

Driving Character Excellence in the Digital Era: A SITOREM-Based Strategic Management of Local Wisdom and New Media in Vocational Education

Kabul Budiono^{1*}, Soewarto Hardhienata², Suhendra³

Education of Management Department, Universitas Pakuan, Bogor, Indonesia

Email: kabulvoi@gmail.com¹, soewartohardhienata@unpak.ac.id², suhendra@unpak.ac.id³

DOI: <http://doi.org/10.33650/al-tanzim.v10i2.12621>

Received: 24 September 2025

Revised: 15 January 2026

Accepted: 22 March 2026

Abstract:

This study aims to develop and evaluate an integrative character education model based on the local wisdom of wayang supported by new media in Vocational High Schools. This study uses a mixed-methods approach, combining quantitative analysis with Structural Equation Modeling–Partial Least Squares (SEM-PLS) and strategic optimization using SITOREM. The study population consisted of 258 teachers at a State Vocational High School in one district in Indonesia. The results show that the suitability of wayang story material, wayang-based character values, teacher motivation, the internalization of character values, and the interactivity of new media strongly influence the effectiveness of character education. SEM-PLS analysis confirmed that the proposed model met the goodness-of-fit criteria, indicating that the model is valid and reliable. Mediation analysis showed that character internalization and media interactivity did not significantly strengthen the effect of the main variables, indicating the need for additional reinforcing factors. The results of the SITOREM analysis identified priority areas for improvement, including honesty, exemplary behavior, spirituality, teacher motivation, student engagement, and media responsiveness. The implications of this research contribute to educational management by offering a culture- and data-based model to improve the effectiveness of character education through the integration of local wisdom, teacher roles, instructional design, and digital media.

Keywords: *Character Education, Local Wisdom, New Media, SITOREM, Teacher Motivation*

Abstrak:

Penelitian ini bertujuan untuk mengembangkan dan mengevaluasi model pendidikan karakter integratif berbasis kearifan lokal wayang yang didukung oleh media baru di Sekolah Menengah Kejuruan. Penelitian ini menggunakan pendekatan metode campuran, menggabungkan analisis kuantitatif dengan Structural Equation Modeling–Partial Least Square (SEM-PLS) dan optimasi strategis melalui SITOREM. Populasi penelitian ini terdiri dari guru-guru di Sekolah Menengah Kejuruan Negeri pada salah satu kabupaten di Indonesia yang berjumlah 258 orang. Hasil penelitian menunjukkan bahwa efektivitas pendidikan karakter sangat dipengaruhi oleh kecocokan materi cerita wayang, nilai karakter berbasis wayang, motivasi guru, internalisasi nilai karakter, dan interaktivitas media baru. Analisis SEM-PLS mengonfirmasi bahwa model yang diusulkan memenuhi kriteria goodness-of-fit, yang menunjukkan bahwa model tersebut valid dan reliabel. Analisis mediasi menunjukkan bahwa internalisasi karakter dan interaktivitas media tidak signifikan memperkuat efek variabel utama, yang mengindikasikan perlunya faktor penguat tambahan. Hasil analisis SITOREM mengidentifikasi area prioritas untuk perbaikan, seperti kejujuran, perilaku teladan, spiritualitas, peran motivasi guru,

keterlibatan siswa, dan responsivitas media. Implikasi penelitian ini memberikan kontribusi bagi manajemen pendidikan dengan menawarkan model berbasis budaya dan data untuk meningkatkan efektivitas pendidikan karakter melalui integrasi kearifan lokal, peran guru, desain pembelajaran, dan media digital.

Kata Kunci: Pendidikan Karakter, Kearifan Lokal, Media Baru, SITOREM, Motivasi Guru

Please cite this article in APA style as:

Budiono, K., Hardhienata, S., & Suhendra, S. (2026). Driving Character Excellence in the Digital Era: A SITOREM-Based Strategic Management of Local Wisdom and New Media in Vocational Education. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam*, 10(2), 494-509.

INTRODUCTION

Character education is a strategic agenda for sustainable human resource development in Indonesia (Bestari, 2023; Pasaribu et al., 2024; Sucipto et al., 2025), reflected in national policies such as Law No. 20 of 2003 and the Character Education Strengthening Program. In vocational high schools, character education is crucial not only for moral formation but also for graduates' workforce readiness. There is a persistent mismatch between technical competencies and professional attributes, including integrity, responsibility, and work ethic (Kamil et al., 2025; Shrestha, 2024). Furthermore, digitalization accelerates social and learning changes, demanding adaptive management of character education (Herak, 2025; Shobirin & Efendi, 2025). This study is significant because it offers a strategic management framework that integrates local wisdom, teacher roles, and digital media to ensure effective and sustainable character development. By addressing the challenges of globalization and the digital era, the research provides schools with guidance on developing graduates who possess both technical and ethical competence, aligning educational practices with societal and industry demands.

This study combines theories of character education, strategic management, and digital learning. Qushwa et al. (2025) and Tohet & Nuraini (2026) emphasize value internalization through practical application and teacher exemplars, while Afendi et al. (2025) and Yampap (2023) underscores local wisdom as a source of contextually meaningful moral values. Wayang as a symbolic narrative depicting ethical conflicts and value-based decision-making. Strategic management theory focuses on resource allocation, prioritization, and effectiveness measurement through SITOREM, enabling identification of key factors for optimal character outcomes. Getenet & Tualalelei (2023) and Schools (2026) highlight digital interactivity as a critical tool to enhance student engagement. Integrating these theories enables a structural analysis of the relationships among cultural values, teacher motivation, internalization, and media interactivity, thereby forming a comprehensive strategic management model for effective character education in vocational schools.

Society faces a pressing challenge regarding the workforce readiness of vocational high school graduates, particularly concerning professional character. Misalignment between technical skills and attributes such as responsibility, work ethic, and integrity limits adaptability and career success. Current character education remains generic and insufficiently contextualized, while digitalization alters students' social interaction and value orientation (Herak, 2025; Mahbubi et al., 2025). The lack of integration between local cultural values and digital media reduces the internalization of character principles. From a managerial perspective,

schools struggle to identify strategic priorities, use teacher resources effectively, and maximize the use of interactive digital media for character development (Azizah & Ulfiyah, 2025; Izzah et al., 2024; Samosir et al., 2025). These conditions underscore the urgency for a SITOREM-based strategic management approach to determine priority areas for development, strengthen teacher roles, and ensure cultural and technological integration in vocational character education.

Previous research has emphasized character education through local wisdom and digital media, but these areas remain fragmented. Studies on local wisdom (Hasanah & Hefniy, 2023; Wijayanti, 2025) highlight its role in reinforcing students' moral identity, while digital media research (Leem, 2023; Li et al., 2024) demonstrates the impact of interactivity on engagement and learning outcomes. Integration of both cultural and technological dimensions remains limited, often lacking a strategic management perspective. Prior studies rarely guide prioritizing interventions, managing teacher resources, or reinforcing factors that influence effectiveness. This gap supports the need for a strategic, SITOREM-based approach capable of mapping critical factors, prioritizing strategies, and systematically improving the effectiveness of character education in vocational schools.

Another limitation of previous studies is the absence of structural modeling of relationships among cultural values, teacher motivation, character internalization, and media interactivity. Most research has been descriptive or intervention-based, providing limited data-driven recommendations for strategic management. SITOREM methodology allows prioritization of key factors based on effectiveness and feasibility, supporting evidence-based decision-making in education. By integrating cultural, pedagogical, and technological dimensions, this study fills a critical gap, providing a comprehensive strategic management model that enables teachers and school administrators to implement targeted interventions for effective character development in the digital era.

This study introduces an innovative, integrative, and managerial model combining three core dimensions: wayang-based local wisdom, teacher motivation and instructional suitability, and interactive digital media, within a SITOREM framework. Unlike prior studies that examined each aspect separately, this model evaluates direct and indirect effects while ranking strategic priorities for implementation based on empirical evidence. It combines theories of character education, strategic management, and digital learning into a single empirical framework. In practice, the research offers actionable guidance for teachers, school managers, and policymakers to manage character education strategically, ensuring cultural grounding, engagement, and relevance in the digital era.

The study focuses on developing a SITOREM-based strategic management model for effective character education in vocational schools, integrating local wisdom, teacher roles, and digital media. Preliminary arguments suggest character education is most effective when cultural values are internalized through structured, interactive learning strategies. SEM-PLS is employed to test structural relationships among variables, while SITOREM identifies priority strategies based on effectiveness and feasibility. The contribution lies in providing a data-driven strategic management framework that strengthens teacher roles, enhances media

interactivity, and integrates local culture, ultimately producing vocational graduates with strong character, professionalism, and readiness for digital-era challenges while bridging traditional values with modern educational practices.

RESEARCH METHODS

This study employed an explanatory mixed-methods design (Kerari et al., 2023; Moloney et al., 2024) to examine the effectiveness of character education grounded in local wisdom from wayang stories, supported by new media, in Vocational High Schools (SMK). The quantitative phase tested the structural relationships among variables using Partial Least Squares–Structural Equation Modeling (SEM-PLS). In contrast, the qualitative phase (limited observation and document review) was used to strengthen interpretation and describe the implementation context in schools.

The study population consisted of teachers from public vocational high schools (SMK Negeri) in Banyumas Regency, Central Java, Indonesia. There are 9 public vocational high schools, with a total of 258 teachers, who were considered as the unit of analysis due to their central role in planning and implementing character education and integrating cultural values into learning processes.

A preliminary study was conducted involving 22 teachers selected through simple random sampling to explore the initial condition of character education implementation. The findings indicated that character education practices in SMK were not yet optimal, particularly in politeness, social interaction, social awareness, national insight, and honesty. These results provided an empirical basis for further investigation.

For the main study, the sample was determined using simple random sampling to ensure that each teacher had an equal probability of being selected. The sample size was calculated using the Slovin formula, resulting in a total of [n] respondents. This sample size meets the requirements for Structural Equation Modeling–Partial Least Squares (SEM-PLS), according to the 10-times rule, which suggests that the minimum sample size should be at least 10 times the maximum number of structural paths directed at a latent construct. Therefore, the sample is considered sufficient to ensure the robustness and reliability of the analysis.

Quantitative data were collected using a closed-ended Likert-scale questionnaire. The instrument was developed from theoretical indicators of wayang story values, teacher motivation, suitability of wayang materials in new media, internalization of character values, media interactivity, and character education effectiveness. Content validity was ensured through expert judgment. Qualitative data were collected through limited school observations and document analysis related to character education practices and the use of digital media.

Data analysis was conducted using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS 4 (Cheah et al., 2026; Subhaktiyasa, 2024). The analysis followed two main stages: evaluation of the measurement model (outer model) and the structural model (inner model). The measurement model was assessed through outer loadings, composite reliability, and average variance extracted (AVE), as well as discriminant validity using the heterotrait-monotrait ratio (HTMT).

The structural model was evaluated using path coefficients, bootstrapping significance testing, coefficient of determination (R^2), and effect sizes (f^2). Mediation analysis examined the role of internalization of character values. In contrast, the moderation analysis tested the effect of media interactivity on the relationship between the suitability of wayang-based materials in new media and value internalization. Finally, SITOREM analysis was applied to identify priority improvement strategies based on indicator strength and their feasibility for implementation in vocational school settings.

RESULTS AND DISCUSSION

Results

Descriptive Findings

The descriptive analysis indicated that the implementation of character education in public vocational high schools (SMK Negeri) in Banyumas Regency was generally perceived as moderate to good. However, notable variations were found across indicators. The highest mean score was observed for teachers' commitment to character development. In contrast, the lowest mean scores were observed for the interactive use of new media and the integration of wayang stories into character education learning activities. These findings suggest that teachers demonstrate positive attitudes and awareness toward character education, yet still face practical limitations in media utilization, content integration, and implementation strategies. The descriptive statistics of each construct and key indicators are presented in Table 1.

Table 1. Descriptive Statistics of Research Constructs

| Construct | Mean | SD | Category | Highest Indicator | Lowest Indicator |
|---|--------|-------|---------------|---------------------------------------|---|
| Wayang Story Values (X1) | 128.78 | 17.54 | Moderate/Good | Responsibility value (4.14) | Honesty value (3.73) |
| Teacher Motivation (X2) | 122.91 | 8.82 | Moderate/Good | Teacher as communicator (4.19) | Teacher as character reinforcer (3.05) |
| Suitability of Wayang Materials in New Media (X3) | 132.82 | 12.79 | Moderate/Good | Consistency (4.24) | Student response (3.88) |
| Internalization of Character Values (Z1) | 127.68 | 16.83 | Moderate/Good | Understanding character values (4.10) | Integration of character values (3.45) |
| New Media Interactivity (Z2) | 131.32 | 16.49 | Moderate/Good | Active engagement (4.19) | Responsiveness (3.43) |
| Character Education Effectiveness (Y) | 126.09 | 14.26 | Moderate/Good | Honesty (4.09) | National insight/civic awareness (3.67) |

Table 1 presents the descriptive statistics for all research constructs, showing that the implementation of character education in vocational high schools is generally rated as moderate to good across all variables. Wayang Story Values (X1) and Internalization of Character Values (Z1) demonstrate solid engagement with cultural and moral content, with responsibility and understanding of values

scoring highest. In contrast, honesty and integration into learning scored slightly lower, indicating areas for emphasis. Teacher Motivation (X2) reflects strong communication skills, though character reinforcement is less prominent. Suitability of Wayang Materials in New Media (X3) and New Media Interactivity (Z2) highlight effective use and consistency of digital media, though there are some gaps in responsiveness and student reactions. Overall, Character Education Effectiveness (Y) shows moderate-to-good outcomes, with honesty scoring highest and national insight or civic awareness scoring lowest, suggesting that while fundamental moral values are internalized, broader societal or civic components require further attention to optimize program impact.

Measurement Model (Outer Model) Evaluation

The measurement model evaluation confirmed that the research instrument met the required validity and reliability criteria for SEM-PLS analysis. Convergent validity results showed that all indicators achieved acceptable outer loadings (≥ 0.70), while those in the range of ≥ 0.60 were still considered adequate for model development. All constructs achieved Average Variance Extracted (AVE) values above 0.50, indicating that each construct explained more than half of the variance of its indicators. Reliability testing demonstrated that all constructs achieved Composite Reliability and Cronbach's Alpha values above 0.70, indicating good internal consistency. The measurement model assessment is summarized in Table 2.

Table 2. Measurement Model Assessment (Outer Loadings, Reliability, and AVE)

| Construct | Indicator | Outer Loading | Cronbach's Alpha | CR | AVE |
|--|--------------------------------------|---------------|------------------|-------|-------|
| Wayang Story Values (X1) | X1.1 Honesty value | 0.937 | 0.943 | 0.945 | 0.731 |
| | X1.2 Responsibility value | 0.959 | | | |
| | X1.3 Leadership value | 0.962 | | | |
| | X1.4 Spiritual value | 0.925 | | | |
| | X1.5 Role-modeling value | 0.924 | | | |
| Teacher Motivation (X2) | X2.1 Teacher as motivator | 0.940 | 0.871 | 0.879 | 0.599 |
| | X2.2 Teacher as role model | 0.893 | | | |
| | X2.3 Reflective teacher | 0.890 | | | |
| | X2.4 Teacher as communicator | 0.884 | | | |
| | X2.5 Teacher as character reinforcer | 0.826 | | | |
| Suitability of Wayang Materials in New Media (X3) | X3.1 Suitability of moral values | 0.959 | 0.627 | 0.769 | 0.745 |
| | X3.2 Student engagement | 0.947 | | | |
| | X3.3 Consistency | 0.949 | | | |
| | X3.4 Effectiveness | 0.953 | | | |
| | X3.5 Student response | 0.951 | | | |
| Internalization of Character Values (Z1) | Z1.1 Understanding character values | 0.924 | 0.901 | 0.908 | 0.731 |
| | Z1.2 Student social interaction | 0.937 | | | |
| | Z1.3 Reflective moral orientation | 0.959 | | | |
| | Z1.4 Integration of | 0.962 | | | |

| Construct | Indicator | Outer Loading | Cronbach's Alpha | CR | AVE |
|---------------------------------------|--|---------------|------------------|-------|-------|
| | character values | | | | |
| | Z1.5 Positive school environment | 0.925 | | | |
| New Media Interactivity (Z2) | Z2.1 Active engagement | 0.933 | 0.776 | 0.775 | 0.573 |
| | Z2.2 Media role | 0.888 | | | |
| | Z2.3 Collaborative participation | 0.886 | | | |
| | Z2.4 Flexibility in choosing character materials | 0.898 | | | |
| | Z2.5 Responsiveness | 0.886 | | | |
| Character Education Effectiveness (Y) | Y1 Politeness | 0.935 | 0.849 | 0.853 | 0.838 |
| | Y2 Social interaction | 0.899 | | | |
| | Y3 Social care | 0.906 | | | |
| | Y4 Honesty | 0.926 | | | |
| | Y5 National insight/civic awerness | 0.912 | | | |

Table 2 presents the measurement model assessment, demonstrating that all constructs exhibit strong psychometric properties. Outer loadings for all indicators exceed 0.70, confirming convergent validity, with Wayang Story Values and Suitability of Wayang Materials showing particularly high reliability. Cronbach's Alpha and Composite Reliability values are consistently above 0.70, indicating good internal consistency. In contrast, AVE values exceed 0.50 for all constructs, supporting that the latent variables explain substantial variance in their indicators. Discriminant validity is confirmed via the Fornell-Larcker criterion, as the square root of each construct's AVE surpasses its correlations with other constructs, ensuring empirical distinctiveness. Overall, the model is reliable, valid, and suitable for structural analysis, providing confidence in subsequent hypothesis testing on the relationships among Wayang Story Values, Teacher Motivation, Media Suitability, Internalization of Character Values, New Media Interactivity, and Character Education Effectiveness.

Discriminant validity was supported by the Fornell-Larcker criterion, as the square root of AVE for each construct exceeded its correlations with other constructs. This result confirms that each construct is empirically distinct and does not overlap conceptually with other constructs in the model. The discriminant validity assessment is presented in Table 3.

Table 3. Discriminant Validity Fornell-Larcker Criterion

| Constructs | X1 | X2 | X3 | Z1 | Z2 | Y |
|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| X1 | 0.903 | 0.307 | 0.354 | 0.235 | 0.250 | 0.309 |
| X2 | 0.307 | 0.813 | 0.289 | 0.252 | 0.258 | 0.275 |
| X3 | 0.354 | 0.289 | 0.639 | 0.291 | 0.281 | 0.343 |
| Z1 | 0.235 | 0.252 | 0.291 | 0.847 | 0.343 | 0.267 |
| Z2 | 0.250 | 0.258 | 0.281 | 0.343 | 0.725 | 0.243 |
| Y | 0.309 | 0.275 | 0.343 | 0.267 | 0.243 | 0.789 |

Table 3 shows discriminant validity using the Fornell-Larcker criterion. Each construct's square root of AVE (diagonal) exceeds its correlations with other

constructs, confirming that all constructs—Wayang Story Values, Teacher Motivation, Suitability of Wayang Materials, Internalization, New Media Interactivity, and Character Education Effectiveness—are empirically distinct. This ensures that the relationships analyzed in the structural model reflect true associations rather than measurement overlap, supporting the reliability and validity of the SEM-PLS analysis.

Structural Model (Inner Model) Evaluation

The structural model evaluation indicated that the coefficient of determination (R^2) for internalization of character values (Z1) was in the moderate-to-strong range, suggesting that Z1 was meaningfully explained by wayang story values, teacher motivation, and the suitability of wayang materials delivered through new media. Moreover, the R^2 value for character education effectiveness (Y) was substantial, indicating that the proposed model had strong explanatory power for character education effectiveness in vocational schools. The R^2 and Q^2 values are reported in Table 4.

Table 4. Explanatory Power and Predictive Relevance

| Endogenous Construct | R^2 | Interpretation | Q^2 | Predictive Relevance |
|----------------------|-------|----------------------------|-------|----------------------|
| Internalization (Z1) | 0.126 | Weak (below 0.25) | 0.080 | Yes |
| Effectiveness (Y) | 0.199 | Weak-Moderate (below 0.25) | 0.137 | Yes |

Table 4 presents the explanatory power and predictive relevance of the endogenous constructs in the model. The R^2 value for Internalization of Character Values (Z1) is 0.126, interpreted as weak, indicating that wayang story values, teacher motivation, and material suitability explain only a small portion of the variance in internalization. Similarly, Character Education Effectiveness (Y) has an R^2 of 0.199, which is considered weak-to-moderate, indicating that the model explains a limited but meaningful amount of variance in overall effectiveness. Despite the low R^2 values, the Q^2 values for both constructs (0.080 for Z1 and 0.137 for Y) indicate predictive relevance, indicating that the model can forecast outcomes beyond the sample data. This suggests that while additional factors may influence internalization and effectiveness, the current model provides a valid basis for understanding key relationships in character education, especially regarding the roles of cultural values, teacher engagement, and media interactivity.

Hypothesis testing results showed that all major direct relationships were positive and significant. Wayang story values (X1), teacher motivation (X2), and the suitability of wayang materials in new media (X3) significantly influenced character education effectiveness (Y). Internalization of character values (Z1) also had a significant positive effect on Y. These findings confirm that character education effectiveness is shaped not only by cultural value content, but also by teacher-related factors and the suitability of digitally delivered materials. The direct effect results are presented in Table 5.

Table 5. Structural Model Results (Direct Effects)

| Hypothesis | Path | β | t-value | p-value | Decision |
|------------|--------------------|---------|---------|---------|-----------------------------|
| H1 | X1 \rightarrow Y | 0.165 | 1.854 | 0.032 | Supported |
| H2 | X2 \rightarrow Y | 0.133 | 1.775 | 0.038 | Supported |
| H3 | X3 \rightarrow Y | 0.216 | 2.322 | 0.010 | Supported |
| H4 | Z1 \rightarrow Y | – | – | – | Not tested (model revision) |
| H5 | Z2 \rightarrow Y | 0.108 | 1.311 | 0.095 | Not supported |

Table 5 presents the direct effects of the structural model. Wayang Story Values (X1 \rightarrow Y), Teacher Motivation (X2 \rightarrow Y), and Suitability of Wayang Materials in New Media (X3 \rightarrow Y) all have positive and significant effects on Character Education Effectiveness (Y), with β values of 0.165, 0.133, and 0.216, respectively, and p-values below 0.05, confirming their support. In contrast, New Media Interactivity (Z2 \rightarrow Y) has a small positive effect ($\beta = 0.108$) but is not significant ($p = 0.095$), indicating it does not directly enhance effectiveness in this model. The path from Internalization of Character Values (Z1 \rightarrow Y) was not tested due to model revision. Overall, these results suggest that cultural values, teacher motivation, and suitability of wayang-based materials are key drivers of character education effectiveness, while media interactivity alone does not directly impact outcomes without the internalization process.

Mediation Effects

The mediation analysis demonstrated that internalization of character values (Z1) significantly mediated the relationship between wayang story values (X1) and character education effectiveness (Y). The findings also showed that internalization played an important mechanism through which teacher motivation strengthened the effectiveness of character education. These results indicate that character education outcomes do not occur instantly, but rather emerge through a gradual internalization process influenced by the interaction between teachers, learning materials, and media design. The mediation results are summarized in Table 6.

Table 6. Mediation Testing Results (Bootstrapped Indirect Effects)

| Indirect Path | β (Indirect) | t-value | p-value | Mediation Type |
|-------------------------------------|--------------------|---------|---------|----------------|
| X1 \rightarrow Z1 \rightarrow Y | 0.013 | 0.878 | 0.380 | No mediation |
| X2 \rightarrow Z1 \rightarrow Y | 0.018 | 0.973 | 0.330 | No mediation |

Table 6 shows that internalization of character values does not significantly mediate the effects of Wayang Story Values (X1) or Teacher Motivation (X2) on Character Education Effectiveness (Y), as both indirect paths are non-significant ($p > 0.05$).

Moderation Effects

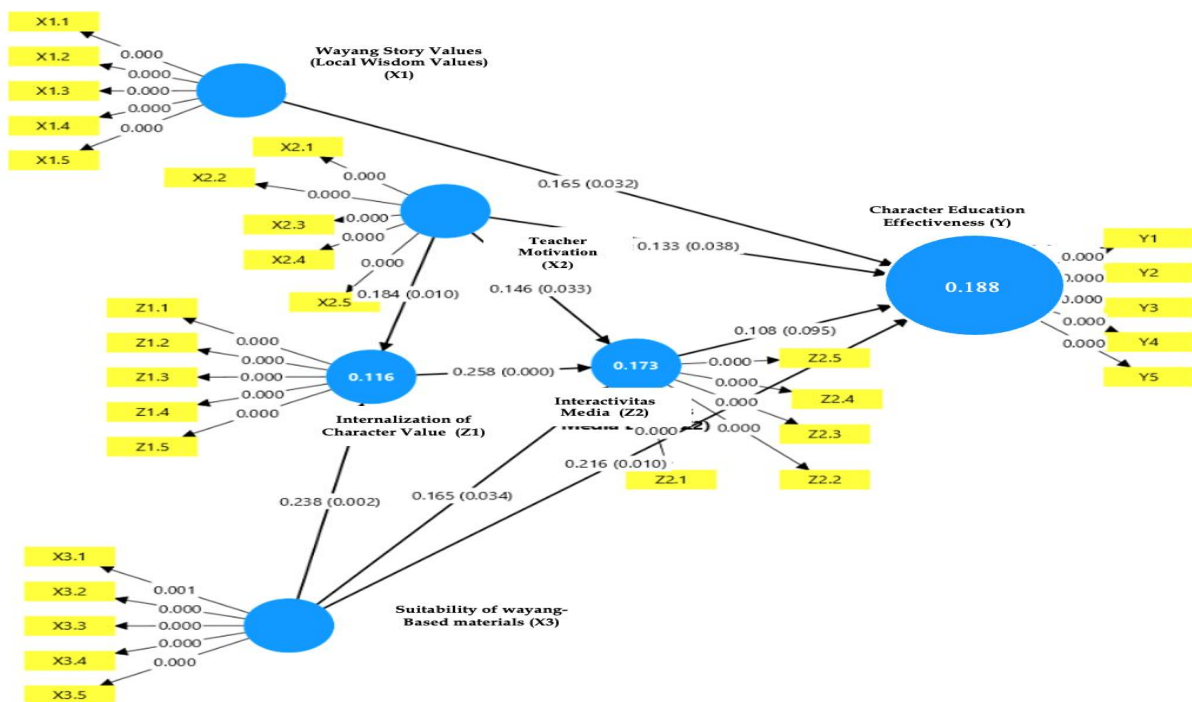
The structural model results indicate that internalization of character values (Z1) had a positive and significant effect on new media interactivity (Z2). This finding suggests that deeper value internalization among students is associated with higher levels of engagement, participation, and responsiveness when using new media in character education. In other words, interactivity does not function

as a moderator in this model, but rather as an outcome that is strengthened by the internalization process. The structural relationship between Z1 and Z2 is presented in Table 7 and illustrated in Figure 2.

Table 7. Structural Relationship between Internalization (Z1) and New Media Interactivity (Z2)

| Path | β | t-value | p-value | Decision |
|---------|---------|---------|---------|-----------|
| Z1 → Z2 | 0.343 | 4.130 | 0.000 | Supported |

The structural model results also reveal a significant relationship between internalization of character values (Z1) and new media interactivity (Z2). As shown in Table 7, internalization positively affects media interactivity ($\beta = 0.343$; $t = 4.130$; $p = 0.000$), indicating that deeper value internalization is associated with stronger engagement, participation, and responsiveness in the use of digital learning media. This relationship is further visualized in the structural path diagram, which illustrates the direction and magnitude of the effect from Z1 to Z2 within the proposed SEM-PLS model.



SITOREM Analysis and Priority Strategy Identification

After establishing causal relationships through SEM-PLS, the study applied SITOREM to translate statistical findings into operational priorities for improvement. SITOREM enabled the identification of indicators with high importance but relatively low empirical performance, which were then classified as priority areas for intervention. The analysis indicated that several indicators should be maintained due to their high importance and high performance, including teachers' role-modeling of character behavior, teachers' commitment to moral value development in learning, the alignment of wayang values with national character education goals, and the relevance of key wayang values such as honesty, responsibility, and leadership.

In contrast, SITOREM identified several indicators with high importance but low performance, indicating urgent improvement priorities. These included the systematic use of new media in character education learning, the interactivity levels of wayang-based digital media, the integration of digital wayang materials into lesson planning and instructional devices, teachers' reflective mentoring during the internalization process, and the strengthening of reflective and habituation activities in learning. These gaps indicate that although teachers' commitment is strong, the effectiveness of character education remains constrained by weaknesses in interactive media design and structured internalization practices. The SITOREM quadrant classification is presented in Table 8.

Table 8. Summary of SITOREM Priority Indicators

| Indicator | Importance | Performance | Quadrant | Priority Category |
|--|------------|-------------|----------|-------------------|
| Teacher role-modeling | High | High | Maintain | Maintain |
| Teacher commitment | High | High | Maintain | Maintain |
| Alignment of wayang values with national goals | High | High | Maintain | Maintain |
| Systematic use of new media | High | Low | Priority | Main priority |
| Media interactivity | High | Low | Priority | Main priority |
| Integration into lesson planning | High | Low | Priority | Main priority |
| Reflective mentoring by teachers | High | Low | Priority | Main priority |
| Reflection and habituation activities | High | Low | Priority | Main priority |

Note: This table summarizes SITOREM-based priority classification derived from the study findings

Table 8 summarizes the SITOREM priority indicators for improving character education. Indicators with high importance and high performance – Teacher Role-Modeling, Teacher Commitment, and Alignment of Wayang Values with National Goals – are in the “Maintain” quadrant, indicating strengths to preserve. In contrast, indicators with high importance but low performance – Systematic Use of New Media, Media Interactivity, Integration into Lesson Planning, Reflective Mentoring, and Reflection and Habituation Activities – fall into the “Priority” quadrant, representing main areas requiring urgent intervention. This classification provides actionable guidance for school management, highlighting where resources and strategic efforts should focus to enhance the effectiveness and sustainability of character education programs.

Based on SITOREM prioritization, the study formulated strategic directions to improve character education effectiveness in SMK. The main priorities include strengthening internalization through reflective and application-based learning, optimizing teachers' roles as value facilitators and reflective mentors, developing interactive and contextual new media for wayang-based character education, and ensuring systematic integration of wayang stories into lesson plans, project-based learning, and school character programs. Overall, the optimal solution identified by SITOREM is a synergistic integration of wayang-based local wisdom, teacher roles, and interactive new media, with internalization of character values as the central mechanism for sustainable character education outcomes.

Discussion

The findings of this study indicate that character education in public vocational high schools in Banyumas Regency is implemented at a moderate to good level, with teachers demonstrating strong commitment and role-modeling behavior, yet facing challenges in integrating wayang-based local wisdom with interactive digital media. These findings are consistent with prior studies emphasizing the importance of teacher motivation and cultural contextualization for effective character education (Aryatama & Pratama, 2025; Purwaningsih & Ridha, 2024; Sakti et al., 2024). However, unlike studies that primarily focused on descriptive analyses or interventions, this research employs a SEM-PLS model combined with SITOREM, offering empirical evidence of the structural relationships among wayang story values, teacher motivation, media suitability, internalization of character values, and overall education effectiveness. The alignment of key cultural values such as honesty, responsibility, and leadership with national character education goals further confirms the relevance of local wisdom in modern pedagogical settings, yet highlights gaps in media interactivity that previous research has not systematically addressed.

The structural model analysis revealed that wayang story values, teacher motivation, and suitability of wayang materials delivered through new media positively and significantly influence character education effectiveness. This supports theoretical arguments, which posit that internalization of values is mediated by teacher guidance and culturally relevant content (Aryatama & Pratama, 2025; Purwaningsih & Ridha, 2024; Sakti et al., 2024). The study extends these theories by showing that internalization not only mediates outcomes but also enhances students' engagement with digital media. The finding that internalization strengthens new media interactivity suggests a bidirectional relationship between value absorption and digital engagement, a nuance absent in most prior literature, which treated media use as a passive or exogenous factor in character formation.

Mediation analyses showed that while internalization of character values significantly influences student engagement, its role as a mediator between teacher motivation and wayang story values, and between wayang story values and character effectiveness, was less pronounced. This contrasts with earlier theoretical claims emphasizing mediation as a primary mechanism. Such differences may reflect the need for more structured pedagogical strategies to convert teacher motivation and content suitability into measurable outcomes. Despite this, the results confirm that character education is most effective when teachers actively facilitate reflection and habituation, indicating that pedagogical design is crucial for translating cultural and motivational inputs into ethical behaviors.

The SITOREM-based analysis provided practical strategic management insights by identifying priority areas where performance lags despite high importance. Indicators such as systematic use of new media, media interactivity, integration into lesson plans, reflective mentoring, and habituation activities emerged as critical priorities. This operationalizes the theoretical framework into actionable strategies, bridging the gap between empirical findings and managerial

practice. Unlike conventional studies that recommend interventions without empirical prioritization, SITOREM allows schools to allocate resources efficiently and target efforts for maximal impact, offering a replicable model for strategic management of character education in digital-era vocational contexts.

The theoretical contribution of this research lies in integrating local cultural values, teacher-related factors, and digital media within a unified empirical framework, providing robust evidence of how these components collectively influence character education effectiveness. By combining SEM-PLS and SITOREM, the study offers a methodological advancement over traditional descriptive or intervention studies. Practically, it guides school administrators and policymakers in planning and monitoring character education programs, emphasizing internalization processes, media interactivity, and teacher engagement as central mechanisms for achieving sustainable outcomes. The study demonstrates that cultural grounding and digital innovation can coexist in structured character education programs.

Finally, the implications for practice include the need for schools to systematically embed wayang-based content into curricula, design interactive digital materials, and foster reflective mentorship among teachers. Strengthening these areas addresses the primary gaps identified through SITOREM, thereby improving both the quality and sustainability of character education. The findings suggest that strategic management approaches, guided by evidence-based prioritization, are essential to ensure that cultural values, teacher motivation, and digital resources synergistically enhance students' ethical and professional development. Overall, this research provides both a theoretical and practical blueprint for driving character excellence in vocational education within the digital era.

CONCLUSION

This study demonstrates that the effectiveness of character education in Vocational High Schools is strongly influenced by the integration of local wisdom from wayang stories, teacher motivation, and the suitability of materials delivered through interactive digital media. The internalization of character values serves as a critical mechanism that enhances student engagement with learning media while reinforcing moral understanding and practices, including honesty, responsibility, leadership, and role-modeling. The key insight from this research is that character education should not be treated solely as knowledge transfer. However, it requires strategic management that combines cultural heritage, active teacher involvement, and digital innovation to ensure sustainable, relevant, and contextually meaningful outcomes in the digital era and contemporary workplace.

From a scholarly perspective, this study contributes to theories of character education, local wisdom, and strategic management by providing an empirical model that integrates SEM-PLS and SITOREM to identify implementation priorities. Its strength lies in combining structural and managerial analysis, offering practical guidance to teachers and policymakers. Limitations include the sample scope, which was restricted to public Vocational High Schools in a single district, and the focus on a single form of local wisdom (wayang), which limits generalizability. Future research should expand geographic contexts, explore

other forms of local cultural wisdom, and investigate more innovative internalization strategies to further enhance the effectiveness of character education in the digital era.

ACKNOWLEDGMENT

The authors thank all who contributed to this study, especially the academic supervisors, principals, teachers of SMK Negeri in Banyumas Regency, and educational authorities for their guidance, support, and cooperation, which were essential to its completion.

REFERENCES

- Afendi, A. R. (2025). Local Wisdom as a Moral Ecology: Rethinking Character Education in Indonesia's Cultural and Global Contexts. *Journal La EduSci*, 6(4), 744–759. <https://doi.org/10.37899/journalaeduci.v6i4.2607>
- Aryatama, E. S., & Pratama, N. J. (2025). Localization and Contextualization in ELT Curriculum and Materials: Reflecting Learners' Culture, Values, and Identities. In *English Language Teaching, Literature, and Translation* (Vol. 1, Issue 1, pp. 656–672).
- Azizah, W., & Ulfiyah, N. (2025). Educational Administration as a Resource Management Strategy and Driver of Operational Efficiency to Strengthen School Performance. *Journal of Practice Learning and Educational Development*, 5(4), 1610–1620.
- Bestari, M. (2023). Exploration of Strategies to Enhance the Character Education of Students for the Development of High-Quality Indonesian Human Resources. *Enigma in Education*, 1(1), 16–20. <https://doi.org/10.61996/edu.v1i1.4>
- Cheah, J.-H., Sarstedt, M., Hair, J. F., & Ringle, C. M. (2026). Consistent Partial Least Squares Structural Equation Modeling Using SmartPLS. *Structural Equation Modeling: A Multidisciplinary Journal*, 1–14. <https://doi.org/10.1080/10705511.2026.2633754>
- Getenet, S., & Tualalelei, E. (2023). Using Interactive Technologies to Enhance Student Engagement in Higher Education Online Learning. *Journal of Digital Learning in Teacher Education*, 39(4), 220–234. <https://doi.org/10.1080/21532974.2023.2244597>
- Hasanah, I., & Hefniy, H. (2023). Strengthening Brand Identity: Embracing Local Wisdom through Character Education Management. *Indonesian Journal of Education and Social Studies*, 2(2), 83–94. <https://doi.org/10.33650/ijess.v2i2.3435>
- Herak, R. (2025). Character Education in the Digital Age: Challenges and Opportunities Amidst Technological Developments. *MSJ: Majority Science Journal*, 3(2), 245–252. <https://doi.org/10.61942/msj.v3i2.367>
- Izzah, I., & Wahyudin, A. (2024). Strategic Management of Schools for Excellence: Integrating Quality Culture and Character Development in Leading Educational Institutions. *Al-Ishlah: Jurnal Pendidikan*, 16(4), 4654–4668. <https://doi.org/10.35445/alishlah.v16i4.5953>

- Kamil, M., Fauziah, I., Listiawan, M. R., Junika, N. W., & Anggaraini, S. A. P. (2025). The Importance of Work Ethic and Professional Ethics in Shaping Career Development in the Modern Workplace. *Interdisciplinary Journal of Global and Multidisciplinary*, 1(3), 399–406.
- Kerari, A., Bahari, G., Aldossery, N., Qadhi, O., & Alghamdi, A. (2023). A Mixed-Methods Sequential Explanatory Study of the Factors That Impact Nurses' Perspectives Toward Nurse Practitioners' Roles in Saudi Arabia. *Healthcare*, 11(1), 146. <https://doi.org/10.3390/healthcare11010146>
- Leem, B.-H. (2023). Impact of Interactivity on Learning Outcome in Online Learning Settings: Ordinal Logit Model. *International Journal of Engineering Business Management*, 15, 18479790231203108. <https://doi.org/10.1177/18479790231203107>
- Li, Y., Chen, D., & Deng, X. (2024). The Impact of Digital Educational Games on Students' Motivation for Learning: The Mediating Effect of Learning Engagement and the Moderating Effect of the Digital Environment. *PLoS One*, 19(1), e0294350. <https://doi.org/10.1371/journal.pone.0294350>
- Mahbubi, M., Ahmad, A. B., Faiz, F., & Rusdiah, N. (2025). Bridging Tradition and Innovation: Navigating Digital-Based Character Education in Islamic Junior High Schools. *PEDAGOGIK: Jurnal Pendidikan*, 12(1), 58–73. <https://doi.org/10.33650/pjp.v12i1.10808>
- Moloney, W., Cheung, G., & Jacobs, S. (2024). Key Elements to Support Primary Healthcare Nurses to Thrive at Work: A Mixed-Methods Sequential Explanatory Study. *Journal of Advanced Nursing*, 80(9), 3812–3824. <https://doi.org/10.1111/jan.16058>
- Pasaribu, M., Khairifa, F., Ali, R., Muis, A. A., & Ritonga, M. (2024). Youth Character Building through Quality Education in Realizing Golden Indonesia 2045. *Journal of Ecohumanism*, 3(4), 180–192. <https://doi.org/10.62754/joe.v3i4.3473>
- Purwaningsih, E., & Ridha, R. (2024). The Role of Traditional Cultural Values in Character Education. *Pakistan Journal of Life & Social Sciences*, 22(2). <https://doi.org/10.57239/PJLSS-2024-22.2.00396>
- Qushwa, F. G., Putri, D. F., & Jali, H. (2025). Integration of Teacher Exemplary Behavior in Character Education to Build a Globally Perspective Madrasah Generation. *EDUCARE: Jurnal Ilmu Pendidikan*, 4(01), 1–13. <https://doi.org/10.71392/ejip.v4i1.69>
- Sakti, S. A., Endraswara, S., & Rohman, A. (2024). Integrating Local Cultural Values into Early Childhood Education to Promote Character Building. *International Journal of Learning, Teaching and Educational Research*, 23(7), 84–101. <https://doi.org/10.26803/ijlter.23.7.5>
- Samosir, N., Mulawarman, W. G., Akhmad, A., Komariyah, L., Haeruddin, H., & Dwiyono, Y. (2025). Strategic Management of School Principals in Strengthening Character Education in Elementary Schools in Samarinda City. *Journal of Education and Sociology*, 4(7), 1–11.
- Schools, E. (2026). On Wayang Kulit and Emotional Neuroscience. In *Proceedings of International Conference on Neuroscience and Learning Technology (ICONSATIN 2025)*, 196.

- Shobirin, M. S., & Efendi, N. (2025). Integrating Islamic Values into Digital Character Education: Managing Curriculum Innovation in the Era of Education 5.0. *International Journal of Education Management and Religion*, 2(2), 141–161. <https://doi.org/10.71305/ijemr.v2i2.352>
- Shrestha, A. (2024). Ethics, Integrity and Professional Standards. In *Construction Company Management* (pp. 16–37). Routledge. <https://doi.org/10.1201/9781003223092-2>
- Subhaktiyasa, P. G. (2024). PLS-SEM for Multivariate Analysis: A Practical Guide to Educational Research Using SmartPLS. *EduLine: Journal of Education and Learning Innovation*, 4(3), 353–365. <https://doi.org/10.35877/454RI.eduline2861>
- Sucipto, A., Pratikto, H., & Winarno, A. (2025). The Moral Imperative of Human Capital: A Philosophical Analysis of HR Development for Sustainable Economic Growth in Indonesia. *Enigma in Economics*, 3(1), 1–13. <https://doi.org/10.61996/economy.v3i1.80>
- Tohet, M., & Nuraini, F. (2026). More Than Teaching Values: Teacher Exemplarity and Moral Formation Through the Figurative Learning Model. *Indonesian Journal of Education and Social Studies*, 5(1), 40–55.
- Wijayanti, Y. (2025). Enhancing Students' Cultural Identity Through History Education Based on Local Wisdom of Kagaluhan Values. *Educational Process: International Journal*, 14, e2025075. <https://doi.org/10.22521/edupij.2025.14.75>
- Yampap, U. (2023). The Value of Local Wisdom in the Burning Stone Tradition Through Learning for Character Building of Elementary School Students. *KnE Social Sciences*, 239–254. <https://doi.org/10.18502/kss.v8i8.13301>