key, making the medium more complete and easier to use. This indicates that the development process using the User-Centered Design

approach allowed the medium to be refined based on user needs and evaluation results during the development process.

This study has limitations because it focuses only on the design and feasibility testing stages of the medium, in accordance with the objectives established for the study. Therefore, future research could extend this study by examining the effectiveness of the Kanji Stacko board game in the learning process to determine its effect on students' kanji vocabulary proficiency and learning outcomes.

5. Conclusion

This study successfully produced the *Kanji Stacko* board game as a learning medium for two-kanji vocabulary at the JLPT N5–N4 levels, developed using the *User-Centered Design* (UCD) approach. Based on the development process and feasibility testing, the developed medium was considered feasible for use as an alternative kanji learning medium for beginner students of the Japanese Language Education Study Program. The development of this medium demonstrates that combining a stacking game mechanism with kanji vocabulary formation activities can produce a learning medium that not only addresses the learning material but also provides a more interactive learning experience through strategic elements and game balance. This study was limited to the design and feasibility testing stages and therefore did not examine the effectiveness of the medium in improving students' kanji proficiency. Therefore, future research is recommended to examine the effectiveness of the *Kanji Stacko* board game in the learning process and to develop materials covering higher kanji levels so that the medium can be utilized more broadly.

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