

# Application of Gamification in Ethnic Excellence-Based Character Education Programs

Carolina M.Lasambouw  
Department of Accounting  
Politeknik Negeri Bandung  
Bandung, Indonesia  
carolina.magdalena@polban.ac.id

Neneng Nuryati  
Department of Accounting  
Politeknik Negeri Bandung  
Bandung, Indonesia  
neneng.nuryati@polban.ac.id

Ediana Sutjiredjeki  
Department of Electrical Engineering  
Politeknik Negeri Bandung  
Bandung, Indonesia  
e\_sutjiredjeki@yahoo.com

Moh. Farid N.  
Department of Electrical Engineering  
Politeknik Negeri Bandung  
Bandung, Indonesia  
mohfaridnajib@polban.ac.id

Sumeru  
Department of Electrical Engineering  
Politeknik Negeri Bandung  
Bandung, Indonesia  
sumeru@polban.ac.id

Sri N. Yuliyawati  
Department of Civil Engineering  
Politeknik Negeri Bandung  
Bandung, Indonesia  
srinuryuli@polban.ac.id

Ade Hodijah  
Department of Computer and  
Informatics  
Politeknik Negeri Bandung  
Bandung, Indonesia  
adehodijah@jtk.polban.ac.id

**Abstract**—This paper describes how the game is a tool to support the strengthening of character education for its users. In implementing the Independent Learning Education, Merdeka Campus, Bandung State Polytechnic, collaborated with the industry to apply gamification to the concept of character education and the nation's cultural values. Some of the objectives of this gamification activity are: (a) Getting the ethnic group's information; (b) Providing users inspiration to develop themselves; (c) Growing a better direction mindset. The game developed is a web-based application (online gamification), so as many students/students and lecturers as possible can use the game to support strengthening character education and the nation's cultural values. The manual version of the video game content (prototype) is available, namely the 2021 research output containing Pancasila character content based on ethnic excellence. The elements of educational content in online gamification contain the results of identifying the prominent characters of 10 ethnic groups in Indonesia with the largest population (Dayak, Madura, Jawa, Sunda, Baduy, Batak, Banjar, Minahasa, Betawi, Minang). This study used three approaches which are Qualitative-Explorative, Qualitative-Descriptive, and Evaluation. The method used to know how gamification was implemented in character education and the nation's cultural values. It is hoped that gamification can integrate into the learning process for compulsory national subjects. Thus, students can become users and a market for the gamification industry.

**Keywords**—character education and the nation's cultural values, Gamification, Ethnic excellence

## I. INTRODUCTION

The main need for learning methods in the Independent Learning system is students' mastery of new literacy [1]. One of the learning methods used is Blended Learning, which combines offline and online learning methods [2]. Gamification in the field of education (education game) [3] is one of the innovations in the learning process that applies

the concept of Free Learning Education. One application of gamification or an interesting game approach in the learning process is needed to motivate students to learn and strengthen character education. One application of gamification or an interesting game approach in the learning process is needed to motivate students to learn and strengthen character education.



Fig. 1. Research product output in 2021 [6]

The purpose of character education based on national education standards is to form students with noble character [4]. Furthermore, strengthening character education ensures students have a Pancasila spirit [5]. Therefore, research related to character education on learning content in schools, in this case, the Bandung State Polytechnic, has been carried out for one year (2020-2021) with research outputs in the form of handbooks for participants/players and handbooks for tutors/lecturers as shown in Figure 1.

The 2021 research product is available in the form of video games which are still manual versions in the form of a handbook containing Pancasila character content based on ethnic excellence [6]. Therefore, the implementation of strengthening character education is expected to support the

Merdeka Learning program, Merdeka Campus, and Bandung State Polytechnic with the anticipated impacts of this research, namely:

- The industrial world has the opportunity to cooperate in mutualism with universities, which will increase trust in partnering in various other activities. In addition, research output products managed by partners can improve the partner's economy,
- Polban collaborates closely with industry partners regarding developing interactive and innovative gamified learning media that will enrich and motivate students to study harder. In addition, Polban will increase the number of IPRs from research output products. Minimum Copyright,
- Other universities will be more motivated to develop various forms of technology-based learning media, not limited to character education, but also to strengthen complex subjects such as mathematics,
- Students will be happier and more motivated to learn about Pancasila as the ideology of the state and nation. It will bring up the character of self-confidence, tolerance, cooperation, love for the homeland, and innovation. Students who are directly involved in research activities will have an impact on increasing motivation to be creative and innovative in finding solutions to problems in society.

Based on the description of the background, problems, and impacts above, this study aims to determine how the application of gamification strengthens character education. The virtual learning method approach from Blended Learning [1] referred to in this study is through a web-based online gamification application, so the learning process is expected to be more flexible. The objectives of this gamification activity are:

- Get to know various cultures in Indonesia.
- Get to know the 10 ethnic groups with the largest population in Indonesia.
- Understanding the ethnic advantages of each tribe.
- Giving users inspiration to develop themselves along with the course of gamification activities.
- Able to change the mindset to grow in a better direction.

## II. METHODS

This research stage begins with a detailed identification of industrial needs related to character development for gamification products. Then, data were obtained through in-depth interviews with partners to find the character education in the gamification industry, in-depth interviews with partners were conducted. Next, the Research Team and industry partner teams determine the research output targets, the content of engineering media, and what scenarios will be developed through Focus Group Discussions (FGD), especially concerning the prominent characters of the ten most populous ethnic groups in Indonesia. Furthermore, the results of the FGD agreed on a list of online gamification product capabilities that a team of industry partners will develop. Finally, the online gamification product, one of the outputs of this study, was

tested with users, namely students and lecturers at the Bandung State Polytechnic, by filling out questionnaires. The results of user product trials are used to improve research outcomes, namely online gamification products to strengthen character education based on ethnic excellence. The three approaches is shown in Figure 2.

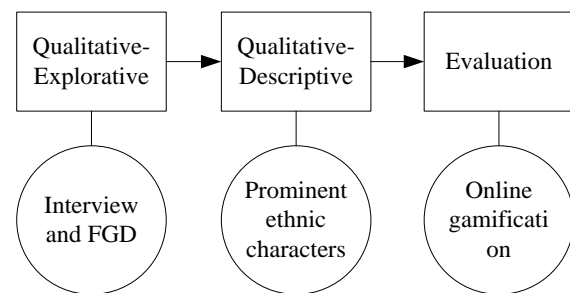


Fig. 2. Research methods

## III. RESULTS AND DISCUSSION

### A. Qualitative-Explorative

Based on the five main values of strengthening character education, character education is an effort that is designed and implemented systems to help students understand the values of human behavior related to (1) religion; (2) nationalist; (3) independence; (4) working together; (5) integrity [7], [8]. The movement for strengthening character education in this study is class-based, namely [8]:

- Integrating the learning process in the classroom through curriculum content in subjects, both thematically and integrated.
- Strengthen classroom management, choice of methodology, and evaluation of teaching.
- Develop local content according to regional needs.

The learning process in question uses a blended learning approach with a teaching methodology through online gamification to strengthen character education. The online gamification in this study aims to provide discussion time for fellow teams and choose the correct answer, test the user's honesty and situation themselves in the condition of the gamification activity and then act appropriately. Based on these objectives, the application was developed using RPG Maker MV [9]. It is because of the need for a PC to be screen-shared. In addition, the development of an asynchronous smartphone application is also needed as a parameter to test user honesty. These parameters will have simple features, such as adding and subtracting variables using a smartphone. The technological scenario of this gamification is shown in Figure 3.

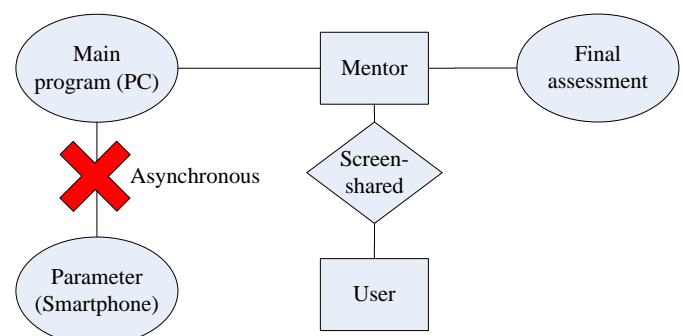


Fig. 3. Technological scenario of the gamification

Table 1 is a SWOT analysis of the selection of RPG Maker MV in making this online gamification. Some targets for the application of character based on ethnic excellence in the learning process [10] are included in the group of personality development courses [6] and Pancasila Education (PKn) courses [11]. The local content in question is ten ethnic groups in Indonesia with the largest population, namely ethnic groups: Dayak, Madura, Jawa, Sunda, Baduy, Batak, Banjar, Minahasa, Betawi, Minang [6], [10]. In addition, three tribes (Jawa, Sunda, and Minangkabau) of ten characters in [12] have been identified. The following are the ten dominant characters possessed by ten ethnic groups in Indonesia based on these ethnic advantages, namely: (1) honest/frank; (2) hard worker; (3) likes to work together; (4) religious/religious; (5) brave; (6) loyal/loyal; (7) immigrants; (8) firm; (9) sincere; and (10) friendly [6], [10].

The following are the characteristics based on the advantages of 10 ethnic groups in Indonesia [6], [10] as shown in table 2.

TABLE I. SWOT ANALYSIS OF RPG MAKER MV

Strength	Weakness
The program has the required features such as: making impactful choices, calculating variables for user scores, creating offline parameters, and more. In addition, working with RPG Maker MV is even more efficient because RPG Maker MV has an easy-to-use code structure that speeds up the creation process.	Not efficient for mobile/smartphone. Several features in a PC (Computer) that a smartphone cannot read—the instability of the video through the program on both PCs and smartphones. The solution, the application provides more specific features for smartphones to play. For example, the app uses playable animations as sprites in gamification activities for unstable videos.
Opportunity	Threat
Users are expected to be interested in learning and easily understand the lessons given because, lately, gamification has become something many people are interested in.	Users have the opportunity to commit dishonesty while playing. Therefore the application provides answer keys and a final recap for examiners.

TABLE II. IDENTIFICATION OF EXCELLENT CHARACTERS

Dayak	Madura	Jawa	Madura	Baduy
Patient	Religious	Militant	Cheerful	Abstain from harming others
Preserving culture	Independent	Consistent	Embrace	Obeys the law
Honest	Expressive	Loyal	Gentle	Collaboration
Sincere	Upholding self-esteem	Assert-ive	Respect	Preserving the natural heritage
Toughness	Be brave	Willing to sacrifice	Friendly	Democratic
Consistent	Migra-nt	Obeys	Humble	Independent
Be persistent	Confid-ence	Upholding self-esteem	Easy to get along	Honest

Resilient	Straightforw-ard			Sincere
Fair	Frankly			Assertive
Be brave				Loyal
Keeping promises				Uploading their customs

TABLE III. IDENTIFICATION OF EXCELLENT CHARACTERS

Batak	Banjar	Minahasa	Betawi	Minang
Assertive	Loyal friend	Religious	Socialist	Nomads
Migrants	Like to trade	Discipline	Cultural practitioner	Simple
Resilient	Religious	Mutual cooperation	Sincerely	Hard worker
The golden voice	Empathy	Honest	Easy to get along	Straightforw-ard
Honest	Gentle	Fair	Polite	Egalitarian
Consistent	Loyal	Love to sing		
Never give up	Forgiving	Strong brother-hood		
Strong		To be respon-sible		
Toughness				
Mutual cooperation				

### B. Qualitative-Descriptive

The understanding of gamification includes using game elements to solve problems other than games [13] so that the learning process becomes interesting [14] to increase motivation [3], [15]. Several studies related to character education have been carried out, including the application of gamification [16], [17], teaching and learning processes using applications in the cloud, such as Kahoot [13], [18], [19] and Quizziz [20], [21] or develop their web-based applications [22] to support specific teaching and learning [23], [24]. For users to access gamification products, the web application that has been made is deployed on a server and can be accessed via an internet connection at a certain URL address [25], [26].

A gamification concept is developed by referring to the prominent ethnic characters that have been identified [6], [10]. The gamification of "Knowing Superior Characters and Culture of the 10 Ethnic Populations in Indonesia" is a unique form of learning tool that will give new nuances to its users. The article will find many fresh concepts that can indirectly trigger users to learn content. Hopefully, it will change the way of thinking in everyday life outside of this gamification activity. A Visual Novel style is used to show personal characters in the gamification activities.

In this gamification, a new feature of the online meeting activity style was developed and applied. Mentor prepares the Online Meeting Application and shares it on the monitor screen for all users. All users have manually prepared parameters by installing the application on a cellphone or similar device. First, users will watch the story shown on the screen belonging to the mentor that will be shared (users are not in 1 room). Next, the user performs a response that is prompted on the screen. Types of responses the user can ask during gamification:

- Parameters. The user acts by shifting the value on the attribute on the parameter board. There are two attribute models: Action point and Stress Level.
- Attitude Scale. The user and the mentor choose actions. It can be done in small groups as well as individually. However, this choice of action is very likely to affect the storyline and the outcome of the gamification activity. So it must be discussed (for the group), determined, and chosen carefully.
- Storyline Selection. The choice of the storyline can also be something that users have to decide, either individually or in groups. In line with the choice of action on an attitude scale, the choice of the storyline can affect the outcome of gamification activities. The choice of story path can also be an event that will affect the rise and fall of attributes whose value is non-negotiable.
- Selection of Story Places. The choice of the destination will also be the subject of discussion or even individually chosen in this activity at certain times or events. There are times when the choice of this place affects the storyline. There are also found as choices only.

Finally, mentors can check the results of the screenshots sent by the user by matching the gamification results that are recorded automatically in the mentor's application (provided in the mentor's application with a separate menu "REKAP RESULTS").

The concept and storyline in gamification are adapted to the current pandemic situation, where many people meet and discuss things with the help of online applications such as GoogleMeet, Zoom, Webex, Discord, and so on. Likewise, in this study, mentors need the help of a PC to access this gamification. There is a feature to share the image display from the mentor's PC screen to participants as users through the help of online meeting applications.

GAMES DESIGN DOCUMENT	
CHARACTER DEVELOPMENT BASED ON ETHNIC	
OWNER	: WINNIE YORIN
VERSION	: 0.1.0
DATE	: 2 <sup>nd</sup> July, 2022
REVISION	: FIRST DRAFT
<b>1 EXCELLENCE GAMIFICATION ACTIVITY CONCEPT</b>	
Genre	: Modern Visual Novel and Mini Games (semi-online)
Number of Users	: 10 with 1 Mentor
Duration of Activity	: Session I KNOWING ETHNICITY AND CULTURE approximately 60 minutes
	: Session II CHARACTER DEVELOPMENT BASED ON ETHNICAL ADVANTAGE approximately 120 minutes
User Category	: User Category
Gender	: Male/Female

Fig. 3. Element of game design document

Participants, as players, can use mobile phones or other similar devices to access. Here are games design document of gamification as shown in Figure 3.

The players will learn various superior characters from ethnic groups in Indonesia. The game's focus is to form a team with members from various ethnicities who will make plans for community service activities in an area in Indonesia. Part of the storyline is shown in Figure 4.

Character Building
<b>The short storyline of the gamification activity "Knowing Ethnic and Culture"</b>
In an academy building, we see our beautiful host named Angel. Angel is observing someone in the library building. A man named Billy looked confused because he got an assignment from his college to create a functional activity.
It turned out that Billy wanted to carry out a community service activity on an island that had received little equal distribution of technology and education, but what could be done was the need for team members and funds.
Angel rushed to ask Billy about his difficulties. Angel immediately tried to help Billy. With Billy's agility and Angel's flexibility in the first stage, they started recruiting team members. Several team members gathered on campus based on their observation and thoroughness.
Their search continued to the area outside the campus, finally gathering the ten team members with great difficulty.
They go to Angel's house and consult to determine the place of choice for community service. Social service activities include eradicating illiteracy and distributing used books suitable for use by children and other activities for the community. For this activity, many funds are needed, so they raise funds by making products in the form of cakes and selling them.
With their ability and competence, they finally managed to raise funds and get ready to do social service activities.
The story in the gamification "Knowing Ethnic and Culture" is supported by ten characters representing the ten ethnicities and can be chosen by gamified users.

Fig. 4. The short storyline of gamification activities

Through this gamification, participants will be encouraged to strengthen and enrich their character, including the following, as shown in Figure 5.

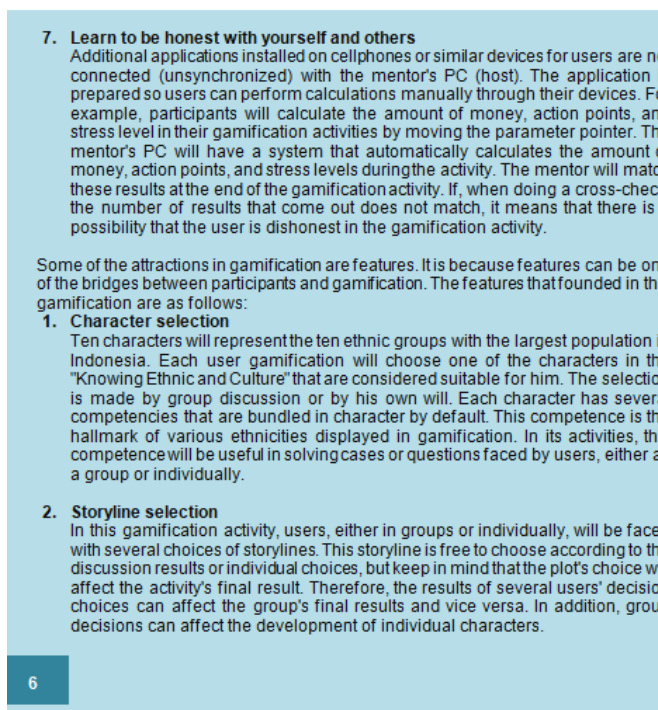


Fig. 5. Element of script

### C. Evaluation

Some basic game mechanics elements of gamification in the teaching and learning process are badges, levels, leaderboard, virtual rewards or (awards), gifts (awards or prizes), and challenges [27], [28]. Badges are markers for groups of players, levels are stages of the game, leaderboards are player ratings, gifts are prizes after completing certain levels, and challenges are game challenges so players can compete to be the best.

The following are five attributes of evaluating the results achieved by players. These attributes are essential gamification elements closely related to the character. In contrast, these attributes are vital and determine whether or not the individual character can continue the gamification activity or not.

- **Gifts**  
There is Money as the gifts, which is a cost source in this gamification. It will increase when the group successfully recruits its members. The more group members' recruited money will continue to grow by itself. In addition to recruiting group members, there will be several events in the gamification activity that can increase the number of money belonging to the group. Still, small live events also reduce the amount of group money. So money only applies collectively, not individually. In addition to the money attribute, the next thing that is also very decisive in this gamification mechanism is the Action Point. These are energy, namely points that must be present if the character wants to engage in gamification. So when

this Action Point reaches "0" or runs out, nature can't take action at all, such as quitting the game. But, again, action Points only apply to individuals, not collectively.

- **Challenges**  
Several questions contain related cases as the challenges, so if the answer choice is wrong, it will affect the total assessment of the continuing issues.
- **Levels**  
Stress Level is a parameter that will permanently change up or down in this activity. The limit of the stress Level is 120 points. Once the user reaches that point, the character is declared sick and will lose one chance to participate in the next activity (if needed). Hospitalized and will lose one opportunity on the next move, but will reduce 50 stress points the next.
- **Badges**  
Each player has the opportunity to unlock new competencies when the user can answer the questions asked correctly. Each character has a different possibility from other characters but will be calculated automatically by the computer.
- **Leader boards**  
After finishing the game, the mentor can check the results of the screenshot sent by the user by matching the gamification results that are recorded automatically in the mentor's application (provided in the mentor's application with a separate menu "REKAP RESULTS"). Figure 6 is a display of the leader boards of this online gamification.

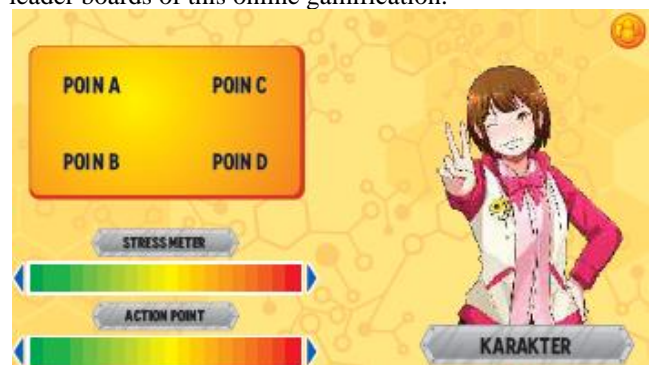


Fig. 6. Gamification leader boards

### IV. CONCLUSION

The research found that:

- Practical experience in applying national identity values based on excellent ethnic characteristics becomes essential to provide an objective picture/fact rather than an abstract picture.
- Practical learning will offer a pleasant understanding of goodness from other tribes while using the gamification of character education programs where each tribe has a prominent character as the community's identity.
- The introduction of prominent ethnic and cultural characters through gamification tends to be more easily accepted by students.
- The application of gamification in learning abstract subjects, which students need deepening

understanding, will be very helpful in realizing "real imagination".

- The use of gamification provides a pleasant atmosphere in the learning process.

#### ACKNOWLEDGMENT

This work supported by the Research and Community Service Centre of Politeknik Negeri Bandung, Indonesia, CV Kreatif Media Grafika Level-09 and Matching Fund Vocation (MFV) 2022, Diksi.

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