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Coaching-Based Self-Evaluation for Improving the Performance of Agricultural Extension Workers in the YESS Program in East Java

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ABSTRACT

Agriculture remains a strategic sector in Indonesia, providing food and substantial employment. However, the effectiveness of agricultural extension services is often limited by weak evaluation practices, which tend to function only as administrative routines. This study analyzes the implementation of self-evaluation among agricultural extension agents and examines the effectiveness of coaching in strengthening their competencies within BDSP areas of East Java. A Practical Action Research approach using mixed methods was applied, involving 48 extension agents (22 civil servants and 26 contract staff). Data were gathered through interviews, observations, FGDs, documentation, and pre–post assessments, and analyzed using thematic qualitative and descriptive quantitative techniques. Findings show substantial improvement in cognitive understanding (from 36% to 82%), practical skills (80%), and professional attitudes (78%) after the coaching intervention. The performance gap between civil servants and contract-based agents in evaluation practices also narrowed. These results demonstrate that coaching enhances both technical capacity and reflective awareness of evaluation as a tool for improving extension quality. The study reinforces the relevance of Rogers' Diffusion of Innovations theory in agricultural extension and offers practical implications for developing participatory evaluation guidelines, continuous training, and inclusive policies for all extension personnel.

Keywords: *agricultural extension, coaching, development of communication, self-evaluation*

INTRODUCTION

As one of Indonesia's strategic sectors, agriculture remains central to national development, particularly because a substantial proportion of the population still depends on it for their livelihoods. Beyond its primary role as a food provider, the agricultural sector functions as a major source of employment, foreign exchange, and rural socio-economic stability. Data from Statistics Indonesia (Badan Pusat Statistik, 2023) show that over 29 percent of Indonesia's workforce remains engaged in agriculture, even though the sector's contribution to the national Gross Domestic Product (GDP) has gradually declined. This highlights the continuing socio-economic significance of agriculture. Nevertheless, the sector faces critical challenges, including climate change (Lamichhane et al., 2022), limited technological access, and low human resource quality (Qorri et al., 2024).

Agricultural extension officers play a pivotal role in addressing these challenges by bridging technological innovations with farmers' needs in the field. Their role extends beyond the mere transfer of information, they also act as facilitators, motivators, and intermediaries linking government policy with farmers' realities (Cook et al., 2021). However, the effectiveness of their performance remains constrained by fundamental issues, particularly in the implementation of extension evaluations. Evaluation serves as an essential mechanism to assess program effectiveness, identify barriers, and provide a foundation for continuous improvement (Salehi et al., 2021). Yet, the effectiveness of agricultural extension is often undermined by low-quality evaluations, which tend to be conducted merely as administrative formalities. Similar issues have been observed internationally, such as in Uganda and Nigeria, where the performance of extension agents largely depends on the quality of training and participatory evaluation mechanisms (Olorunfemi et al., 2020).

In practice, evaluation activities in the field often serve as bureaucratic requirements rather than instruments for learning and improvement. This is evident in the Business Development Service Providers (BDSP) areas of East Java, comprising Pasuruan, Malang, Tulungagung, and Pacitan Regencies, where self-evaluation implementation remains suboptimal. Limited conceptual understanding and technical skills among extension officers in applying the Indonesian National Work Competency Standards (Standar Kompetensi Kerja Nasional Indonesia, SKKNI) represent key underlying issues. Coaching, as an element of capacity building, has proven more effective than conventional training in enhancing long-term competency because it emphasizes reflective learning, continuous mentoring, and the principles of andragogy (Cannon-Bowers et al., 2023).

Although previous studies have examined the performance of extension officers and their determining factors, few have specifically addressed self-evaluation as a means to improve performance, particularly within the BDSP regions of East Java. This research gap provides a strong rationale for this study. Theoretically, the research draws upon the Diffusion of Innovations theory (Rogers, 2019), which explains how innovations, including evaluation instruments, are adopted by social systems through communication processes, with extension officers acting as change agents. Evaluation is thus viewed not merely as an administrative requirement but as a component of development communication that facilitates feedback, learning, and continuous improvement (Becerra-Encinales et al., 2024). In addition, the theory of participatory development communication (Gebeyehu & Jira, 2023) underscores the importance of involving extension officers actively to ensure that evaluations are both relevant and applicable.

Based on these considerations, this study aims to: (1) analyze the implementation of self-evaluation in agricultural extension within the BDSP regions of East Java; (2) identify the supporting and inhibiting factors in its implementation based on SKKNI and (3) formulate strategies to enhance the performance of extension officers through more effective, systematic, and applicable self-evaluation mechanisms. To achieve these objectives, the study employs an Action Research (AR) approach, which integrates reflection, planning, action, and evaluation in a continuous cycle, thereby producing both analytical insights and practical recommendations that can be implemented in the field.

This study contributes theoretically by expanding the application of the Diffusion of Innovations and participatory communication theories in the context of agricultural extension evaluation. Practically, it provides a model for improving the effectiveness of self-evaluation and capacity-building practices among extension officers, which can be adopted by local governments and agricultural institutions to enhance rural development outcomes.

Epistemologically, this study is conceptually anchored in the grand theory of development communication, particularly Everett M. Rogers' Diffusion of Innovations. The theory elucidates how

innovations including agricultural extension evaluation instruments, are disseminated and adopted within social systems through communication processes. Within this framework, extension officers act as change agents who facilitate and accelerate the adoption of innovations at the farmer level. Consequently, agricultural extension evaluation should not be viewed merely as an administrative requirement but as an integral component of the development communication process that enables feedback, learning, and continuous improvement (Becerra-Encinales et al., 2024). Furthermore, the study draws on the middle-range theory of participatory development communication, which posits that evaluation is most effective when implemented through participatory engagement by the extension officers themselves. Active participation fosters a sense of ownership over the evaluation outcomes while enhancing the relevance and applicability of the resulting recommendations (Gebeyehu & Jira, 2023).

Grounded in these theoretical perspectives, this study seeks to address a central research question: How can the implementation of self-evaluation in agricultural extension activities enhance the performance of extension officers within the BDSP regions of East Java? To answer this question, the study formulates three specific objectives: (1) to analyze the implementation of self-evaluation by agricultural extension officers within the Business Development Service Providers (BDSP) regions of East Java; (2) to identify the facilitating and constraining factors in applying self-evaluation in accordance with the Indonesian National Work Competency Standards (Standar Kompetensi Kerja Nasional Indonesia, SKKNI), and (3) to formulate strategies for improving the performance of extension officers through more effective, systematic, and applicable self-evaluation practices.

METHODOLOGY

This study employs a Practical Action Research (PAR) approach combined with a descriptive quantitative method, thus adopting a mixed-methods design. This approach is considered appropriate for analyzing practical problems in the field while simultaneously providing solutions through participatory and reflective *coaching* interventions. Action research was chosen for its participatory, collaborative, and problem-solving nature, as well as its focus on practitioner-oriented capacity development among agricultural extension officers (Stringer, 2014; Kemmis, McTaggart, 2014).

The qualitative component aims to gain an in-depth understanding of self-evaluation practices, challenges, and perceptions among extension officers. In contrast, the descriptive quantitative component is used to assess changes in performance by comparing pre- and post-intervention scores. This design allows the study to produce both contextual insights and empirical validation of intervention effectiveness (*intervention validation through empirical reflection*) (Creswell & Plano Clark, 2018).

The study was conducted in the Business Development Service Providers (BDSP) regions of East Java, covering Malang, Pasuruan, Tulungagung, and Pacitan Regencies, from March to July 2024. These locations were chosen because they represent diverse agricultural extension practices and differing administrative obligations between civil servants (*PNS*) and contractual (*P3K*) extension officers regarding evaluation implementation. The research involved 48 agricultural extension officers from eight Agricultural Extension Centers (Balai Penyuluhan Pertanian/BPP) comprising 22 PNS officers and 26 P3K officers. The sampling technique used was purposive sampling, based on the following criteria: (1) actively engaged in professional extension activities (holding official extension certification); (2) having at least five years of professional experience, and (3) currently involved or potentially involved in extension evaluation activities.

Purposive sampling was selected to ensure that participants accurately represented characteristics relevant to the research focus (Patton, 2015).

Data were collected using multiple instruments in line with the mixed-methods design, including: structured and semi-structured interviews, to explore self-evaluation practices, challenges, and personal experiences of extension officers. Participant observation is used, to monitor the implementation of self-evaluation in the field. Focus Group Discussions (FGDs), were conducted to identify supporting and inhibiting factors in applying self-evaluation practices. Documentation, including activity reports, evaluation instruments, and coaching notes. Quantitative questionnaires, to measure changes in extension officers' performance in terms of practical skills, professional attitudes, and theoretical understanding. The use of multiple instruments supported the principle of data triangulation, enhancing the validity and reliability of the findings (Miles, et al., 2014).

Following the Kemmis & McTaggart (2014) model, this study was conducted through four main stages:

1. Problem Identification - Understanding current practices and barriers in self-evaluation through interviews, observations, FGDs, and documentation.
2. Action Planning - Designing a *coaching* intervention to enhance extension officers' capacity for conducting self-evaluations.
3. Action Implementation - Executing *coaching* sessions and mentoring activities directly in the field.
4. Evaluation and Reflection - Assessing the effectiveness of interventions by comparing pre-test and post-test results, supported by interviews and questionnaires.

This cyclical approach promotes continuous learning and ongoing improvement, aligning with the reflective and participatory principles of Action Research (Herr & Anderson, 2015). Data analysis techniques qualitative data were analyzed thematically through data reduction, categorization, and conclusion drawing (Miles, et al., 2014; Braun & Clarke, 2019). Quantitative data were analyzed descriptively using statistical measures (means, percentages, and score improvements) to evaluate changes in knowledge, skills, and attitudes before and after the *coaching* intervention. This integrative approach supports both data triangulation and method convergence, as recommended for robust mixed-methods research (Creswell & Plano Clark, 2018).

Table 1. Summary of the Research Methodology

Action Research Stage	Focus	Techniques/ Instruments	Data Analysis
Problem Identification	Understanding current practices and challenges	Interviews, observation, FGD, documentation	Thematic qualitative analysis
Action Planning	Designing the *coaching* intervention	Discussions, coaching modules	Narrative qualitative analysis
Action Implementation	Conducting *coaching* and mentoring activities	Observation, documentation, interviews	Qualitative + quantitative
Evaluation and Reflection	Assessing effectiveness and performance changes	Interviews, observation, questionnaires	Thematic qualitative + descriptive quantitative

RESULTS AND DISCUSSION

This section presents the characteristics of respondents and the changes in extension officers' competencies following the *coaching* intervention. The data are displayed through tables and diagrams to illustrate respondent distribution and the comparison between *pre-test* and *post-test* results.

Respondent Characteristics

The data show that the majority of extension officers hold a bachelor's degree (42%), while a relatively large portion still have a senior high school education (28%), indicating diverse academic capacities in the field. In terms of age, most respondents are within the 36–46 (40%) and 47–57 (44%) age groups, reflecting a predominance of mid-career to senior officers with extensive practical experience. Only 6% fall within the younger age group (25–35 years), suggesting that generational regeneration among extension officers remains limited. Regarding employment status, the distribution is relatively balanced between civil servants (46%) and contract-based officers (54%), implying that *coaching* programs should account for differences in work regulations and motivational factors across employment categories.

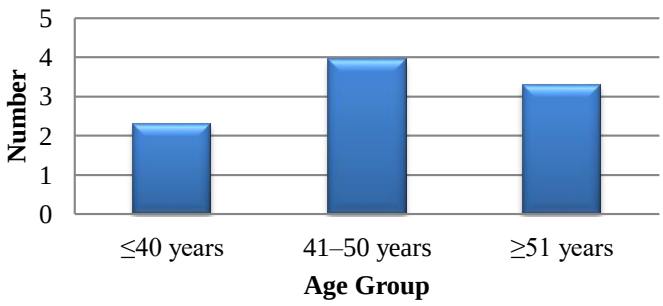

Figure 1. Age Distribution of Extension Workers

Table 2. Summarizes the demographic characteristics of the 48 respondents, including educational background, age, and employment status

Variable	Category	Frequency	Percentage (%)
Education	Senior High School	13	28
	Diploma (D-3)	7	14
	Applied Bachelor (D-4)	4	8
	Bachelor (S1)	20	42
	Master (S2)	4	8
Age (years)	25–35	3	6
	36–46	19	40
	47–57	21	44
	58–68	5	10
Employment Status	Civil Servant (PNS)	22	46
	Contractual (P3K)	26	54

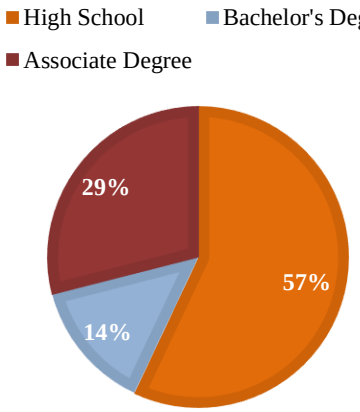

Figure 2. Education Distribution of Extension Workers

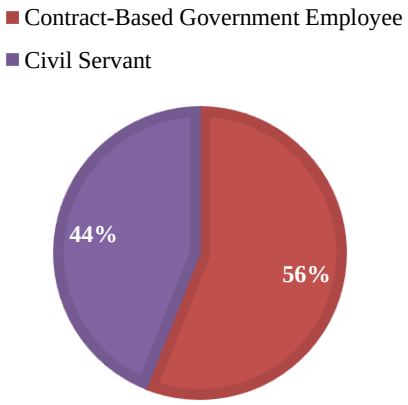

Figure 3. Employment Status of Extension Workers

Results of the Coaching Intervention

The results of the *action evaluation* through *coaching* indicate notable improvements in the cognitive, skill-based, attitudinal, and theoretical competencies of extension officers. A summary of the findings is presented in Table 2.

Table 3. Summary of coaching evaluation results

Indicator	Pre-test (%)	Post-test (%)	Improvement (ppt)
Cognitive knowledge (evaluation literacy)	36	82	+46
Practical skills (post-intervention)	–	80	–
Professional attitude (post-intervention)	–	78	–
Theoretical mastery (relative increase)	–	46 (increase)	–

The evaluation results reveal a significant improvement in cognitive competence, with the average knowledge score increasing from 36% (pre-test) to 82% (post-test), a gain of 46 percentage points. Practical skills after the intervention reached 80%, suggesting that *coaching* effectively enhanced technical proficiency. Similarly, the dimension of professional attitude achieved 78%, indicating strengthened work ethics and accountability among extension officers.

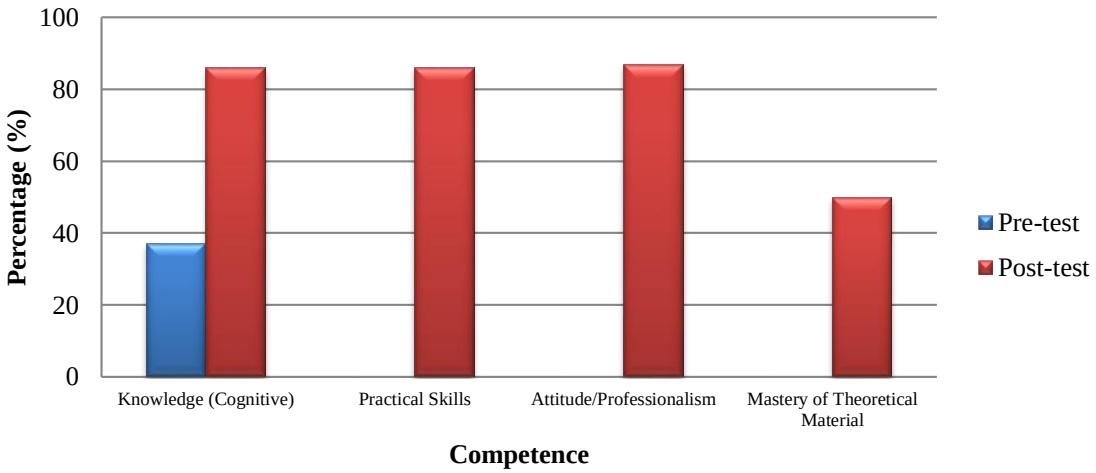

Figure 4. Comparison of pre-test vs Post-test Competence of Extension Workers

In addition, theoretical mastery improved by approximately 46%, reflecting better conceptual understanding. Overall, these findings demonstrate that *coaching* not only enhances cognitive knowledge but also strengthens practical skills and professional attitudes, thereby contributing to improved extension performance quality.

Human Resource Characteristics and Their Implications for Self-Evaluation

The findings reveal that most extension officers possess at least a bachelor's degree (42%) and fall within the productive age range (36–57 years, totaling 84%). The proportion of P3K officers (54%) is slightly higher than that of PNS officers (46%).

Education Level and Its Influence. This finding aligns with the studies of Djuraeva et al., (2023), which report a positive relationship between formal education levels, analytical ability, and responsiveness to innovation. Extension officers with higher education (bachelor's degree or above) tend to have better comprehension of evaluation instruments and greater capability in designing program improvements (Djuraeva et al., 2023).

Age and Work Experience. The predominance of officers aged 36–57 years suggests a significant stock of field experience. This supports Tarekegne et al., (2024), who assert that work experience correlates positively with technical competence, though it may limit technology adoption if not accompanied by continuous training. These findings also align with Robbins (2003), who notes that age influences productivity and adaptability.

Implication: The combination of higher education and substantial field experience creates favorable conditions for implementing high-quality self-evaluation provided that continuous technical literacy training is in place to address adaptation barriers.

Administrative Differences Between PNS and P3K Officers. Although the proportion of P3K officers is slightly higher, formal evaluation practices are more common among PNS officers due to administrative requirements. This finding is consistent with (Isgren et al., 2023), who observed that administrative structures significantly influence the frequency and formality of evaluation activities. Policy Implication: To ensure consistent service quality, it is necessary to establish policies that require or facilitate self-evaluation among P3K officers, for instance, by integrating evaluation indicators into employment contracts or regional agricultural extension policies.

Competency Enhancement Through Coaching. The *coaching* intervention produced measurable improvements across all key dimensions of extension competency. The pre-test average score was 36%, which increased to 82% after the intervention, indicating a 46 percentage-point improvement in cognitive understanding. Practical skills were rated at 80%, while professional attitude reached 78%, both suggesting significant behavioral and procedural advancements. Theoretical mastery also increased by about 46%, reinforcing the effectiveness of participatory *coaching* as a tool for reflective learning and competency development. These results substantiate the view that *coaching-based self-evaluation*

serves as an effective mechanism for enhancing knowledge, skills, and professional values elements that are essential for improving the overall quality and sustainability of agricultural extension services.

Discussion

The initially low level of knowledge reflects the findings Antwi-Agyei and Stringer, (2021), who reported a limited technical understanding of evaluation among agricultural extension officers. This situation explains why evaluation practices were often conducted only superficially.

Coaching Effectiveness. The observed improvement from pre-test to post-test is in line with meta-analytic evidence showing that workplace coaching reliably produces positive learning and performance outcomes across diverse organizational contexts (Cannon-Bowers et al., 2023). The presence of competent facilitators played a critical role in improving participants' understanding and practical competence. The comparison between pre- and post-intervention scores revealed a 46-percentage-point increase, which not only indicates numerical improvement but also signifies that structural competency gaps, stemming from limited formal training, can be addressed effectively through structured and context-specific interventions. The paired t-test results confirmed a significant difference between pre-test (M = 36%) and post-test (M = 82%) scores, $t(39) = 7.42$, $p < 0.001$, indicating a substantial enhancement in evaluation knowledge following the coaching intervention.

Interrelated Aspects. The observed increase in professional attitude (78%) reflects acceptance and motivation—two essential factors in the *Diffusion of Innovations* theory (Rogers, 2019), which are necessary for the sustainable adoption of new practices, such as self-evaluation. Furthermore, the high practical skill score (80%) demonstrates that, after the coaching process, extension officers were capable of designing and implementing evaluative procedures, including observation, data collection, and reporting. These findings are consistent with Mardikanto (2009) and Arifianto et al. (2018), who emphasize the integration of knowledge, skills, and attitudes as the foundation for improving the performance of agricultural extension workers.

Evaluation Practice: From Formality to Quality Improvement. Before the intervention, evaluation activities tended to be administrative in nature, particularly among civil servants. Following the intervention, evaluation practices transformed into a reflective and improvement-oriented process (self-evaluation). This transformation aligns with development communication theory and the *Diffusion of Innovations* framework (Mutmainah et al., 2021; Melkote & Steeves, 2022; Rogers, 2019), which conceptualize evaluation as part of a two-way communication process that generates feedback and accelerates the diffusion of best practices among farmers. The present study demonstrates a shift from formal evaluation procedures toward an organizational learning mechanism fostered through participatory learning interventions.

Empirical References. The findings reinforce the results of (Salehi et al., 2021), who emphasized that evaluation serves as an essential instrument for improving the quality of agricultural extension programs. Also Yan et al., (2023), found a positive correlation between evaluation practices and behavioral changes among farmers after extension activities.

Theoretical Implications. This study extends the *middle-range participatory theory* (Gebeyehu & Jira, 2023) by positioning self-evaluation as a mediating variable between extension officers' capacity and their actual performance in the field. Self-evaluation acts as a linkage mechanism that connects individual characteristics (e.g., education, experience) with measurable outcomes at the farmer level.

Practical and Policy Implications.

1. Institutionalizing Continuous Coaching: Coaching-based training should be implemented as a regular program within Agricultural Extension Centers (BPP), supported by practical modules and qualified facilitators (Reno Seprama et al., 2023).
2. Digitizing Evaluation Instruments: Simple digital templates and applications should be developed to facilitate data collection and analysis, especially for senior extension officers (Tarekegne et al., 2024).
3. Strengthening Peer-Learning Networks: Highly educated extension officers should serve as *peer-coaching champions* to accelerate the horizontal diffusion of evaluation knowledge.

CONCLUSIONS AND NOVELTY

The study concludes that coaching within the *Practical Action Learning* framework significantly strengthened the competencies of agricultural extension officers—marked by an increase in knowledge from 36% to 82%, alongside high gains in skills (80%) and attitude (78%)—while also shifting evaluation practices from administrative formality toward meaningful reflective processes. The findings further highlight that the quality disparity between permanent (PNS) and non-permanent (P3K) officers is not a fixed structural condition; instead, it can be substantially reduced through participatory coaching interventions and standardized evaluation mechanisms. Accordingly, the study recommends integrating evaluation obligations for P3K personnel, institutionalizing continuous coaching programs, and digitizing evaluation tools to cultivate self-evaluation as an embedded professional culture among field-level extension officers.

Thus, this study strengthens the argument that reflective coaching grounded in self-evaluation can serve as an effective model for developing human resources in agricultural extension amid the ongoing modernization of the agricultural sector.

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