

## DEVELOPMENT OF WAYANG PICTURE GUESSING GAME (TEBANG) LEARNING MEDIA BASED ON QUICK APP NINJA

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### ABSTRACT

This study aims to develop a practical and effective game-based learning media to address the lack of teacher creativity in designing digital media, specifically for Javanese language subject on Wayang material at MI Tegalroso Parakan. This Research and Development (R&D) used the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The research subjects were third-grade students of MI Tegalroso Parakan (n=8). Data collection instruments included needs questionnaires, media and material expert validation sheets, and learning outcome tests (pre-test and post-test). Data were analyzed using descriptive and inferential statistics (Kolmogorov-Smirnov normality test, paired sample t-test, and N-Gain calculation). Expert validation results showed that the TEBANG game media was feasible to use with eligibility percentages of 85% (media expert) and 88% (material expert). The effectiveness test through paired sample t-test showed a significant difference between pre-test (Mean=73.63) and post-test (Mean=85.00) scores with sig. 0.025 ( $p < 0.05$ ). The N-Gain score of 0.3671 proved the improvement of student learning outcomes in the medium category. This research develops a "Picture Guessing" game genre specifically for Wayang character introduction using the code-free Quick App Ninja platform. This represents a practical and realistic solution for teachers with limited programming competencies, while also functioning as a medium for preserving Javanese culture through an edutainment approach. The TEBANG media provides an innovative, easily accessible (web-based), and easily developed solution for MI/SD teachers. Its implementation is expected to improve learning outcomes, motivation, and active student participation in learning Javanese language and Wayang culture.

**Keywords:** TEBANG Game Media, Javanese Language, Quick App Ninja, Media Development, Wayang, Interactive Learning.

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### INTRODUCTION

21st-century education requires the integration of technology and learning to create relevant and adaptive learning processes [1]. Initial observations at MI Tegalroso Parakan showed that the utilization of application-based learning media, particularly for Javanese language subjects, is still very limited. Most teachers still rely on conventional methods such as lectures and textbooks, without interactive media support that can attract students' attention. Meanwhile, almost all students have gadgets, but their use has not been directed towards educational content that supports learning.

Javanese language material, particularly the introduction of Wayang characters and their traits as part of local culture, is often considered abstract and difficult by students. This is exacerbated by the lack of visual media or applications that help students understand the material concretely [2]. Mayer's Multimedia Learning theory supports that presenting information through a combination of text, images, and interactive elements can enhance understanding

and memory retention. Additionally, the ASSURE theory proposed by Heinich emphasizes the importance of adapting media to student characteristics to achieve learning effectiveness [3,4].

Based on needs analysis, 100% of students stated the need for game media to learn about Wayang, and 100% of teachers acknowledged the need for new interactive media that is easy to use. Quick App Ninja, as a code-free web-based application development platform, was chosen to address this challenge due to its ease of development without requiring complex programming skills [5,6]. This study aims to develop and test the feasibility and effectiveness of the "TEBANG" (Wayang Picture Guessing) game-based learning media using Quick App Ninja in improving third-grade students' understanding of Wayang material at MI Tegalroso Parakan.

### **Learning Media and Educational Games**

Learning media are all forms of intermediaries used to deliver educational messages to create effective learning conditions [7,8]. In a modern context, educational games emerge as innovative media that integrate game elements with pedagogical content [9,10]. Educational games are specifically designed to create immersive learning experiences through simulation challenges, stimulating creativity, collaboration, and intrinsic knowledge acquisition [11]. According to Malone [12], elements of challenge, curiosity, and fantasy in games can function as catalysts for students' intrinsic motivation.

### **Quick App Ninja as a Development Platform**

Quick App Ninja is a web-based platform that allows users to create simple games and applications without writing programming code (code-free), using an intuitive drag-and-drop interface [6]. This platform offers various game templates, such as "Picture Guessing," which can be customized according to learning material needs. Its main characteristics are ease of development, high accessibility (can be run via browser without installation), and a monetization model through advertisements.

### **Javanese Language Learning and Wayang Local Wisdom**

The Javanese language subject as a local content not only focuses on linguistic aspects but also Javanese literature and culture [13,14]. Wayang material is introduced as part of cultural heritage to instill moral values and noble character, such as honesty, loyalty, and courage, through the introduction of characters like the Pandawa and Punakawan [15,16]. However, the interest and understanding of the younger generation towards Wayang culture tends to decline, thus requiring learning approaches relevant to the characteristics of Generation Z who are familiar with digital technology. This study aims to develop a practical and effective game-based learning media to address the lack of teacher creativity in designing digital media, specifically for Javanese language subject on Wayang material at MI Tegalroso Parakan

## **METHODOLOGY**

This study used the Research and Development (R&D) method with the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation) [17,18]. This model was chosen because it provides a clear, systematic, and iterative structure, allowing evaluation and revision at each stage. The research subjects involved 8 (eight) third-grade students of MI Tegalroso Parakan, Temanggung Regency, as product trial participants. Subject selection used purposive sampling technique based on the consideration that they were studying Wayang material. The development procedure followed five stages of the ADDIE model: Analysis: Conducting needs analysis through questionnaires and in-depth interviews

with teachers and students to identify problems and media needs. Design: Designing game flow, storyboard, material (Pandawa, Kurawa, Punakawan characters), and visual interface using Canva. Development: Building the "TEBANG" game using the Quick App Ninja platform based on the designed blueprint, followed by validation by media and material experts. Implementation: Conducting limited trials by implementing the media in Wayang material learning in the classroom. Evaluation: Conducting summative evaluation to measure product feasibility and effectiveness through expert validation data and pre-test/post-test results.

Data Collection Instruments: Needs Questionnaire: Used in the analysis stage to gather initial information from teachers and students. Expert Validation Sheet: Used to assess media feasibility (8 aspects) and material feasibility (8 aspects) by one media expert and one material expert using a 1-5 Likert scale. Learning Outcome Test: Consisting of pre-test and post-test with 10 multiple-choice questions to measure the improvement of students' cognitive understanding. Data Analysis Techniques: Qualitative Descriptive Analysis: To summarize input and suggestions from validators, Quantitative Descriptive Analysis: Calculating product eligibility percentage using the Percentage of Validator's Assessment (PPV) formula, Inferential Statistics: Included normality test (Kolmogorov-Smirnov), paired sample t-test to test significant differences, and N-Gain Score calculation to measure the magnitude of effectiveness improvement.

## RESULTS

### Analysis Results

Based on needs questionnaires distributed to 8 students and 7 teachers, it was identified that:

- a. 100% of students stated that Wayang material was difficult and boring with conventional methods, but 100% of them liked games and wanted to learn Wayang using game media
- b. 87.5% of students believed that games could help their understanding
- c. 100% of teachers stated that existing Wayang learning media were insufficient, students were not enthusiastic, and learning outcomes had not met the Minimum Completion Criteria (KKM).
- d. 100% of teachers needed new interactive and easy-to-use (web-based) media.
- e. 5.72% of teachers admitted difficulty in creating technological media.

### Expert Validation Results and Product Revision

The "TEBANG" game product was declared very feasible by experts after the revision process

- a. Media Expert: Eligibility score reached 85% (Very Feasible category). Strengths were in attractive display and responsive interactivity. Improvement suggestions on title design, color selection, addition of background, and improvement of visual element sizes have been revised.
- b. Material Expert: Eligibility score reached 88% (Very Feasible category). Strengths were in material suitability with curriculum and language clarity. Improvement suggestions on consistency of writing sentence beginnings with capital letters and addition of Wayang character descriptions have been implemented in revisions.

## Effectiveness Test Results

- a. Normality Test: Kolmogorov-Smirnov test results showed that pre-test and post-test data were normally distributed (sig. pre-test = 0.20 and sig. post-test = 0.200, both > 0.05).
- b. Paired Sample T-Test: A significant difference was found between pre-test scores (Mean = 73.63, SD = 8.618) and post-test scores (Mean = 85.00, SD = 4.629) with sig. (2-tailed) value of 0.025 ( $p < 0.05$ ). This proves that there was a significant influence after using TEBANG media.

**Table 1.** Paired Sample T-Test Results of Pre-test and Post-test Scores

Paired Differences	t	df	Sig. (2-tailed)	
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference	
			Lower	Upper
<b>-11.375</b>	11.338	4.009	-20.854	-1.89

- c. N-Gain Test: An average N-Gain score of 0.3671 was obtained, which falls into the medium improvement category. This shows that TEBANG media was effective in improving student understanding with medium effectiveness category.

**Table 2.** N-Gain Score Interpretation Category

N-Gain Value	Category
$g \geq 0.7$	High
$0.3 \leq g < 0.7$	Medium
$g < 0.3$	Low

## DISCUSSION

This research successfully developed TEBANG learning game media that is feasible, practical, and effective. The high feasibility level from media experts (85%) and material experts (88%) proves that the developed product has met quality standards from technical aspects, learning design, and material substance. These findings align with research [19,20] which emphasizes that learning media assessment should consider aspects of suitability with class capacity, cost efficiency, ease of revision, and impact on students.

The effectiveness of TEBANG media was empirically proven through significant improvement in student learning outcomes, as shown by the paired sample t-test (sig. 0.025) and medium category N-Gain score (0.3671). These results are consistent with Mayer's Multimedia Learning theory [21,22] which states that presenting information through images (Wayang character visualization) and text (names and clues) simultaneously, accompanied by interactivity (picture guessing mechanism), can reduce extraneous cognitive load and facilitate deeper understanding. The quiz mechanism, coin system as reward, and help features ("Consult Friend", "Use Hint") in the TEBANG game successfully created a challenging and motivating learning environment, as per the principles of intrinsically motivating instruction proposed by Malone [23,24].

The practical value and novelty of this research lie in the utilization of the code-free Quick App Ninja platform. This platform proved to be an appropriate solution to overcome teachers' digital competency limitations (as admitted by 85.72% of teacher respondents), while also

answering the demands of Permendikbud No. 22 of 2016 regarding interactive learning processes utilizing ICT [19]. The easy accessibility of TEBANG as a lightweight web-app that requires no installation makes it highly feasible to be adopted in various MI/SD with limited infrastructure. Thus, this research not only contributes to the development of innovative learning media but also provides a realistic and contextual solution for improving teachers' digital pedagogical competencies in the digital era.

## CONCLUSION

Conclusions in this study is the need for interactive game-based learning media for Wayang material at MI Tegalroso Parakan is very high, both from student and teacher perspectives. The TEBANG (Wayang Picture Guessing) Game-Based Learning Media based on Quick App Ninja was successfully developed through the ADDIE model and declared "Very Feasible" by media experts (85%) and material experts (88%).

TEBANG media proved effective in improving third-grade students' understanding of Wayang material, as shown by the significant difference between pre-test and post-test scores and the N-Gain score that falls into the medium effectiveness category.

### Implications and Suggestions

TEBANG media is recommended as supplementary material in learning Javanese language on Wayang material at MI/SD level. For teachers, this media can serve as a concrete example in developing simple digital learning media without programming skill limitations. For further development, it is suggested to: (1) Expand the scope of Wayang material not only on character names, but also stories and philosophical values; (2) Add variety to game mechanisms and difficulty levels; (3) Test media effectiveness with larger and more diverse samples in terms of location and grade level.

## REFERENCES

- [1] Ahmadi F, Kom S, Kom M, Ibda H. *Desain pendidikan dan teknologi pembelajaran daring di era revolusi industri 4.0 dan society 5.0*. Qahar Publisher; 2021.
- [2] Aulia Fithri Nurlaili, Heri Suwignyo, Punadji Setyosari. Pengembangan Multimedia Untuk Pengenalan Tokoh Wayang Dalam Pembelajaran Bahasa Jawa. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan* 2016;1:1427–31.
- [3] Hadi S, Hermawan A. Implementasi Media Pembelajaran Interaktif Taktis Meningkatkan Efektivitas Pembelajaran. *Jurnal Simki Pedagogia* 2024;7:436–47. <https://doi.org/10.29407/jsp.v7i2.693>.
- [4] Titin T, Yuniarti A, Shalihat AP, Amanda D, Ramadhini IL, Virnanda V. Memahami Media untuk Efektivitas Pembelajaran. *JUTECH: Journal Education and Technology* 2023;4:111–23. <https://doi.org/10.31932/jutech.v4i2.2907>.
- [5] Murtiningsih SR, Wati NPTA, Haryadi D. The Effectiveness of Mobile Applications in Developing Students' English Grammar Skills. *E3S Web of Conferences* 2024;594:05008. <https://doi.org/10.1051/e3sconf/202459405008>.
- [6] <https://quickappninja.com/>. Quick App Ninja: Create Android Apps and Games Without Coding. 2024.
- [7] Harsiwi UB, Arini LDD. Pengaruh Pembelajaran Menggunakan Media Pembelajaran Interaktif terhadap Hasil Belajar siswa di Sekolah Dasar. *Jurnal Basicedu* 2020;4:1104–13. <https://doi.org/10.31004/basicedu.v4i4.505>.
- [8] Afifah N, Kurniaman O, Noviana E. Pengembangan Media Pembelajaran Interaktif Pada Pembelajaran Bahasa Indonesia Kelas III Sekolah Dasar. *Jurnal Kiprah Pendidikan* 2022;1:33–42. <https://doi.org/10.33578/kpd.v1i1.24>.

- [9] Mulyani D, Cahyati N, Rahma A. Pengembangan Media Permainan Dakon Untuk Kemampuan Berhitung Anak. *Al-Athfaal: Jurnal Ilmiah Pendidikan Anak Usia Dini* 2020;3:161–73. <https://doi.org/10.24042/ajppaud.v3i2.7232>.
- [10] Kurniawan AB, Hidayah R. Efektivitas Permainan Zuper Abase Berbasis Android Sebagai Media Pembelajaran Asam Basa. *JURNAL PENELITIAN PENDIDIKAN MATEMATIKA DAN SAINS* 2022;5:92–7. <https://doi.org/10.26740/jppms.v5n2.p92-97>.
- [11] Fatimah FN, Afifah HUN, Auliani R, Larasati SA. Alat Permainan Edukatif Sebagai Sumber Dan Media Pembelajaran Anak Usia Dini. *Raudhatul Athfal: Jurnal Pendidikan Islam Anak Usia Dini* 2023;7:44–56. <https://doi.org/10.19109/ra.v7i1.15436>.
- [12] Sari RK, Mudjiran M, Fitria Y, Irsyad I. Meningkatkan Motivasi dan Hasil Belajar Siswa dalam Pembelajaran Tematik Berbantuan Permainan Edukatif di Sekolah Dasar. *Jurnal Basicedu* 2021;5:5593–600. <https://doi.org/10.31004/basicedu.v5i6.1735>.
- [13] Nadhiroh U. Peranan Pembelajaran Bahasa Jawa Dalam Melestarikan Budaya Jawa. *JISABDA: Jurnal Ilmiah Sastra Dan Bahasa Daerah, Serta Pengajarannya* 2021;3:1–10. <https://doi.org/10.26877/jisabda.v3i1.9223>.
- [14] Aribowo EK. Digitalisasi Aksara Jawa dan Pemanfaatannya Sebagai Media Pembelajaran Bagi Musyawarah Guru Mata Pelajaran Bahasa Jawa SMP Kabupaten Klaten. *Warta LPM* 2018;21:59–70. <https://doi.org/10.23917/warta.v21i2.5620>.
- [15] Muzzamil F, Sulastri S, Maulana MH. Galeri Wayang Purwakarta sebagai Inovasi Pemerintah Kabupaten Purwakarta dalam Melestarikan Budaya Indonesia. *Sanskara Ilmu Sosial Dan Humaniora* 2025;3:115–30. <https://doi.org/10.58812/sish.v3i01.680>.
- [16] Mahamid MNL. Wayang Kardus sebagai Media Pembelajaran Kreatif untuk Melestarikan Budaya Lokal di Kabupaten Kediri. *Besari: Journal of Social and Cultural Studies* 2024;2:1–14. <https://doi.org/10.71155/besari.v2i1.87>.
- [17] Cahyadi RAH. Pengembangan Bahan Ajar Berbasis Addie Model. *Halaqa: Islamic Education Journal* 2019;3:35–42. <https://doi.org/10.21070/halaqa.v3i1.2124>.
- [18] Rayanto YH, others. *Penelitian Pengembangan Model Addie Dan R2d2: Teori & Praktek*. Lembaga Academic & Research Institute; 2020.
- [19] Febriani A, Azizah Y, Satria N, Eka Putri DA. Penggunaan Media Pembelajaran Berbasis TIK Oleh Guru Sebagai Media Pembelajaran Yang Menarik. *Edu Journal Innovation in Learning and Education* 2023;1:73–83. <https://doi.org/10.55352/edu.v1i1.512>.
- [20] Nurseto T. Membuat Media Pembelajaran yang Menarik. *Jurnal Ekonomi Dan Pendidikan* 2012;8:19–35. <https://doi.org/10.21831/jep.v8i1.706>.
- [21] Sapriyah S. Media pembelajaran dalam proses belajar mengajar. *Prosiding Seminar Nasional Pendidikan FKIP*, vol. 2, 2019, p. 470–7.
- [22] Wulandari AP, Salsabila AA, Cahyani K, Nurazizah TS, Ulfiah Z. Pentingnya media pembelajaran dalam proses belajar mengajar. *Journal on Education* 2023;5:3928–36.
- [23] An X. Social Media and Learning Apps: Influence on Education. *Lecture Notes in Education Psychology and Public Media* 2023;6:718–23. <https://doi.org/10.54254/2753-7048/6/20220662>.
- [24] Hasanah Lubis L, Febriani B, Fitra Yana R, Azhar A, Darajat M. The Use of Learning Media and its Effect on Improving the Quality of Student Learning Outcomes. *International Journal Of Education, Social Studies, And Management (IJESSM)* 2023;3:7–14. <https://doi.org/10.52121/ijessm.v3i2.148>.