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# Strengthening Students' Digital Competence through a Holistic Learning Model Based on Local Wisdom: An Authentic Assessment-Based Evaluation

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**ABSTRACT**

The digital transformation in education necessitates that students possess not only technical skills but also culturally grounded and ethically informed digital competencies. This study investigates the effectiveness of a holistic learning model rooted in local wisdom in enhancing the digital competencies of students at STAI Syekh Manshur, employing authentic assessment as a key evaluative mechanism. Utilizing a mixed-methods embedded design, the research integrates quantitative analyses—including pre–post tests and authentic assessments—with qualitative insights derived from interviews and classroom observations. A total of 80 students participated in the study. Findings reveal statistically significant improvements across all dimensions of DigComp 2.2—Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety, and Problem Solving ($p < 0.001$)—with very large effect sizes. Authentic assessment further demonstrated that students' digital performance ranged from high to very high. Qualitative evidence underscores that embedding local wisdom values—such as mutual cooperation (gotong royong), deliberation (musyawarah), trustworthiness (amanah), and virtuous character (akhlāq al-karīmah)—substantially contributes to the enhancement of critical awareness, digital ethics, creativity, and problem-solving abilities. Overall, the holistic learning model grounded in local wisdom proves effective in comprehensively strengthening students' digital competencies and holds considerable relevance for implementation in Islamic higher education institutions.

**Keywords**: Digital Competence, Holistic Learning, Local Wisdom, Authentic Assessment, Digcomp 2.2

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## INTRODUCTION

The rapid advancement of digital technologies in the 21st century has brought about a profound transformation in the field of education. This shift extends beyond the mere use of digital devices, fundamentally altering how students acquire, process, and interpret knowledge. Information is now disseminated across diverse digital platforms, necessitating the ability to critically filter, evaluate, and utilize data (Kapasheva et al., 2024; Kriswinahyu & Kastuhandani, 2024). Consequently, education in the digital era is no longer merely a transfer of information from educators to learners; it has evolved into a process that fosters critical, reflective, and adaptive thinking in navigating the complexities of modern life (Code, 2025; Murtiningsih et al., 2023; Petrychenko et al., 2023). Students are expected not only to consume information but also to act as producers and processors of knowledge who actively contribute to the knowledge society. Digital competence, therefore, has become an essential requirement not only within academic contexts but also across broader social and professional spheres (Cabezas-González et al., 2023; Casillas-Martín et al., 2020).

International and national literature highlights the urgency of digital competence from multiple perspectives. Through the Digital Competence Framework for Citizens (DigComp 2.2), outlines five core dimensions of digital competence: Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety, and Problem Solving (Arribas et al., 2025; Commission, 2022; De Vries et al., 2025; Pongrac et al., 2025; Setyawan et al., 2025). These dimensions emphasize not only the technical aspects of technology use but also the ethical, responsible, and value-driven behaviors necessary in digital spaces. For instance, Information and Data Literacy requires students not only to read and understand information but also to critically assess source credibility and recognize the ethical implications of data usage (Hannigan et al., 2023; Lund et al., 2023; Tondeur et al., 2023). Digital Collaboration emphasizes productive and ethical interactions through digital platforms, including conflict management and respect for diversity (Isabella & Agustian, 2023; Markazi et al., 2024). Thus, digital competence represents an integration of cognitive skills, social abilities, and ethical values required in increasingly complex digital environments.

In Indonesia, awareness of the importance of digital competence has surged, particularly after the COVID-19 pandemic forced educational institutions to adapt to online learning. This abrupt shift revealed disparities in students' digital skills, including those in Islamic higher education institutions (PTKI). Research by Yudhiantara and Martitia (Yudhiantara & Martitia, D, 2023) indicates that PTKI students generally possess basic technological skills, such as navigating online learning platforms, but struggle with critical data literacy, digital collaboration, and effective creative content creation. These findings highlight a gap between the demands of digital competence in educational settings and students' actual abilities (Deák & Kumar, 2024; Momdjian et al., 2024; Morgado et al., 2023). Moreover, the emergence of Society 5.0 underscores the necessity of integrating digital skills with the "6C" character framework: creative thinking, critical thinking, communication, collaboration, character, and citizenship (Kahar et al., 2021; Salindri et al., 2024; Sarip et al., 2024). Digital competence, therefore, cannot exist in isolation; it must be accompanied by the development of character, ethics, and social responsibility.

Within the PTKI context, strengthening digital competence presents additional challenges. PTKIs have a dual mission: to enhance technological literacy while ensuring that technology use aligns with Islamic spiritual and moral values. Globalized technology provides unrestricted access to information but also introduces values that may not align with local culture or Islamic principles (Dalimunthe et al., 2023; Saleh et al., 2022). Therefore, enhancing digital competence in PTKI is not merely a technical requirement but a strategic and moral imperative (Firdaus et al., 2023; Mukarom et al., 2024; Saiful, 2023). Addressing this issue is crucial to prevent students from being proficient in technology while lacking ethical awareness, responsible digital behavior, and global competitiveness.

Alfarizi and Ngatindriatun (2023) demonstrated a significant relationship between digital competence and digital citizenship among PTKI students, particularly in the dimensions of data literacy and problem solving. However, their study also highlighted that students' understanding of digital ethics remains limited, especially regarding privacy, data security, and responsible digital behavior (Dalim et al., 2023; Li et al., 2024; Pertiwi & Lestari, 2024; Sari et al., 2024). These findings underscore the importance of integrating digital literacy with ethical, cultural, and spiritual development.

STAI Syekh Manshur Pandeglang, as a representative PTKI, faces similar challenges. The institution aims to produce graduates who are both Islamic and globally competitive. Initial observations indicate that students predominantly use digital devices instrumentally, primarily for completing academic tasks, rather than leveraging technology to create digital content, design innovative solutions, or engage in productive digital collaboration (Ben Youssef et al., 2022; Van Rooyen & Marais, 2018; C.-H. Wang et al., 2022). Some faculty members also report difficulties in designing learning experiences that integrate digital technology with local wisdom and Islamic spirituality.

This imbalance between technical skill acquisition and character formation emphasizes the need for a learning model that harmonizes both aspects. Failure to address this gap may

hinder the development of students who are not only technologically proficient but also socially, emotionally, and morally competent, in line with Islamic and local cultural values. By highlighting these challenges, this study illustrates why research and pedagogical innovation in digital literacy are urgent and essential for PTKI institutions.

A holistic learning approach grounded in local wisdom emerges as a relevant alternative to address these challenges. Holistic education, as articulated by Miller (2019), views students as integrated beings encompassing cognitive, emotional, social, moral, and spiritual dimensions. Holistic learning seeks to cultivate self-awareness, strengthen social relationships, and create meaning in educational activities (Howley et al., 2022; Mahmoudi et al., 2012). When local wisdom is integrated into the learning process, students not only acquire knowledge but also develop identity and character based on cultural values. Principles such as mutual cooperation (gotong royong), trustworthiness (amanah), responsibility, and respect for educators serve as ethical guidelines shaping student behavior both offline and in digital spaces (Kismini et al., 2023; Nusi & Zaim, 2023; Syaifudin et al., 2024). In Islamic higher education, these principles align with the concept of akhlāq al-karīmah, suggesting that the integration of digital learning with local wisdom can enhance character development while maintaining the competencies required in the modern era (Fandir, 2024; Pamungkas et al., 2025).

Educational approaches that respond to these demands must be holistic and contextual. The synergy between contextual projects and authentic assessment constitutes the core of 21st-century learning transformation. Project-based learning and authentic assessment not only foster technical skills such as creativity and collaboration but also develop meaningful, real-world understanding (Ansori & Heriansyah, 2025). This principle is particularly relevant when integrating technology into Islamic education, as it enables students to explore moral, cultural, and spiritual values through contextually meaningful tasks. Ansori and Heriansyah (2025) further emphasize that holistic learning is key to cultivating comprehensive 21st-century skills including critical thinking, creativity, information literacy, collaboration, and digital literacy while preserving students' social and character development. This holistic perspective aligns with classical Islamic educational thought, which emphasizes the development of intellectual, moral, and spiritual capacities, ensuring students are technically competent and character-wise mature (Hermawan et al., 2024; Jenuri et al., 2025; Neng Nurcahyati Sinulingga  Erni Suyani, & Amsal Qori Dalimunthe, 2024).

However, measuring the success of learning that integrates technology with local wisdom requires evaluation methods capable of capturing students' authentic performance in complex situations. Authentic assessment is particularly suitable, as it evaluates students based on their ability to apply knowledge and values in real-world contexts (Baines et al., 2025; Fawns et al., 2025; Salinas-Navarro et al., 2024). Wiggins (1990) emphasizes that authentic assessment involves performance-based tasks reflecting challenges students encounter in daily life. In digital learning contexts, authentic tasks may include creating culturally meaningful digital content, engaging in community-based collaborative projects, or participating in digital ethics simulations that test responsible decision-making.

Local literature also supports the relevance of this approach. Tohri, Syamsiar, and Rasyad (2023) assert that integrating local wisdom into digital learning enhances collaboration, social responsibility, and cultural awareness among students. Wicaksono and Arifendi (Wicaksono  & Arifendi, R. F, 2022) similarly report that students can produce creative and meaningful digital work when given opportunities to express cultural values digitally. Nonetheless, most of these studies are descriptive in nature, lacking systematic evaluation of how authentic assessment can effectively measure the integration of cultural values with students' digital competence.

These gaps indicate several research needs. First, studies examining the relationship between holistic learning based on local wisdom and digital competence remain limited, particularly in PTKI contexts. Second, there is scarce research demonstrating how authentic assessment can evaluate students' digital skills rooted in cultural values. Third, no comprehensive study at STAI Syekh Manshur has assessed the effectiveness of a holistic learning model based on local wisdom in enhancing students' digital competence through authentic assessment.

In response to these gaps, this study is designed to comprehensively evaluate the effectiveness of a holistic learning model grounded in local wisdom at STAI Syekh Manshur in enhancing students' digital competence. Specifically, the study addresses two primary research questions: (1) to what extent can the implementation of a holistic learning model based on local wisdom improve students' digital competence, and (2) how can authentic assessment reflect students' ability to internalize and apply cultural values within a digital context? The findings are expected to contribute theoretically to the development of culturally contextualized evaluation paradigms and provide practical implications for lecturers and PTKI administrators in designing meaningful, relevant, and character-based digital learning experiences.

**METHODS**

This study employed a mixed-methods approach using an embedded evaluation design, which integrates quantitative and qualitative methods within a single evaluative framework. This approach was selected to obtain a comprehensive understanding of the effectiveness of a holistic learning model grounded in local wisdom in enhancing students' digital competence. The inclusion of qualitative data as supportive evidence within the quantitative framework allowed the researchers to capture measurable changes in digital skills while simultaneously exploring how local wisdom values are internalized throughout the learning process. This design aligns with the characteristics of evaluative research, which require analysis of context, input, process, and learning outcomes, as outlined in Stufflebeam's (2003) CIPP model, and is particularly suitable for assessing educational programs based on local contextual factors (Zhang & Zeller, N, 2020).

Participants consisted of 80 active students from two study programs at STAI Syekh Manshur Pandeglang, Banten: 55 students from Islamic Religious Education and 25 students from Madrasah Ibtidaiyah Teacher Education. Participants were selected using purposive sampling based on the following criteria: (1) completion of at least two semesters of coursework, (2) possession of basic digital literacy skills, (3) participation in all stages of the learning intervention, and (4) willingness to participate through informed consent. The gender composition was relatively balanced, comprising 52 female and 28 male students. The study was conducted over six weeks, including the following stages: pre-test, implementation of the holistic learning model, authentic assessment, post-test, and reflective interviews. This duration was deemed adequate to allow structured changes in digital competence, consistent with recent digital literacy studies (Listiaji & Subhan, S, 2021; Nurhaliza Aminuyati, A., Karolina, V., Achmadi, A., & Rahmatika, I, 2024).

Three primary instruments were employed: (1) an authentic assessment rubric, (2) performance-based pre–post tests, and (3) interview and observation protocols.

Authentic Assessment Rubric. The rubric was developed based on the DigComp 2.2 framework (European Commission, 2022), encompassing five dimensions of digital competence: (1) Information and Data Literacy, (2) Communication and Collaboration, (3) Digital Content Creation, (4) Safety, and (5) Problem Solving. Each dimension included four performance indicators, rated on a 5-point Likert scale. The rubric assessed students' performance on digital tasks embedded with local cultural values, such as creating educational campaigns, digital posters, and videos reflecting local wisdom. Reliability analysis indicated a Cronbach's α of 0.87, demonstrating high internal consistency, in line with performance rubric reliability standards recommended by Gulikers et al., (2004) and recent studies on authentic assessment in digital (Nurhaliza Aminuyati, A., Karolina, V., Achmadi, A., & Rahmatika, I, 2024).

Performance-Based Pre–Post Tests. These tests consisted of digital tasks measuring changes in students' digital competence before and after the intervention. Students were required to produce digital outputs demonstrating mastery of all five DigComp dimensions, such as campaigns titled "Cultural Values in Social Media Activities" or "Mutual Cooperation in the Digital Era." Content validity was verified by three experts in educational technology and Islamic education, yielding a Content Validity Index (CVI) of 0.89, indicating that the test items were considered relevant and representative.

Interview and Observation Protocols. To capture qualitative data, semi-structured interview guides and participatory observation sheets were prepared. Ten students were selected as key informants based on observed variations in digital competence during the learning process. Interviews explored students' perceptions of the holistic learning model, challenges encountered, and their interpretation of local wisdom values in developing digital competence. Observations were conducted over six weeks to document learning dynamics, student interactions, and the integration of cultural values in digital activities. This approach aligns with phenomenological analysis recommendations in value-based educational research (Braun & Clarke, 2021; Himayah & Almah, 2022).

Data collection proceeded through five interconnected stages: (1) pre-test of digital competence to establish baseline abilities; (2) implementation of the holistic learning model based on local wisdom, including reflective activities, cultural value discussions, digital collaboration, and creative content production; (3) participatory observation to monitor the development of interactions, collaboration, and internalization of local values; (4) authentic assessment using the pre-established rubric to evaluate students' digital task performance; and (5) post-test and reflective interviews to assess changes in digital competence and capture students' experiences.

Data Analysis. Quantitative data from the pre–post tests were analyzed using paired-sample t-tests with a significance level of 0.05 to determine differences in scores before and after the intervention. Effect size (Cohen's d) was also calculated to evaluate the magnitude of the intervention's impact. This analysis was chosen as it is appropriate for assessing the effectiveness of educational interventions at the class level (Field, 2020). Qualitative data from interviews and observations were analyzed using thematic analysis (Braun & Clarke, 2021), following six stages: (1) data familiarization, (2) initial coding, (3) theme searching, (4) theme reviewing, (5) theme defining, and (6) thematic narrative construction. This analysis facilitated understanding of the internalization of local cultural values, learning experiences, and students' perceptions of the holistic learning model.

Quantitative and qualitative findings were integrated using a convergent embedded strategy, enabling the results to reflect not only score improvements but also the experiential meaning of learning as perceived by students. This approach has proven effective in value-based educational evaluation research Creswell & Plano Clark (2023).

Research Validity and Integrity. Several measures were taken to ensure the credibility and integrity of the study: (1) expert validation of assessment instruments; (2) methodological triangulation (tests, interviews, observations); (3) source triangulation (students with varied digital competence levels); (4) member checking to verify interview findings; (5) audit trail documentation of the research process; and (6) adherence to research ethics through informed consent, anonymity, and data protection.

## RESULT AND DISCUSSION

### 1. Quantitative Findings

This study reports the quantitative outcomes of implementing a holistic learning model informed by local wisdom to enhance students' digital competence at STAI Syekh Manshur. The investigation employed a paired pre–post test design to capture changes in five dimensions of digital competence as defined by the DigComp 2.2 framework: Information & Data Literacy, Communication & Collaboration, Digital Content Creation, Safety, and Problem Solving. Complementing the test scores, authentic assessments on a 1–5 scale were used to evaluate students' performance in project-based tasks that incorporated real-world technology applications alongside local cultural values.

Prior to hypothesis testing, the normality of pre-test and post-test distributions was assessed using the Shapiro–Wilk test, confirming that both datasets met the assumption of normality ($p > 0.05$). This verification justified the application of parametric statistical methods. The paired design allowed for a direct comparison of scores before and after the intervention, providing a robust measure of learning gains attributable to the holistic model.

Subsequent analyses involved paired sample t-tests to determine the statistical significance of observed changes, alongside effect size calculations using Cohen's d to quantify the magnitude of improvement. In addition, percentage improvement metrics were calculated to provide a practical interpretation of learning progress. Collectively, these analyses offered a comprehensive and methodologically sound assessment of the model's impact on students' digital competence, integrating both quantitative and authentic performance indicators.

**Table 1. Summary Statistics and Paired Sample t-Test Results (n = 80)**

| Dimensi | Mean Pre | SD Pre | Mean Post | SD Post | Δ Mean | Δ (%) | t(79) | p | Cohen's d |
|---|---|---|---|---|---|---|---|---|---|
| Information & Data Literacy | 64.1 | 8.5 | 80.3 | 6.5 | 16.20 | 25.3% | 20.871 | < 0.001 | 2.33 |
| Communication & Collaboration | 62.7 | 8.7 | 77.6 | 6.9 | 14.90 | 23.7% | 18.613 | < 0.001 | 2.08 |
| Digital Content Creation | 61.9 | 8.8 | 79.2 | 6.8 | 17.30 | 27.9% | 21.484 | < 0.001 | 2.40 |
| Safety (ethics & security) | 65.5 | 8.3 | 79.0 | 6.7 | 13.50 | 20.6% | 17.604 | < 0.001 | 1.97 |
| Problem Solving | 61.8 | 9.0 | 78.4 | 7.0 | 16.60 | 26.8% | 20.130 | < 0.001 | 2.25 |
| **Total** | **63.2** | **8.7** | **78.9** | **6.9** | **15.70** | **24.8%** | **19.613** | **< 0.001** | **2.19** |

As shown in Table 1, the findings indicate: (1) Significant improvement across all dimensions: All digital competence dimensions showed statistically significant gains ($p < 0.001$), demonstrating that the holistic learning model grounded in local wisdom had a strong and consistent impact on students' digital skill development; (2) Effect sizes: Cohen's d values ranged from 1.97 to 2.40, which according to Cohen (1988) represent a very large effect. Such substantial effects are rarely observed in conventional learning approaches, indicating that the intervention contributed strongly to enhancing digital competence; and (3) Percentage improvement aligned with pedagogical expectations: (a) Digital Content Creation exhibited the highest improvement (+27.9%), suggesting that project-based tasks emphasizing creativity and local cultural values effectively enhance students' content production skills; (b) Safety demonstrated a relatively lower increase (+20.6%), indicating that digital ethics and data protection require more intensive and ongoing instruction; (c) Problem Solving and Information & Data Literacy showed strong, consistent gains, reflecting the integration of analytical and reflective activities in holistic learning.

Quantitative findings demonstrate that the implementation of a holistic learning model grounded in local wisdom significantly and consistently enhanced students' digital competence. The average total score increased from 63.2 (pre-test) to 78.9 (post-test), corresponding to a 24.8% improvement. Paired sample t-test results ($t(79) = 19.613$, $p < 0.001$) indicate that these differences are not due to chance, but reflect the impact of the learning intervention. The effect size of Cohen's $d = 2.19$ confirms a very large practical effect, highlighting the substantial influence of the model on students' digital competence development.

Dimension-specific Findings

a. Information & Data Literacy: Scores improved from 64.1 to 80.3 ($\Delta = 16.20$; 25.3%), reflecting enhanced ability to understand, evaluate, and utilize digital information critically and accurately. This capability is particularly important in Islamic higher education, where evaluating digital content involves ethical and moral reasoning. Statistical analysis confirmed significance ($t(79) = 20.871$, $p < 0.001$; Cohen's $d = 2.33$).

b. Communication & Collaboration: Scores increased from 62.7 to 77.6 (Δ = 14.90; 23.7%), indicating improved skills in online collaboration, group coordination, and digital communication. Integration of local values such as *gotong royong* and *musyawarah* provided a social context that enriched collaborative competence. The t-test result ($t = 18.613$; $p < 0.001$) with $d = 2.08$ supports the effectiveness of culturally grounded pedagogy in enhancing digital interaction skills, a core 21st-century competency.
c. Digital Content Creation: This dimension experienced the largest improvement, from 61.9 to 79.2 (Δ = 17.30; 27.9%), demonstrating students' growing ability to design, produce, and edit culturally grounded digital content, including educational posters, videos, and social campaigns. Project-based learning allowed students to freely express creativity while adhering to local wisdom principles. The t-test ($t(79) = 21.484$, $p < 0.001$; Cohen's $d = 2.40$) confirms an exceptionally strong educational effect, highlighting that cultural values enrich rather than constrain digital creativity.
d. Safety (Digital Ethics & Security): Scores increased from 65.5 to 79.0 (Δ = 13.50; 20.6%). This reflects enhanced understanding of digital safety, privacy, ethical media use, and responsible technology engagement. The statistical results ($t = 17.604$, $p < 0.001$; $d = 1.97$) indicate significant progress, though continuous learning is necessary to fully master this dimension. Integration of honesty, trustworthiness (*amanah*), and responsibility as local wisdom values strengthened students' digital ethics.
e. Problem Solving: Scores improved from 61.8 to 78.4 (Δ = 16.60; 26.8%), demonstrating increased competence in analyzing digital issues, identifying alternative solutions, and resolving problems creatively. Results were statistically significant ($t(79) = 20.130$, $p < 0.001$; Cohen's $d = 2.25$), showing that the holistic learning model effectively nurtured digital problem-solving skills. Cultural values such as *musyawarah* and *gotong royong* also supported collaborative problem solving.

These quantitative results illustrate that the holistic learning model grounded in local wisdom not only enhances technical digital skills but also strengthens higher-order competencies such as creativity, collaboration, problem solving, and digital responsibility. The significant gains across all dimensions demonstrate that integrating cultural values with modern technology constitutes a robust pedagogical strategy in the digital era.

The quantitative outcomes are further supported by qualitative findings (to be presented in the following section), which provide insights into how students experienced, interpreted, and internalized cultural values through holistic learning and authentic assessment. Overall, the results indicate that the model effectively improves digital competence in a meaningful and comprehensive manner, encompassing both technical skills and higher-order competencies rooted in local cultural values.

**2. Qualitative Findings**

Qualitative data were collected through semi-structured interviews with ten students selected to represent diverse digital competence levels (high, medium, low). Additionally, six weeks of participatory observation captured interaction patterns, group dynamics, and the actual integration of local wisdom in digital activities. Data were analyzed following thematic analysis procedures, including initial coding, category exploration, theme identification, and contextual interpretation.

Analysis revealed four main themes reflecting cognitive, affective, social, and ethical transformation of students through the holistic learning model grounded in local wisdom. These themes illustrate how cultural values are embedded in digital learning practices and support comprehensive enhancement of students' digital competence.

Theme 1—Holistic Learning Enhances Cognitive Awareness and Critical Thinking

The first theme highlights that the holistic learning approach fosters students' critical, reflective, and in-depth thinking regarding digital information. Students not only mastered technical concepts but also became more selective and analytical in evaluating information quality.

Before the intervention, most students admitted to passively consuming digital information without verification. Gradual instruction in data literacy—through simulated searches, source credibility analysis, and discussions on information ethics—shifted their approach toward digital content. One student stated: "Before, I just took information from Google without thinking. After practicing source evaluation, I understand how to assess accuracy and combine information from different places." (M3)

Class observations confirmed that previously passive students began asking critical questions about site validity, information bias, and evidence-based argumentation. This transformation aligns with quantitative findings, particularly the 25.3% increase in Information & Data Literacy, demonstrating that integrating cognitive, ethical, and reflective dimensions strengthens digital literacy substantively.

Students also reported that incorporating local wisdom—particularly caution (*wara'*) and trustworthiness (*amanah*)—helped them perceive information literacy as part of moral conduct, not just technical skill. Holistic learning thus enhanced both competence and moral orientation in interacting with digital information.

Theme 2—Internalization of Local Wisdom Strengthens Collaborative Behavior and Digital Ethics

The second theme emphasizes that embedding local wisdom in holistic learning positively affected collaborative behavior and digital ethics. Values such as *gotong royong* (mutual cooperation), *musyawarah* (deliberation), *amanah*, and respect for instructors were not only discussed theoretically but enacted in digital learning activities.

These values served as a "character bridge," connecting technology use with students' cultural identity. Students recognized that technology use should be guided by moral and cultural principles. This was evident in group work and informal interactions during the intervention. One student shared: "When creating a video project about local wisdom, we had to help each other. It felt like learning technology while staying connected to our cultural values. Collaboration felt more respectful and meaningful." (M7)

Observations revealed equitable task distribution based on interest and ability: technically skilled students assisted with editing, while those proficient in information literacy managed research and scripting. Decision-making reflected *musyawarah*, as students collectively agreed on project concepts, role allocation, and success criteria. This aligns with quantitative findings showing a 23.7% improvement in Communication & Collaboration.

Internalization of local wisdom also shaped digital ethics. Students reported greater caution in sharing information, referencing sources, respecting licensing, and avoiding digital plagiarism. Quantitative results corroborate this improvement, particularly in the Safety dimension (+20.6%).

Theme 3—Authentic Projects Promote Digital Creativity and Meaningful Content Production

The third theme highlights how authentic, project-based assignments drove digital creativity while enriching value-oriented learning. Over six weeks, students engaged in projects requiring integration of technical skills, cultural understanding, and creative thinking. Projects included educational videos, digital posters, infographics, media literacy campaigns, and micro-content grounded in Islamic and local wisdom values.

Interviews showed that authentic tasks fostered not only technical skills but also new understandings of technology's social and spiritual role. One student explained: "When making a video on social media ethics from an Islamic perspective, I learned more than just editing. I learned how to create meaningful content that aligns with Islamic values." (M5)

Observations supported these accounts. Students actively discussed visual concepts, narrative structure, imagery, music, and culturally appropriate presentation styles. Technical challenges (e.g., editing errors or device limitations) were overcome collaboratively, demonstrating organic problem-solving development.

Projects progressively improved in quality, reflecting integration of cultural values and educational messaging. This aligns with quantitative findings showing the largest improvement in Digital Content Creation (+27.9%). Authentic projects also fostered ownership of learning, intrinsic motivation, and appreciation for meaningful, ethical digital work.

Theme 4—Authentic Assessment Enhances Reflection, Responsibility, and Problem Solving

The fourth theme demonstrates the central role of authentic assessment in fostering reflective, responsible, and problem-solving-oriented learning. Unlike traditional assessments focusing only on outcomes, authentic assessment required students to demonstrate conceptual understanding and performance through project-based tasks.

Implemented via performance rubrics, process observation, presentations, and formative feedback, authentic assessment increased students' accountability throughout planning, execution, and reflection. One participant noted: "During presentations, the instructor assessed not just the final product, but the process. I realized making content involves teamwork, problem solving, and conveying messages aligned with Islamic values." (M1)

Self-assessment and peer-assessment promoted honesty, responsibility, and collaborative accountability. Challenges such as software errors, device limitations, and scheduling conflicts encouraged adaptive problem solving. One student recounted: "My laptop crashed while editing. We discussed and switched to using a phone and different app. It wasn't just technical learning, but learning to find quick solutions to complete the project." (M6)

Observations showed consistent application of local wisdom values in problem-solving: deliberation for decisions (*musyawarah*), trustworthiness (*amanah*) in task completion, mutual assistance (*gotong royong*), and reflective accountability (*tanggung jawab*).

This theme demonstrates that authentic assessment simultaneously measures digital competence and fosters value-based learning, connecting process quality (collaboration, integrity) to outcome quality (ethical, informative, culturally aligned digital content).

**3. Integration of Quantitative and Qualitative Findings**

The qualitative findings corroborate and enrich the quantitative results. Quantitative analysis demonstrated significant improvement in all digital competence dimensions, while qualitative insights reveal the mechanisms underlying these gains:

a. Cognitive awareness and critical thinking were enhanced through reflective, value-integrated learning (supporting Information & Data Literacy gains).
b. Collaboration and digital ethics were strengthened through internalization of local wisdom (aligning with Communication & Collaboration and Safety improvements).
c. Creativity and meaningful content production were fostered by authentic, culturally grounded projects (explaining highest gains in Digital Content Creation).
d. Reflective, responsible, and adaptive problem-solving skills were developed via authentic assessment, integrating moral, social, and technical dimensions (supporting Problem Solving improvement).

Together, these findings demonstrate that a holistic learning model embedded with local wisdom effectively promotes not only technical digital skills but also higher-order competencies, ethical awareness, and culturally grounded digital literacy.

**DISCUSSION**

The findings of this study indicate that a holistic learning model based on local wisdom, combined with authentic assessment, is proven effective in enhancing the digital competence of students at STAI Syekh Manshur. This effectiveness is evidenced by quantitative data showing significant improvements across all DigComp 2.2 dimensions, as well as qualitative data revealing changes in students' mindset, attitudes, and behaviors in utilizing technology in a more meaningful, ethical, and contextual manner. This section discusses the results in an integrative and argumentative manner.

1. Enhancement of Digital Competence through Holistic Learning

The quantitative and qualitative findings of this study demonstrate that a holistic learning model based on local wisdom effectively develops students' digital competence comprehensively. Significant improvements across the five DigComp 2.2 dimensions confirm that this approach not only enhances technical skills (e.g., using digital devices) but also strengthens cognitive, affective, and social dimensions.

Theoretically, these results align with Miller (Miller, 2019), who emphasizes that holistic learning allows learners to develop intellectual, emotional, and social aspects in a balanced manner. By incorporating cultural and spiritual values into learning activities, students do not merely learn "how to use technology" but also understand "why technology is used" in the context of their lives. Pare & Sihotang (Pare & Sihotang, H, 2023) also support this, stating that holistic education can foster 21st-century skills such as creativity, critical thinking, communication, and collaboration through local cultural contexts.

The most significant increase in the Digital Content Creation dimension indicates that students can combine technical skills with creative expression grounded in local cultural values. This reinforces local studies such as Wicaksono & Arifendi (Wicaksono & Arifendi, R. F, 2022), who found that when students are given projects based on local culture, their digital creativity significantly improves. Additionally, the integration of local content and technology has been shown effective in religious education contexts; for instance, a digital Islamic Education module based on Kalimantan's local wisdom successfully combined religious content and local cultural values to enhance student engagement and understanding (Radhiati et al., 2024).

Furthermore, the improvement in the Problem Solving dimension reflects that students gain not only technical skills but also strategies for collaborative and reflective problem-solving. This finding aligns with the study of Alfarizi & Ngatindriatun (Alfarizi & Ngatindriatun, 2023), which shows that digital competence and digital citizenship are interrelated, particularly in data literacy and problem-solving within PTKI environments. It also reflects that value-based learning (such as deliberation and responsibility) can facilitate collaborative problem-solving, which is highly relevant in digital societies facing moral and technical challenges.

These enhancements indicate that holistic learning grounded in local wisdom provides contextual meaning to technology. Rather than merely teaching techniques, this model helps students understand the relevance of local values in the digital era (Dewi et al., 2024; Höper & Schulte, 2024; Syahfitri & Muntahanah, 2024). This perspective is reinforced by Muflihin (2024), who states that integrating local wisdom and digital literacy in Islamic education helps build students' critical, ethical, and socially relevant character. Moreover, local values such as mutual cooperation, deliberation, and trust, internalized by students during the learning process, also strengthen ethical and contextual digital citizenship.

From a character education perspective, integrating local wisdom into digital learning not only improves skills but also reinforces students' cultural and moral identity. According to Nuraeni, Tamagola, & Wonggor (Nuraeni Tamagola, R. H. A., & Wonggor, S, 2024), character education based on local wisdom is highly relevant in addressing strategic issues in the digital era because it shapes individuals who are not only technically competent but also possess strong ethical and social awareness.

Practically, these findings have important implications for curriculum development in PTKI and other educational institutions. Learning models that combine digital projects, reflection on local values, and collaboration can be adopted as strategies to strengthen digital literacy without neglecting students' cultural identity (Eutsler & Perez, 2022). In the long term, such an approach can also form part of character education that is contextual and relevant in the continually evolving digital era.

2. The Role of Local Wisdom in Understanding Technology Use

The study findings indicate that local wisdom plays a strategic role in shaping how students understand, interpret, and use technology ethically, collaboratively, and responsibly. The integration of values such as mutual cooperation, trust, deliberation, and respect for teachers is not merely presented as learning material but internalized through group activities, problem-solving, and digital content production (Cojorn & Sonsupap, 2024). These values serve as a moral compass guiding students' interactions in digital spaces, framing technology not as a neutral domain devoid of values, but as an ethical space requiring moral direction.

Qualitative findings show that students experience stronger emotional and spiritual connections when local values are integrated into their digital activities. They report that local wisdom makes the learning process not only about mastering tools but also about self-reflection regarding social and moral responsibility (Wijayanti et al., 2025). This reinforces the view that

local wisdom functions not only as a traditional value system but also as an ethical framework relevant to addressing the challenges of the modern digital world (Muflihin, 2024). In other words, local wisdom helps students understand that technology use always carries social consequences and must be exercised with moral awareness (Ardiansyah et al., 2024; Permatasari & Setyasto, 2024; Susilo et al., 2023).

The results also support the notion that integrating local wisdom into digital education can create more meaningful learning experiences rooted in students' cultural and spiritual identity. In PTKI contexts, local wisdom and Islamic values such as akhlaq al-karimah are inseparable (Dew et al., 2022; Fernando & Yusnan, 2022). Both form the basis of digital ethics, guiding students to respect privacy, maintain informational integrity, and use digital media as a means of good (maslahah). These findings align with Radhiati et al. (Radhiati et al., 2024), emphasizing that local cultural values integrated with Islamic education strengthen students' character in digital interactions.

Integrating local values also directly impacts the improvement of the Safety dimension in quantitative assessments. Students reported being more cautious in managing personal data, verifying information before dissemination, and considering the social impact of their digital actions (Soriani, 2018; Tarsidi et al., 2023; S. Wang, 2024). Thus, holistic learning based on local wisdom fosters digital responsibility that is not only technical but also moral. This aligns with Nuraeni, Tamagola, & Wonggor (2024), who state that education based on local wisdom effectively builds ethical character in the digital generation.

Additionally, mutual cooperation, a hallmark of Indonesian culture, strengthens students' digital collaboration skills, as reflected in improvements in the Communication & Collaboration dimension. Students find it easier to share tasks, manage conflicts, and support one another in digital projects. This aligns with Tohri et al. (2023), who found that local wisdom not only creates harmonious social relationships but also strengthens digital teamwork in 21st-century learning contexts.

These findings show that local wisdom is not merely a decorative element in learning but a pedagogical foundation that enriches digital education. When local values are authentically integrated into digital projects, students learn that technology is a space to be managed with ethics, cultural identity, and social awareness (Astuti et al., 2024; Thapa, 2025; Wijayanti et al., 2025). Therefore, holistic learning based on local wisdom significantly contributes to shaping students into digital citizens who are ethical, culturally grounded, and responsible.

3. Authentic Projects as a Medium for Creativity and Real-World Experience

The findings show that authentic assessment plays a crucial role in developing students' digital creativity and providing learning experiences relevant to real-world contexts. Through projects such as educational video production, digital poster design, media literacy campaigns, or infographic creation based on local wisdom, students not only apply technical skills but also integrate moral messages, local cultural values, and Islamic ethical principles (Musada, 2025; Nurlaila Eka Erfiana & Rohmah, 2025). This process reflects the characteristics of authentic assessment described by Gulikers et al. (2004), emphasizing contextual relevance, task complexity, and the need for reflection as part of genuine learning evaluation.

Authentic Projects and the Enhancement of Digital Creativity. Interview results indicate that project-based assignments help students understand that digital creativity is not only about visual aesthetics or technical editing skills but also involves the choice of messages, values, and communication objectives. This aligns with Koehler & Mishra (Koehler & Mishra, P, 2023) and the TPACK framework, which emphasizes the integration of technological knowledge, pedagogical knowledge, and content knowledge in producing meaningful digital products. Students not only learn to use digital applications but also learn to combine local cultural values as authentic, contextual, and relational content to their life experiences.

For example, video works themed "Ethics of Social Media Use from an Islamic Perspective" or digital posters about "Mutual Cooperation in the Digital World" demonstrate how students translate local cultural values into visual representations relevant to contemporary digital audiences (Deswalantri et al., 2023; Hafidh, 2023). These findings reinforce Wicaksono & Arifendi (2022), who highlight that integrating local wisdom into digital

assignments can enhance creativity, engagement, and students' ability to produce value-laden content.

Authentic Assessment Promotes Ethical Literacy and Awareness. Authentic projects also help students build ethical awareness in producing and sharing digital content. Students reported being more careful in using image sources, selecting information, and designing messages to avoid misleading or offending specific groups (Nygren et al., 2021). This confirms findings by Gulikers et al. (2006) and recent research by Rahmawati & Syawaludin (Rahmawati & Syawaludin, E, 2023), indicating that authentic assessment helps students develop reflective capacity and ethical responsibility because tasks resemble real-world work and digital community situations.

Quantitative findings showing significant improvement in Digital Content Creation are also reinforced by students' narratives. They reported that project assignments increased their confidence in using various editing applications, understanding content production workflows, and creatively using technology to convey meaningful messages (Fami et al., 2023; McLachlan & Tippett, 2024). This indicates that authentic projects help students expand technical competence while building their digital identity as prospective educators or social change agents (Culcasi et al., 2025; Whewell et al., 2022).

Experiencing Challenges as a Problem-Solving Learning Space. Qualitative findings also reveal that the project implementation process provides ample opportunities for students to develop adaptive skills and digital problem-solving. Technical obstacles such as incompatible editing applications, low-spec devices, rendering errors, or differences in team members' abilities become situations that trigger collective problem-solving (Barbuto John E. & Stevens, 2020; Obiwulu et al., 2019). Students overcome these challenges through discussions, role allocation, alternative application use, and independent tutorials.

These findings align with Dewi & Sanjaya (2023), who assert that project-based tasks effectively develop higher-order thinking skills because students face real situations requiring creativity, collaboration, and problem-solving. This also supports the Problem Solving dimension in DigComp 2.2, emphasizing adaptability to diverse digital challenges (Blanc et al., 2025; Commission, 2022; Pongrac et al., 2025).

Authentic Projects as Meaningful Learning Experiences. These findings indicate that authentic assessment enables students to experience meaningful learning, connecting technology with cultural identity, ethical principles, and real-life experiences (Killam et al., 2024; Quinlan et al., 2025; Timperley & Schick, 2025). Through digital projects based on local wisdom, students learn to view digital spaces as arenas for social contribution rather than mere entertainment or information consumption (Astuti et al., 2024; Kisno et al., 2022; Yulia & Suttrisno, 2024). This confirms the effectiveness of holistic learning grounded in local values in developing comprehensive, adaptive, and character-oriented digital competence.

4. Mixed Methods Integration Strengthens Findings' Validity

The mixed-methods approach in this study provides a solid foundation for understanding the effectiveness of the holistic learning model based on local wisdom comprehensively. Quantitative data show significant improvements across all digital competence dimensions, while qualitative data offer in-depth explanations of the pedagogical processes underlying these improvements. Integrating both data sources yields a more complete understanding—both of measurable learning outcomes and of students' experiences, perceptions, and internal dynamics during the learning process.

Quantitative results show substantial increases in Information & Data Literacy, Communication & Collaboration, Digital Content Creation, Safety, and Problem Solving. However, these numerical improvements are meaningful only when paired with qualitative findings explaining why and how improvements occurred. For instance, the rise in Information & Data Literacy is supported by student narratives about changes in evaluating information credibility, verifying data, and processing information from multiple sources, indicating that improvements are not only technical but also reflective and conceptual.

Similarly, the increase in the Collaboration dimension is confirmed by qualitative findings on practices of mutual cooperation, deliberation, and role distribution in group

projects. Internalized local wisdom values serve as an ethical foundation reinforcing students' digital interactions. This evidence shows that digital collaboration is not just a technical issue of platform use but also relates to socio-cultural values shaping collaborative behavior.

In the Digital Content Creation dimension, qualitative data provide concrete accounts of students' experiences producing meaningful content combining technology, cultural values, and moral messages. These narratives explain quantitative score increases and emphasize the importance of authentic projects in promoting digital creativity (Carbonell-Carrera et al., 2017). This integration aligns with Creswell & Plano Clark (2023), who argue that mixed methods can reveal complex relationships between processes and learning outcomes that cannot be captured by a single data type alone.

Moreover, the mixed-methods approach enhances validity and credibility through triangulation of instruments and perspectives. Quantitative data provide objective and statistical evidence, while qualitative data provide context, depth, and meaning. This integrative model facilitates a stronger understanding of the role of local wisdom in digital learning and how authentic assessment develops practical, ethical, and creative competence (Johnson & Onwuegbuzie, A. J, 2022).

Thus, integrating mixed methods not only enriches the interpretation of research results but also strengthens the conclusion that a holistic learning model based on local wisdom is pedagogically, technically, socially, and culturally effective. This approach provides a comprehensive picture of students' digital competence transformation, which could not be achieved by relying on a single type of data.

5. Theoretical Contributions and Practical Implications

Theoretically, this study contributes significantly to the development of digital learning research, particularly in religious higher education contexts. First, it confirms that integrating holistic learning and digital competence is a highly relevant approach to addressing 21st-century educational needs (Nedungadi et al., 2024). Previously, many studies separated the development of technical digital competence from holistic learning focused on character, emotional, and spiritual development (Ahmadi & Saad, 2024; Arissaputra et al., 2023). This study supports Miller's (2019) idea that holistic approaches provide a strong conceptual foundation for developing digital competence that is more humane, responsive, and value-oriented.

Second, this study enriches digital ethics and digital citizenship theories in the context of Islamic education, confirming that local wisdom can serve as an ethical foundation guiding responsible technology use (Rabbianty et al., 2023; Zainuddin et al., 2024). Integrating values of mutual cooperation, trust, deliberation, and respect for teachers confirms Tohri et al. (2023), who state that local cultural values enhance digital interaction quality and reinforce collaborative attitudes within the digital learning ecosystem. Thus, this research expands digital ethics theory by incorporating cultural and spiritual elements as integral components, especially in PTKI.

Third, this study emphasizes the strategic role of authentic assessment as an evaluation mechanism bridging technical competence and moral values (Retnaningsih et al., 2023; Setiawan et al., 2019). Consistent with Gulikers et al. (2004) and Wiggins (1990), the findings show that authentic assessment evaluates not only the final product but also emotional engagement, attitudes, reflective processes, and internalized values. Consequently, this study contributes to understanding that authentic assessment aligns with a digital curriculum based on context, values, and local wisdom (Nieminen et al., 2025; Sukma A., Nurhayati, Kaharuddin, & Gheisari, A, 2022).

This research supports the approach of culturally embedded digital learning, a digital learning model inseparable from cultural roots, ethics, and spiritual values. This approach enriches contemporary digital pedagogical theory by positioning local culture as a primary determinant of students' digital literacy quality.

Practically, this study provides several important recommendations for developing digital learning in PTKI and other universities. First, the study shows that lecturers should adopt value-based digital projects as part of curriculum design. Projects such as producing

videos based on local wisdom, Islamic digital campaigns, or moral value infographics effectively develop students' creativity while strengthening their cultural and spiritual identity (Retnowati et al., 2019; Ruhmawati et al., 2024; Salindri et al., 2024). This approach also makes learning more meaningful and experience-oriented.

Second, the findings indicate that authentic assessment can replace or complement traditional assessment, particularly in courses focused on digital practice (Ansori & Heriansyah, 2025). This strengthens the argument that traditional assessments, such as multiple-choice tests, are no longer adequate for evaluating complex, multidimensional digital competence.

Third, the study implies that PTKI institutions should develop digital learning models that integrate spiritual and local cultural values. Digital transformation in universities often focuses on technology and infrastructure, but this research shows that cultural and spiritual values are key factors strengthening students' digital skills and the ethics of their use.

Fourth, the study emphasizes the importance of involving students in learning experiences that integrate technology, creativity, and values. Direct experience in completing real projects, facing technical challenges, engaging in value-based collaboration, and receiving formative feedback accelerates the internalization of deeper and morally oriented digital competence (Fami et al., 2023).

Therefore, this study provides practical contributions relevant to policy development, curriculum design, teaching strategies, and assessment in PTKI and higher education in general. A holistic approach based on local wisdom can serve as an alternative model for enhancing digital literacy in a more humanistic, ethical, and contextual manner.

## CONCLUSION

This study demonstrates that a holistic learning model based on local wisdom, combined with authentic assessment, is highly effective in enhancing the digital competence of students at STAI Syekh Manshur. Using a mixed-methods approach, the quantitative and qualitative findings reinforce each other, showing significant improvements across all DigComp 2.2 dimensions Information & Data Literacy, Communication & Collaboration, Digital Content Creation, Safety, and Problem Solving not only statistically significant but also pedagogically meaningful, as indicated by very large effect sizes. At the same time, students experienced a transformation in digital thinking, attitudes, and behaviors, reflected in four main emerging themes: increased critical cognitive awareness, internalization of local wisdom values, strengthened creativity through authentic projects, and enhanced reflection and problem-solving abilities.

The integration of values such as mutual cooperation, deliberation, trust, and *akhlaq al-karimah* makes the learning process more humanistic and contextual, enabling students to perceive technology not merely as a technical tool but also as a moral and cultural space. Therefore, this study confirms that holistic learning based on local wisdom is not only technically effective but also culturally and spiritually relevant, making it a viable alternative approach for developing digital literacy in PTKI and other higher education institutions that require a balance between technology, values, and character.

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**REFERENCES**


Ahmadi, & Saad, N. M. (2024). Digital Literacy Transformation in Madrasah Ibtidaiyah for Arabic Language Learning Through Adab and Tahfidz Programs with Technological Touch. *Al-Bidayah : Jurnal Pendidikan Dasar Islam*, *16*(2), 281–308. https://doi.org/10.14421/al-bidayah.v16i2.9852

Alfarizi, M., & Ngatindriatun, N. (2023). Menelusuri keterkaitan antara kompetensi digital dan kebijakan pembelajaran digital terhadap digital citizenship mahasiswa PTKI Indonesia. *JENTRE*. https://doi.org/10.38075/jen.v5i1.485

Ansori & Heriansyah. (2025). *Transformasi Pembelajaran Abad 21 Penilaian Autentik dalam Pembelajaran Mendalam*. Deepublish.

Ardiansyah, S., Komalasari, K., Maryani, E., & Wiyanarti, E. (2024). Nggusu Waru-based Social Studies Electronic Book Model as the Innovation to Support Students' Character Building. *Indonesian Values and Character Education Journal*, *7*(1), 12–24. https://doi.org/10.23887/ivcej.v7i1.77195

Arissaputra, R., Sobandi, A., Sentika, S., Adib Sultan, M., & Putu Nurwita Pratami Wijaya, N. (2023). Trend Analysis Using Bibliometric Study on Digital Literacy in Education. *International Journal Of Humanities Education and Social Sciences (IJHESS)*, *3*(3). https://doi.org/10.55227/ijhess.v3i3.667

Arribas, C. M., Arcos, R., & Gertrudix, M. (2025). Application of the Delphi methodology to forecast competencies oriented towards AI-driven disinformation detection in an expanded DigComp framework. *MethodsX*, *14*, 103401. https://doi.org/10.1016/j.mex.2025.103401

Astuti, W., Nurkamto, J., Subiyantoro, S., & Rochsantiningsih, D. (2024). Exploring the potential development of digital modules for arts and culture learning based on local culture: A mixed-method study on Bedhaya Ketawang dance. *Edelweiss Applied Science and Technology*, *8*(5), 2327–2342. https://doi.org/10.55214/25768484.v8i5.1986

Baines, S., Otermans, P., Tree, D., & Worsfold, N. (2025). Measuring and mapping authentic assessment with a novel quantitative typology. *Teaching in Higher Education*, *30*(3), 663–682. https://doi.org/10.1080/13562517.2024.2424823

Barbuto John E., J., & Stevens, M. (2020). Generalizing Meaning-Making from One to Many: A Meso-Analytic Approach for Conceptualizing Group Constructive Development. *International Journal of Business and Applied Social Science*, 17–30. https://doi.org/10.33642/ijbass.v6n9p3

Ben Youssef, A., Dahmani, M., & Ragni, L. (2022). ICT Use, Digital Skills and Students' Academic Performance: Exploring the Digital Divide. *Information*, *13*(3), 129. https://doi.org/10.3390/info13030129

Blanc, S., Conchado, A., Benlloch-Dualde, J. V, Monteiro, A., & Grindei, L. (2025). Digital competence development in schools: a study on the association of problem-solving with autonomy and digital attitudes. *International Journal of STEM Education*, *12*(1), 13. https://doi.org/10.1186/s40594-025-00534-6

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.

Cabezas-González, M., Casillas-Martín, S., & García-Valcárcel Muñoz-Repiso, A. (2023). Theoretical Models Explaining the Level of Digital Competence in Students. *Computers*, *12*(5), 100. https://doi.org/10.3390/computers12050100

Carbonell-Carrera, C., Saorin, J. L., Melian, D., & De La Torre Cantero, J. (2017). 3D Creative Teaching-Learning Strategy in Surveying Engineering Education. *EURASIA Journal of Mathematics, Science and Technology Education*, *13*(11). https://doi.org/10.12973/ejmste/78757

Casillas-Martín, S., Cabezas-González, M., & García-Valcárcel Muñoz-Repiso, A. (2020). DigiCraft: A Pedagogical Innovative Proposal for the Development of the Digital Competence in Vulnerable Children. *Sustainability*, *12*(23), 9865. https://doi.org/10.3390/su12239865

Code, J. (2025). The Entangled Learner: Critical Agency for the Postdigital Era. *Postdigital Science and Education*, *7*(2), 336–358. https://doi.org/10.1007/s42438-025-00544-1

Commission, E. (2022). *The Digital Competence Framework 2.2 (DigComp 2.2): The European Framework for Digital Competence of Citizens*. Publications Office of the European Union.

Creswell, J. W., & Plano Clark, V. L. (2023). *Designing and conducting mixed methods research* (4 (ed.)). SAGE Publications.

Culcasi, I., Cerrillo, R., & Cinque, M. (2025). Fostering Digital Well-Being Through (e-) Service-Learning: Engaging Students in Responsible and Inclusive Digital Practices. *Behavioral Sciences*, *15*(9), 1158. https://doi.org/10.3390/bs15091158

Dalim, S. F., Syed Aris, S. R., Hoon, T. S., Nadzri, F. A., Deni, S. M., Yahya, N., & Si, E. M. (2023). Framework for Numeracy and Digital Skills Attributes in Higher Education. *Research in Social Sciences and Technology*, *8*(3), 16–35. https://doi.org/10.46303/ressat.2023.18

Dalimunthe, M. A., Pallathadka, H., Muda, I., Manoharmayum, D. D., Shah, A. H., Prodanova, N. A., Mamarajabov, M. E., & Singer, N. (2023). Challenges of Islamic education in the new era of information and communication technologies. *HTS Teologiese Studies / Theological Studies*, *79*(1). https://doi.org/10.4102/hts.v79i1.8608

De Vries, D. A., Piotrowski, J. T., & De Vreese, C. (2025). A measure of digital competence. *PLOS One*, *20*(5), e0322995. https://doi.org/10.1371/journal.pone.0322995

Deák, C., & Kumar, B. (2024). A Systematic Review of STEAM Education's Role in Nurturing Digital Competencies for Sustainable Innovations. *Education Sciences*, *14*(3), 226. https://doi.org/10.3390/educsci14030226

Deswalantri, Pratiwi, I. W., Riyanti, A., Hasdiansa, I. W., & Hasbiah, S. (2023). Pengembangan Literasi Digital Masyarakat Sekolah Melalui Pelatihan Pembuatan Komik Digital Cerita Rakyat. *Jurnal Sipakatau: Inovasi Pengabdian Masyarakat*, 27–34. https://doi.org/10.61220/jsipakatau.v1i1.234

Dew, R. K., 'Izzah, A. S. Z., & Anissa, D. D. (2022). Implementation of Tulungagung Local Wisdom and Correlation of Islamic Values as a Source of Etnoscience Learning (Phenomenological Studies on Implementation of Tulungagung Local Wisdom). *Annual International COnference on Islamic Education for Students*, *1*(1). https://doi.org/10.18326/aicoies.v1i1.223

Dewi & Sanjaya, R, S. (2023). Project-based digital learning untuk meningkatkan kreativitas dan keterampilan pemecahan masalah mahasiswa. *Jurnal Pendidikan Teknologi Dan Kejuruan*.

Dewi, F., Nasution, N. V., Nasution, W. N., Anas, N., & Mustaqim, A. (2024). Development of TPACK Based Learning Media on Ablution Material to Increase Student Understanding. *Education Achievement: Journal of Science and Research*, 169–176. https://doi.org/10.51178/jsr.v4i3.1704

Eutsler, L., & Perez, A. (2022). Culturally Relevant Model for Digital Language and Literacy Instruction. *Language and Literacy*, *24*(2), 107–132. https://doi.org/10.20360/langandlit29576

Fami, A., Rasita Gloria Barus, I., & Wahyoedi, B. (2023). Project-Based Learning as a Catalyst for Promoting Digital Literacy: A Case Study of Software Engineering Technology Students. *E3S Web of Conferences*, *454*, 3012. https://doi.org/10.1051/e3sconf/202345403012

Fandir, A. (2024). Transformation of Islamic Education: Implementation of Technological Innovation in Education Management. *Jurnal Ilmiah Mandala Education*. https://doi.org/10.58258/jime.v10i1.6625

Fawns, T., Bearman, M., Dawson, P., Nieminen, J. H., Ashford-Rowe, K., Willey, K., Jensen, L. X., Damşa, C., & Press, N. (2025). Authentic assessment: from panacea to criticality. *Assessment & Evaluation in Higher Education*, *50*(3), 396–408. https://doi.org/10.1080/02602938.2024.2404634

Fernando, E., & Yusnan, M. B. B. M. (2022). The Tradition of Rejectiveness: The Character of Responsibility in Islamic Education Values. *Jurnal Pendidikan Agama Islam Indonesia (JPAII)*, *3*(4), 100–105. https://doi.org/10.37251/jpaii.v3i4.945

Field, A. (2020). *Discovering statistics using IBM SPSS statistics* (5 (ed.)). SAGE Publications.

Firdaus, A., Amrullah, A., Robiatul Adawiyah, L., Yuliati Zakiah, Q., & Supiana, S. (2023). Enhancing Learning Quality and Student Engagement: Utilizing Digital Technology in

Islamic Education. *International Journal of Nusantara Islam*, *11*(2), 206–2018. https://doi.org/10.15575/ijni.v11i2.29960

Gulikers Bastiaens, T. J., & Kirschner, P. A, J. T. (2006). Authentic assessment, student perceptions, and learning outcomes. *Educational Technology Research and Development*.

Gulikers, J. T. M., Bastiaens, T. J., & Kirschner, P. A. (2004). A five-dimensional framework for authentic assessment. *Educational Technology Research and Development*, *52*(3), 67–86. https://doi.org/10.1007/BF02504676

Hafidh, M. I. (2023). Representasi Santri Milenial dalam Wacana Literasi Digital di Instagram (Analisis Wacana Kritis Norman Fairclough pada Instagram: @elmahrusy). *Kediri Journal of Journalism and Digital Media (KJOURDIA)*. https://doi.org/10.30762/kjourdia.v1i1.1382

Hannigan, A., Garry, F., Byrne, C., & Phelan, H. (2023). The role of the arts in enhancing data literacy: A scoping review protocol. *PLOS ONE*, *18*(2), e0281749. https://doi.org/10.1371/journal.pone.0281749

Hermawan, A. H., Nugraha, M. S., & Salsabila, N. (2024). Integration of Al-Kindi's Holistic Education Philosophy and Its Relevance to the Implementation of the Independent Curriculum in Madrasah Aliyah. *AL-ISHLAH: Jurnal Pendidikan*, *16*(2), 1261–1274. https://doi.org/10.35445/alishlah.v16i2.5077

Himayah, H., & Almah, H. (2022). Faktor penentu tingkat kompetensi literasi digital pada mahasiswa (Studi kasus mahasiswa Fakultas Adab dan Humaniora UIN Alauddin Makassar). *PILAR*. https://doi.org/10.26618/te25k483

Höper, L., & Schulte, C. (2024). Empowering Students for the Data-Driven World: A Qualitative Study of the Relevance of Learning about Data-Driven Technologies. *Informatics in Education*. https://doi.org/10.15388/infedu.2024.19

Howley, D., Dyson, B., Baek, S., Fowler, J., & Shen, Y. (2022). Opening up Neat New Things: Exploring Understandings and Experiences of Social and Emotional Learning and Meaningful Physical Education Utilizing Democratic and Reflective Pedagogies. *International Journal of Environmental Research and Public Health*, *19*(18), 11229. https://doi.org/10.3390/ijerph191811229

Isabella, I., & Agustian, E. (2023). Implementing Digital Literacy Policies and the Challenges of Towards Smart City in Palembang City. *Journal of Governance and Local Politics (JGLP)*, *5*(2), 122–132. https://doi.org/10.47650/jglp.v5i2.936

Jenuri, Faqihuddin, A., Suresman, E., Abdullah, M., & Fahrudin. (2025). Overcoming the spiritual emptiness of students in the modern era through the integration of Al-Ghazali's human concepts in the Islamic religious education learning model. *Cogent Education*, *12*(1), 2497147. https://doi.org/10.1080/2331186X.2025.2497147

Johnson & Onwuegbuzie, A. J, R. B. (2022). Mixed methods research: A paradigm whose time has come—Revisited. *Journal of Mixed Methods Research*.

Kahar, M. I., Cika, H., Afni, N., & Wahyuningsih, N. E. (2021). Pendidikan Era Revolusi Industri 4.0 Menuju Era Society 5.0 di Masa Pandemi Covid 19. *Moderasi: Jurnal Studi Ilmu Pengetahuan Sosial*, *2*(1), 58–78. https://doi.org/10.24239/moderasi.Vol2.Iss1.40

Kapasheva, Z., Mirza, N., Shastsitka, I., Gelmanova, Z., Makouchyk, A., & Umbetova, A. (2024). Modeling the development of pedagogical competence in higher education educators amid the digitization of the contemporary world. *Frontiers in Education*, *9*. https://doi.org/10.3389/feduc.2024.1360712

Killam, L. A., Camargo-Plazas, P., & Luctkar-Flude, M. (2024). Learner-Educator Co-creation: A Case for Enhancing Authentic Assessment in Nursing Education. *The Canadian Journal for the Scholarship of Teaching and Learning*, *15*(1). https://doi.org/10.5206/cjsotlrcacea.2024.1.15194

Kismini, E., Iswari, R., & Fajar, F. (2023). The Role of Education in Preserving Javanese Ethical Values. *Komunitas*, *15*(1), 99–107. https://doi.org/10.15294/komunitas.v15i1.41691

Kisno, K., Wibawa, B., & Khaerudin, K. (2022). Development of Digital Storytelling Based on Local Wisdom. *WISDOM*, *4*(3), 65–74. https://doi.org/10.24234/wisdom.v4i3.834

Koehler & Mishra, P, M. J. (2023). Revisiting TPACK in digital-rich learning environments: Theory and practice. *Journal of Digital Learning in Teacher Education*.

Kriswinahyu, A. D., & Kastuhandani, F. C. (2024). Students' Lived Experiences Practicing Digital Literacy Using Youtube as an English Learning Tool. *Indonesian Journal of Educational Development (IJED)*, *4*(4). https://doi.org/10.59672/ijed.v4i4.3314

Li, D., Fan, X., & Meng, L. (2024). Development and validation of a higher-order thinking skills (HOTS) scale for major students in the interior design discipline for blended learning. *Scientific Reports*, *14*, 20287. https://doi.org/10.1038/s41598-024-70908-3

Listiaji & Subhan, S, P. (2021). Pengaruh pembelajaran literasi digital pada kompetensi teknologi informasi dan komunikasi calon guru. *Jurnal Pendidikan Dan Kebudayaan*. https://doi.org/10.24832/jpnk.v6i1.1948

Lund, B., Agbaji, D., & Teel, Z. A. (2023). Information literacy, data literacy, privacy literacy, and ChatGPT: Technology literacies align with perspectives on emerging technology adoption within communities. *Human Technology*, *19*(2), 163–177. https://doi.org/10.14254/1795-6889.2023.19-2.2

Mahmoudi, S., Jafari, E., Nasrabadi, H. A., & Liaghatdar, M. J. (2012). Holistic Education: An Approach for 21 Century. *International Education Studies*, *5*(3), p178. https://doi.org/10.5539/ies.v5n3p178

Markazi, D., Hossain, K., Stillman, L., Wolske, M., Anwar, M., Carbone, K., De Moor, A., Farinosi, M., Rega, I., Sarrica, M., & Berrio Zapata, C. (2024). A Community Informatics Research Network Vision Statement. *The Journal of Community Informatics*, *20*(2). https://doi.org/10.15353/joci.v20i2.5639

McLachlan, K., & Tippett, N. (2024). Kickstarting creative collaboration: placing authentic feedback at the heart of online digital media education. *Assessment & Evaluation in Higher Education*, *49*(2), 246–261. https://doi.org/10.1080/02602938.2023.2209295

Miller, J. P. (2019). *The holistic curriculum* (4 (ed.)). University of Toronto Press.

Momdjian, L., Manegre, M., & Gutiérrez-Colón, M. (2024). Assessing and bridging the digital competence gap: a comparative study of lebanese student teachers and in-service teachers using the DigCompEdu framework. *Discover Education*, *3*(1), 198. https://doi.org/10.1007/s44217-024-00308-2

Morgado, M., Mendes, J. J., & Proença, L. (2023). Dental Students' Digital Competence Evaluation: Preliminary Results of a Cohort Study. The 6th International Congress of CiiEM— Immediate and Future Challenges to Foster One Health, 25. *The 6th International Congress of CiiEM\—Immediate and Future Challenges to Foster One Health*, 25. https://doi.org/10.3390/msf2023022025

Muflihin, A. (2024). Integrasi kearifan lokal dan literasi digital dalam pendidikan Islam untuk menghadapi tantangan abad 21. *Al-Fikri: Jurnal Studi Dan Penelitian Pendidikan Islam*.

Mukarom, Z., Darmawan, D., Agustin, M., Dwijantie, J. S., & Samadi, M. R. (2024). Islamic Education Curriculum Innovation in the Digital Era: Challenges and Opportunities. *International Education Trend Issues*, *2*(2), 317–328. https://doi.org/10.56442/ieti.v2i2.874

Murtiningsih, R. S., Ariani, I., Nugroho, H. W., & Utomo, A. H. (2023). Strengthening Character Through Digital Pedagogy in Facing the Era of Society 5.0. *Digital Press Social Sciences and Humanities*, *9*, 17. https://doi.org/10.29037/digitalpress.49449

Musada, M. H. I. (2025). Innovative Approaches to Instilling Islamic Educational Values through the Leadership Training for Scout Unit Leaders Program. *Journal of Information Systems Engineering and Management*. https://doi.org/10.52783/jisem.v10i16s.2656

Nedungadi, P., Menon, R., Gutjahr, G., & Raman, R. (2024). Evaluating Holistic Education and Digital Learning model for advancing SDG4: a longitudinal mixed-effects modeling approach. *Cogent Social Sciences*, *10*(1), 2299134. https://doi.org/10.1080/23311886.2023.2299134

Neng Nurcahyati Sinulingga Erni Suyani, & Amsal Qori Dalimunthe, U. U. (2024). Literature Review on the Nature of Learners In the Philosophy of Islamic Education. *World Journal of Islamic Learning and Teaching*. https://doi.org/10.61132/wjilt.v1i4.119

Nieminen, J. H., Haataja, E., & Cobb, P. J. (2025). From active learners to knowledge contributors: authentic assessment as a catalyst for students' epistemic agency. *Teaching in Higher Education*, *30*(4), 970–990. https://doi.org/10.1080/13562517.2024.2332252

Nuraeni Tamagola, R. H. A., & Wonggor, S, L. (2024). Pendidikan karakter berbasis kearifan lokal untuk menghadapi isu-isu strategis di era digital. *Journal on Education*. https://doi.org/10.31004/joe.v6i2.5322

Nurhaliza Aminuyati, A., Karolina, V., Achmadi, A., & Rahmatika, I, N. (2024). Hubungan literasi digital dengan prestasi akademik mahasiswa pendidikan IPS di Universitas Tanjungpura Pontianak. *Jurnal Ilmiah Wahana Pendidikan*. https://doi.org/10.5281/zenodo.13765003

Nurlaila Eka Erfiana, N. A., & Rohmah, L. (2025). Development of Digital Teaching Materials Through Canva and Book Creator for College Students of Elementary Education. *Journal of Integrated Elementary Education*, *5*(1), 60–87. https://doi.org/10.21580/jieed.v5i1.24060

Nusi, A., & Zaim, M. (2023). Philosophy of Education In Digital Transformation: Ethical Considerations For Students' Data Security In Online Learning Platforms. *Jurnal Ilmiah Pendidikan Scholastic*, *7*(3), 42–50. https://doi.org/10.36057/jips.v7i3.629

Obiwulu, S. U., Yunus, E. M., Ibrahim, F., & Zuruzi, A. S. (2019). Sustaining Innovation: Creativity among Employees of Small and Medium-Sized Enterprises and Students in Higher Education Institutions in Brunei Darussalam. *Journal of Open Innovation: Technology, Market, and Complexity*, *5*(2), 25. https://doi.org/10.3390/joitmc5020025

Pamungkas, A. R., Nugroho, A., Hartawan, H., & Gupta, S. (2025). Human Resource Management Strategy in Facing the Educational Transformation of the Society Era 5.0 in Islamic Boarding Schools. *Journal of Nonformal Education*, *11*(1), 170–178. https://doi.org/10.15294/jone.v11i1.23842

Pare & Sihotang, H, A. (2023). Pendidikan holistik untuk mengembangkan keterampilan abad 21 dalam menghadapi tantangan era digital. *Jurnal Pendidikan Tambusai*. https://doi.org/10.31004/jptam.v7i3.11268

Permatasari, D. D., & Setyasto, N. (2024). Powtoon Learning Media Containing Local Wisdom Improves Elementary School Social Sciences Learning Outcomes. *Jurnal Edutech Undiksha*, *12*(1), 142–150. https://doi.org/10.23887/jeu.v12i1.71983

Pertiwi, I. S. K., & Lestari, M. T. (2024). Digital literacy analysis: A case study of Telkom Indonesia in exploring its work environment dynamics. *Bricolage : Jurnal Magister Ilmu Komunikasi*, *10*(2), 231. https://doi.org/10.30813/bricolage.v10i2.5321

Petrychenko, O., Petrichenko, I., Burmaka, I., & Vynohradova, A. (2023). Changes in modern university: challenges of today and development trends. *Collection of Scientific Works of the State University of Infrastructure and Technologies Series "Transport Systems and Technologies," 41*, 74–83. https://doi.org/10.32703/2617-9059-2023-41-6

Pongrac, D., Alić, M., & Cafuta, B. (2025). Digital Competences of Digital Natives: Measuring Skills in the Modern Technology Environment. *Informatics*, *12*(1), 23. https://doi.org/10.3390/informatics12010023

Quinlan, K. M., Sellei, G., & Fiorucci, W. (2025). Educationally authentic assessment: reframing authentic assessment in relation to students' meaningful engagement. *Teaching in Higher Education*, *30*(3), 717–734. https://doi.org/10.1080/13562517.2024.2394042

Rabbianty, E. N., Azizah, S., Abadi, M., Virdyna, N. K., & Al-Matari, A. S. (2023). Nurturing Ethical Character in Islamic Colleges through Interactive Technology: Lecturers Perspective. *TADRIS: Jurnal Pendidikan Islam*, *18*(2), 33–52. https://doi.org/10.19105/tjpi.v18i2.10378

Radhiati, R., Rizal, S. U., & Hikmah, N. (2024). Pengembangan modul digital Pendidikan Agama Islam berbasis kearifan lokal Kalimantan. *Jurnal Pendidikan Agama Islam Al-Thariqah*.

Rahmawati & Syawaludin, E, L. (2023). Authentic assessment to develop students' creativity and ethical digital behavior. *International Journal of Educational Research and Innovation*.

Retnowati, R., Istiadi, Y., & Istiana, R. (2019). Effectiveness of Project Learning Model Based on Local Wisdom in Improving Creativity to Develop Environment Learning Media. *Proceedings of the 3rd Asian Education Symposium (AES 2018)*. https://doi.org/10.2991/aes-18.2019.126

Ruhmawati, T., Wahyudin, U., Sardin, S., Setiawan, R., Rizqi, M. A., & Mulyo, G. P. E. (2024).

Community Education through Local Culture Sawer Bridal. *Journal of Ecohumanism*, *3*(7), 3935–3941. https://doi.org/10.62754/joe.v3i7.4514

Saiful, S. (2023). Sistem Pendidikan Islam, Integrasi Ilmu Pengetahuan Agama dan Teknologi Digital. *JIIP - Jurnal Ilmiah Ilmu Pendidikan*, *6*(2), 1100–1107. https://doi.org/10.54371/jiip.v6i2.1659

Saleh, S. P., Cangara, H., Sabreen, S., & AB, S. (2022). Digital Da'wah Transformation: Cultural And Methodological Change Of Islamic Communication In The Current Digital Age. *International Journal of Multidisciplinary Research and Analysis*, *05*(08). https://doi.org/10.47191/ijmra/v5-i8-18

Salinas-Navarro, D. E., Vilalta-Perdomo, E., Michel-Villarreal, R., & Montesinos, L. (2024). Using Generative Artificial Intelligence Tools to Explain and Enhance Experiential Learning for Authentic Assessment. *Education Sciences*, *14*(1), 83. https://doi.org/10.3390/educsci14010083

Salindri, A. F., Zulaeha, I., & Wagiran, W. (2024). Literasi digital berbasis karakter 6C dalam pembelajaran abad 21. *Jurnal Pendidikan Dan Kebudayaan*.

Sari, H. B., Ningsih, N. M. A. P. C., Kristina, N. M. Y., Rismayanti, N. P. I., Thalib, E. F., Meinarni, N. P. S., & Julianti, L. (2024). Digital Ethics and Citizenship Challenges in Cyberspace: An Overview from Perspective Morals and Laws. *NOTARIIL Jurnal Kenotariatan*, *9*(1), 33–39. https://doi.org/10.22225/jn.9.1.2024.33-39

Sarip, M., Ilham, A., Bahtiar, I. R., Hendrawanto, H., Laseduw, S. M. I., & Abdullah, M. (2024). Integrated 6C Skills of the 21st Century with Animation Video Media for Arabic Speaking Material Design. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *10*(1), 183. https://doi.org/10.33394/jk.v10i1.10549

Setyawan, Y. F., Gumilar, A., Apriliani, I., & Bhaskoro, F. (2025). Nexus between Digital Competency Level and Performance Level of State Civil Apparatus. *Journal La Sociale*, *6*(2), 293–308. https://doi.org/10.37899/journal-la-sociale.v6i2.1832

Soriani, A. (2018). From Media Education to Digital Citizenship. Origins, perspectives and policy implementations in the school systems across Europe. *Ricerche Di Pedagogia e Didattica. Journal of Theories and Research in Education*, *V. 13*, 85-122 Paginazione. https://doi.org/10.6092/ISSN.1970-2221/8557

Stufflebeam, D. L. (2003). The CIPP model for evaluation. In *Evaluation models*. Kluwer Academic Publishers.

Sukma A., Nurhayati, Kaharuddin, & Gheisari, A, A. (2022). Development of Authentic Assessment in Local Wisdom-Based Reading Learning. *Education Research International*. https://doi.org/10.1155/2022/4905583

Susilo, M. J., Sulisworo, D., & Beungacha, S. (2023). Technology and Its Impact on Education. *Buletin Edukasi Indonesia*, *2*(02), 47–54. https://doi.org/10.56741/bei.v2i02.285

Syahfitri, J., & Muntahanah, M. (2024). The effectiveness of local wisdom-based interactive digital module on students' critical thinking disposition. *International Journal of Evaluation and Research in Education (IJERE)*, *13*(4), 2170. https://doi.org/10.11591/ijere.v13i4.28256

Syaifudin, A., Krestian Heriawanto, B., Al-Abrori, M. A., & Humairoh, A. (2024). The Influence of Student's Understanding of Information and Technology Law on Shaping Character. *JURNAL USM LAW REVIEW*, *7*(3), 1772–1783. https://doi.org/10.26623/julr.v7i3.10677

Tarsidi, D. Z., Suryadi, K., Budimansyah, D., & Rahmat, R. (2023). Unveiling Utopian Civic Engagement: Empowering Digital Natives through Digital Literacy for a Better Future. *IJRAEL: International Journal of Religion Education and Law*, *2*(2), 115–125. https://doi.org/10.57235/ijrael.v2i2.681

Thapa, D. (2025). Ethics-based ontology in ICT4D. *Information Technology for Development*, *31*(4), 1444–1458. https://doi.org/10.1080/02681102.2025.2498925

Timperley, C., & Schick, K. (2025). Assessment as pedagogy: inviting authenticity through relationality, vulnerability and wonder. *Teaching in Higher Education*, *30*(3), 592–607. https://doi.org/10.1080/13562517.2024.2367662

Tohri, A., Syamsiar, H., Rasyad, A., Hafiz, A., & Rizkah, R. (2023). Relevansi metode

pembelajaran IPS terpadu berbasis kearifan lokal di era masyarakat digital. *Jurnal Teknodik*. https://doi.org/10.32550/teknodik.vi.951

Tondeur, J., Howard, S., Van Zanten, M., Gorissen, P., Van Der Neut, I., Uerz, D., & Kral, M. (2023). The HeDiCom framework: Higher Education teachers' digital competencies for the future. *Educational Technology Research and Development*, *71*(1), 33–53. https://doi.org/10.1007/s11423-023-10193-5

Van Rooyen, C., & Marais, I. E. (2018). A socially just pedagogy in the use of mobile devices in higher education? The case of Humanities first-year students at a South African university. *Scholarship of Teaching and Learning in the South*, *2*(2), 53–70. https://doi.org/10.36615/sotls.v2i2.66

Wang, C.-H., Salisbury-Glennon, J. D., Dai, Y., Lee, S., & Dong, J. (2022). Empowering College Students to Decrease Digital Distraction Through the Use of Self-Regulated Learning Strategies. *Contemporary Educational Technology*, *14*(4), ep388. https://doi.org/10.30935/cedtech/12456

Wang, S. (2024). Problems with Students' Mental Health in the Context of Online Learning. *Transactions on Social Science, Education and Humanities Research*, *5*, 44–48. https://doi.org/10.62051/2r8w5b08

Whewell, E., Caldwell, H., Frydenberg, M., & Andone, D. (2022). Changemakers as digital makers: Connecting and co-creating. *Education and Information Technologies*, *27*(5), 6691–6713. https://doi.org/10.1007/s10639-022-10892-1

Wicaksono & Arifendi, R. F, A. A. (2022). Penerapan literasi digital pada mata kuliah pembelajaran literasi di perguruan tinggi. *Inteligensi: Jurnal Ilmu Pendidikan*. https://doi.org/10.33366/ilg.v6i2.5632

Wiggins, G. (1990). The case for authentic assessment. *Practical Assessment*.

Wijayanti, Y., Warto, W., Wasino, W., & Djono, D. (2025). Enhancing Students' Cultural Identity Through History Education Based on Local Wisdom of Kagaluhan Values. *Educational Process International Journal*, *14*(1). https://doi.org/10.22521/edupij.2025.14.75

Yudhiantara & Martitia, D, R. A. (2023). Literasi Digital Mahasiswa di Perguruan Tinggi Keagamaan Islam Negeri. *Jurnal Perspektif*. https://doi.org/10.15575/jp.v7i2.225

Yulia, N. M., & Suttrisno, S. (2024). Developing Local Wisdom-Based Augmented Reality Modules for Science and Social Studies Learning in Elementary Schools. *AL-ISHLAH: Jurnal Pendidikan*, *16*(4). https://doi.org/10.35445/alishlah.v16i4.5987

Zainuddin, Z., Abidin, Z., Susanti, A., & Muttaqin, M. (2024). Innovation and Adaptation of Islamic Religious Education in Madrasahs in the Context of Society 5.0 Era. *Formosa Journal of Sustainable Research*, *3*(10), 2157–2168. https://doi.org/10.55927/fjsr.v3i10.11999

Zhang & Zeller, N, G. (2020). Program evaluation in higher education. *New Directions for Evaluation*.