

WARNAFUSI: A COLOUR-BASED BOARD GAME FRAMEWORK FOR INTERDISCIPLINARY EDUCATION

Fadhil Muhammad Ghifari¹, Ratih Pertiwi²

^{1,2}Universitas Esa Unggul, Jl. Arjuna Utara No.9, Kebon Jeruk 11510, Jakarta, Indonesia

Email: fadhil17ghifari@student.esaunggul.ac.id

Article History

Received: 04-06-2025

Revision: 13-06-2025

Accepted: 15-06-2025

Published: 17-06-2025

Abstract. Warnafusi is designed as a creative board game to encourage students to learn across subjects through the combination of colors and the selection of different scenarios. This article reviews how the game has evolved, how it works, and what it can offer to students. The game is designed for 2–4 players who can enjoy the game in 30–60 minutes. By combining gamification, cognitive learning, and social interaction, Warnafusi serves as a versatile tool that enhances interest and memory retention of facts in subjects such as science, math, and history, both in and out of school. Developing Warnafusi followed a qualitative descriptive and iterative process, focusing on the design and analysis of concepts. The prototype was reviewed by a panel of subject matter experts, including educators from diverse disciplines, game designers, and pedagogical consultants. Data were collected through classroom observation, focus group discussions with students, and teacher interviews. The analysis results show that Warnafusi introduces a style that is useful for integrating concepts from color theory, strategy, and social elements into one course. Because its challenge cards are customizable, this course is suitable for learning situations in schools and casual environments. By using color combinations as a method, this course inventively enhances gamification in education by improving a person's mental and social abilities. Warnafusi exemplifies the potential of board games to enrich the learning experience.

Keywords: Board Game, Gamification, Colour Theory, Interdisciplinary Learning, Educational Tool

Abstrak. Warnafusi dirancang sebagai permainan papan kreatif untuk mendorong siswa belajar lintas mata pelajaran melalui penggabungan warna dan pemilihan skenario yang berbeda. Artikel ini mengulas bagaimana permainan ini berkembang, cara kerjanya, dan apa yang dapat ditawarkannya kepada siswa. Permainan ini dirancang untuk 2–4 pemain yang dapat menikmati permainan dalam waktu 30–60 menit. Dengan menggabungkan gamifikasi, pembelajaran kognitif, dan sosial, Warnafusi berfungsi sebagai alat serbaguna yang meningkatkan minat dan daya ingat fakta dalam mata pelajaran seperti sains, matematika, dan sejarah, baik di dalam maupun di luar sekolah. Pengembangan Warnafusi mengikuti proses deskriptif kualitatif dan iteratif, dengan fokus pada desain dan analisis konsep. Prototipe ditinjau oleh panel ahli materi pelajaran, termasuk pendidik dari berbagai disiplin ilmu, perancang permainan, dan konsultan pedagogi. Data dikumpulkan melalui observasi kelas, diskusi kelompok fokus dengan siswa, dan wawancara guru. Hasil analisis menunjukkan bahwa Warnafusi memperkenalkan gaya yang berguna untuk menyatukan konsep dari teori warna, strategi, dan elemen sosial ke dalam satu kursus. Karena kartu tantangannya dapat disesuaikan, kursus ini cocok untuk situasi belajar di sekolah dan di lingkungan santai. Dengan menggunakan perpaduan warna sebagai metode, kursus ini secara inventif meningkatkan gamifikasi dalam pendidikan dengan meningkatkan kemampuan mental dan sosial seseorang. Warnafusi mencontohkan potensi permainan papan untuk memperkaya pengalaman belajar

Kata Kunci: Permainan Papan, Gamifikasi, Teori Warna, Pembelajaran Interdisipliner, Alat Pendidikan

How to Cite: Ghifari, F. M & Pertiwi, R. (2025). Warnafusi: A Colour-Based Board Game Framework for Interdisciplinary Education. *Indo-MathEdu Intellectuals Journal*, 6 (3), 4165-4168. <http://doi.org/10.54373/imeij.v6i3.3337>

INTRODUCTION

Gamification has been found to increase students' interest, motivation and results in education by applying game design. Board games particularly stand out in helping people interact, improve their thinking skills and learn by doing activities. *Bermain menggunakan board game dapat mengasah kemampuan dalam berlogika, menganalisis, mengingat, bercerita dan menambah pengetahuan* (Phieter, Swendra, & Yudani, 2019) This means that playing board games can hone skills in logic, analysis, memory, storytelling and knowledge. In education, research has found that colours play a part in shaping how we learn, feel and pay attention. A plethora of literature on board games has showcased their perks for learning. They are deemed useful in that they foster interactive and amusing learning ambiance and a non-threatening atmosphere where students do not have to hold back and be afraid of making mistakes, thus building their self-confidence (Puwaningsih & Hakim, 2020). In this paper, the "Warnafusi" board game is introduced to show how colour blending plays are combined with objectives from various academic subjects. This study has shown that the game-based cultural awareness tools have certain features that might make them more efficient than non-game counterparts in fostering certain aspects of culture awareness (Gomez & Marklund, 2018). The educational tool, Warnafusi, can work across science, history and math, making its use both stimulating and adaptable in many learners' environments.

METHOD

Developing Warnafusi followed a qualitative descriptive and iterative process, focusing on the design and analysis of concepts. It began with selecting the need for a game that would focus on colour theory, logic and strategy. Board game sessions at The Bunker Cafe became a source of inspiration, as mechanics were judged based on how much they helped with education. Speaking with designers in informal chats provided useful hints about game design. With each iteration, the mechanics improved by adding colour blending and using generalised challenge cards for teaching multiple subjects. The mechanics were analysed and related to educational goals, predicting enhancements in thinking skills, memory and teamwork.

The prototype was reviewed by a panel of subject matter experts, including educators from diverse disciplines, game designers, and pedagogical consultants. A structured validation instrument was used to assess the game's relevance, usability, educational value, and interdisciplinary potential. Feedback was used to refine the game design. The revised board game was piloted in two interdisciplinary learning environments involving middle-school students. Data were collected through classroom observation, focus group discussions with

students, and teacher interviews. The aim was to assess engagement levels, interdisciplinary comprehension, and collaborative learning outcomes.

RESULTS

This game accommodates 2 to 4 players and takes about 30–60 minutes to play. The game is made up of two dice, colour cards (red, blue, yellow), thematic cards, strategy cards, challenge cards and target cards. Each player is given a random target card specifying the needed tertiary colours and the cards needed for victory. Players move along the board by rolling dice and when they land on spaces, they might draw a strategy card, answer a challenge or pick up a colour card. Mixing primary colours is essential (e.g., red and yellow to make orange) and a chart listing all available colours appears at the start and every three rounds. During each turn, participants handle four cards each, swapping three thematic cards for one colour card (and the reverse). Normal mode targets one target at a time and Level Up mode tackles two to three targets which makes them more suitable for different skill levels. Adjustable challenge cards help Warnafusi cover a lot of learning areas, making it flexible and inclusive.

DISCUSSION

Different areas of the curriculum are addressed by the way Warnafusi is designed. Players practise colour theory as they blend colours and they activate planning and problem-solving abilities while using limited resources. Question cards can be changed to fit themes such as science (“What is photosynthesis?”), math (“What is 12 divided by 4?”) or history (“Who declared Indonesia’s independence?”), making it possible to explore different topics. Because it can be changed to fit different ages, Warnafusi is useful for educators. Trading and mutual aid are encouraged by strategy cards in this type of game. Problems related to colour blindness can be solved by incorporating additional symbols or textures into playing cards. If more people want to play, additional game modes or upgraded items could help increase the number of players. Further development could involve an online programme and research studies to back the educational advantages.

CONCLUSION

Warnafusi introduces a useful style for uniting concepts from colour theory, strategy and social elements into one course. Because its challenge cards can be customised, it fits both school and casual learning situations. By using colour blending as a method, it inventively

improves gamification in education by enhancing people's mental and social abilities. Warnafusi exemplifies the potential of board games to enrich learning experiences.

REFERENCES

- Gomez, C. N., & Marklund, B. B. (2018). A Game-Based Tool for Cross-Cultural Discussion: Encouraging Cultural Awareness with Board Games. *INTERNATIONAL JOURNAL OF SERIOUS GAMES*, 81-89.
- Phieter, J. E., Swendra, C. G., & Yudani, H. D. (2019). Perancangan Board Game Untuk Pelajaran Sejarah Anak Sekolah Menengah Pertama. *Jurnal DKV Adiwarna*, 8.
- Puwaningsih, S., & Hakim, L. N. (2020). Congklak Board Game: A Way to Preserve Local Culture in Grammar Class. *ELTLT*.