

AI-Enabled Digital Marketing Training for Economic Empowerment in an Orphaned Islamic Boarding School

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Abstract

Purpose: This community service aimed to enhance the economic independence of students and caregivers at Pondok Pesantren Yatim Dhuafa (PPYD) Al Ikhlas (Al Ikhlas Orphaned and Poor Islamic Boarding School) through artificial intelligence (AI)-based digital marketing training. The primary problem was low digital literacy and reliance on conventional marketing methods, which limited product reach.

Method: A participatory action research (PAR) approach was employed. Activities included conceptual training, brand identity workshops, hands-on practice with AI tools (ChatGPT, Canva AI), and joint formulation of a digital marketing roadmap. The program involved 35 participants and was conducted over 4.5 hours.

Practical Applications: The service directly improved participants' digital marketing competencies, optimized four business social media accounts, and increased posting frequency by 475% within two weeks post-intervention. AI integration enabled more efficient and creative promotional content production.

Conclusion: The program succeeded in increasing participants' understanding by 68% (post-test mean score 82.4), forming a Digital Pesantren Team, and strengthening entrepreneurial motivation. A structured three-phase sustainability plan has been developed to maintain long-term impact.



Introduction

The involvement of Islamic boarding schools (*pesantren*) in community empowerment through the economic sector creates a condition in which the role of *pesantren* is not limited solely to serving as a repository of religious knowledge or as an institution engaged only in religious affairs (Rahmansyah, 2023; Rifa'i et al., 2024). Rather, the community economic empowerment generated by the role of *pesantren* affirms that these institutions are capable of becoming independent, self-reliant, and solution-oriented entities (Karyono, 2023). *Pondok Pesantren Yatim Dhuafa (PPYD) Al Ikhlas* (hereinafter referred to as Al Ikhlas Orphaned and Poor Islamic Boarding School) in Singosari, Malang Regency, is one such institution that houses and educates orphaned and impoverished students. To foster economic independence, the boarding school has developed various productive business units managed by teachers (*ustadz/ustadzah*) and students. However, in the digital economy era, the main challenge is no longer production capacity but marketing effectiveness.

Preliminary observations and interviews with the boarding school management revealed that, of the four existing business units, only one had a social media account, with an average posting frequency of 0.4 times per week and fewer than 50 followers. The average monthly revenue per business unit remained below IDR 500,000. Most business managers still relied on conventional marketing methods (word-of-mouth and direct orders). Meanwhile, the development of digital technology has significantly impacted how people communicate, transact, and market products. In this context, digital marketing skills have become an essential competency that needs to be mastered, including among Islamic boarding school students. Unfortunately, many students still lack adequate knowledge and skills in digital marketing, even though they have great potential in developing *pesantren*-based entrepreneurship (Gustiawan et al., 2025). This situation reflects a gap between product potential and available digital marketing capacity.

The implementation of digitalization has been demonstrated to foster digital literacy, professional communication, collaboration, and Islamic work ethics. The success of digital transformation is contingent upon visionary leadership, human resource readiness, industry partnerships, and the internalization of spiritual values within the organizational culture of the *pesantren* (Dimyathi et al., 2025). Based on an initial needs assessment, participants required practical training covering fundamental digital marketing concepts, social media platform management, and introduction to artificial intelligence (AI) tools for efficient content creation.

As a concrete implementation of the *Tri Dharma of Higher Education* (Three Pillars of Higher Education), this community service program was designed to address these issues. The training program, titled *AI-Enabled Digital Marketing Training for Economic Empowerment*, aimed to empower teachers and students at the Al Ikhlas boarding school with practical digital marketing skills. Through a participatory training approach and hands-on practice, this activity sought to improve the visibility and sales of the school's products while instilling a sustainable digital entrepreneurial mindset.

Method

This community service program employed a Participatory Action Research (PAR) approach, which emphasizes active engagement of partners as empowerment subjects. The program was conducted on August 27, 2025, at the Hall of *Pondok Pesantren Yatim Dhuafa (PPYD) Al Ikhlas* (Al Ikhlas Orphaned and Poor Islamic Boarding School) in Singosari, Malang Regency. A total of 35 participants took part in this program, consisting of 28 students and 7 teachers/religious instructors (*ustadz*), selected through voluntary participation based on the following criteria: (a) directly involved in managing one of the boarding school's business units, (b) having personal access to a smartphone, and (c) committing to attend all activity sessions. Representation covered all four business units (bottled water, banana cake and handicrafts).

Activities were divided into three main phases as follows:

Phase 1: Conceptual Training and Branding

In this phase, participants were introduced to fundamental digital marketing concepts, market segmentation, content strategy, and brand identity formation. Methods included interactive lectures enriched with visual case studies and guided discussions. Participants worked in groups to formulate their products' unique value propositions through brainstorming techniques. The output of this phase was a completed *Brand Identity Canvas* worksheet for each business unit.

Phase 2: Technical Workshop and AI Utilization

In this phase, participants received hands-on training in optimizing social media accounts (Instagram and Facebook) into professional business accounts. Subsequently, participants were introduced to free and accessible artificial intelligence tools, including ChatGPT for content ideation and copywriting, Canva Magic Tools for quick graphic design, and AI-based image generators. Live demonstrations and individual mentoring were provided to ensure each participant could operate these tools.

Phase 3: Practice and Roadmap Formulation

The final phase integrated all acquired knowledge through real-scenario simulations. Each group designed a mini digital marketing campaign from content planning to scheduling. Simulation results were presented in a gallery walk format with written peer feedback. Facilitators then guided participants in drafting a joint action plan document that included a shared content calendar, role distribution, and uniform hashtag usage guidelines.

The facilitators were Heru Kustanto, S.E., M.M. (concepts, branding, technical and AI workshop), Yuniar Fitriyani, S.E., M.M. (roadmap preparation), and Pipit Rosita Andarsari, S.E., M.M. (practice evaluation). All sessions lasted 4.5 hours according to a predetermined schedule.

Result

The community service activity was successfully implemented as planned. All 35 participants attended and completed the entire series of activities. The following results were achieved.

Direct Outputs

Based on the activity implementation, tangible outputs were produced:

1. **Trained participants:** 35 students and teachers improved their competencies in AI-based digital marketing.
2. **Optimized business accounts:** Four boarding school Instagram accounts were converted into business accounts with complete profiles, links, and initial content uploaded.
3. **Strategic roadmap:** A three-month digital marketing action plan document was drafted and posted on the boarding school's announcement board.
4. **Formation of a Digital Pesantren Team:** An internal team consisting of two teachers and three senior students was established as the primary driver of digital marketing efforts.

Improvement in Participant Competencies

Participant understanding was evaluated using pre-test and post-test assessments on a 0–100 scale. Results showed that the mean participant score increased from 49.2 (pre-test) to 82.4 (post-test), representing a 68% improvement ($t(34) = 12.7, p < 0.01$). All participants successfully completed practical tasks. One participant, stated: "I just learned that I can create captions using ChatGPT and design a poster in only five minutes. I used to think AI was

complicated and expensive.” A 12th-grade student, added: “Now our business Instagram account looks much more professional, and many friends are asking how to create content like this.”

Short-Term Impact

Monitoring of digital activities during the two-week period after the intervention revealed that the average product posting frequency per account increased from 0.4 times per week to 2.3 times per week, representing a 475% increase. Furthermore, the initial engagement rate (likes, comments, and incoming messages) on the supported accounts averaged 3.8%, and three business units reported an increase in sales turnover (average +15% compared to the previous month), although not yet statistically significant.

Table 1. Summary of Key Indicators Before and After Intervention

Indicator	Before Intervention	After (2 weeks)
Mean participant understanding score	49.2	82.4 (+68%)
Product posting frequency per account	0.4 per week	2.3 per week (+475%)
Number of business accounts with full profile	0 (not optimal)	4 optimized accounts
Digital Pesantren Team formed	None	Formed (5 members)

Source: Author’s Work, 2025.

Figure 1. Atmosphere of the technical workshop on AI utilization for digital marketing.



Source: Private Documentation, 2025.

Discussion

The results indicate that a participatory training approach combining conceptual aspects, technical practice, and AI utilization was effective in improving partners' digital marketing capacity. The 68% increase in understanding scores suggests that the delivered material aligned with participants' initial literacy levels and needs. This finding aligns with the community empowerment principle articulated by Ife (2016) that interventions grounded in local potential and delivered in an applicative manner tend to produce more meaningful

change.

One notable finding was participants' enthusiasm for the introduction of AI technology. Tools such as ChatGPT and Canva Magic Tools were perceived as solutions to the limitations in creativity and time that had previously been major obstacles. The application of AI in digital marketing and digital literacy has a significant positive impact on the competitiveness of SMEs. Greater competitiveness has been shown to support business sustainability. In addition, digital literacy serves as a mediator that enhances the effectiveness of AI-based marketing strategies (Istikomah et al., 2026). In the boarding school context, AI utilization not only improves efficiency but also builds students' confidence to compete in the digital marketplace.

Nevertheless, several challenges were identified. First, there was considerable variation in participants' baseline abilities, ranging from those already active in social media to absolute beginners. To address this, individualized mentoring by the service team and student assistants proved crucial. Second, the risk of declining consistency post-training is a common threat in short-term community service programs. In response, the team designed a three-phase sustainability plan (consolidation, capacity strengthening, and institutionalization) that includes mentoring via instant messaging groups, weekly challenges, and training of internal trainers (ToT). These steps are expected to maintain program sustainability.

Compared to similar community service activities at other boarding schools (Purwanto et al., 2025), the advantage of this program lies in the simplified integration of AI tailored to the boarding school context. Most previous programs focused only on basic social media use without leveraging automation and AI assistance. Thus, this activity can serve as an initial model for replication in other community-based educational institutions.

The application of AI in a pesantren context also raises ethical considerations that require attention. The digital divide may create dependency on technology without critical understanding of data privacy, algorithmic bias, or intellectual property rights of AI-generated content (Akgün & Greenhow, 2022; Holmes et al., 2022). Therefore, the AI introduction session in this activity explicitly addressed the limitations of AI tools (e.g., potential inaccuracies from ChatGPT) and the importance of manual verification. This approach aligns with critical empowerment principles emphasizing that technology should not replace human agency (Ife, 2016). For future activities, a more in-depth digital ethics module tailored to value-based religious education settings is recommended.

Conclusion

The community service program providing AI-enabled digital marketing capacity building at *Pondok Pesantren Yatim Dhuafa (PPYD) Al Ikhlas* (Al Ikhlas Orphaned and Poor Islamic Boarding School) in Singosari, Malang Regency, achieved its stated objectives. The program successfully improved participants' understanding of digital marketing strategies by 68% (from a mean score of 49.2 to 82.4), optimized four business social media accounts, and established a *Digital Pesantren Team* as an internal driving force. Furthermore, product posting frequency increased by 475% within two weeks post-intervention, indicating positive behavioral change.

A limitation of this activity was the relatively short training duration (4.5 hours), which did not allow for measurement of long-term impact on sales turnover. Therefore, sustained tiered mentoring programs are recommended, along with further research on the effectiveness of AI-based mentoring models in boarding school communities on a larger scale. For partners, it is recommended that the Digital Pesantren Team be formally integrated into the boarding school's organizational structure and that the prepared roadmap be implemented consistently. For higher education institutions, the results of this activity can be disseminated as a best practice example of digitally based community economic empowerment.

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