



## Design of code switching and code-mixing game in Sundanese Wewengkon Kuningan language with ethnolinguistic content

(Desain permainan pengalihan kode dan pencampuran kode dalam bahasa Sunda Wewengkon Kuningan dengan konten etnolinguistik)

**Asep Jejen Jaelani\***

Universitas Muhammadiyah Prof. Dr.  
Hamka, Indonesia  
[asepjejenjaelani@uhamka.ac.id](mailto:asepjejenjaelani@uhamka.ac.id)

**Ade Hikmat**

Universitas Muhammadiyah Prof. Dr.  
Hamka, Indonesia  
[ade\\_hikmat@uhamka.ac.id](mailto:ade_hikmat@uhamka.ac.id)

**Imam Safi'i**

Universitas Muhammadiyah Prof.  
Dr. Hamka, Indonesia  
[imamsafii2077@uhamka.ac.id](mailto:imamsafii2077@uhamka.ac.id)

\*Corresponding author: Asep Jejen Jaelani | email: [asepjejenjaelani@uhamka.ac.id](mailto:asepjejenjaelani@uhamka.ac.id)

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**Abstract:** Sundanese language in the Kuningan region. The development of sociolinguistic games is essential because it can increase understanding and awareness of linguistic and cultural diversity among players, especially among children and adolescents, including college students. This game serves as an engaging educational tool for learning sociolinguistic aspects, such as dialect variations and language interactions in a fun and interactive context. In addition, sociolinguistic games support the preservation of local languages and cultures in a modern and accessible way. In this game design research, researchers refer to the MDA (Mechanics, Dynamics, Aesthetics) framework to understand and design the gaming experience. *Mechanics* refers to the rules and systems of the game, *Dynamics* describes the player's interaction with the system, and *Aesthetics* includes the emotional experience of the player. This framework helps designers create rich and satisfying experiences by considering the interaction of these elements. The game is evaluated using the LORI (Learning Object Review Instrument) instrument to assess its pedagogical qualities, involving assessments from experts and users. The findings point to the need for RPG game designs that support language and ethnolinguistic elements, focusing on *code switching* and *code mixing* in the context of Sundanese society. The results of the evaluation show that this game not only contributes to the understanding of sociolinguistic concepts but also fosters a positive attitude towards Indonesian and Sundanese culture.

**Keywords**

**RPG game design, code-switching, code-mixing, Sundanese wewengkon Kuningan, Indonesia Sociolinguistics**

**Abstrak:** Bahasa Sunda di wilayah Kuningan. Pengembangan game sosiolinguistik sangat penting karena dapat meningkatkan pemahaman dan kesadaran tentang keragaman bahasa dan budaya di kalangan pemain, terutama di kalangan anak-anak dan remaja, termasuk mahasiswa. Game ini berfungsi sebagai alat edukasi yang menarik untuk mempelajari aspek-aspek sosiolinguistik, seperti variasi dialek dan interaksi bahasa dalam konteks yang menyenangkan dan interaktif. Selain itu, game sosiolinguistik mendukung pelestarian bahasa dan budaya lokal dengan cara modern yang mudah diakses. Dalam penelitian desain game ini, peneliti mengacu pada kerangka MDA (Mechanics, Dynamics, Aesthetics) untuk memahami dan merancang pengalaman bermain. *Mechanics* mengacu pada aturan dan sistem game, *Dynamics* menggambarkan interaksi pemain dengan sistem tersebut, dan *Aesthetics* mencakup pengalaman emosional pemain. Kerangka ini membantu desainer menciptakan pengalaman yang kaya dan memuaskan dengan mempertimbangkan interaksi elemen-elemen tersebut. Game ini dievaluasi menggunakan instrumen LORI (Learning Object Review Instrument) untuk menilai kualitas pedagogisnya, dengan melibatkan penilaian dari para ahli dan pengguna. Temuan menunjukkan perlunya desain permainan RPG yang mendukung bahasa dan unsur etnolinguistik, berfokus pada *code switching* dan *code mixing* dalam konteks masyarakat Sunda. Hasil evaluasi menunjukkan bahwa permainan ini tidak hanya berkontribusi pada pemahaman konsep sosiolinguistik tetapi juga menumbuhkan sikap positif terhadap bahasa Indonesia dan budaya Sunda. Ingin menyelenggarakan acara motivasi dapat memilih motivator yang memiliki kemampuan retorika yang kuat.

**Kata Kunci**

**Desain game RPG, alih kode, campur kode, Sunda wewengkon kuningan, Indonesia Sociolinguistik**

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## INTRODUCTION

Game design is an important and relevant aspect of research, as outlined (Duke, 1980; Strickland & Kaylor, 2016) in *A Paradigm for Game Design*. Duke emphasized that game design provides a unique paradigm for understanding complex dynamics through simulation and interaction. Games serve as an entertainment tool and an educational medium that allows users to participate in an active and contextual learning process. Effective game design creates a motivating and engaging environment, increasing engagement and information retention. Additionally, the game allows experimentation without any real risks, allowing players to learn from mistakes and try various strategies. In the context of research, games offer innovative ways to collect data and analyze user behaviour and decision-making in simulated situations. Therefore, game design research is relevant for the development of technology and media and for a deeper understanding of learning and human interaction with complex systems.

Mitchell's fundamental principles of "Game Design Essentials" (2012) become an essential foundation in developing educational game design based on code switching and code mixing. Mitchell emphasized the importance of striking a balance between the educational element and the entertainment aspect of the game and the importance of understanding the target audience to create an immersive and engaging experience. In this context, game design should consider how code-switching and code-mixing can be naturally integrated into gameplay to improve students' language competence. This approach helps students understand sociolinguistic concepts and provides contexts for relevant and practical usage.

Effective game design requires the integration of various theories and practices that experts have developed. According to Koster (2013), In the "Theory of Fun for Game Design," a good game design must generate fun through constant learning and challenge. Koster emphasized that the game should present interesting patterns and gradually increase the complexity to maintain the player's interest. These patterns help players feel challenged and motivated, creating an immersive and entertaining experience. Adams & Dormans (2012), in *"Game Mechanics: Advanced Game Design"*, emphasizes the importance of understanding and carefully designing game mechanics. Game mechanics are the basic rules and systems that determine how games work. An excellent mechanical design should create the right balance between challenge and skill so that players stay motivated.

The MDA (Mechanics, Dynamics, Aesthetics) approach proposed by Hunicke et al., (2004) provides a formal framework for designing and analyzing games. This approach starts with planning the mechanics, which are the basic rules and systems of the game. Next, the designer must examine the dynamics resulting from the interaction between these mechanics. These dynamics create behaviours that arise during the game, which must be analyzed and adjusted to ensure an optimal gaming experience. Finally, the focus is given to aesthetics, which is the emotional experience felt by the player. MDA's approach helps designers understand how mechanics changes can affect dynamics and aesthetics, thus creating a holistic and satisfying gaming experience.

Effective game design should be created with structured and valid evaluation instruments, as outlined by Akpinar (2009), emphasizing the importance of validating learning evaluation instruments, showing that the assessment of learning objects must be correlated with actual learning outcomes to ensure their effectiveness. Gordillo et al., (2014) develop pedagogical quality metrics based on the LORI (Learning Object Review Instrument) evaluation model, which assesses various aspects of the pedagogical quality of learning objects. Using validated instruments and comprehensive evaluation metrics, game designs can be effectively measured and adjusted to ensure that they are engaging and supportive of the desired learning outcomes.

The design of educational games must meet the various characteristics of teaching materials described by Pentury (2018). First, games must be self-instructional, allowing students to learn them

independently. Second, games must have self-explanatory power, using simple Language and systematic arrangement so students can easily understand them. Third is self-paced learning, where students can learn at their own pace without being influenced by others. Fourth, the game must be self-contained and complete so as not to require additional teaching materials. Fifth, individualized learning materials and games are designed according to students' abilities and characteristics. Sixth, flexible and mobile learning materials can be learned anytime and anywhere. Seventh, communicative and interactive learning materials follow the principles of communicative and interactive learning. Eighth, games must be based on multimedia and computer technology, utilizing various media and computer access. Lastly, games may still require the support of tutorials and study groups to enrich the learning process. By fulfilling these characteristics, educational games can be an effective and comprehensive learning tool.

The game design must meet one of the classification criteria for teaching materials outlined by [Prastowo \(2014\)](#) to ensure that the game is effective as a learning tool. This criterion includes various forms of teaching materials, such as (a) printed teaching materials, which include materials such as books and modules, which in the context of games can be translated into written materials presented in the game; (b) audiovisual materials, such as tapes and radios, which in the game may be voice narration or audio instructions; (c) visual teaching materials with audiovisuals, such as videos and films, which in games can be adapted into moving graphics and cutscenes; and (d) interactive teaching materials, which incorporate various media such as text, graphics, and animation, and in-game can be elements that players can manipulate and interact. By meeting these criteria, game design can improve learning engagement and effectiveness by utilizing media that suits the user's needs and preferences.

In recent years, role-playing game (RPG) design has become a significant research focus in various educational and application development contexts. [Fajriani \(2023\)](#) researched RPG design for the concept of static fluids, showing how RPGs can be used to teach scientific concepts interactively and engagingly. This research underscores the potential of RPGs in simplifying complex material and making it easier for students to understand. [Wibowo & Xie \(2022\)](#) report on RPG design for United Kingdom language learning using the ADDIE method, which illustrates how a systematic approach in game design can improve Language learning through structured game elements. This study confirms the effectiveness of RPGs in providing a fun and practical learning experience.

[Wibowo & Nirmala \(2022\)](#) explore the use of RPG Maker MV in RPG design, offering insights into the tools and techniques that can be used to develop quality educational games. [Foriansyah & Taurusta \(2022\)](#) discussed the design and development of the RPG "Drop the Dragon" as a medium for practising mathematics, using the finite state machine method to improve interaction and understanding of mathematical concepts. [Malingkas et al. \(2021\)](#) reported on RPG applications that are integrated into the context of higher education, emphasizing the integration between educational content and game elements to increase student engagement. These studies show that RPGs can be widely applied to various educational purposes, from science and Language to mathematics and higher education, with effectiveness driven by design and the proper methods.

Research on technology-charged languages in Indonesian language teaching has shown significant development in recent years. [Kartini et al., \(2023\)](#) identify design needs for developing mobile applications as a learning medium for writing poetry, highlighting the importance of technology in improving students' creative writing skills. The study shows that mobile apps can be an effective tool in the learning process, offering a more engaging and interactive way to learn to write poetry.

In addition, [Hima et al., \(2021\)](#) research examines the benefits and challenges of implementing task-based language teaching in Indonesia based on teachers' perceptions. Their findings reveal that while technology can improve student engagement, there are significant challenges, such as limited access to and technology competencies among teachers. [Andika et al., \(2022\)](#) explore the need for virtual reality-based learning media for French listening skills, demonstrating that advanced technologies such as VR can help improve students' language comprehension and skills effectively. Meanwhile, [Ansoriyah \(2021\)](#), focusing on developing weblog design for Indonesian creative writing

materials, shows that digital platforms can provide a space for students to express and create more freely.

Overall, these studies highlight technology's great potential in language education in Indonesia. [Kartini et al., \(2022\)](#) also developed poetry writing instruments through the Android-based app 'PAP', reaffirming that integrating technology in language education can facilitate more dynamic and practical learning. This is a study that researchers can consider for the direction of this game research. These studies collectively show that technology can improve students' language skills and provide innovative solutions to the challenges in language teaching in Indonesia.

Focuses on the literature on code switching and code mixing. Several studies on code-switching and code-mixing in Sundanese are areas of interest to research, as revealed in several recent studies. [Oentari \(2024\)](#) examines the use of Sundanese code mixing in Indonesian as a humour builder in Webtun, highlighting how language mixing can create a comedic effect and increase expression in digital media. Research by [Soedewo \(2013\)](#) identified the loss of identity in Sundanese children in Bogor City due to a lack of exposure to the Sundanese Language, highlighting the importance of maintaining and understanding the language mix in the context of local culture. These studies emphasize the relevance and complexity of code-switching and code-mixing in Sundanese, underlining their potential for further research on their impact on humour, cultural identity, and artistic expression.

The Indonesian Language requires elements of local wisdom in game design to increase relevance and cultural depth. [Suddin & Deda \(2020\)](#) highlight the importance of Timor's local wisdom in an Android-based educational game for math learning, showing how local cultural elements can enrich educational content and increase student engagement. [Susilo & Salliyanti \(2019\)](#) examine the cultural values and characters in traditional Kasti games, emphasizing how local wisdom can be used to build character and maintain cultural values. [Tarigan & Sofyan \(2017\)](#) discussed the application of local wisdom in the traditional Karonese game "Cengkah-Cengkah", emphasizing how local language and eco-lexicons can influence more contextual game design. [Suwastini et al., \(2020\)](#) developed a role-playing game storyline based on Balinese folklore to preserve local wisdom and character education, showing how elements of local culture can be integrated into game design for educational and cultural preservation purposes. These studies underscore that incorporating elements of local wisdom in games increases cultural depth and supports the preservation and understanding of local values.

Research on the design of *code switching* and *code-mixing* games in Sundanese Wewengkon Kuningan language that integrates ethnolinguistic content provides important insights into the application of technology in language learning. Previous studies have shown that the frequency of language switching affects inhibition control in bilingual children, especially in expressive and receptive language skills ([Chen et al., 2023](#)). In the context of language learning through digital games, the relationship between students' attitudes towards language, technology use, and academic success has been identified, with digital games being shown to increase language learning motivation ([Vnucko et al., 2024](#)). This is relevant to game designs that emphasize *code switching* and *code mixing*, as a game-based approach can increase student involvement in learning regional languages such as Sundanese Kuningan.

In addition, linguistic analysis shows that the use of absorbed words and nativization in online games has an impact on the perception of language by players ([Daradkeh et al., 2024](#)). This is in line with research on the effect of cross-cultural language differences on social cognition during human interaction in a cooperative play environment ([Bennett et al., 2023](#)). Furthermore, parental participation in designing augmented reality-based games for word learning in autistic children emphasizes the importance of participatory design in creating effective educational games ([El Shemy et al., 2025](#)). Taking into account the dynamics of language contact and linguistic borrowing ([Dayyeh et al., 2015](#)), *code-switching* and *code-mixing* games designed for Sundanese Kuningan can support the preservation of regional languages from an Indonesian perspective while developing students' language skills in an interactive and fun context.

After reviewing various theories and aspects of knowledge, it is essential to emphasize that the developed game's design aims to meet students' sociolinguistic learning needs. The game is designed

with various related principles and theories, including integrating local wisdom and relevant cultural elements to create an interactive and contextual learning experience. By using games as a learning medium, students will not only gain a deep understanding of sociolinguistic concepts but also be able to apply this knowledge in situations close to their social and cultural realities. The effective game design will provide innovative and engaging tools to delve into sociolinguistic aspects, increase learning engagement and motivation, and facilitate more comprehensive and applicable learning for students.

This research offers a new contribution to the world of language education through the development of code-switching and code-mixing-based games that focus on the Sundanese language of *Wewengkon Kuningan*. This approach integrates ethnolinguistic content into game design, an innovation that has not been widely explored, especially for regional languages in Indonesia. The use of technology in facilitating regional language learning through interactive games not only enriches the learning experience, but also opens up new opportunities in the preservation of local languages. The game is designed to improve students' language skills in the context of bilingualism and multiculturalism, while strengthening their appreciation of local languages and traditions. By involving technology and local cultural elements, this game not only helps students understand the concepts of code switching and code mixing, but also creates a more interactive and fun learning experience, so as to increase student motivation and engagement in the learning process. In the world of education, these games can change the way language teaching is done, especially in regional and multilingual language learning, through the effective integration of technology in the curriculum. In addition, this game has the potential to be an important tool for preserving endangered regional languages, strengthening cultural identity, and fostering a sense of pride in local languages among the younger generation.

This research captures the social context of Indonesian society which cannot be separated from the diversity of regional languages, where the use of local languages is still very dominant in daily life. As a country with more than 700 regional languages, the phenomenon of code switching and code mixing has become an integral part of people's social interaction, especially in areas rich in language variations such as Kuningan, West Java. Therefore, this research is very relevant to be developed in the context of sociolinguistic teaching. By highlighting the use of *Wewengkon Kuningan* Sundanese language through code switching and code mixing-based games, this research can enrich sociolinguistic learning materials, especially in understanding language dynamics in a multilingual society. In addition to providing insight into how regional languages play a role in identity and social communication, this research also offers innovative approaches in teaching language variations and code shifts to students, thereby expanding the scope of sociolinguistic teaching in the world of education.

## METHOD

This study uses a qualitative descriptive method to evaluate game design as an Indonesian teaching material throughout Indonesia. The research process begins with a needs analysis through in-depth interviews with educators and students to understand the context of using *code switching* and code mixing in language learning. The game design is designed by integrating relevant ethnolinguistic elements, thus creating an interactive and enjoyable learning experience. The game design development is adapted from the gamification model and the MDA (Mechanics, Dynamics, Aesthetics) framework. This method begins by identifying learning objectives and analyzing appropriate gamification models to achieve these goals. Next, the game concept is designed and prototyped by incorporating relevant gamification elements, followed by trials and evaluations to assess its effectiveness. Finally, the game is implemented and launched while continuously monitoring and adjusting based on feedback and analytics data to improve learning outcomes.

To meet the steps of MDA development and the design stage. Search for the required game preferences using the LORI (Learning Object Review Instrument) instrument. The research stage begins with a literature review to determine relevant theories and frameworks, followed by developing

and adjusting LORI instruments to evaluate the games used in learning. Furthermore, data is collected through the application of instruments and interviews with students and lecturers to obtain qualitative feedback. The collected data were analyzed to assess the quality of the game and its effectiveness in the context of sociolinguistic learning. The analysis results will be synthesized in a research report, providing recommendations for improving the game design and conclusions about its contribution to learning.

This research was conducted at the University of Kuningan involving 42 respondents from the Department of Indonesian Language and Literature Education, University of Kuningan. The selection of this major aims to gain an in-depth perspective on Indonesian language teaching, especially in the context of the use of code switching and code mixing. The respondents consisted of students who had relevant educational backgrounds, so it is hoped that they can provide valuable insights into the effectiveness of game design as a teaching material.

The instrument used in this study is the Student Game Access Survey, which is designed to collect data on access and use of games among students. The survey includes several questions that are divided into categories. First, in the category of game usage, respondents were asked questions like, "Do you play games online?" and "Do you play games offline?" to evaluate their gaming habits. In addition, questions about the devices used, such as "Do you play games on a laptop?" and "Do you play games using gadgets?" aim to find out the preferences of gaming platforms among college students.

The survey also explored students' understanding of games as a learning tool. Some of the questions asked in this category include "Do you like role-playing games (RPGs) that have a story in them, and we become characters in the story?" and "Do you play games for learning or educational purposes?" Other questions, such as "Do you agree that learning using games has a greater impact?" are also intended to explore students' perceptions of the effectiveness of games in learning. In addition, the survey included questions regarding understanding of code-switching and code-mixing practices, such as "Are you used to seeing good practices (very understanding) about code-switching and code-mixing materials?" and "Are learning materials for code-switching and code-mixing meet and assist you in the learning experience?" These questions help evaluate students' needs in sociolinguistic learning as well as their interest in using games as a learning medium, such as the need for descriptions of code-switching and code-mixing practices that are more relevant to the surrounding environment. In detail, this instrument can be observed in the depiction of the research results, where the data collected will be analyzed to provide a comprehensive picture of the access and use of games among students.

## **RESULTS AND DISCUSSION**

### **Gaming Needs Survey**

To conduct a need analysis on game-based code transfer and code-mixing teaching materials, several structured surveys were conducted to students of Indonesia Language and Literature Education, Kuningan University, with a total of 42 respondents. Respondents were given structured questions to review some of the students' habits in playing games.

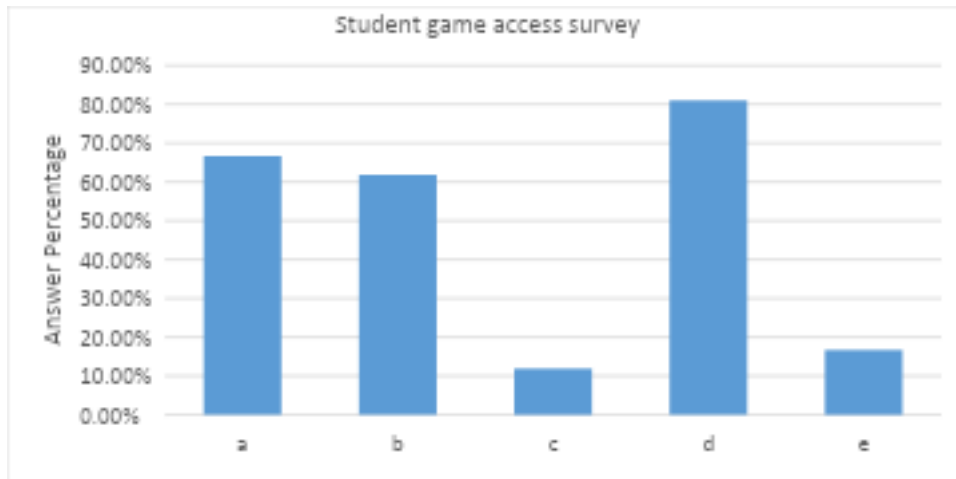


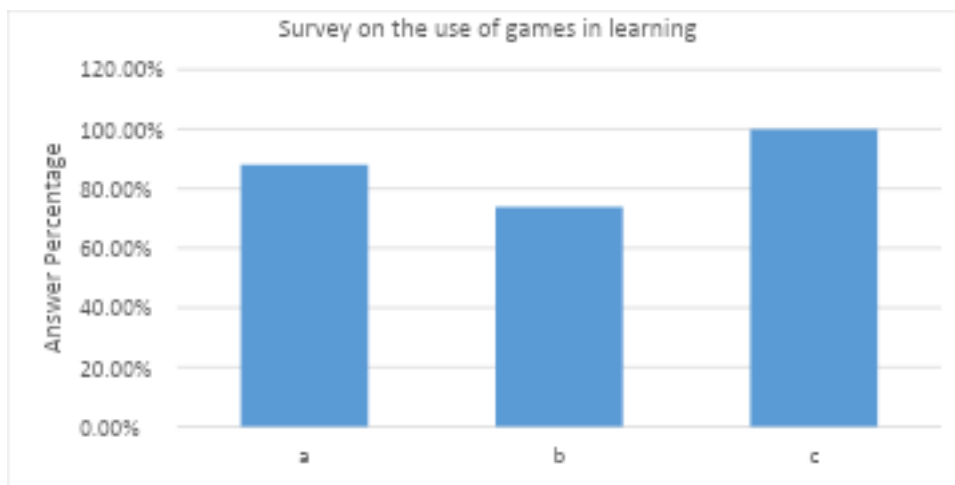
Figure 1. Student Game Access Survey

- a. Do you play online games?
- b. Do you play Offline games?
- c. Do you play games on a laptop?
- d. Do you play games using a gadget?
- e. Do you play games using consoles (PS, Xbox, PSP, etc)?

A survey on student access to games shows that 66.7% of respondents play online games, while 33.3% do not. For offline games, 61.9% responded yes, and 40.5% responded no. The difference or significance value between those who choose not to play online or offline games is a small margin, indicating that around 7.2% of respondents likely refrain from both. Approximately 61.9% of students engage in both offline and online gaming.

The choice between playing offline or online games can significantly impact a college student's experience. Offline games offer a solitary experience or one shared with friends in close proximity, where social interaction is limited to immediate surroundings, and the focus is on personal achievement and progressing through the game's story or levels. In contrast, online games enable social interaction with players from around the world. This requires students to consider internet availability and sometimes plan play sessions around friends' or online communities' schedules. Online games also introduce a competitive element with rankings and player-versus-player challenges. While offline games provide a relaxed environment to enjoy narratives without the pressures of social interactions, online games allow for community building and exploration of multiplayer dynamics. The choice between these two types of games can also influence mental health: offline games often offer relaxation, while online games can sometimes introduce social or competitive pressures.

Additionally, playing online games involves engaging with other players' strategies, as well as communicating and collaborating, which can add depth to the gaming experience. Regarding internet access, another important factor is the type of device students use for gaming. The survey data shows that 11.9% of students use laptops, 81% use gadgets (such as smartphones or tablets), and 16.7% use consoles (like PlayStation, Xbox, or PSP). This indicates that gadgets are the most commonly used gaming devices among students, surpassing other types of media.



**Figure 2. Survey on The Use of Games In Learning**

- Do you like role-playing games (RPGs) that are characterized by having a story in the game, and we become the characters in the story?
- Do you play games for learning or educational purposes?
- Do you agree that learning by using games has more impact?

Using these media, a survey was conducted to explore students' preferences and the potential for using games as learning tools. This purposive survey asked respondents if they liked role-playing games (RPGs), with 88.1% indicating they enjoyed this genre. Next, respondents were asked whether they had ever played games for educational purposes, with 73.8% responding yes and 26.2% responding no. This response led to a follow-up question about whether games positively impacted their learning experience, to which 100% of respondents agreed.



**Figure 3. Survey of Understanding of Code-Switching and Code-Mixing Theory**

Are you used to seeing good practices (very understanding) of code-switching and code-mixing materials?

- Does the learning media for code-switching and mixing meet and help you learn from your learning experience?
- Do you intend to use games as a learning medium in sociolinguistics learning?
- Have you previously had any problems with sociolinguistic sociolinguistic learning materials in code-switching and code-mixing?



- d. Do you need a description of code-switching and code-mixing practices?
- e. Do you need to learn to code and mix code that is more relevant to the surrounding environment?
- f. Is the elaboration of learning to transfer code and mix code from the surrounding environment with educational games needed by students?

A needs survey was conducted to assess individual understanding of code-switching and code-mixing materials. Results showed that 35.7% of respondents felt they understood the material, while 66.7% indicated they did not. Regarding the adequacy of learning media on code-switching and code-mixing, responses were nearly balanced, with 59.5% agreeing that the media met their needs and 45.2% stating it did not. This indicates there are gaps in the available learning media for sociolinguistics courses that could be addressed.

Another question revealed that 95.2% of students agreed with using games as learning media, suggesting a strong interest in interactive learning methods. When asked about challenges in learning code-switching and code-mixing in sociolinguistics, 66.7% of respondents reported difficulties. Additionally, all respondents (100%) indicated a preference for practical activities in code-switching and code-mixing, as well as learning that relates to their surroundings. Regarding the use of educational games to support learning these concepts, the response was unanimous, with 100% of students expressing interest.

The survey results highlight areas for improvement in understanding and learning media availability for code-switching and code-mixing in sociolinguistics. Students' responses to the questionnaire reveal expectations for more practical and engaging approaches to learning these topics. Based on their expressed needs for code-switching and code-mixing games, future learning media should be closely connected to the students' environment.

Following the survey, researchers began designing game-based learning media for code-switching and code-mixing materials. This design survey was conducted purposively to align with the research objectives and included an initial design outline based on interview responses. Ten interview questions focused on various aspects of the game's appearance and functional requirements, gathering insights on students' interest in the game during its design stage. These questions and their responses are summarized in the following points, with accompanying answer analysis.

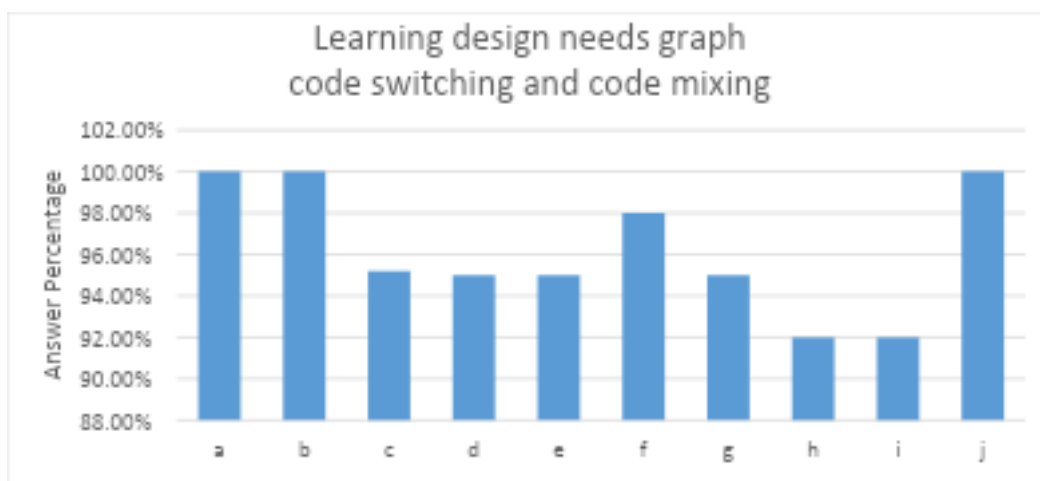


Figure 4 Design Needs for Code Switching and Code-Mixing Learning

- a. Interactive display of elements and icons
- b. Presentation of visual or animated graphics
- c. The navigation is presented simply
- d. games that contain storylines

- e. games that allow you to interact with in-game characters
- f. It contains interaction between game characters for learning
- g. likes challenges in the form of in-game levels
- h. like the challenges, or is that each level presents
- i. challenged in the overall completion of the game
- j. Gadget-based games

The survey results on game design needs for code-switching and code-mixing learning indicate that students are enthusiastic about a gadget-based game featuring character-based content, leveled challenges, and quizzes. This positive response suggests that the design aligns well with student expectations, paving the way for further development in a blueprint incorporating various supportive elements to enhance learning media.

Interviews further revealed that students have strong preferences for interactive educational games, emphasizing the need for dynamic learning experiences. This feedback underlines the importance of integrating interactive elements into the learning media, allowing students to actively engage with code-switching and code-mixing concepts.

Students' preferences for visual graphics and animations highlight the necessity of compelling visuals to aid in understanding complex concepts. This implies that clear, high-quality graphics and animations should be essential components of the learning medium. Additionally, students' desire for simple navigation points to the importance of an intuitive user interface that allows seamless access to diverse content and activities.

Interest in storylines and character interaction also underscores the importance of narratives and social elements in the learning experience. These features could support the content development by involving narratives and interactive simulations that enhance the understanding of complex language concepts.

Furthermore, students expressed a need for levels, quizzes, and completion challenges, suggesting a desire for evaluative and progressively challenging activities as they advance through code-transfer learning. This indicates that integrating adaptive levels and challenges could create a more engaging and in-depth learning experience.

Lastly, the preference for device-based accessibility reflects a need for learning media that students can access on various devices, especially mobile. This reflects a desire for learning experiences that are flexible and accessible anytime, anywhere. Understanding these preferences allows developers to create code-switching and code-mixing learning media that better meet student needs and enhance their learning experience.

## Game Design

Game design is an increasingly relevant and growing field of research, with a focus on creating rich and meaningful user experiences. [Kultima \(2015\)](#), in his research, underlined that game design is not just a matter of aesthetics or entertainment, but also involves an in-depth and iterative research process. The game design process includes concept development, prototyping, testing, and evaluation, all of which aim to create an immersive and immersive game. Good game design should consider a variety of aspects, including educational or entertainment goals, and the user's response to the elements of the game.

The MDA (Mechanics, Dynamics, Aesthetics) framework serves as a valuable tool within the game design process. MDA enables designers to analyze and align key game components with the overall player experience. *Mechanics* covers the rules and systems of the game, *Dynamics* refers to interactions that occur during gameplay, and *Aesthetics* represents the player's emotional experience. Applying the MDA framework helps ensure that each game element supports the intended goal, whether it's to educate, entertain, or provide therapeutic value. By using MDA, designers can develop games that are both visually engaging and rich in educational and interactive content, enhancing their effectiveness for various purposes. Informed by the survey, this research focuses on the development

of an RPG-based game that features a storyline with levels of understanding tied to the narrative. The game encourages critical thinking through dialogue that involves code-switching and code-mixing, which players must analyze to progress. This RPG provides structured learning opportunities by using character dialogues as a means to practice language skills, allowing players to develop insights through detailed interactions with the characters.

**Table 1**  
**Game Builder Aspects**

Number	Aspects	Explanation
1	Language	Indonesian Language and Sundanese
2	Material	Sociolinguistic Sociolinguistic
3	Sub Material	Switching and mixing code with variations of Wewengkon Sundanese cases
4	Game Name	Sunda-Mix
5	Media	Android
6	Serving	RPG Games
7	Challenge	Language comprehension and meaning test

The table above outlines the game's identity and foundational structure based on theoretical principles, providing an overview of how various aspects of the game will be presented. Further game development requires structuring levels that the researchers have designed as an initial framework for language instruction aimed at students. Therefore, as described in the previous section, the game includes the following criteria.

**Table 2**  
**Game Flow Design and Explanation**

Number	Struktur Game	Explanation
1	Forest of Knowledge	In the forest, Django is in charge of finding books about sociolinguistic sociolinguistic materials and their derivatives according to the research purpose.
2	House	It is shown that the main character is at home with his father, discussing going to Kuningan.
3	Uncle House	This setting provides the experience of a Sundanese translation of wewengkon in daily life. In the process, a code-switching event appears.
4	Ambu House	Several Sundanese languages introduce ethnolinguistics in the field of agriculture in the Sundanese wewengkon kuningan Language
5	Abah Place	A conversation about the parts of the house explained to the main character
6	Child	There was a conversation about the type of mention of the dialogue about the type of animal in Sundanese
7	Computer	Computers are provided in the game for access to tests of understanding theory, dialogue context, and language learning.

The designed game structure is further implemented within the gameplay. RPGs, which rely on a storyline, require a primary narrative to establish the main plot of the game. In this study, developing the game's flow is guided by the flowchart approach proposed by [Damanik \(2019\)](#). Flowcharts are an essential tool for designing the game sequence as they provide a clear visual of the steps and decisions within the game. Structuring gameplay through flowcharts allows developers to better handle game complexity, ensuring that each element and interaction work in sync to fulfill both educational and entertainment objectives. Additionally, flowcharts facilitate process visualization, improve team communication, and streamline the debugging process by outlining the game's various paths and conditions.

In this game's development, algorithms play a critical role, particularly in the context of learning Sundanese Wewengkon Kuningan, by providing the structure, logic, and interactivity necessary for an engaging learning experience. These algorithms enable the game to adapt to players' choices and progression, offer relevant feedback, and motivate players to continue advancing their Sundanese language skills. The game's structured gameplay is illustrated in the flowchart image below.

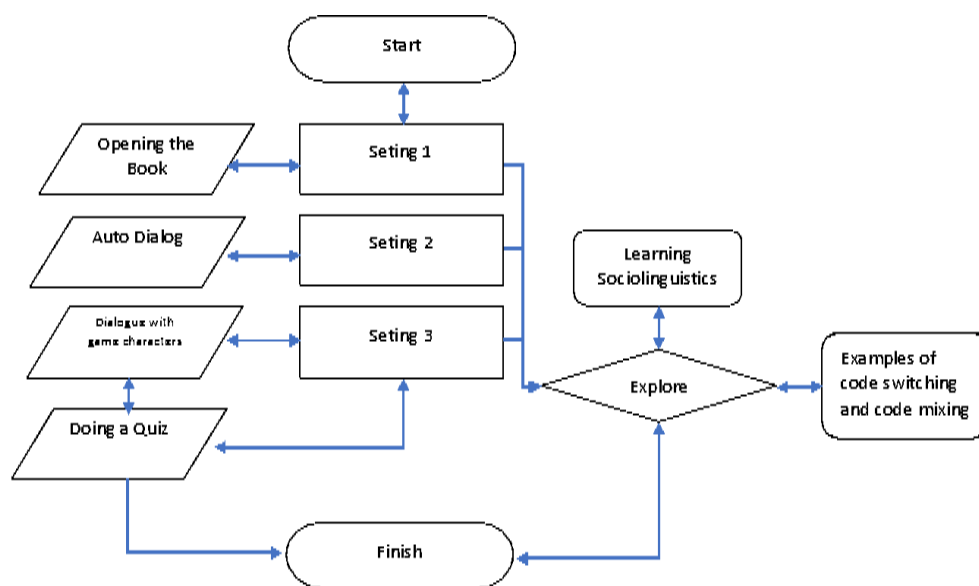


Figure 5 Sunda-Mix Game Plot

### Game Elements

RPG game designs that integrate local wisdom—such as those focused on the Sundanese Wewengkon language—require deep ethnolinguistic elements to ensure the game’s relevance and cultural authenticity. These elements involve an accurate representation of the Sundanese language, culture, and values, which are central to the community’s identity. Integrating such elements enriches the storyline, allowing players to experience and understand aspects of culture that are often inaccessible in conventional learning settings. For example, vocabulary, language structures, and cultural elements such as traditions and customs can enhance the gaming experience, providing both cultural education and engagement.

An effective RPG design in the Sundanese Wewengkon context must prioritize these ethnolinguistic elements to create a culturally immersive and educational medium. Language and culture are inseparable, each influencing the other to form a unified identity within a community. Ethnolinguistics, which studies this interconnection, provides the analytical framework to examine how cultural behaviors shape language use and vice versa (Andriyana, 2024; Hymes, 1964). This field is further divided into seven key areas: (1) language, (2) knowledge systems, (3) social organizations, (4) tools and technology systems, (5) livelihood systems, (6) religious sites, and (7) arts (Baehaqie, 2017).

In a game that highlights the Kuningan variant of the Sundanese language, incorporating ethnolinguistic elements is essential for an authentic portrayal of the local culture. Language is a vital focus, as the use of Sundanese vocabulary and expressions offers players an immersive experience with the language’s unique nuances. Additionally, representing social organizations provides insight into family structures and societal roles within Sundanese society, helping players understand the cultural norms and social dynamics of daily life in Kuningan. Finally, integrating local technology and tools—such as traditional agricultural methods—enriches the gaming experience by educating players about the traditional ways of life that continue to hold relevance. By blending these three elements, games can serve as both entertainment and educational tools, preserving and promoting the local wisdom of the Sundanese Wewengkon Kuningan community.

According to the statement Ibrahim & Mayani (2018) which discusses language planning in Indonesia based on triglossia, applying ethnolinguistic elements in games that use the Sundanese Language of Kuningan is very relevant. In the context of triclosan, which involves using several varieties of language in society, games must accurately reflect the diversity of local languages. The integration of elements such as language, social organization, living equipment systems and technology

in the game allows for a more profound and authentic representation of the life of the Sundanese people in Kuningan. By paying attention to this aspect of triglosia, the game can present an experience that accurately displays the local Language and culture and educates players about the social dynamics and traditional technologies that affect the local community.

### Design Development

Recent research highlights the potential of mobile-based role-playing games (RPGs) to significantly enhance students' critical thinking skills. Rasyid et al., (2020) evaluated RPG Maker MV as a mobile learning tool, finding that the game effectively promotes critical thinking by engaging students in interactive simulations and challenging scenarios. This study underscores how a game-based approach can transform learning into a dynamic and engaging experience, encouraging students to think deeply and analytically. Similarly, Kratochvil (2014) examines the educational contributions of RPG video games, emphasizing that this medium offers unique opportunities for scenario-based learning, enabling students to apply academic concepts in practical and interactive contexts.

Furthermore, Okamoto et al., (2008) introduced prototyping tools for web-based RPG development, which facilitate the creation and evaluation of multi-user games. This research highlights the role of prototyping tools in crafting collaborative and interactive learning experiences. Additionally, Roman et al., (2011) propose an OWL-based approach to RPG modeling, offering a new methodology for designing complex game structures. This approach sheds light on how game structure and design influence the learning experience. Collectively, this body of literature supports the view that RPG games—especially those designed with advanced tools and methodologies—hold great promise in modern education, enhancing critical thinking skills and providing valuable tools for interactive learning.

Research on RPG game development shows that games can be developed effectively using various media and methodologies, individually and in groups. Гаранін & Моїсеєнко (2018) highlight the application of adaptive artificial intelligence in RPG games developed using Unity, demonstrating how advanced technology can improve game dynamics and user experience. Kurniati et al., (2015) provide a concrete example of developing the game "Tales of Mamochi" for the Android platform with RPG concepts, underlining the flexibility and potential of the mobile platform in providing an immersive and adaptive gaming experience. The combined findings of these studies confirm that RPG games can be developed effectively through various approaches, from artificial intelligence and advanced development tools to mobile platforms. This shows that RPG games can not only be customized to meet individual needs but can also be designed for collaborative experiences that involve multiple users. By utilizing various media and technologies, developers can create games that are engaging and support various educational and personal development goals.

### CONCLUSION

The conclusion of this study indicates that the game design has effectively met students' preferences and conditions, as evidenced by a strong demand for games on Android platforms. The design integrates local cultural elements with engaging game mechanics, creating an immersive and enjoyable learning experience. This approach not only serves as a learning tool but also fosters and maintains students' interest in Indonesian sociolinguistics, particularly with elements of Sundanese culture. Evaluations conducted during the study revealed a significant increase in students' understanding of sociolinguistic concepts.

Moreover, the game successfully incorporates local content in ethnolinguistic forms, allowing students to engage with real-life scenarios through gameplay. By integrating ethnolinguistic elements—such as language, social organization, and technology—the game provides deeper insights into Sundanese culture. The evaluation also showed that the game fostered a positive attitude towards the Sundanese language and culture among students, encouraging them to appreciate and explore their cultural heritage. Thus, this game functions not only as an educational tool but also as an effective medium for preserving local culture within the broader context of Indonesia.

To optimize the effectiveness of educational games, it is recommended that longitudinal studies be conducted to assess the long-term impacts on students' language proficiency and cultural awareness. Comparative studies should also be carried out to evaluate the effectiveness of games against traditional teaching methods, highlighting the unique advantages of the game-based approach. Future research can explore the adaptability of game design for various cultural and linguistic contexts, promoting multilingualism and intercultural understanding. Additionally, integrating advanced gamification elements—such as leaderboards and social features—can enhance player engagement and motivation.

Accessibility should be a priority when developing game versions for different platforms and for learners with diverse abilities. Collaboration with local communities is essential to ensure the authenticity of cultural content and to gather feedback on the game's effectiveness. Combining quantitative and qualitative data will provide a more comprehensive understanding of the game's impact, while adjustments for learner diversity and cultural sensitivities will prevent stereotypes and misconceptions, ensuring inclusive and sensitive game designs.

### DECLARATIONS

<b>Author contribution</b>	: Asep Jejen Jaelani leads and is responsible for all research projects entitled "Design of code switching and code-mixing game in Sundanese Wewengkon Kuningan language with ethnolinguistic" He wrote the entire manuscript, collaborated with the second, and third, and served as the corresponding author, overseeing submission and revisions. The second, and third, authors contributed to analyzing the data. Three authors also approved the final manuscript.
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<b>Ethics Approval</b>	: The authors agree to have this article published in KEMBARA in 2024.
<b>Additional information</b>	: The author lists two institutions because of the postgraduate study at the University of Muhammadiyah Prof. Dr. Hamka which was carried out as a form of improving academic qualifications at the University of Kuningan.

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