

## Development of Edugame for Introducing Regional Musical Instruments Integrated with Pancasila Student Profiles in Cultural Diversity Material for Fourth-Grade Elementary Schools

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**ABSTRACT:** This study aims to develop an integrated educational game to introduce regional musical instruments to the Pancasila Student Profile for the cultural diversity material of fourth-grade elementary school. The research model employed Borg & Gall Research and Development (R&D), including ten stages: information gathering, planning, initial product development, expert validation, gradual trials, product revision, and dissemination and implementation.

The study results indicate that the developed edugame product has a high level of validity. Validation by material experts obtained a score of 92% and media experts obtained a score of 91%, resulting in an average of 92%, categorized as very feasible. The practicality of the Edugame is assessed as very good based on the results of student trials. The initial field trial obtained a score of 87%, the main field trial 90%, and the operational field trial 91%, with an overall average of 89%, categorized as very practical. Thus, this educational game introducing regional musical instruments can be used as a valid and practical learning medium to support students' understanding of cultural diversity while strengthening their application of the Pancasila Student Profile dimensions, especially in the areas of global diversity, cooperation, critical reasoning, independence, and creativity.

**KEYWORDS:** Edugame, regional musical instruments, cultural diversity, Pancasila Student Profile, elementary school

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### I. INTRODUCTION

The curriculum is a crucial component of education because it serves as the primary guideline for teachers and students in designing and implementing the learning process. Curriculum changes in Indonesia demonstrate an effort to adapt to changing times, student needs, and the demands of globalization (Rahmadayanti & Hartoyo, 2022). One of the most recent policy innovations is the Independent Curriculum, which emphasizes flexibility, essential learning, and strengthening student competencies for greater meaning (Sibron & Afgani, 2024). This curriculum allows teachers to be creative and innovative in using technology-based learning methods and media (Andreani & Gunansyah, 2023).

In the context of elementary school, fourth-grade students are in phase B. The Independent Curriculum, known as the golden age for children's cognitive and character development (Prasetiawan, 2019), is essential during this period. In addition to honing thinking skills, instilling values and character is essential. This aligns with the concept of the Pancasila Student Profile, comprising six dimensions: faith and noble character, independence, cooperation, critical thinking, creativity, and global diversity (Apriliani & Romlitriputra, 2024). Integrating these six dimensions into learning can strengthen students' holistic personality development.

However, various studies show that learning in elementary schools still faces several obstacles. Particularly in social studies, which includes cultural diversity, students tend to be less motivated because learning methods are still predominantly rote-based, monotonous, and lack interactivity (Putri & Nurafni, 2021). Moreover, social studies is crucial for instilling tolerance, cooperation, and appreciation for the nation's cultural diversity (Sari & Khaq, 2023). If left unaddressed, this condition can result in weak student engagement in learning.

Along with the development of digital technology, Edugame are increasingly being developed as innovative learning media. Edugame can increase student motivation by combining entertainment and educational elements and encouraging active student involvement in the learning process (Cahyani et al., 2022). Furthermore, Edugame can also be an effective tool for developing critical thinking skills, collaboration, and creativity. In the context of cultural education, Edugame can be used to introduce regional

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musical instruments, which are an integral part of the nation's cultural heritage. This introduction is essential for student knowledge and an effort to preserve local culture and strengthen national identity (Wijayanti & Suryana, 2023).

Based on this description, the development of Edugame, which introduces regional musical instruments and is integrated with the Pancasila Student Profile, is highly relevant. This medium serves as an interactive learning tool and a platform to instill character values and introduce Indonesian cultural diversity to students from an early age. Therefore, this study aims to develop an edugame product that is appropriate, engaging, and effective for use in cultural diversity learning in fourth-grade elementary schools

## II. METHOD

This study employed a Research and Development (R&D) model that aims to produce a learning media product as an educational game introducing regional musical instruments integrated with the Pancasila Student Profile for cultural diversity material for fourth-grade elementary school. The research and development model used refers to Borg & Gall, which has been widely adapted in educational research (Sugiyono, 2019). This model consists of ten main stages, namely:

1. preliminary study and information collection (research and information collection),
2. planning,
3. development of preliminary product design (develop a preliminary form of product),
4. preliminary field testing,
5. main product revision,
6. main field testing,
7. operational product revision,
8. operational field testing,
9. final product revision, and
10. dissemination and implementation.

The Edugame product was systematically developed through these stages, starting with needs identification, designing local culture-based content, creating the application, and finally, validation and user trials. Media and content experts validated the product to assess its feasibility, while field trials were conducted with fourth-grade elementary school students.

Data analysis is used to produce learning media that are suitable for use if they meet the criteria for validity and practicality. The following formula is used to determine the level of validity of learning media:

$$p = \frac{f}{n} \times 100\% \quad (1)$$

Information:

p = Percentage of product validity test scores

f = Total score obtained n = Maximum score

(Gulo & Harefa, 2022)

The percentage results obtained are converted with the validity assessment criteria based on the table below.

**Table 1. Expert Validity Criteria**

| Assessment Result Score Interval | Criteria           |
|----------------------------------|--------------------|
| 81% - 100%                       | Very Feasible      |
| 61% - 80%                        | Feasible           |
| 41% - 60%                        | Quite Feasible     |
| 21% - 40%                        | Less than Feasible |
| 0% - 20%                         | Not feasible       |

(Modified from Gulo & Harefa (2022))

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The product's practicality can be analyzed by analyzing the student response questionnaire. The following formula is used to calculate the product's practicality score.

$$P = \frac{\sum x}{\sum xi} \times 100\% \quad (2)$$

Information:

P = percentage of student responses

$\sum x$  = total score obtained

$\sum xi$  = total of all scores

(Gulo & Harefa, 2022)

The percentage results are then categorized based on the practicality table below.

**Table 2. Practicality Criteria for Student Questionnaires**

| Percentage            | Criteria         |
|-----------------------|------------------|
| $80\% < P \leq 100\%$ | Very Practical   |
| $60\% < P \leq 80\%$  | Practical        |
| $40\% < P \leq 60\%$  | Quite Practical  |
| $20\% < P \leq 40\%$  | Impractical      |
| $0\% < P \leq 20\%$   | Very Impractical |

(adapted from Wahyuni and Pratama, 2022)

### III. RESULT AND DISCUSSION

This development resulted in digital-based Edugame learning media to introduce regional musical instruments integrated with the Pancasila Student Profile in the cultural diversity material for grade IV elementary school. The development model employed by Borg & Gall R&D consists of 10 stages.

The first stage is needs analysis. Field observations and interviews with classroom teachers indicate that cultural diversity learning media currently rely solely on textbooks and online videos. This situation tends to make learning monotonous, non-interactive, and does not foster student independence. In fact, the Pancasila Student Profile emphasizes the importance of independence, creativity, critical thinking, cooperation, and global diversity (Kemendikbudristek, 2021). Analysis of material in the fourth-grade science textbook, Chapter 6, shows that the content on traditional musical instruments lacks illustrations and does not utilize interactive media that can attract students' attention. The second stage is planning. At this stage, researchers compiled the Pancasila Student Profile indicators that would be integrated, developed an edugame storyboard, and designed the initial display, consisting of a main menu, game levels, interactive quizzes, and audio of regional musical instruments. This edugame includes: descriptions of musical instruments, images, distinctive sounds of musical instruments, a guess-theinstrument quiz, and a simple leaderboard. The third stage is initial product development. The storyboard was realized as an Android-based application using an educational game development platform. The initial product had a simple interface with a main menu, a list of regional musical instruments (*angklung*, *gamelan*, *sasando*, *tifa*, and *kolintang*), interactive quizzes, and a Pancasila student profile displayed in the form of achievement badges. The fourth stage was product validation. Edugame was validated by two media expert lecturers and two art and culture education subject matter experts. The assessment included the suitability of the content, appearance, interactivity, and integration of the Pancasila Student Profile values. The fifth to eighth stages were initial and operational field trials. The trials were conducted in stages with fourth-grade students on a small scale (5 students), medium scale (10 students), and large scale (20 students). The trial results showed that students felt more motivated to learn because they could directly hear the sounds of musical instruments and answer game-based quizzes. The ninth stage was final revision. Revisions were made by improving the interface, adding audio instructions, and clarifying the descriptive text. The tenth stage was dissemination. The product was socialized to teachers and principals through small workshops to implement Edugame more widely in schools.

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## a. Validity

### 1) Subject Matter Expert Validator

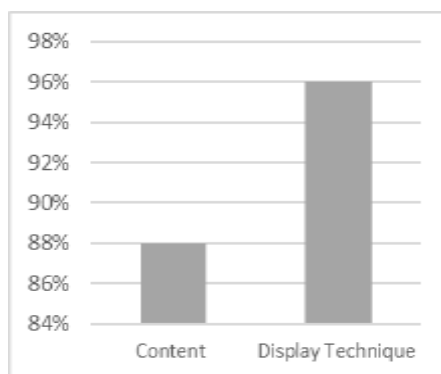


Figure 1: Diagram of Material Expert Validation Results

Based on the validation results by material experts on the Introduction to Regional Musical Instruments Integrated with the Pancasila Student Profile Edugame for the Cultural Diversity topic for grade IV elementary school, an average score of 92% was obtained, which is categorized as very appropriate. This score was obtained from two main aspects: the content aspect of the material at 88% and the presentation technique aspect at 96%. The presentation technique aspect obtained the highest score, especially in the language use and material presentation indicators, with an average score of 3.9. The language used in the Edugame is structured in a standard, communicative, and easy-to-understand manner, thus enriching students' vocabulary. The presentation of the material is designed to be attractive through visual displays, musical symbols, and instructions that align with the dimensions of the Pancasila Student Profile, such as cooperation, creativity, independence, and critical reasoning. Attractive material delivery is believed to trigger student interest in the learning process. This is supported by the findings of Mayasari et al. (2021), who confirmed that interactive learning media can foster student interest and attention.

### 2) Media Expert Validator

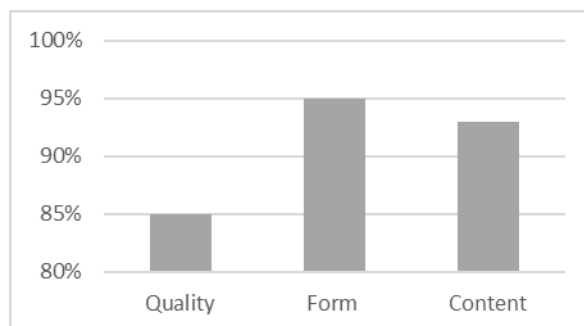


Figure 2: Media Expert Validation Results Diagram

Based on the media expert's assessment of the Edugame Introduction to Regional Musical Instruments Integrated with Pancasila Student Profiles on the Cultural Diversity topic for fourth-grade elementary school, the product was declared very suitable, with an average score of 91%. This score is a combination of three aspects: media quality (85%), media form (95%), and media content (93%).

The form and content aspects received the highest scores. Edugame was deemed engaging in form due to its interactive visual design, contrasting color choices, and user-friendly navigation, with an average indicator score of 3.9. Meanwhile, the content aspect obtained a high score because the material presented was appropriate for the age of elementary school students, equipped with contextual illustrations of regional musical instruments, as well as learning instructions that were relevant to the dimensions of the Pancasila Student Profile, such as cooperation, creativity, and critical reasoning.

This Edugame display was developed to combine local cultural elements with digital technology that is more relevant to students' lives. This aligns with Fatikhasari's (2020) opinion that engaging and interactive visual-based learning media can increase student engagement and motivation.

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### 3) Average Results of Validation by Material Experts and Media Experts

Table 3. Average Results of Assessments by Material Experts and Media Experts

| No. | Evaluation            | Average | Criteria      |
|-----|-----------------------|---------|---------------|
| 1.  | Subject Matter Expert | 92%     | Very Feasible |
| 2.  | Media Expert          | 91%     | Very Feasible |
|     | Average               | 92%     | Very Feasible |

Based on the validation results involving material experts and media experts regarding the Edugame for Introduction to Regional Musical Instruments Integrated with Pancasila Student Profiles, an average score of 92%, categorized as very suitable. This finding indicates that the Edugame developed meets validity criteria in content and media quality, making it suitable for implementation among fourth-grade elementary school students on cultural diversity.

#### b. Practicality

##### 1) Initial Field Trial Results

This trial phase obtained practicality scores, including media display, usability, and benefits. The assessment results are presented in the following diagram.

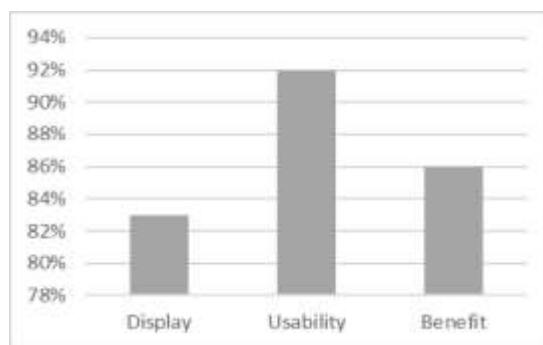


Figure 3: Initial Field Trial Results Diagram

Based on the initial field trial results, an average score was obtained for each aspect: the appearance aspect of 83%, the usability aspect of 92%, and the benefits aspect of 86%. The element with the highest score is usability, including students' ease in operating the Edugame, their ability to understand the instructions, and student engagement during learning without feeling bored. The most prominent indicator is the ease with which fourth-grade students used the Edugame to introduce regional musical instruments. Thus, it can be concluded that this product is easily accessible and appropriate for the learning characteristics of elementary school children.

These findings align with research by Perdana et al. (2023), which states that interactive digital-based learning media is more straightforward to implement in elementary schools because it aligns with students' visual and kinesthetic learning styles. Overall, the average percentage for appearance, use, and benefits is 87%, which falls into the practical category.

##### 2) Main Field Trial Results

This trial phase obtained practicality scores, including media display, usability, and benefits. The assessment results are presented in the following diagram.

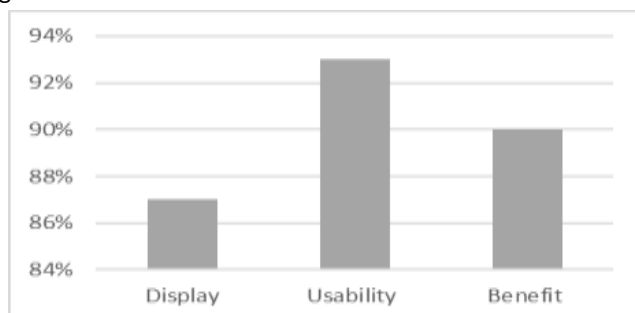


Figure 4: Main Field Trial Results Diagram

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Based on the main field trial results, an average score was obtained for each aspect: 87% for display, 93% for usability, and 90% for benefits. The highest score is achieved for the usability aspect, which includes indicators of students' ease of use in operating the Edugame, understanding instructions, and remaining motivated without feeling bored during the learning process. The indicator with the highest score indicates that fourth-grade students found the Edugame introducing regional musical instruments easy to use, and the media helped maintain their enthusiasm.

Meanwhile, the benefits aspect scored high on indicators of material understanding, game-based learning (learning by playing), and group learning opportunities. The highest indicator of this was students' ease of understanding the cultural diversity content presented through Edugame.

Thus, the developed Edugame is easy to use, can help students understand the material more effectively, and creates a fun learning atmosphere during collaborative activities. This aligns with Dyani's (2020) findings, which confirm that game-based learning media can facilitate student understanding through interactive and enjoyable learning experiences.

### 3) Operational Field Trial Results

This trial phase obtained practicality scores, including media display, usability, and benefits. The assessment results are presented in the following diagram.

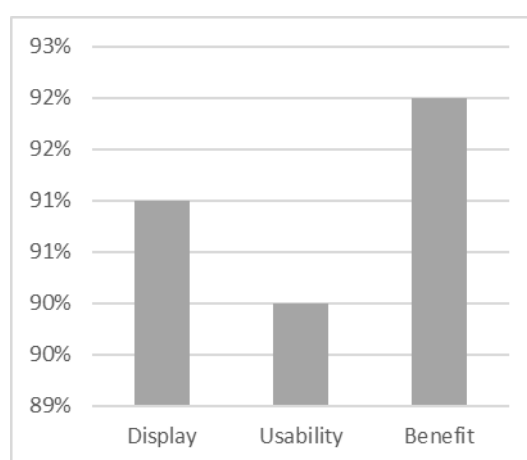


Figure 5: Diagram of Operational Field Trial Results

Based on the operational field trial results, an average score was obtained for each aspect: 91% for the display, 90% for the usability, and 92% for the benefits. The highest scores are seen in the display and benefits aspects. In the display aspect, the indicator with the highest score is student interest in visualizing images and descriptive text in the educational game introducing regional musical instruments. Meanwhile, in the benefits aspect, the most prominent indicator is students' ability to learn while playing, resulting in greater enthusiasm for participating in the learning process.

Thus, the developed Edugame is able to capture students' attention and actively engage them in the learning process, making learning more enjoyable and meaningful. This finding aligns with Harnanto's opinion (in Rahayuningsih et al., 2019), which states that game-based learning media can create a fun learning environment while increasing student engagement.

Overall, the average results from appearance, use, and benefits were 91% with a very practical category, so Edugame is suitable for learning cultural diversity in grade IV elementary schools.

Table 4. Average Trial Results

| No | Student Response Questionnaire | Average | Criteria       |
|----|--------------------------------|---------|----------------|
| 1. | Initial Field Trials           | 87%     | Very Practical |
| 2. | Main Field Trial               | 90%     | Very Practical |
| 3. | Operational Field Trial        | 91%     | Very Practical |
|    | Average                        | 89%     | Very Practical |

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Based on the overall results of the initial field trials, main field trials, and operational field trials, an average of 89% is categorized as very practical. These results indicate that the educational game introducing regional musical instruments integrated with the Pancasila Student Profile can be effectively implemented in learning about cultural diversity in fourth-grade elementary schools.

This success confirms that edugame media makes learning more enjoyable and encourages students to be more active and engaged in the learning process. Thus, learning is no longer monotonous or boring, but somewhat more interactive and contextual, in line with the objectives of the Independent Curriculum. This finding aligns with Putra et al. (2020), who emphasized that educational game-based learning media can directly engage students, creating meaningful learning experiences.

### IV. CONCLUSIONS

The development of Edugame for the Introduction of Regional Musical Instruments Integrated with Pancasila Student Profiles in the Cultural Diversity Material for Grade IV Elementary Schools was carried out using the Borg & Gall research and development (R&D) model which consists of ten stages, starting from searching and collecting information, planning, initial product development, gradual trials, product revisions, to the dissemination and implementation stages.

Validation results indicate that the developed Edugame meets the criteria for very appropriateness. The assessment by material experts yielded an average score of 92%, while the assessment by media experts yielded a score of 91%, resulting in an overall average of 92%. This demonstrates that the developed Edugame meets the needs of learning about cultural diversity while supporting the implementation of the Pancasila Student Profile dimensions.

Meanwhile, the results of the practicality test based on student response questionnaires also indicated a very practical category. The initial field trial scored 87%, the main field trial 90%, and the operational field trial 91%, with an overall average of 89%. This data demonstrates that Edugame is easy for students to use, makes learning more enjoyable, and encourages active engagement in the learning process.

Based on the assessment results from material experts, media experts, and student responses, it can be concluded that the educational game for introducing regional musical instruments that was developed meets valid and practical criteria, so it is suitable for use as a learning medium for cultural diversity material in grade IV elementary schools.

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