



Training Santri in Inventory Management with Spreadsheet Technology

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ABSTRACT

This community service program was designed to enhance the inventory management skills of santri at Pesantren Assyifa through the use of spreadsheet technology. Many pesantren-based business units still rely on manual inventory methods, leading to inefficiencies, stock errors, and operational delays. To address this issue, a structured training program was conducted involving 25 selected santri actively engaged in the pesantren's economic units. The program consisted of three interactive sessions covering basic inventory concepts, spreadsheet functions, and hands-on design of inventory tracking systems. Using tools like Microsoft Excel and Google Sheets, participants were guided to create real-time stock records, calculate inventory movement, and generate reports. The success of the training was measured through pre- and post-tests, spreadsheet project submissions, and participant feedback surveys. The results showed a 68% average increase in test scores, a 96% project completion rate, and a 4.6/5 satisfaction score. Additionally, 84% of participants applied the system directly within pesantren business units. Feedback from participants indicated high engagement, practical usefulness, and a strong desire for follow-up training. This initiative demonstrated the effectiveness of integrating digital tools into pesantren education, contributing to the development of digitally literate and economically empowered santri.

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INTRODUCTION

In the contemporary era of digital transformation, pesantren (Islamic boarding schools) are gradually shifting from being solely religious institutions to becoming centers for

entrepreneurial and community empowerment. Many *pesantren*, including Pesantren Assyifa, operate small businesses such as cooperatives, minimarkets, or production units to support their financial independence. However, a significant challenge lies in the lack of proper inventory management knowledge and tools among *santri* (students), who are often entrusted with managing these units. Without adequate skills and technological literacy, inventory inefficiencies, such as stock discrepancies, overstocking, and understocking, are common and hinder operational sustainability (Anwar et al., 2021).

Effective inventory management is essential for ensuring the smooth operation of any business unit, especially in *pesantren*-based microenterprises. Traditional manual inventory recording methods, still widely used in many Islamic boarding schools, are time-consuming and prone to human error. In contrast, the integration of simple digital tools such as spreadsheet software (e.g., Microsoft Excel or Google Sheets) offers an accessible and cost-effective solution. These tools can help *santri* streamline the tracking of incoming and outgoing goods, calculate stock valuation, and generate basic reports. According to Fitriyani and Hadi, the use of spreadsheets in small-scale businesses has significantly improved the accuracy of stock data and enhanced decision-making processes (Fitriyani, et.al., 2020).

Given this context, equipping *santri* with basic spreadsheet-based inventory management skills is an urgent step toward building a tech-aware and business-literate generation. Furthermore, such training aligns with the spirit of "*santripreneurship*" promoted by the Ministry of Religious Affairs, which encourages *santri* to become entrepreneurial actors who contribute to national economic development (Kemenag RI, 2020). The ability to manage inventory effectively not only strengthens the operational capacity of *pesantren* businesses but also instills a culture of professionalism and accountability among the students. This training is therefore not merely technical but also a means to internalize discipline and responsibility through technology-enhanced management practices.

The objective of this community service initiative is to provide structured, hands-on training in inventory management using spreadsheet technology, tailored to the specific context and needs of *santri* at Pesantren Assyifa. The program will emphasize practical skills such as creating inventory tables, using formulas for stock calculation, and producing basic inventory reports. By the end of the program, participants are expected to be capable of independently managing and monitoring stock for *pesantren*-based business units with greater efficiency and accuracy. This aligns with the broader goal of empowering *pesantren* as centers of economic and technological growth, bridging the gap between Islamic values and modern management practices (Rakhmawati & Susanti, 2022).

The integration of spreadsheet technology into *santri* education is a strategic response to the dual challenge of limited technical capacity and increasing demands for professionalism in *pesantren* economic activities. It is a timely and essential initiative to prepare *santri* not only as future religious leaders but also as competent economic agents in the digital age.

METHOD

The implementation of this community service program will be carried out through several structured stages, focusing on active learning, contextual application, and measurable outcomes. The methods are designed to suit the educational background and daily routines of the *santri* at Pesantren Assyifa. The following are the detailed stages of implementation:

1. Preliminary Assessment and Coordination

Before the training begins, a needs assessment will be conducted through a short survey and interviews with *pesantren* administrators and selected *santri* involved in *pesantren* business units (e.g., cooperative, canteen, or production division). This aims to identify their current practices in inventory management, existing digital literacy levels, and challenges faced. Coordination meetings with the *pesantren* leadership will also be held to determine the most suitable schedule and venue, ensuring the training integrates well with the *santri*'s daily academic and religious activities.

2. Curriculum Design and Module Development

Based on the assessment results, a practical training module will be developed, emphasizing hands-on activities over theoretical lectures. The curriculum will include topics such as:

- a. Introduction to inventory management
- b. Basic spreadsheet functions (formulas, formatting, sorting, filtering)\
- c. Creating and managing an inventory list
- d. Calculating stock movement (incoming/outgoing)
- e. Simple inventory valuation and reporting

The training module will be delivered in both printed and digital formats for accessibility.

3. Training Sessions

The core of the program consists of three main sessions, each lasting 2–3 hours, conducted over the course of one week:

- a. Session 1: Introduction to Inventory Management and Spreadsheet Basics

Participants will learn the fundamentals of inventory control, types of inventory, and the importance of data accuracy. Basic spreadsheet skills, such as entering data and using simple formulas, will be introduced.

- b. Session 2: Designing a Practical Inventory System in Spreadsheets

Santri will be guided step-by-step to create a dynamic inventory table tailored to their *pesantren*'s business needs. They will learn to record purchases, sales, and calculate available stock automatically using spreadsheet tools.

- c. Session 3: Report Generation and Evaluation

Participants will be trained to generate simple reports, analyze inventory flow, and identify common stock issues. They will also be introduced to collaborative spreadsheet platforms (e.g., Google Sheets) for real-time stock updates if internet access permits.

Each session will be interactive, using live demonstrations, peer learning, and practice exercises. Trainers will provide individual assistance to ensure participants fully understand each step.

4. Post-Training Monitoring and Mentoring

Following the training, a mentoring period of two weeks will be conducted, during which the participants are expected to apply what they learned in their actual inventory duties. Trainers will periodically check their spreadsheet systems, offer feedback, and address any problems that arise. This will be done through scheduled visits or virtual communication, depending on feasibility.

5. Evaluation and Impact Measurement

The effectiveness of the training will be evaluated through:

- a. Pre- and post-training tests to measure knowledge improvement
- b. Observation of *santri*'s ability to implement inventory systems

- c. Interviews with pesantren staff regarding improvements in operational efficiency

A short report summarizing the outcomes and recommendations will be provided to the pesantren leadership.

RESULT AND DISCUSSION

Implementation Details and Results

The community service activity was conducted over a one-week period at Pesantren Assyifa, involving 25 selected santri from various pesantren business units such as the student cooperative and school cafeteria. The training sessions were carried out in three phases, each combining theoretical input and hands-on spreadsheet practice.

The first session introduced the concept of inventory management and basic spreadsheet navigation. Participants learned to input data, use basic functions (SUM, AVERAGE), and format tables. The second session focused on designing a customized inventory table for tracking stock-in and stock-out, using formulas for automatic stock calculation. In the third session, santri were trained to generate simple inventory reports and troubleshoot basic errors in spreadsheet design. All sessions were delivered in an interactive format using a projector, laptops provided by the organizing team, and printed modules. Participants worked in small groups to foster peer learning, and trainers provided one-on-one guidance throughout the practical segments. Real-life case examples from the pesantren's own business operations were used to contextualize the material.

Learning Impact and Results

The success of the training program was measured using both qualitative and quantitative indicators:

Indicator	Target	Outcome
Pre- and post-test scores	Minimum 50% improvement	Achieved 68% average score improvement
Completion of inventory spreadsheet template	100% of participants complete task	24 out of 25 participants completed task
Participant satisfaction (survey scale 1–5)	Average ≥ 4.0	Achieved average score of 4.6
Practical application in pesantren business unit	$\geq 80\%$ apply system after training	21 out of 25 participants applied system

Participants were required to submit their spreadsheet inventory projects at the end of the training. These projects were evaluated based on accuracy, formula usage, and practical usability in the pesantren's daily operations.

Participant Feedback Summary

At the end of the program, a structured feedback survey was distributed to assess participants' satisfaction, perceived usefulness, and suggestions for improvement. The following summarizes key feedback:

Aspect	Feedback Summary
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Relevance of training	Highly relevant to our current responsibilities in the pesantren cooperative.
Ease of understanding	The step-by-step guidance made it easy for us to understand spreadsheet functions.
Confidence to apply knowledge	I now feel confident to manage stock using Excel without relying on manual notes.
Suggestions	We would love to have an advanced session in the future with more complex formulas.

Some santri also expressed appreciation for the real-time mentoring during the post-training phase, stating that it helped them correct mistakes and feel more secure in applying the system independently.

CONCLUSION

The training program successfully enhanced the digital and managerial capabilities of santri in inventory management using spreadsheets. With measurable knowledge improvement, high participant engagement, and the actual application of tools in real pesantren operations, the activity fulfilled its objectives and laid a foundation for further digital literacy programs within the pesantren ecosystem.

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