**Pedagogical Research Journal**
Vol. 3 No 2. December 2025, pp.166-171
P-ISSN: Procces E-ISSN: Process, DOI:

# THE IMPACT OF DIGITAL LEARNING MEDIA ON LOCAL WISDOM UNDERSTANDING AND STUDENT LEARNING INTEREST

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**ARTICLE INFO**

***Keywords:***
Keywords 1; Interactive Powerpoint
Keywords 2; Digital Learning Media
Keywords 3; Conceptual Understanding
Keywords 4; Learning Interest
Keywords 5; Local Wisdo

***Article history:***

Received 2025-12-10
Revised 2025-12-12
Accepted 2025-12-22

**ABSTRACT**

This study examines the effect of interactive PowerPoint (PPT) digital media on students' conceptual understanding of local wisdom and learning interest. The background of this research is the low level of students' conceptual understanding and learning interest caused by conventional learning practices that rely heavily on verbal explanations and independent assignments without structured visual support. This study employed a quasi-experimental design with a non-equivalent control group. The participants were 52 seventh-grade students of SMP Negeri 6 Tanah Putih, divided into an experimental group (n = 26) and a control group (n = 26). Data were collected using a conceptual understanding test (pretest–posttest) and a learning interest questionnaire. The results show that the experimental group achieved a higher posttest mean score (87.76) than the control group (80.28), with a mean difference of 16.346 and a significance value of p = 0.000 < 0.05. In addition, the average learning interest score of the experimental group reached 86.10, which was higher than that of the control group. These findings indicate that interactive PPT digital media significantly improves students' conceptual understanding and learning interest. Therefore, interactive digital media can be considered an effective instructional strategy for enhancing meaningful and culturally contextual learning.

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## 1. INTRODUCTION

Learning effectiveness is strongly influenced by the strategies and media used by teachers. In many junior secondary schools, learning activities are still dominated by conventional approaches such as lectures and independent assignments. These approaches tend to position students as passive recipients of information, resulting in limited opportunities for interaction, exploration, and contextual understanding. Consequently, students often demonstrate low conceptual understanding and weak learning interest, especially in learning materials that require contextualization and reflection, such as local wisdom.

Local wisdom learning plays a crucial role in shaping students' cultural awareness, social values, and identity. However, local wisdom concepts are often abstract and contextual, making them difficult for students to understand if presented only through verbal explanations. Munawir Haris (2015) emphasizes that learning materials related to culture and values should be delivered through contextual and meaningful learning experiences to ensure deeper understanding. Without appropriate learning media, students may only memorize facts without comprehending the underlying values and relevance to their daily lives.

Digital learning media offer potential solutions to these challenges. According to Mayer (2009), multimedia learning that integrates text, images, audio, and animation can enhance students' cognitive processing and conceptual understanding. Interactive digital media also provide opportunities for students to actively engage with learning materials, respond to questions, and receive immediate feedback. Shoffa (2024) further explains that interactivity is a key factor in increasing students' attention, motivation, and learning interest.

Several previous studies have demonstrated the effectiveness of digital learning media. Eva Zulvi Wityastuti et al. (2022) reported that interactive digital media significantly improved students' engagement and understanding. Other studies found that multimedia-based instruction increased students' motivation and learning outcomes. However, most of these studies focused on general subjects and did not specifically examine local wisdom learning or analyze both cognitive and affective aspects simultaneously.

Based on preliminary observations at SMP Negeri 6 Tanah Putih, students showed difficulties in explaining local wisdom concepts, classifying examples of local culture, and connecting them to real-life contexts. In addition, students' learning interest was relatively low, as indicated by limited participation and passive classroom behavior. These conditions indicate a research gap: there is limited empirical evidence examining the effect of interactive PPT digital media on both conceptual understanding and learning interest in local wisdom learning at the junior secondary level using a quasi-experimental approach.

Therefore, this study aims to analyze the effect of interactive PPT digital media on students' conceptual understanding of local wisdom and their learning interest. The findings are expected to provide empirical evidence and practical implications for improving culturally contextual learning through digital media.

## 2. METHODS

This study employed a quasi-experimental method with a non-equivalent control group design. The participants consisted of 52 seventh-grade students of SMP Negeri 6 Tanah Putih in the 2025/2026 academic year. The experimental group (26 students) was taught using interactive PPT digital media, while the control group (26 students) received conventional instruction combined with independent internet browsing assignments.

Data collection instruments included a conceptual understanding test administered as pretest and posttest, as well as a learning interest questionnaire developed based on indicators of interest, engagement, motivation, and learning enjoyment. Data were analyzed using

descriptive statistics, normality tests (Shapiro–Wilk), homogeneity tests (Levene), independent samples t-tests, and regression analysis.

## 3. FINDINGS AND DISCUSSION

### 3.1 FINDING

#### *3.1.1* Descriptive Statistics

**Table 1. Descriptive Statistics of Research Variables**

| Variable | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Interactive PPT Media | 26 | 66 | 80 | 73.38 | 4.355 |
| Learning Interest | 26 | 59 | 72 | 66.23 | 3.943 |
| Conceptual Understanding | 26 | 74 | 100 | 85.69 | 6.692 |

The descriptive analysis indicates that students responded positively to the interactive PPT media. The average score for conceptual understanding reached 85.69, categorized as very good, while learning interest also showed a high average score.

#### *3.2* Pretest and Posttest Results

**Table 2. Pretest–Posttest Conceptual Understanding Scores**

| Group | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Pretest Control | 25 | 5 | 63 | 41.68 | 15.277 |
| Posttest Control | 25 | 63 | 100 | 80.28 | 8.213 |
| Pretest Experimental | 25 | 16 | 95 | 51.68 | 17.070 |
| Posttest Experimental | 25 | 74 | 100 | 87.76 | 8.268 |

The results show that both groups experienced improvement; however, the experimental group demonstrated a higher increase in posttest scores.

### 3.3 Normality and Homogeneity Tests

**Table 3. Shapiro–Wilk Normality Test Results**

| Data | Sig. |
|---|---|
| Pretest Control | 0.384 |
| Posttest Control | 0.180 |
| Pretest Experimental | 0.176 |
| Posttest Experimental | 0.112 |

All significance values are greater than 0.05, indicating normal data distribution.

**Table 4. Homogeneity Test (Levene's Test)**

| Sig. |
|---|
| 0.048 |

The data variance is not homogeneous; therefore, the independent samples t-test used the "equal variances not assumed" option.

### 3.4 Independent Samples t-Test

**Table 5. Independent Samples t-Test Results**

| Sig. (2-tailed) | Mean Difference |
|---|---|
| 0.000 | 16.346 |

The significance value of 0.000 (< 0.05) indicates a significant difference in conceptual understanding between the two groups.

### 3.2 DISCUSSION

The findings of this study provide strong empirical evidence that the use of interactive PowerPoint (PPT) digital media significantly enhances students' conceptual understanding of local wisdom as well as their learning interest. This conclusion is supported by both descriptive and inferential statistical analyses. Quantitatively, the experimental group achieved a higher posttest mean score (87.76) compared to the control group (80.28), with a mean difference of 16.346 and a significance value of p = 0.000. This substantial difference indicates that interactive digital media offers a more effective learning experience than conventional instructional methods accompanied by independent internet browsing.

From a cognitive perspective, the improvement in conceptual understanding can be explained through the principles of multimedia learning theory. According to Mayer (2009), learning becomes more effective when information is presented through a combination of verbal and visual representations rather than through text or speech alone. Interactive PPT media integrates images, animations, structured text, and interactive questions, allowing students to process information through dual channels. This multimodal presentation reduces cognitive overload and facilitates deeper information processing, enabling students to construct more coherent mental models of local wisdom concepts.

The pretest–posttest comparison further strengthens this argument. While both groups demonstrated improvement, the experimental group exhibited a more pronounced gain. This suggests that learning improvement was not merely a result of repeated exposure to the material but was strongly influenced by the instructional media used. Interactive PPT media allowed students to visualize abstract cultural concepts, such as values, traditions, and social practices embedded in local wisdom, which are often difficult to grasp through verbal explanation alone. As a result, students were better able to classify, interpret, and apply these concepts in contextual situations.

In contrast, students in the control group relied primarily on teacher explanations and independent browsing activities. Although internet browsing provides access to abundant information, it often lacks instructional structure and guidance. Without clear scaffolding, students may experience fragmented understanding or focus only on surface-level information. This condition explains why the control group's posttest mean score, although improved, remained lower than that of the experimental group. These findings align with previous studies indicating that unguided digital activities do not automatically lead to meaningful learning unless supported by well-designed instructional media.

Beyond cognitive outcomes, this study also reveals a positive impact of interactive PPT media on students' learning interest. The experimental group achieved an average learning interest score of 86.10, categorized as high. This result indicates that interactive media not only enhances understanding but also creates a more engaging and motivating learning environment. Interactive elements such as animations, images, and embedded questions encourage students to actively participate in the learning process rather than passively receiving information. Active participation is a critical factor in sustaining attention and interest, particularly among junior secondary school students.

From an affective learning perspective, increased learning interest can be attributed to the novelty and interactivity of the digital media. Shoffa (2024) emphasizes that interactive learning environments stimulate curiosity and intrinsic motivation by

allowing students to interact directly with learning content. In this study, students were not only observers but also active learners who responded to prompts, discussed visual examples, and reflected on cultural phenomena presented in the media. This interactive experience reduced boredom and created a more enjoyable learning atmosphere, which in turn positively influenced students' attitudes toward learning.

Furthermore, the integration of local wisdom content into interactive digital media played a crucial role in enhancing relevance and meaningfulness. Local wisdom is closely related to students' daily lives, social environments, and cultural identities. When these elements were presented through visual and contextual representations, students were able to connect new knowledge with their prior experiences. This connection is consistent with constructivist learning theory, which emphasizes that learning occurs most effectively when students actively construct knowledge based on existing cognitive structures.

Although regression analysis indicated that the partial effect of interactive PPT media was not statistically significant, this finding should be interpreted cautiously. Regression analysis examines the isolated contribution of a single variable, whereas learning outcomes are influenced by multiple interacting factors, including prior knowledge, motivation, classroom climate, and teacher facilitation. The significant results obtained from the t-test analysis demonstrate that, in practical classroom implementation, interactive PPT media contributes meaningfully to improved learning outcomes. Therefore, the lack of partial significance does not negate the overall effectiveness of the media but rather highlights the complexity of learning processes in real educational settings.

The findings of this study are consistent with previous research that reported positive effects of digital and multimedia-based learning. Eva Zulvi Wityastuti et al. (2022) found that interactive digital media significantly improved student engagement and understanding. Similarly, other studies have shown that multimedia learning environments foster both cognitive and affective learning outcomes. However, this study extends existing research by focusing specifically on local wisdom learning and by examining both conceptual understanding and learning interest simultaneously. This dual focus represents a meaningful contribution to educational research, particularly in the context of culturally responsive and technology-integrated learning.

In practical terms, the results of this study suggest that teachers should consider integrating interactive digital media into their instructional practices, especially when teaching abstract or contextual materials such as local wisdom. Interactive PPT media is relatively easy to design and implement, does not require advanced technological infrastructure, and can be adapted to various learning contexts. Therefore, it offers a practical and scalable solution for improving learning quality in junior secondary schools.

Overall, the expanded discussion confirms that interactive PPT digital media is not merely a supplementary tool but a pedagogically meaningful medium that supports deeper understanding, higher engagement, and more effective learning experiences. By combining cognitive, affective, and contextual dimensions, interactive digital media aligns well with contemporary educational demands that emphasize meaningful, student-centered, and culturally relevant learning.

## 4. CONCLUSION

The results of this study confirm that the application of interactive PowerPoint (PPT) digital learning media has a significant and measurable effect on students' conceptual understanding and learning interest in local wisdom learning. Students who were taught

using interactive PPT media achieved a higher posttest mean score (87.76) compared to those who received conventional instruction with independent internet browsing (80.28). The mean difference of 16.346, with a significance value of p = 0.000, statistically proves that interactive PPT media is more effective in improving learning outcomes.

In addition to cognitive achievement, the use of interactive PPT media also resulted in a high level of learning interest, with an average score of 86.10. This indicates that interactive digital media not only enhances students' understanding of learning content but also strengthens their engagement and motivation during the learning process. High learning interest supports active participation, sustained attention, and more meaningful learning experiences.

Although the regression analysis showed that the partial effect of interactive PPT media was not statistically significant, the overall comparative analysis demonstrates that interactive PPT media plays an important instructional role when integrated into a structured teaching process. Learning outcomes are influenced by multiple factors, and interactive PPT media functions as an effective pedagogical support that enhances both cognitive and affective learning aspects.

Therefore, it can be concluded that interactive PPT digital media is a feasible, effective, and applicable learning medium for teaching contextual materials such as local wisdom at the junior secondary school level. Teachers are encouraged to integrate interactive digital media into classroom instruction to improve learning quality. Future research should examine long-term learning retention and explore the integration of interactive PPT media with other student-centered learning models.

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