



Building Indonesia's Golden Generation 2045: Fostering Financial Literacy and Information Technology Competencies in SMAN 1 Indralaya

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Abstract

Currently digital economy, proficiency in artificial intelligence (AI), digital technologies, and personal finance is essential. This community engagement initiative at SMAN 1 Indralaya integrated AI, digital, and financial literacy training through a four-stage framework: needs assessment, instructional delivery, technical mentoring, and evaluation. The programme significantly improved students' ethical digital awareness, practical use of AI tools for budgeting, and basic financial reporting skills. The spontaneous formation of peer-learning groups indicated a shift toward autonomous, sustainable learning. These outcomes affirm the effectiveness of AI-integrated pedagogies in cultivating future-ready competencies in under-resourced educational settings.

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Abstrak

Saat ini, keahlian dalam ekonomi digital, kecakapan dalam kecerdasan buatan (AI), teknologi digital, dan keuangan pribadi sangatlah penting. Inisiatif keterlibatan masyarakat di SMAN 1 Indralaya mengintegrasikan pelatihan kecakapan AI, digital, dan keuangan melalui kerangka kerja empat tahap: penilaian kebutuhan, penyampaian materi, bimbingan teknis, dan evaluasi. Program ini secara signifikan meningkatkan kesadaran etika digital siswa, penggunaan praktis alat AI untuk perencanaan anggaran, dan keterampilan pelaporan keuangan dasar. Pembentukan kelompok belajar antar teman secara spontan menunjukkan pergeseran menuju pembelajaran mandiri dan berkelanjutan. Hasil ini membuktikan efektivitas pedagogi yang terintegrasi dengan AI dalam mengembangkan kompetensi yang siap menghadapi masa depan di lingkungan pendidikan yang kurang beruntung.

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1. INTRODUCTION

Today's globalized world, digital and financial literacy have become fundamental competencies for navigating the modern economy. According to the Organization for Economic Co-operation and Development, 60% of youth worldwide lack basic financial knowledge needed to make informed decisions, while 44% demonstrate low proficiency in problem-solving using digital technologies. (OECD, 2024). World Economic Forum further highlights that by 2025, digital and financial literacy will be among the top 10 skills required for the workforce. (WEF, 2023). The acceleration of digitalization, driven by the COVID-19 pandemic, has exposed critical gaps in young people's readiness to handle digital platforms and manage financial risks. (Lusardi, 2018). Without adequate training, these deficiencies risk widening global inequalities and limiting socioeconomic mobility. (Kumar et al., 2024).

In the Indonesian context, similar patterns of concern can be observed. The National Digital Literacy Index, published by the Ministry of Communication and Information Technology, recorded an average digital literacy score of 3.54 on a five-point scale, reflecting a moderate yet inadequate proficiency level among the population. (CIPS, 2023). Concurrently, findings from the National Survey on Financial Literacy and Inclusion (SNLIK) conducted by the Financial Services Authority (OJK) indicated a considerable disparity: a financial literacy index of 38.03% and a financial inclusion index of 76.19%. Although still relatively low, these figures represented an increase from the 2016 SNLIK results of 29.7% and 67.8% (OJK, 2020). This discrepancy highlights a critical issue wherein increased access to financial services has not been matched by a corresponding improvement in financial understanding and responsible utilization. (Nepal et al., 2024). Furthermore, digital engagement among high school students tends to be dominated by activities related to social media and entertainment rather than those promoting educational or financial skill development. (Kominfo, 2024).

Several previous studies have examined efforts to improve digital and financial literacy through training programs. Ng et al. (2023) Found that digital literacy workshops improved students' information evaluation skills by 25%, while Suyanto et al. (2025) Showed that financial literacy training among Indonesian youth increased budgeting practices by 18%. Yudhana et al., (2023) Noted significant improvement in high school students' online transaction security awareness after digital literacy sessions. Similarly, Seraji et al. (2025) Revealed that financial literacy modules adapted to digital platforms increased learning retention among teenagers. Hasibuan & Lubis (2024) Reported that digital literacy and learning style training enhanced the critical thinking scores of high school students by 42,5%. Mancone et al. (2024) Argued that collaborative digital-financial workshops had a lasting impact on students' saving behaviors. Pandita & Kiran (2023) Concluded that hybrid (online and offline) training programs are most effective in building sustainable digital and financial literacy skills. These studies consistently underline the effectiveness of targeted training programs but also reveal variations in outcomes based on the method, duration, and integration of digital and financial components.

Despite numerous initiatives, a noticeable research gap persists regarding integrated approaches that concurrently address both digital and financial literacy in a balanced manner. Many prior studies tend to isolate either digital skills or financial knowledge, rarely exploring their synergistic potential. Furthermore, inconsistencies emerge regarding the sustainability of skill

retention post-training. Some studies report immediate improvements but lack evidence of long-term behavioral change. This inconsistency highlights the need for innovative, comprehensive training models that not only impart knowledge but also cultivate critical thinking and responsible behavior in the digital-financial ecosystem.

The current community service program adopts an innovative framework by concurrently developing digital and financial literacy competencies through an integrated training module specifically designed for students at SMAN 1 Indralaya. In an era where financial transactions—from mobile banking to digital investment management—are intrinsically mediated by digital technologies, and increasingly influenced by artificial intelligence (AI) applications, bridging these two literacies becomes essential. The training module strategically connects critical digital skills, such as information validation, cybersecurity awareness, and responsible AI navigation, with foundational financial practices, including budgeting, saving, and risk assessment. This integrated approach aims to equip students with the ability to make well-informed and responsible decisions in a digitally driven financial environment. Moreover, in light of the escalating prevalence of digital fraud, AI-driven scams, and financially irresponsible behaviors among Indonesian youth (OJK, 2022), equipping students with a robust understanding of both literacies, enhanced by AI literacy, is not only advantageous but constitutes an urgent educational priority.

2. METHOD

This training program was held on 4, 12, 16, and 20 October at SMA Negeri 1 Indralaya, Ogan Ilir Regency. The main target of this training is class X and class XI students who get Informatics and Economics subject matter. The trainers for this program were Eogenie Lakilaki, Artamananda, and Muhammad Fajrul Azhim.

Stage 1: Needs Assessment and Mapping

The initial phase involves conducting a comprehensive assessment to identify and map the specific needs of students, particularly related to their current understanding of financial management and digital skills. (Ferrari, 2012). Through surveys, interviews, and focus group discussions, key competency gaps are diagnosed, allowing the training program to be precisely tailored to address the participants' actual requirements. (Harvey, 2018).

Stage 2: Training Implementation on Financial Reporting and Information Technology

Building upon the insights from the needs assessment, the second phase focuses on delivering targeted training sessions. (Jackson et al., 2018). Participants received instruction on the basics and ethics of digital life, the use of AI to help with daily life, as well as simple financial literacy insights. In addition to digital literacy components, such as basic digital design skills for communication and business purposes. The training utilized interactive methods such as seminars, simulations, and case-based learning to increase engagement and retention. (Raza et al., 2020).

Stage 3: Technical Assistance and Field Monitoring

After the training sessions, the third phase consists of on-site technical support and mentoring. Participants are mentored as they apply newly acquired skills to practical tasks, such as coding using AI to compile simple financial reports, as well as using AI to create creative media, application prototype, and more. On-site monitoring ensures that participants can practice independently while

still receiving corrective feedback and guidance, thus reinforcing the learning outcomes (Sun & Yang, 2022).

Stage 4: Program Evaluation

The final phase entails a thorough evaluation of the program's effectiveness. Both formative and summative assessments are conducted to measure improvements in students' digital, artificial intelligence skills and financial literacy competencies. Participant feedback, performance evaluations, and comparison of pre- and post-training results are analyzed to identify successes, challenges, and areas for further improvement in future initiatives.

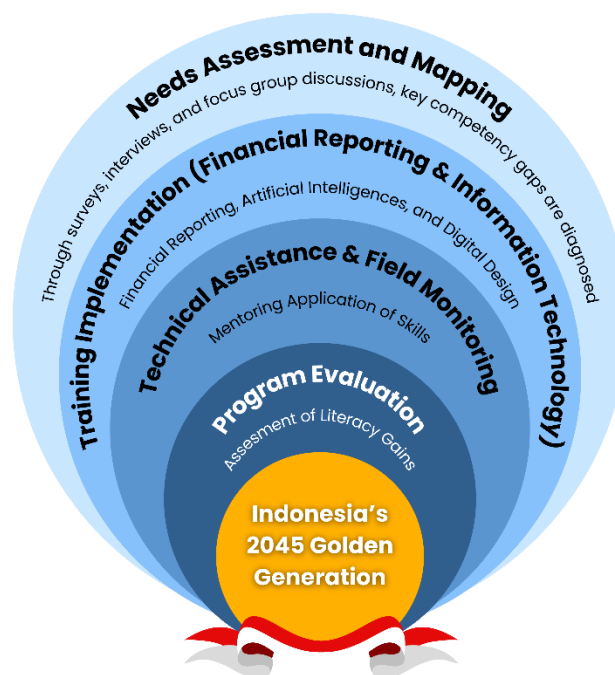


Figure 1. Onion diagram of Research
Source: Research Data, 2025

The onion diagram in Figure 1 above conceptualizes the multi-phased structure of the intervention to enhance AI, digital, and financial literacy among SMAN 1 Indralaya students. Commencing with the outer layer, the needs assessment phase diagnoses existing competencies and contextual gaps to inform a targeted curriculum. The subsequent training implementation phase integrates AI tools with digital and financial modules through interactive and applied learning strategies. Technical assistance and field monitoring form the next layer, providing mentorship and real-time feedback as students apply new skills in authentic contexts. At its core, program evaluation assesses learning outcomes through pre- and post-intervention measures, ensuring continuous refinement and sustainability. This layered model embodies a systematic, needs-driven approach to capacity building in essential 21st-century literacies.

RESULT AND DISCUSSION

The community service program aimed at fostering AI, digital, and financial literacy competencies at SMAN 1 Indralaya was systematically implemented across four key phases,

involving a total of 145 students selected from classes XI-4, X-4, X-5, and X-7. Each phase produced tangible outcomes while offering rich insights into students' learning dynamics and engagement.

Stage 1: Needs Assessment and Mapping



Figure 2. Needs assessment activities and student ability mapping

Source: Research Data, 2025

The first stage, corresponding to the needs assessment and mapping activities illustrated in Figure 2, was designed to systematically diagnose the baseline competencies of the participating students in the domains of digital literacy, financial literacy, and artificial intelligence (AI) awareness. A structured methodology was employed, utilizing a combination of quantitative surveys and qualitative focus group discussions to capture both the breadth and depth of student capabilities and perceptions.

Data collection revealed several critical insights. While a substantial proportion of students—over 90%—demonstrated familiarity with digital platforms such as social media and video streaming services, this familiarity did not translate into functional digital literacy for educational or financial purposes. Approximately 68% of respondents struggled to differentiate fundamental financial concepts, notably between saving, investment, and debt management, indicating a substantial conceptual gap. Furthermore, exposure to AI-based tools was markedly low, with only 12% of students reporting prior interaction with AI applications beyond entertainment contexts.

The atmosphere during this stage was notably dynamic and highly participatory. Students exhibited visible enthusiasm, with many expressing surprise at the potential applications of AI in areas such as academic productivity, financial planning, and entrepreneurial activities. Anecdotal evidence from focus group sessions indicated that students perceived AI primarily through the lens of social media algorithms or entertainment personalization, underscoring the necessity of reframing AI as a practical tool for life management and future career readiness.

The richness of interaction during needs assessment suggested a strong intrinsic motivation among students to engage with content that connects technology to real-world financial empowerment. These findings were critical in informing the design of subsequent training interventions, ensuring that instructional content would be both contextually relevant and cognitively activating.

Stage 2: Training Implementation on Financial Reporting and Digital Design

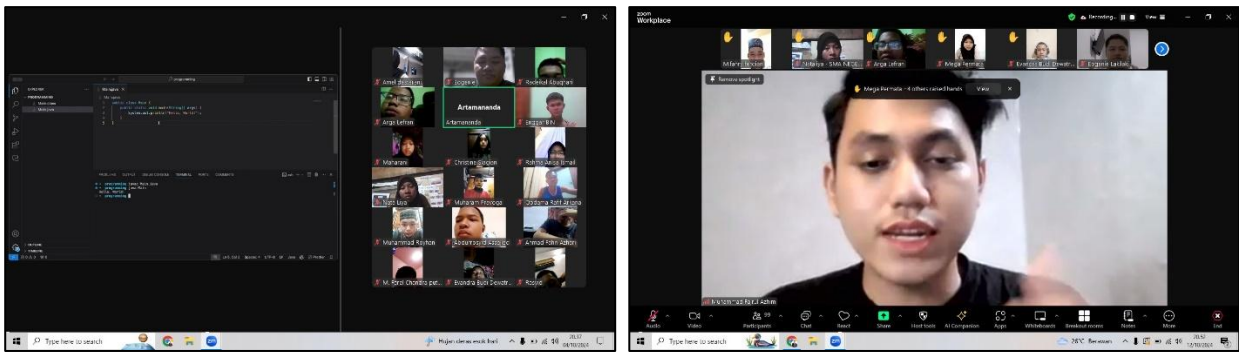


Figure 3. Seminar Session from Artamananda and Muhammad Fajrul Azhim

Source: Research Data, 2025

Building upon the comprehensive findings derived from the needs assessment phase, the second stage focused on the targeted delivery of training sessions facilitated by Artamananda and Muhammad Fajrul Azhim, both of whom are experienced practitioners in the fields of Information Technology (IT) and Artificial Intelligence (AI), as depicted in Figure 3. In addition, Eogenie Lakilaki also teaches students how to prepare simple financial statements. In response to logistical and accessibility considerations, the seminar sessions were conducted virtually using the Zoom platform, ensuring broad participation while maintaining interactive engagement.

The training curriculum was carefully structured to bridge theoretical knowledge with practical application across three core domains: digital ethics, basic financial reporting, and the utilization of AI tools for personal financial management. In the digital ethics component, participants were sensitized to critical issues surrounding data privacy, digital citizenship, and ethical AI usage, topics that had been previously underexplored in students' informal digital experiences.

The financial literacy segment introduced essential concepts such as budgeting, expense monitoring, and the preparation of simple financial reports, adapted to suit the needs and comprehension levels of high school students. Meanwhile, the AI literacy segment emerged as the most transformative experience. Through live demonstrations facilitated via screen sharing and real-time interaction on Zoom, students were introduced to AI-driven platforms that support budgeting automation, financial forecasting, and intelligent financial decision support.

Students displayed high levels of engagement during these live demonstrations, with chat discussions and verbal interactions on Zoom reflecting significant excitement and curiosity. Many students expressed amazement at the realization that AI could function as a personal financial assistant, expanding their prior understanding of AI beyond its entertainment-centric associations. Interactive simulations formed a key component of the sessions, where students, guided virtually, constructed personalized monthly budgets utilizing AI-enhanced spreadsheet applications capable of generating automated financial analysis and suggestions. These exercises fostered not only critical thinking and problem-solving skills but also encouraged active collaboration among participants, facilitated by Zoom's breakout room features.

The overall atmosphere during the virtual training sessions was dynamic and participatory, marked by frequent spontaneous questions, peer collaboration, and reflective discussions on ethical and practical dimensions of technology use. Field observations recorded through session transcripts and interaction logs highlighted the emergence of a nascent learning community, as students

increasingly supported one another in applying digital and AI tools for responsible financial management.

Stage 3: Technical Assistance and Field Monitoring



Figure 4. Students discuss with team members in mentoring and supervision activities

Source: Research Data, 2025

The third stage of the program centered on the practical application of acquired competencies through intensive technical assistance and field mentoring, as illustrated in Figure 4. This stage was critical in translating theoretical understanding into tangible skills, allowing students to engage directly with real-world problem-solving tasks.

Students were guided to undertake a series of project-based assignments designed to reinforce the integration of digital, financial, and AI literacy. Among these tasks, participants developed simple AI-assisted financial reporting templates, applying AI tools to automate basic financial calculations and generate financial summaries. In parallel, students collaborated on designing digital financial awareness campaigns, leveraging creative media to promote concepts such as budgeting, saving, and responsible digital financial behavior among their peers.

A notable observation during this phase was a marked increase in student confidence and autonomy. Field monitoring documented significant improvements in students' initiative-taking behaviors, critical thinking, and technological adaptability. One exemplary case involved a student who independently conceptualized and developed a prototype for a mobile budgeting application using an AI-powered platform. This achievement not only demonstrated technical competence but also illustrated entrepreneurial creativity and a proactive learning mindset.

In addition to financial reporting activities, students also engaged in digital design projects using Figma, a collaborative online platform for interface and application prototyping. Working in self-organized teams, participants conceptualized and created digital prototypes for financial education tools, such as interactive infographics, mock-up applications for tracking personal expenses, and educational campaign posters. The use of Figma enabled students to develop critical collaborative competencies, including peer feedback, iterative design thinking, and collective problem-solving under authentic, technology-mediated conditions.

The learning atmosphere during this phase was characterized by heightened engagement, mutual support, and innovative experimentation. Students frequently formed informal peer groups to troubleshoot technical issues, share design ideas, and refine their outputs, signaling the emergence of a cooperative learning community. Moreover, mentors provided continuous formative feedback, ensuring that students could correct misconceptions and optimize their designs in real time.

Stage 4: Program Evaluation



Figure 5. Students fill out the post-training survey results

Source: Research Data, 2025

The final phase of the program focused on evaluating the overall impact of the training through reflective surveys, observations, and student outputs. Students reported a deeper understanding of digital ethics and demonstrated increased confidence in applying AI tools for everyday financial tasks. Their ability to create AI-assisted reports and design digital prototypes using platforms like Figma reflected both skill acquisition and creative engagement. Mentors observed significant growth in students' initiative, collaboration, and critical thinking. Many students began setting personal goals related to financial responsibility and responsible technology use, indicating the program's success in fostering lasting, real-world competencies.

Throughout the program, the learning environment was characterized by high energy, mutual support, and progressive engagement. The integration of AI into digital and financial literacy topics captured students' imaginations, reshaping their perceptions of technology from entertainment to empowerment. An emergent phenomenon was the spontaneous formation of peer support groups, where students voluntarily mentored each other in applying newly acquired AI tools for personal finance tasks. Such behavior suggests early signs of autonomous, sustainable learning communities—a critical success indicator for long-term educational impact.

Table 1. Questionnaire Result

Question Item	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1	I understand the importance of digital ethics and online data privacy	99	44	2	0	0	145
2	I am now more confident in managing my finances	132	12	1	0	0	145
3	The training helped me apply AI tools in daily life	125	20	0	0	0	145

4	I can create a simple financial report using digital applications	101	24	20	0	0	145
5	I feel motivated to use digital tools for productive purposes, not just entertainment	138	7	0	0	0	145
6	Working with my teammates helped me learn more effectively	88	34	18	5	0	145
7	I can now identify safe and unsafe practices when using AI-based applications	112	29	4	0	0	145
8	The training materials were relevant to my needs as a student in the digital era	132	4	9	0	0	145
9	I am interested in learning more about financial and digital skills after this training	140	5	0	0	0	145
10	This training has encouraged me to set personal goals related to financial responsibility and technology use	126	12	7	0	0	145

Source: Research Data, 2025

The post-training questionnaire results revealed overwhelmingly positive responses across all indicators, indicating that the integrated training on AI, digital, and financial literacy was highly effective in enhancing student competencies. Most participants reported a strong understanding of digital ethics and privacy, as well as confidence in managing their finances. This reflects the success of the program's emphasis on contextual and relatable content, particularly through simulations, AI-assisted tools, and real-life applications delivered during virtual sessions. The fact that nearly all students agreed or strongly agreed that the training helped them apply AI tools in daily life and motivated them to use digital platforms productively suggests that the integration of real-world technologies within the learning process can significantly shift student perceptions and behaviors.

Moreover, the collaborative aspects of the training, such as the use of Figma for team-based prototyping and AI-driven tools for financial reporting, contributed to enhanced teamwork, creativity, and critical thinking. A significant proportion of students acknowledged that working in teams helped them learn more effectively—an important indicator of the program's capacity to foster 21st-century soft skills. The spontaneous formation of peer learning groups and the students' eagerness to continue exploring digital and financial tools post-training further support the conclusion that the intervention successfully triggered autonomous and sustainable learning behaviors. These outcomes validate the theoretical underpinning of the program design, which was informed by constructivist learning theory and transformative pedagogy—approaches that prioritize learner-centered experiences and real-world relevance.

CONCLUSION

This initiative has demonstrated that an integrated, contextually grounded training programme can significantly enhance students' literacies in AI, digital technologies, and personal finance. The observed outcomes—including heightened cognitive engagement, improved technical competencies, and the spontaneous emergence of peer-driven learning ecosystems—highlight the transformative potential of AI-enhanced pedagogy within secondary education. However, several limitations warrant consideration. Firstly, the temporal scope of the intervention constrained the depth of AI-related content delivery, limiting students' exploration to foundational applications. Secondly, the study did not include longitudinal tracking, thus precluding a rigorous assessment of behavioural retention and transferability over time. Future initiatives should aim to embed such programmes within formal curricular structures and extend engagement through sustained, project-based learning formats. Furthermore, institutional collaborations with fintech sectors and AI developers are recommended to provide real-world immersion, fostering not only skill acquisition but also aspirational alignment with emerging digital economies. A more robust evaluative framework encompassing longitudinal studies and comparative controls would further strengthen empirical insight into programme efficacy and scalability.

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