Board Game Development to Improve College Students' Conflict Management

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Abstract
The low conflict management skills of students impact psychological aspects and interpersonal relationships. This study aims to develop a learning medium in the form of a board game as a means to improve students' conflict management skills. The method used is Research and Development (R&D) with the ADDIE model, which includes the stages of Analysis, Design, Development, Implementation, and Evaluation. In the analysis stage, data were obtained from 316 students, which showed that most were in the category of medium and low conflict management skills. The design stage was carried out by referring to the Thomas-Kilmann model, which includes five conflict management styles. The developed product was then validated by material, media, and service experts using the Aiken index. Next, the board game was implemented in guidance activities with a pretest and posttest design to measure its effectiveness. The results of the study indicate that the developed board game is suitable for use as a learning medium and has the potential to improve students' communication, negotiation, and conflict resolution skills. Thus, board games can be an innovative alternative in guidance and counselling services in higher education.

1. Introduction

Conflict is an inseparable part of human life, including for students. Students are required to adapt to various new responsibilities while simultaneously managing conflicts that arise in everyday life (Fauziyyah & Hertinjung, 2018). However, in reality, students' conflict management skills are still relatively low. Most students have a negative perception of conflict, with approximately 73.1% feeling uncomfortable in dealing with conflict and preferring to give in to situations that trigger tension (Tajuddin, Aningrum, & Afatal, 2022). This indicates a weakness in conflict resolution skills, which are important skills in social and academic interactions. If these problems are left untreated, they can lead to stress, anxiety, and even suicide. The risk of suicide in final-year students reaches 68.3%, largely due to the inability to cope with stress and difficulty in resolving conflicts adaptively (Putri, Yusuf, & Rozana, 2025). Lack of conflict management skills can lead to feelings of anxiety and depression among students (Tajuddin et al., 2022). In addition, the inability to resolve conflict constructively can result in more serious interpersonal relationship problems, both in academic and external contexts (Eriyanti, Arafat, & Eddy, 2021). Therefore, students must have conflict management skills.

Conflict management is a Conflict management is the process of identifying, addressing, and resolving conflicts between individuals and groups caused by differences in perspectives or interests (Fauzan, 2023). Hasanah (2020) states that conflict management is a process of assisting in conflict resolution using various forms of communication between the first party and external parties. From this statement, it can be concluded that conflict management is an individual's ability to face a problem and how the individual takes a stance to resolve it. Therefore, every individual, including students, must have good conflict management skills within themselves and identify sources of conflict in their surroundings. Good conflict management helps students build and maintain positive relationships. In an academic context, these skills are essential for creating a collaborative and productive environment (Windasari, Aini, & Rahmawati, 2024). When students are equipped with effective communication skills and constructive conflict resolution strategies, they are more likely to resolve differences without causing prolonged tension (Wang, Xie, & Xu, 2022). Emotional skills and conflict management significantly contribute to students' academic success, as they are able to navigate complex situations more effectively (Swardt, Moche, & Henga, 2021). In line with the importance of these skills, a structured effort is needed to help students develop more effective conflict management skills, one of which is through board game-based training.

One model commonly used to explain individual behavior in resolving conflict is the Thomas and Khillman method: competition, collaboration, compromise, avoidance, and accommodation. This model has been widely used as a basis for conflict management research and interventions because it is able to describe individual

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tendencies in dealing with conflict situations (Carcosia, Camara, & Malang, 2021). Although various studies have shown that game-based learning has the potential to improve conflict management skills, there is no board game based on Thomas-Khillman theory that has been systematically developed, integrated with student conflict guidance services, and equipped with standardized design, facilitation guides, and evaluation instruments (Munkvold et al., 2023). Furthermore, differences in individual characteristics, such as personality and emotional intelligence, also influence conflict resolution styles, so the media developed must accommodate this diversity (Hayuningtyas, 2022). Therefore, the development of a conflict management-based board game is needed as a valid and effective medium for conflict guidance services. Students.

Board game-assisted training can be a solution to help students identify the problems they face and provide them with skills to resolve conflicts independently. Through enjoyable gaming experiences, students are expected to learn to resolve various conflict situations that arise in their daily interactions, both in academic and off-campus environments. This research focuses on developing these skills, Communication, problem-solving, and emotional management are essential for effective conflict management (Wijayanti & Mudzakkir, 2019).

Thus, board game-based conflict management training can enhance students' conflict management skills, enabling them to resolve conflicts independently. This can foster and improve students' psychological well-being. With increased conflict management awareness and skills, students will not only be better able to face challenges but will also develop into more resilient individuals and collaborate effectively in teams in the future (Soroka & Synhaivska, 2022). This training aims to provide a platform where students can learn to experience conflict constructively, thereby creating a more harmonious and productive academic environment.

Based on the above description, developing a Conflict Management Board Game for Students can be a strategic step to help students improve their conflict management and create a safer and more productive environment. Therefore, this study aims to develop a board game to improve conflict management in students.

2. Method

The research method used is the Research and Development (R&D) method. The model concept used is the ADDIE model developed by Dick and Carry (1996). This model consists of (Analysis, Design, Development, Implementation, and Evaluation). The R&D method is a method used to create a product and aims to test the effectiveness and relevance of the resulting product (Hariyanto et al., 2022). The following is an explanation of the development of a guidebook product using the ADDIE model.

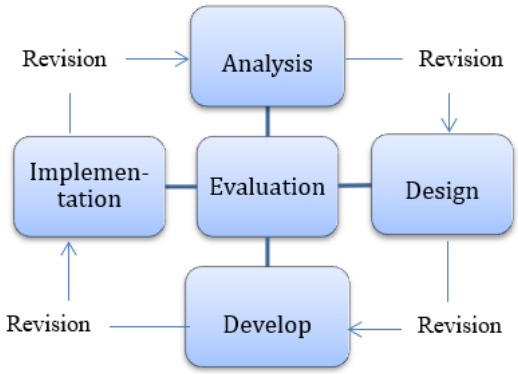


Figure 1. ADDIE Model

2.1. Analysis

The first stage, Analysis, is the initial step in identifying students' needs and characteristics regarding conflict management (Hariyanto et al., 2022). At this stage, researchers conducted a needs analysis by distributing a conflict management scale or questionnaire to scholarship students at Ahmad Dahlan University to measure their level of conflict management. This questionnaire involved 316 students as the research sample. Researchers measured the level of conflict management of students at one of the private university at Yogyakarta.

2.2. Design

After defining the needs, the researchers proceeded to the Design stage. At this stage, the researchers designed a board game prototype based on the conflict management aspects proposed by Kenneth W. Thomas and Ralph H. Kilmann through the Thomas–Kilmann Conflict Mode model (Thomas & Kilmann, 2007). This model identifies five main styles in conflict management: competing, collaborating, compromising,

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accommodating, and avoiding. Based on these five aspects, the board game components were designed by incorporating various conflict scenarios relevant to the context of students' lives. Each game element, such as situation cards, decision-making mechanisms, and gameplay, was structured to represent the five conflict management styles so that players could explore various alternative conflict resolution strategies through the gameplay process. This design is expected to facilitate participatory and reflective learning in developing students' conflict management skills (Janyarat, 2023).

2.3. Development

The next stage is Development, which involves testing the feasibility of the board game product through expert testing involving three types of experts: material experts, media experts, and service experts. Material experts are individuals with a background in educational psychology or guidance and counseling and who understand the concept of conflict management. Media experts are individuals with experience in developing learning media, particularly educational games. Meanwhile, service experts are guidance and counseling practitioners, such as guidance counselors or counselors. Product feasibility assessments are conducted using the Aiken Index to measure content validity. The expert assessment results are then used as a basis for revising and refining the material, game mechanics, and board game design to make the product more effective and suitable for use in guidance services (Sasupilli & Bokil, 2022).

2.4. Implementation

The next stage is the implementation stage. The board game, which has been developed and deemed feasible by experts, is implemented in group guidance services, classical guidance, and training involving students. This implementation is carried out in a structured manner, with a pretest administered to measure students' initial conflict management skills. After the pretest is completed, students are asked to play the board game in small groups and resolve conflicts in a game relevant to their lives. During the game, students discuss and choose appropriate conflict resolution strategies based on five aspects of conflict management. After the game is completed, students are given a posttest to determine changes in their conflict management (Syafi'udin et al., 2020).

2.5. Evaluation

The final stage is the evaluation stage, which aims to assess the effectiveness of the board game. The evaluation is conducted in two stages: formative and summative. Formative evaluation involves observing the game and gathering student feedback during gameplay. Summative evaluation compares pretest and posttest results using statistical tests such as the paired sample t-test or the Wilcoxon signed rank test. The results of this evaluation are then used to determine the effectiveness of the board game in improving conflict management (Fauzi et al., 2025).

3. Results and Discussion

In this analysis stage, researchers conducted a needs analysis by distributing conflict management instruments to 321 students. The data showed that the results of processing the interpersonal conflict management scale of students based on conflict management aspects showed that 7%, or 22 students, had low conflict management skills, while 46%, or 146 others, were in the moderate category. Therefore, they needed skills that could improve their conflict management.

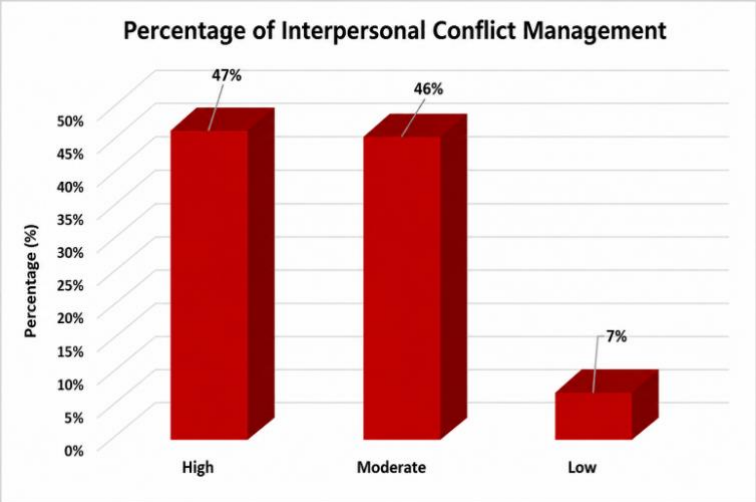


Figure 2. Percentage of Student Conflict Management

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Furthermore, the analysis revealed that several conflict management indicators had relatively lower percentage scores than others, reflecting important aspects such as the ability to collaboratively identify problems, find a middle ground (compromise), negotiate, prioritize cooperation, and a willingness to make sacrifices to achieve shared interests. Based on these findings, the development of the board game in this study focused on strengthening these aspects by designing a game scenario that requires students to actively identify sources of conflict, negotiate, determine compromise solutions, and foster a cooperative attitude in achieving shared goals. Thus, the developed board game serves not only as an interactive learning medium but also as a targeted intervention to improve students' conflict management skills.

In the design stage, the board game was developed with reference to Thomas-Kilmann's conflict management aspects, which include competing, collaborating, compromising, accommodating, and avoiding. These five aspects were integrated into the game design as a foundation for developing the game's mechanics, flow, and content. The board game design developed in this study is adapted to the context of student life, particularly the campus environment and lecture activities. This is reflected in the game's setting, which encompasses various settings such as classrooms, laboratories, organizations, libraries, and inter-university interactions. Furthermore, the issues raised in the board game are also based on phenomena commonly experienced by students, such as differences of opinion in discussions, the pressure of academic competition, lack of self-confidence, miscommunication within groups, and the tendency to procrastinate. Each problem scenario is designed to represent a real-life conflict situation, allowing players to apply various conflict management strategies according to the Thomas-Kilmann model. Thus, the board game design is not only contextual and relevant to student life but also provides a reflective and applicable learning experience in developing conflict management skills. The following is a student conflict management board game design (Amaliyah, 2018).

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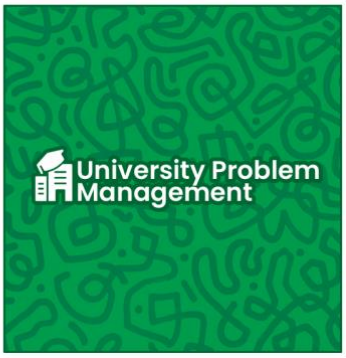


Figure 3. Conflict Management Board Game Design

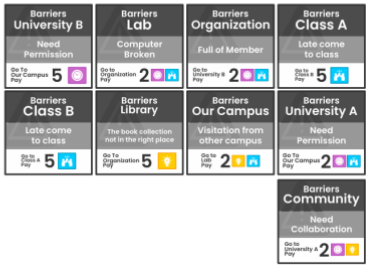
Furthermore, the developed board game includes several types of cards designed to support the interactive conflict management learning process. Obstacle cards represent various obstacles commonly encountered by students in college life, which players must address and resolve using collected resource tokens. These cards aim to train students' ability to cope with pressure and manage conflicts arising from unexpected situations. Meanwhile, task cards contain various problems relevant to the campus context, which players must resolve individually or through teamwork. Each successful task is rewarded with resource tokens, encouraging players to actively participate, negotiate, and implement conflict management strategies effectively. With this mechanism, the board game not only provides a gaming experience but also simulates the decision-making process in complex and dynamic conflict situations (Septiyani & Mukhlishina, 2023).

Obstacles Cards

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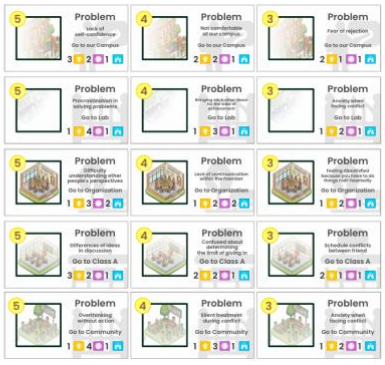


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Task Cards

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Figure 4. Boardgame Card Design

By integrating various game components, the developed board game not only serves as a learning simulation medium but also as an educational product ready for more concrete implementation. Therefore, the next stage was Development, a product construction phase focused on the concrete development of the board game based on the findings from the Analysis (needs analysis) and Design (conceptual design) stages (Hasan et al., 2020). The Development stage was conducted after the needs analysis and conceptual design were completed. A board game prototype was physically and conceptually constructed, including a conflict board, a set of role cards and conflict cases, and a conflict resolution mechanic aimed at improving students' conflict management skills. The content feasibility assessment instrument was developed based on content validity guidelines and assessed by three independent experts: a material expert (content richness), a media expert (appearance, ease of instruction navigation), and a service expert (feasibility of implementation in a campus environment). The Aiken Index was used to measure the content validity of each content item, using a 5-point Likert scale. The revision process was documented in detail for transparency and replicability (Putra & Surjono, 2023).

After going through a development and validation process that demonstrates that the product meets the content and design feasibility criteria, the next step is the Implementation phase. This phase focuses on the initial application of the board game in a real-world context to test its feasibility, user response, and initial effectiveness in improving students' conflict management skills. In this phase, the product is developed in a real-world or semi-real-world environment to evaluate its functionality, acceptability, and operationality (Kaharuddin et al., 2023). For conflict management board games, Implementation involves testing the game in university settings such as classrooms, study clubs, or discussion groups to see how the board game functions in practice, how smoothly the game's instructions are executed, and how conflict dynamics between students are managed within the learning context. Implementation connects the design to actual educational practices, providing opportunities for observing usage, gathering feedback, and identifying logistical constraints such as space, time, materials, and/or technical facilities, if any. This concept is consistent with the general ADDIE framework, where Implementation is the phase of implementing a product in a real-world user context (Willox et al., 2022; Khoerunnisa & Fitriyani, 2023).

The implementation of board games as a learning tool emphasizes the importance of real-world testing to evaluate acceptability, engagement, and learning impact. A structured implementation process with classroom pilots or activities increases the chances of adoption and learning success through direct feedback from students and educators (Nazar et al., 2020; Yusof et al., 2023). Furthermore, the literature on gamification and game design emphasizes the need to test mechanics, gameplay, and social interactions in real-world settings to assess the overall gameplay and learning experience (Chen & Ho, 2022). Based on the implementation results, the next stage is evaluation, which aims to assess the effectiveness and feasibility of the board game and serve as a basis for product improvements.

The evaluation stage serves as the conclusion of the learning design cycle. It does not stop at implementation alone but serves as a determining mechanism for continuous improvement of the content, media design, and implementation aspects of the conflict management board game. Theoretically, evaluation consists of formative evaluation that takes place during the implementation phase to iteratively improve the design, and summative evaluation conducted post-implementation to assess learning impact, operational feasibility, and acceptability for widespread adoption (Khoerunnisa & Fitriyani, 2023; Kaharuddin et al., 2023). In the context of an educational board game aimed at improving conflict management among students, evaluation not only assesses content accuracy but also the quality of media design such as clarity of instructions, readability, visuals that support learning, and feasibility of implementation. This context aligns with evaluation practices in the ADDIE approach, which emphasizes the integration of quantitative and qualitative data to provide a comprehensive picture of the product's effectiveness and feasibility (Anjaswuri et al., 2023; Daurrohmah, 2023).

The scope of evaluation for a conflict management board game encompasses several main dimensions. First, the learning evaluation assesses the extent to which the board game improves students' conflict

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management competencies, such as communication, negotiation, and collaboration skills, as well as post-game reflection skills. Second, the content evaluation examines the accuracy of conflict management concepts, the adequacy of case examples, and the alignment of learning indicators with the desired curricular objectives. Third, the media design evaluation assesses the ease of navigating instructions, clarity of rules, visual design, color contrast, typography, and accessibility for participants with diverse backgrounds. Fourth, the implementation evaluation assesses operational feasibility in a campus environment, such as session duration, number of participants per session, facility readiness, and the need for facilitators or mentors to assist with the game sessions. These four dimensions complement each other, allowing evaluation findings to guide changes in content, media design, and implementation procedures before wide-scale adoption or further trials (Hanum, 2022).

Common evaluation instruments used in the evaluation phase include a spectrum of quantitative and qualitative measurement tools. Quantitatively, a Likert scale is used to assess participants' perceptions regarding content relevance, instruction clarity, ease of use of the board game, game duration, and overall satisfaction with the playing experience. A post-game conflict management competency assessment rubric can be developed to evaluate mediator skills, conflict identification, and collaborative solution formulation. Qualitatively, focus group interviews, in-depth interviews with facilitators, and observation notes during game sessions are used to explore the dynamics of interactions between players, operational challenges, perceptions of learning value, and suggestions for improvement that are not easily captured through numbers alone. The combination of quantitative and qualitative data allows for triangulation of findings, allowing for more comprehensive and evidence-based recommendations for improvement (Fauzi et al., 2025).

Universities currently face the challenge of equipping students not only with academic knowledge but also with essential social skills, one of which is conflict management. One effective method to achieve this goal is board game-based training. Board game-assisted training is an innovative approach in education that utilizes boards as a learning medium, in this case aiming to develop students' conflict management skills. The use of board games in educational contexts has been proven effective in increasing student engagement, facilitating active learning, and encouraging their social and emotional development (Ningsih & Widhiatama, 2023). In the context of conflict management training, board games can be used to create simulations that allow students to experience and resolve conflict situations in a safe and non-threatening environment. The following are the results of a survey regarding the learning activities needed by student employment students at Ahmad Dahlan University for upgrading activities, as well as the types of media required. Training was the most popular choice as a form of learning, followed by mentoring as the second most popular choice. Furthermore, board games were the most popular choice as a media needed in the learning process, with worksheets as the second most popular choice.

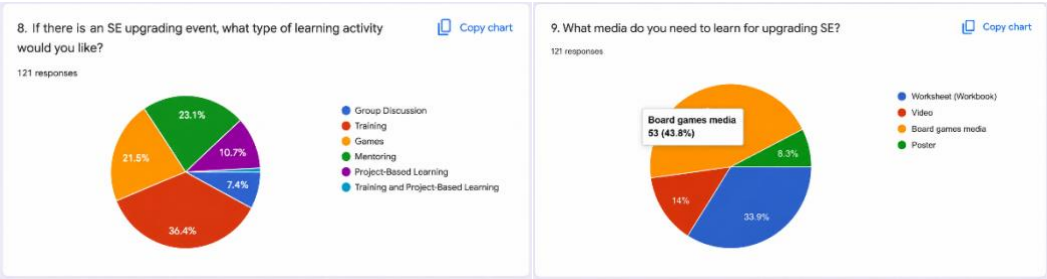


Figure 4. Survey of Learning Forms and Media Required

The results of a needs survey conducted with students also indicated that training was the most popular type of service compared to other forms of service. Furthermore, board game-based learning media was selected as the most engaging and appropriate medium for use in conflict management training. These findings indicate that students tend to prefer interactive, participatory, and fun learning methods, thus making the use of board games relevant to supporting training effectiveness. Therefore, the survey results were then visualized in diagram form to strengthen the data needed to develop board game media in this study.

One advantage of board game-assisted training is increasing active participant participation. Board games can make the learning process more interactive and enjoyable, thus capturing students' attention and encouraging them to actively engage in each training session (Ningsih & Widhiatama, 2023). In conflict management training, these games can be designed to create situations that reflect the dynamics of real conflict, where students must identify the source of the conflict, negotiate, and find collaborative solutions. Furthermore, board games can also serve as an indirect assessment tool for students' social and emotional skills. Through interaction in the games, students will be able to demonstrate their communication, empathy, and conflict resolution skills. Students involved in the design and development of strategy games can learn team leadership skills essential for managing conflict within groups (Lebrón et al., 2024). With this approach, students learn not only from formal instruction but also through experience and reflection on their actions in the game. Based on

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the numerous advantages of using board games in enhancing students' active participation and social-emotional skills, a comprehensive understanding of the initial conditions for conflict management skills is needed as a basis for developing targeted media.

Boardgame-assisted training offers physical and cognitive learning that combines elements of play with professional learning, allowing students to develop conflict management skills in a more planned, structured, and enjoyable manner. Boardgames are designed to replicate the complex dynamics of campus conflict, including the roles of mediators, stakeholders, and observers. This allows participants to practice conflict resolution strategies, effective communication, and negotiation in a safe, controlled environment (Hanum, 2022; Low et al., 2024). With game mechanics, learning no longer relies on one-way lectures but rather on team interaction, collaborative decision-making, and reflection on choices made during the game. This approach confirms that game-based learning can increase participant engagement, facilitate skill transfer, and encourage more comprehensive learning compared to conventional methods alone (Douglas & Bräuer, 2021; , Pensavalle et al., 2024).

In higher education, board games as a training tool have several key advantages relevant to student conflict management. First, they provide a structured learning context with explicit learning objectives, enabling participants to develop critical and reflective thinking skills not only through memorizing solutions but also through real-world conflict situations on campus. Second, the game format allows for risk-free experimentation, allowing participants to try out various conflict resolution strategies, receive immediate feedback from simulated problems, and observe the consequences of their chosen actions in turn. Third, the rich social interaction of role-playing, problem-solving discussions, and consensus-building negotiations can strengthen interpersonal communication skills often required in campus conflict contexts. All of this is consistent with the emphasis on how game-based learning can enhance student participation, contextual understanding, and motivation (Pensavalle et al., 2024).

The practical value of board game-assisted training also lies in its ability to connect conflict management theory with practical application. By utilizing realistic conflict scenarios, board games enable students to analyze the underlying causes of disputes, evaluate various resolution options, and consider the short- and long-term consequences of each solution. This process not only enhances conceptual understanding but also fosters metacognitive skills in the form of reflection on communication strategies, emotional management, and adaptability when dealing with real-world group dynamics on campus. Research related to educational board game literature shows that game designs that consider the dynamics of social interactions and relevant learning elements tend to increase engagement, practice-based learning, and preparedness for real-world situations in the classroom or study clubs (Douglas & Bräuer, 2021).

Participant engagement in board game-assisted training is iterative and ongoing. In the initial phase, the board game serves as a simulation tool to introduce core conflict management concepts, such as role identification, mediation techniques, communication strategies, and conflict resolution mechanisms. Through repeated rounds of play, participants are exposed to a variety of conflict situations, gradually developing their conflict resolution skills. Feedback from facilitators and observers, as well as recordings of game sessions, serve as valuable learning resources for continuous improvement of content, media design, and implementation procedures. This approach aligns with the ADDIE principles in the context of practice-based instructional design and continuous evaluation, which emphasize the importance of formative feedback to lead to continuous improvement and readiness for wider adoption (Hariyanto et al., 2022).

Board game-assisted training offers an effective and enjoyable approach to developing conflict management skills among students through two main pillars: (1) contextual, interactive, and collaborative learning experiences that foster communication, negotiation, and conflict resolution skills; and (2) a game-based instructional design process that combines scientific content with engaging media design and well-managed operational implementation. A board game-based approach can increase participant engagement, facilitate more meaningful learning, and provide a practical framework for developing conflict management competencies in the campus environment (Putri et al., 2022; Ranila et al., 2023).

This research provides theoretical implications that developing a board game based on the Thomas-Kilmann model can be an alternative learning medium to support the development of students' conflict management skills. The integration of elements of communication, negotiation, compromise, collaboration, and decision-making into the game's mechanics demonstrates that conflict management concepts can be learned through a more contextual, interactive, and participant-centered learning experience. Practically, the developed board game has the potential to be utilized by lecturers, counselors, and student program managers as a medium for social skills training. The results of the needs analysis, which showed that some students still have low and moderate conflict management skills, indicate that this medium could be a more engaging learning alternative and support the development of soft skills in various student development activities at universities.

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A limitation of this research is that it focused on the board game development process using the ADDIE model, thus not testing the product's effectiveness broadly through an experimental design. Therefore, the research findings are limited to needs analysis, design development, and product development as a learning medium for students' conflict management. Furthermore, the development of the board game scenario focused on conflicts common in higher education environments and therefore did not encompass more complex conflict variations. Further research is recommended to conduct effectiveness tests on larger and more diverse samples, as well as evaluate the impact of using board games on improving students' conflict management skills in the long term.

4. Conclusion

This research resulted in a product in the form of a conflict management board game developed through the ADDIE model as an innovative learning medium for students. Based on the results of the needs analysis, it was found that students' conflict management skills were still in the moderate to low category, so appropriate intervention was needed. The designed board game integrated conflict management aspects based on the Thomas-Kilmann model and was equipped with contextual scenarios of students' lives. The results of the feasibility test showed that the product met the valid criteria and was suitable for use in guidance services. In addition, the implementation of the board game showed potential in improving communication, negotiation, collaboration, and constructive conflict resolution skills. Therefore, the board game can be recommended as an alternative medium in guidance and training services to improve student conflict management and can be further developed through effectiveness testing on a wider scale.

Author Contributions

All authors contributed equally to this paper. All authors have read and approved the final manuscript.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/ or publication of this article.

Data Availability

The datasets generated during and/ or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors declare that no artificial intelligence (AI) or AI-assisted tools were used in the preparation of this manuscript.

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