

***Benkangen* game: Digital media in elementary school Indonesian language**

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ABSTRACT

The background of this research is the need for teacher innovation in developing digital-based learning media in Indonesian language learning. The research method used is research and development (R&D) with the analysis, design, develop, implement, and evaluate (ADDIE) model, which consists of five research stages: analysis, planning, development, implementation, and evaluation. Data collection techniques are questionnaires, in-depth interviews, observations, and documentation that present the results regarding innovation, features, applications, and the impact of using the *benkangen* game in learning Indonesian in elementary school. The subjects of this study were 25 teachers from 25 elementary schools, and 66 students from 10 elementary schools in Magelang district and Magelang city. The results showed innovation in the development of game applications based on Magelang local wisdom with game features in the form of puzzles of Magelang culture and local wisdom, Indonesian language learning materials packaged in the form of questions accompanied by the number of points in each answer, and audio that reflects local wisdom in Central Java. The novelty of this research is the development of the *benkangen* game based on Magelang local wisdom, which still needs to be developed by teachers in Indonesia. Future research needs to explore the innovation of Indonesian language learning games through the latest software.

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1. INTRODUCTION

The rapid development of digital technology today impacts education philosophically and technically, which requires teachers to process, develop, and utilize digital devices in learning, one of which is learning media in the form of games [1]–[5]. Utilizing information and communication technology (ICT) through game media in Indonesian language learning is one alternative for facilitating elementary school student's understanding of Indonesian language materials, namely main ideas, effective sentences, advertising media, historical narrative texts, and other skills [6], [7]. The development and application of game media in Indonesian language learning in elementary schools are necessary for educators to respond to the times and

improve student learning outcomes [8]–[10]. The necessity for primary school teachers to develop games in learning aligns with the United Nations Educational, Scientific and Cultural Organization (UNESCO)'s teacher ICT framework, which lists the competencies required by teachers to integrate ICT into learning and teachers' professional practices [11]–[14]. According to UNESCO, the six aspects of the teacher ICT framework are understanding ICT in education, curriculum and assessment, pedagogy, ICT, organization and administration, and professional teacher learning [15]. Elementary school teachers must implement these six aspects through the development and application of game media in learning because the core of digital-based learning lies in the ability of teachers to integrate ICT into education and learning [16]–[18].

Conceptually, game media development in elementary schools is the creativity, style, and renewal carried out by teachers in the field of technology to form digital-based professional education and realize students' full potential [19]–[21]. In addition, there is also a need for innovation in learning media application games based on local wisdom, which is a new idea for developing learning media to increase learning motivation and understanding of Indonesian language material delivered by elementary school [22]–[24]. Several studies in the last decade have explored local wisdom-based learning media, such as research on myths and ecological wisdom [25], educational game with android based on Timorese local wisdom in learning mathematics [26], disaster education through indigenous disaster mitigation at elementary school in Indonesia [27], research and development of animation media with local wisdom in elementary schools in Indonesia [28], local wisdom-based Math learning media on the concept of social arithmetic [29], learning media with *topeng barongan* local wisdom to strengthen the Pancasila student profile of elementary school students [30], Kizzugemu visual novel game in Javanese language learning in elementary school in Magelang district [31], and research on interactive Biology modules based on Bengkulu local wisdom [32]. While current research on learning media with Microsoft PowerPoint, iSpring Free 9, and Web2Apk applications exist on android media with Microsoft Office PowerPoint, iSpring Suite 10, and Website 2 Apk builder in learning organic chemistry [33], android-based learning media with PowerPoint, iSpring Free 9, and Web2Apk applications on English news text material at the high school level [34], furthermore, research and development of learning media with iSpring Suite 9 in the automation of governance and infrastructure in higher education [35]. From those researches, a few still examine media games based on the local wisdom of Magelang Regency, Central Java, which utilize Microsoft PowerPoint, iSpring Free 9, and Web2Apk.

The theme of Magelang local wisdom in learning game media is in line with the national education goals [36], [37], as stated in Law Number 20 of 2003 on the National Education System [38], and Regulation of the Minister of Education, Culture, Research and Technology of the Republic of Indonesia Number 13 of 2022 [39]. The regulation mandates that the education system in Indonesia not only aims to educate the nation's children but also to shape the nation's children into cultured Indonesians [40], [41]. However, currently, not many educators can develop learning media by inserting cultural values in it based on the teacher ICT framework, according to UNESCO [13], Ibda *et al.* [42], and Bardule [43], even though education has a role in inheriting and maintaining and maintaining culture integrated into educational ICT [44]–[46]. The education process is relevant, and the preparation of the nation's generation [47]. Thus, the main provision for students to live social life can be obtained from the education process at school. Based on this, it encourages teachers to make innovations in developing game media based on Magelang local wisdom in Indonesian language learning in elementary schools called *benkangen* game. In this research, *benkangen game* is an innovative form of game application development with Microsoft PowerPoint assisted by iSpring Free application and Apk 2 Web Builder. There are several learning game media developed using Microsoft PowerPoint assisted by iSpring Free application, and Apk 2 Web Builder, such as interactive quizzes for science subjects, Pirate Tales, Knight Adventure, Spin Game, and many more, and have a positive impact on elementary school students because they build an interactive, communicative atmosphere and a constructive environment [48]. However, in reality, few still develop in Indonesian language learning with the theme of Magelang local wisdom. Hence, this *benkangen* game is a novel development that inserts the theme of local wisdom in learning. The fun game atmosphere and student-centred learning climate presented by *benkangen* game are expected to answer the needs of ICT advancement and improve students' understanding of the learning material.

The needs analysis was conducted through questionnaires to teachers and students of grade 5 elementary schools and madrasah ibtidaiyah (Islamic elementary school) in Magelang district and Magelang city. The number of teachers who were given a questionnaire was 25, and 66 students in 10 schools. The needs analysis questionnaire for students contains the need for easy Indonesian language learning, the need for Indonesian language learning media other than textbooks and modules, the need for the use of digital-based media (games), the need for Indonesian language material packaged into digital games, and the need for digital-based educational media learning (games) that attract students. In comparison, the needs analysis questionnaire for teachers contains the need for student activeness and enthusiasm in learning Indonesian, the need for good learning outcomes in learning Indonesian, the need for solutions to low enthusiasm in learning Indonesian, the need for the use of digital-based media in learning Indonesian, the need for types of media that make learning

Indonesian easy, the need for interactive game-based educational media with the theme of local wisdom in learning Indonesian, the need for local wisdom material in digital-based game media, the need for game-based Indonesian learning media with local wisdom in grade 5 elementary school, suggestions and comments for the game to be developed.

The development of *benkangen* game media is motivated by the analysis of media needs from students and teachers, the lack of learning media development, especially in Indonesian language subjects, the lack of innovation by teachers in developing learning media, passive students and less enthusiastic about the learning process carried out so that it is difficult to understand the material presented. There are no game-based Indonesian language learning media with the theme of Magelang local wisdom. The novelty in this research is *benkangen* game media with Magelang local wisdom in Microsoft PowerPoint, iSpring Free 9, and Web2Apk applications. Therefore, the researcher asked four research questions:

- How is the development of the *benkangen* game based on Magelang local wisdom using PowerPoint software assisted by iSpring free application and web app 2 builders?
- How are the features of *benkangen* game media based on Magelang local wisdom?
- How is the feasibility of the *benkangen* game according to media and material experts
- How is the implementation and impact of the *benkangen* game based on Magelang local wisdom in elementary schools?

2. METHOD

This research and development (R&D) method uses the analysis, design, develop, implement, and evaluate (ADDIE) type chosen from the Dick and Carey model [47], [48]. Researchers develop or create an innovative learning media, namely *benkangen* game media based on Magelang local wisdom in learning Indonesian in elementary schools through five stages, namely analysis, media design, media development, application of media that has been developed, and evaluation of the media that has been developed. The scope of this research is the development of game-based learning media with Magelang local wisdom in learning the Indonesian language for elementary school students, which researchers named *Benkangen Game*. This research was conducted in Magelang district and Magelang city on 25 teachers from 25 elementary schools and 66 students from 10 elementary schools. As for the limited-scale product trial, it was conducted in 2 madrasah ibtidaiyah (Islamic elementary school), namely Madrasah Ibtidaiyah Yakti Ngadirejo Tegalrejo and Madrasah Ibtidaiyah Yaspi Kaponan Pakis, Magelang Regency. The stages researchers carried out in this study were by the model developed by Dick [49], [50]. In the analysis stage, researchers searched for data, found literature sources, and found research results relevant to the research the researchers conducted. In addition, researchers also conducted a needs analysis to define the needs that must be adjusted in the development of *benkangen* game media based on Magelang local wisdom. Researchers analysed the needs of students and teachers regarding how this *benkangen* game media should be developed. Language to be developed. Design stage, the activity in this stage is the preparation of content or material design, images, colours, and designs according to the needs of students and teachers. Development stage, in this development stage, researchers developed *benkangen* game media based on the initial design. After the media has been developed in the implementation stage, the next step is a limited trial in the control and experimental classes to determine the impact of the *benkangen* game media that researchers develop in the learning process. In the evaluation stage, researchers revised the developed media based on the suggestions and input from teachers and students during the implementation stage. The data collection techniques used to facilitate researchers to explore data are observation, in-depth interviews, and document studies. The data findings obtained are then presented as descriptions of innovations, features, implementation, and the impact of using *benkangen* game media based on Magelang local wisdom in Indonesian language learning in elementary schools.

3. RESULTS AND DISCUSSION

3.1. Development of *benkangen* game based on Magelang local wisdom using PowerPoint software, iSpring Free 9, and Web2Apk builder

The development of the *Benkangan* game is carried out according to the ADDIE flow. At the analysis stage, it was carried out to define the needs that must be adjusted to develop *benkangen* game media based on Magelang local wisdom. Researchers analyzed the needs of students and teachers regarding how this *benkangen* game media should be developed. Then at the planning stage, the researcher made a media design that was adjusted to the results of the analysis of the needs of teachers and students. Researchers carry out the development stage by developing media design results based on needs analysis data; at the

implementation stage, researchers apply the media developed in the classroom on a limited scale. The last stage is evaluation, which is improving the media based on suggestions and input from teachers and students.

Benkangen game is an acronym for the Indonesian Language with Magelang local wisdom game. *Benkangen* in Javanese means “to be remembered,” meaning that this game about learning Indonesian based on Magelang local wisdom is expected to be a stimulus for grade 5 students in particular so that they can easily remember the Indonesian materials in it and always remember, know, and increasingly love Magelang local wisdom so that later they can produce a smart and cultured generation. In addition, in *Benkangen* Game, a competitive element makes students compete with themselves to complete the game with the highest points in each mission, so students need to strategize in completing the game. *Benkangen* game is the result of innovation and development through Microsoft PowerPoint, which is then converted into a game application using APK Building software and iSpiring Free 9, which has characteristics in the form of competition, challenges, and imaginary fantasies that are good for children. Researchers developed *benkangen* game media in this development stage based on the initial design. The stages carried out by researchers in this stage are: i) making *benkangen* game media using PowerPoint applications assisted by APK Builder and iSpiring Free 9; ii) conducting media review or validation by media experts, material experts, and users; and iii) improve the media according to input from a team of media experts, material experts, and users so that there are differences between the initial media and the media after revision.

Benkangen game media development design based on Magelang local wisdom is designed with attractive colour composition and image illustrations. The front cover contains the media title and subtitles; the game design is adjusted to the results of the needs analysis questionnaire filled in by students and teachers so that later the content and learning objectives in the developed learning media become effective when used. The development of the *benkangen* game is an innovation with the concept of application-based games, multimedia, and electronics in learning with goals, results, competition, and interaction of the material in the game. *Benkangen* game contains 4 Indonesian language materials: main ideas, effective sentences, narrative text, print advertisements, and electronic advertisements. The four materials are packaged as a quiz game where the correct answer will get points. In addition, in *benkangen* game, there is a puzzle about Magelang local wisdom that each student must solve.

3.2. Features of *benkangen* game based on Magelang local wisdom

Benkangen game has two language versions, Indonesian and English. *Benkangen* game contains grade 5 Indonesian language materials, namely material on main ideas, effective sentences, narrative text, and material on print and electronic advertisements. The material is packaged in a fun game nuance, and there is a puzzle game about Magelang local wisdom. The menu and image display in this *benkangen* game learning media is adjusted to the needs of students and teachers, which has the theme of Magelang local wisdom. The visual display aspects that will be used are in the form of audio (sound effects and music), visual (layout and colour), images of Magelang local wisdom, motion media through (animation), and navigation icons. The following is the initial appearance of the *benkangen* game in Figure 1.

In the game, several options direct students to choose. This game feature is visualized in several menu options. Figure 2 and Figure 3 show the material indicator menu and the game instructions menu; Figures 4 and 5 show the mission/level game menu that must be completed and the puzzle menu about Magelang local wisdom that must be solved before unlocking each mission. Figures 6, Figure 7, and Figure 8 show the menu of Indonesian language questions and the material explanations for each question. A certificate can be obtained if you collect maximum points in each mission. In addition to the game features above, researchers present *benkangen* game through videos on YouTube, create game manuals, and target online stores for the game to be sold through e-commerce. Here are some URLs that can be accessed to learn more about *benkangen* game based on Magelang local wisdom. First, a video on how to make *benkangen* game media based on Magelang local wisdom [51]. Second, a video on how to use *benkangen* game media based on Magelang local wisdom [52]. Third, an e-book guiding the making and using of *Benkangen* game media based on Magelang local wisdom [53].

3.3. Feasibility of *benkangen* game according to media experts and material experts

The indicators of feasibility by experts are determined by the content or material aspects which include the suitability of the material with the core competencies/basic competencies of the curriculum, the accuracy of the material, the currency of the material, the correctness of the material concept, the suitability of the level of difficulty with the cognitive development of 5th-grade students, aspects of media presentation, aspects of media quality, aspects of media visual appearance, and aspects of media effectiveness. After the feasibility test, the results of each aspect presented that the *benkangen* game media based on Magelang local wisdom was very feasible to be tested with an average score of 90% from the validators of media experts, materials, and users. Based on the feasibility test of *benkangen* game media based on Magelang local wisdom in learning Indonesian in grade 5 elementary school, the test results by media and material experts who are

competent in their fields show that *benkangen* game is suitable for use in elementary schools. The feasibility test by media experts is carried out using the ADDIE stages so that the media researchers develop is suitable for testing after revisions. *Benkangen* game learning media was validated by media experts, namely programmers in universities who are proficient in learning media. As for the assessment results from media experts, *benkangen* game is considered feasible with a score of 4.6. While the feasibility test by material experts, namely Indonesian language education lecturers who are experts in Indonesian language material, who get a score of 4.1. Based on the results of validation by media experts and material experts, the *benkangen* game is feasible from the media and material sides so that it can be applied on a limited and wide scale in elementary schools.



Figure 1. Initial display of *benkangen* game based on Magelang local wisdom

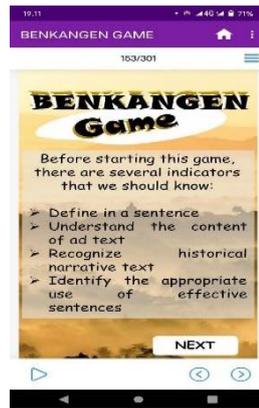


Figure 2. In-game display of material indicators



Figure 3. Game instructions menu display



Figure 4. Menu view of missions to be completed

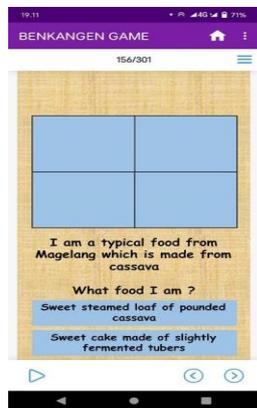


Figure 5. Menu display of puzzle to be solved

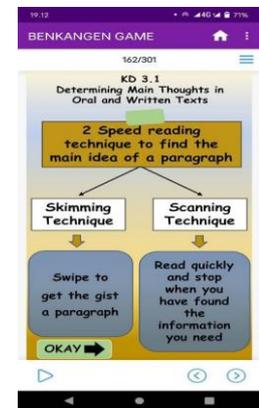


Figure 6. Question menu display

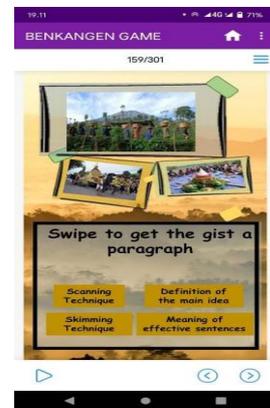


Figure 7. Display of material explanation menu



Figure 8. Game certificate display

3.4. Implementation and impact of *benkangen* game based on Magelang local wisdom in elementary school

Using the *benkangen* game based on Magelang local wisdom is done through several steps; at the pre-learning stage, the teacher installs the application on a laptop or each student's smartphone. The teacher provides students with instructions on how to play *benkangen* game based on Magelang local wisdom. Then students practice directly the use of the *benkangen* game based on Magelang local wisdom. The development of the *benkangen* game based on Magelang local wisdom has had several impacts. First, it raises awareness for teachers to utilize digital media by developing learning media as interesting educational games. Second,

the presentation of media is interesting, unique, different, and contextual, and third, the understanding of learning increased by 95% after using *benkangen* game media based on Magelang local wisdom.

The findings of this research and development differ from other studies, such as Sartono *et al.* [54], who developed interactive multimedia packaged from power point applications, Indonesian language learning through PBL model with technology, pedagogy, and content knowledge (TPACK) approach for elementary school teachers [55], Ibda's research that developed conservation-based plant and animal puppet media is effective in helping fifth-grade elementary school students learn to write drama scripts [56], and android-based media development at Talaga Raya Indonesia elementary school with Adobe Flash [57]. *Benkangen* game is new and can be applied or developed in the following study, especially in Indonesian language learning based on local wisdom.

4. CONCLUSION

The development of the *benkangen* game based on Magelang local wisdom has had several impacts. First, it raises awareness for teachers to utilize digital media by developing learning media as interesting educational games. Second, the presentation of media is interesting, unique, different, and contextual, and third, the understanding of learning increased by 95% after using *benkangen* game media based on Magelang local wisdom. *Benkangen* game media based on Magelang local wisdom has several advantages. First, it can be developed easily through PowerPoint software. Second, it can be developed according to the game's material, goals, and objectives; third, the software is developed as an application that can be accessed anywhere and anytime. From the child's point of view, the media is very easy to use and has a very attractive appearance. This study has development limitations, namely, game scores that cannot be accumulated automatically and features in the media, some of which cannot be run automatically, and supporting backgrounds that cannot rotate on all pages. Future research must explore more innovative, creative games and add various materials and multiplatform, including Microsoft PowerPoint, iSpring Free, and Apk 2 Web builder. In its application, *benkangen* game media based on Magelang's local wisdom is effectively used in learning the Indonesian language in grade five elementary school. It is seen and measured from students' understanding through student learning outcomes tests. The research shows that the average score of students is in the excellent category. The results of interviews and questionnaires show that students feel facilitated in achieving learning objectives. Educators also found it helpful in delivering the material. *Benkangen* game media based on Magelang local wisdom in fifth-grade Indonesian language learning shows feasible results to be tested; this is based on the results of practitioner or expert validation tests, with a score of 4.1 from material experts and 4.6 from media experts.

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