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The Effect of Training and Employee Development on Work Effectiveness at PT Sriana Putra Group

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Abstract: The rice milling industry faces competitive challenges that require human resources to work effectively and adaptively. This study aims to examine the effect of training and employee development on work effectiveness at PT Sriana Putra Group. The research employed a quantitative approach with a causal design. The sample consisted of 120 production employees selected using a saturated sampling technique. Data were collected through a Likert-scale questionnaire and analyzed using multiple linear regression. The results indicate that training and development have a positive and significant effect on work effectiveness, both individually and simultaneously. The regression model explains 68% of the variance in work effectiveness, with training and development coefficients of 0.287 and 0.315, respectively. These findings highlight the importance of integrating technical training and career development to improve operational performance. The study contributes to human resource management practices in the rice milling sector and reinforces the concept of competency development as a strategy for enhancing work effectiveness in production systems.

Keyword: Training; Employee Development; Work Effectiveness; Human Resource Management; Rice Milling Industry

INTRODUCTION

The increasingly competitive business environment requires organizations to develop human resources who can work effectively, adapt to change, and maintain competencies aligned with evolving job demands. In the rice milling industry, these pressures are amplified by technology shifts, standardized food quality requirements, and fluctuations in raw material supply. PT Sriana Putra Group, a rice milling company in Indramayu, West Java, operates within this context and must ensure that employees possess adequate technical skills and adaptive capacity to sustain production quality and operational efficiency (Ministry of Agriculture, 2023).

Evidence from the field suggests that many medium and small rice mills in West Java continue to rely on traditional production approaches and lack structured training and development programs, a condition associated with higher error rates, lower machine utilization, and difficulty meeting market quality standards. These symptoms point to a competence readiness gap: work effectiveness issues are not merely technical but reflect the state of human capital within the organization. In sectors dependent on mechanical precision, such as rice milling, work effectiveness becomes a primary determinant of output quality and sustained competitiveness (Armstrong, 2020).

From a human resource management perspective, training and development are two core interventions to address performance and effectiveness gaps. Training aims to update task-relevant knowledge and skills—covering machine operations, safety procedures, and handling techniques—while development builds longer-term capabilities such as problem-solving, adaptability, discipline, and readiness for complexity. The literature consistently emphasizes that outcomes hinge on program design, delivery methods, relevance, and organizational support, rather than on the mere presence of training activities (Noe, 2020; Armstrong, 2020).

Conceptually, **training** can be defined as a planned effort to facilitate the learning of job-related competencies (Noe, 2020). Operationally in a rice milling context, training includes modules on calibrating and maintaining milling machines, quality inspection routines, and occupational safety practices. **Development**, in contrast, refers to activities that prepare employees for future roles and broaden their capacities beyond current tasks—such as mentoring, job rotation, and soft-skill enhancement (Armstrong, 2020). Together, training and development are expected to strengthen technical proficiency and behavioral effectiveness that underpin daily operations (Aziz et al., 2021).

Work effectiveness is the extent to which employees achieve desired job outcomes efficiently and with high quality. It encompasses timely task completion, defect minimization, optimal resource use, and productive teamwork interactions. In production settings, effectiveness is observable through stable throughput, reduced rework, and consistent adherence to quality specifications (Robinson, 2021). When employees receive relevant training and engage in development pathways, their confidence, motivation, and collaborative behaviors tend to improve, which in turn elevates effectiveness (Muninggar, 2022).

Empirical studies generally support positive associations between training, development, and performance outcomes. Research shows that well-designed programs enhance productivity and the quality of work, with some findings highlighting motivation as an intervening mechanism between HR interventions and performance (Aziz et al., 2021; Sinaga, 2021). In related organizational contexts, training and development initiatives have been linked to improvements in financial performance and employee engagement, signaling broader organizational benefits from sustained capability building (Trirahayu, 2023; Yunita & Mon, 2023).

At the same time, effectiveness gains are contingent on alignment: the content of training must match task requirements, and development activities should be embedded in career systems that signal progression and recognition. Programs that overlook needs analysis or ignore transfer-of-training conditions often show muted impact. Hence, needs-based design, supportive supervision, practice opportunities, and feedback loops are critical to realizing effectiveness improvements on the shop floor (Noe, 2020; Sekaran & Bougie, 2016).

Within PT Sriana Putra Group, small changes in production routines—such as adjusting milling parameters or instituting standardized quality checks—can have outsized effects on product consistency. Training that builds accurate mental models of machine behavior,

coupled with development practices that strengthen problem-solving and teamwork, is expected to reduce variability, improve cycle times, and enhance first-pass yield. These pathways reflect how technical competence and behavioral capabilities jointly shape operational outcomes in process-intensive environments (Armstrong, 2020; Robinson, 2021).

Grounded in these theoretical and practical considerations, this study sets out to examine the influence of training and employee development on work effectiveness at PT Sriana Putra Group. The objectives are threefold: (1) to determine whether training affects employee work effectiveness; (2) to assess whether development affects employee work effectiveness; and (3) to test whether training and development simultaneously influence work effectiveness. Addressing these questions contributes to the formulation of targeted and sustainable HR policies aimed at improving operational performance (Muninggar, 2022; Sinaga, 2021).

By integrating theoretical definitions and empirically supported mechanisms directly into the introduction, this paper offers a consolidated rationale for investigating training and development as levers of work effectiveness in rice milling operations. The anticipated contribution lies in specifying context-relevant operational definitions and clarifying causal pathways that link HR interventions to observable effectiveness metrics, thereby informing managerial decisions in similar process industries (Aziz et al., 2021; Trirahayu, 2023).

METHOD

This study adopted a quantitative, causal research design to examine how employee training and development influence work effectiveness in a process-intensive production environment. A quantitative approach enables objective measurement of variables and statistical testing of hypothesized relationships, which is appropriate for assessing cause–effect patterns between HR interventions and operational outcomes (Sekaran & Bougie, 2016). The causal framing reflects the theoretical assumption that planned training and longer-term development activities shape individual capabilities that, in turn, manifest in effectiveness indicators at work (Noe, 2020; Armstrong, 2020).

The research was conducted onsite at PT Sriana Putra Group's rice-milling facility in Indramayu, West Java. Collecting data in the natural work setting ensured that respondents interpreted questionnaire items with direct reference to their daily tasks, equipment, and workflow constraints. Data collection took place over a two-week window aligned with the company's training cycle, allowing adequate time for distribution, completion, and retrieval while minimizing disruption to production shifts. Onsite administration was chosen to maximize response rates and reduce context-misinterpretation common in remote surveys (Sekaran & Bougie, 2016).

The population comprised all employees directly engaged in production activities at PT Sriana Putra Group. Given the manageable population size and the intention to capture the full operational picture, the study employed saturated sampling—including all eligible production employees as respondents. A total of 120 employees participated, providing comprehensive coverage of the site's production workforce. Saturated sampling enhances internal validity by reducing sampling error within the studied operational unit, although external generalization should be bounded to similar rice-milling contexts (Sekaran & Bougie, 2016).

The principal instrument was a structured questionnaire developed from established human resource management literature. Items for the training construct focused on content relevance to job tasks, quality of delivery, methods used (e.g., demonstrations, hands-on practice), and frequency/duration; employee development items covered career opportunities, mentoring/coaching availability, job rotation, and soft-skill enhancement; work effectiveness items assessed task quality, timeliness, resource efficiency, and teamwork collaboration. All

items used a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), balancing respondent ease with sufficient scale sensitivity for variance detection (Noe, 2020; Armstrong, 2020; Robinson, 2021).

Operational definitions anchored measurement to theory and the plant's work processes. Training was defined as a planned effort to facilitate learning of job-related competencies for current tasks, such as machine calibration, safety procedures, and standardized quality checks (Noe, 2020). Development referred to activities preparing employees for future roles and broader responsibilities, including mentoring, cross-functional rotation, and communication/problem-solving skill building (Armstrong, 2020). Work effectiveness denoted the degree to which employees achieve desired job outcomes efficiently and with high quality—observable through defect minimization, cycle-time adherence, stable throughput, and collaborative team interactions (Robinson, 2021).

Instrument quality was ensured through content validation and pilot testing. The draft questionnaire was reviewed by HR practitioners familiar with rice-milling operations to confirm relevance, clarity, and coverage of each construct. A pilot test with a small subset of production employees evaluated item comprehension and response consistency, informing minor wording refinements. Reliability was assessed using Cronbach's alpha, targeting a minimum internal consistency threshold of 0.70 for each construct, which is widely accepted in organizational survey research (Sekaran & Bougie, 2016).

Data collection procedures followed standardized steps to protect respondent comfort and data integrity. Questionnaires were distributed during work hours with concise instructions and assurances of confidentiality and anonymity. Respondents returned completed forms within the two-week period to designated drop boxes near supervisory offices. Prior to analysis, the dataset underwent screening for completeness and consistency; incomplete or patterned responses indicative of straight-lining were excluded. Where appropriate, descriptive checks validated expected response ranges and identified outliers for review (Sekaran & Bougie, 2016).

Analytical techniques were implemented using SPSS. Descriptive statistics summarized respondent demographics and central tendencies for each construct. To validate the suitability of regression analysis, classical assumption tests were conducted: normality (Kolmogorov–Smirnov), multicollinearity (Variance Inflation Factor and tolerance), heteroskedasticity (Glejser test), and autocorrelation (Durbin–Watson). Meeting these assumptions supports unbiased coefficient estimation and valid inference regarding relationships among variables in the model (Sekaran & Bougie, 2016).

The main inferential method was multiple linear regression, specified to test both partial and simultaneous effects of training and development on work effectiveness. The model took the form:

$$Y=\beta 0+\beta 1X1+\beta 2X2+\varepsilon Y$$

Where:

Y : work effectiveness
X1 : training
X2 : employee development.

Coefficient significance was evaluated at $\alpha=0.05$, with interpretation focusing on effect direction, magnitude, and practical implications for operations. Model diagnostics and goodness-of-fit indicators complemented hypothesis tests to provide a rounded view of explanatory power and robustness (Sekaran & Bougie, 2016).

Ethical safeguards were integrated throughout the research. Participation was voluntary, with informed consent communicated in plain language; no personally identifiable information was collected, and data were stored securely with access limited to the research team. The study design posed minimal risk and aligned with standard HR survey practices in

industrial settings. Finally, methodological limitations were acknowledged: the cross-sectional design limits claims about long-term causality, and self-report measures may be subject to social desirability or common-method bias. These constraints were mitigated through clear instructions, anonymity, and triangulation with plant-level operational context, while leaving room for future longitudinal or mixed-methods follow-ups (Sekaran & Bougie, 2016; Armstrong, 2020).

RESULT AND DISCUSSION

Results

The study involved 120 respondents from PT Sriana Putra Group, all directly engaged in production activities. Table 1 summarizes the demographic characteristics of respondents, including age, gender, education level, and tenure. The largest age group was 25–35 years (33.3%), the workforce was predominantly male (62.5%), most held a bachelor's degree (41.7%), and the most common tenure was 1–3 years (37.5%), indicating a relatively young and moderately experienced production cohort.

Table 1. Demographic Profile of Respondents

Characteristic	Category	Percentage (%)
Age	25–35 years	33.3
Gender	Male	62.5
Education	Bachelor's	41.7
Tenure	1–3 years	37.5

Descriptive analysis of the main variables showed high mean scores. Training averaged 4.20, employee development 4.17, and work effectiveness 4.29, reflecting broadly positive perceptions of HR practices and self-assessed performance. Assumption checks supported regression analysis: normality (Kolmogorov–Smirnov $p > 0.05$), no multicollinearity (VIF: training 1.524; development 1.476), no heteroskedasticity (Glejser $p > 0.05$), and no autocorrelation (Durbin-Watson ≈ 2.03).

Multiple linear regression yielded the model:

$$Y=0.358+0.287X1+0.315X2$$

where Y denotes work effectiveness, X1 training, and X2 employee development. Both predictors were positive and significant ($p<0.001$), indicating that increases in training and development scores are associated with higher work effectiveness.

Discussion

First, the significant and positive effect of training on work effectiveness ($\beta1=0.287$) corroborates the competency-based view that job-aligned training upgrades task-relevant knowledge and skills, thereby reducing production errors and improving cycle-time adherence (Noe, 2020; Muninggar, 2022). In rice milling, hands-on modules on machine calibration, safety, and standardized quality checks translate directly into fewer defects and smoother throughput, validating the premise that well-targeted training facilitates immediate performance gains in precision-dependent operations (Armstrong, 2020; Robinson, 2021).

Second, the positive and significant coefficient for employee development ($\beta2=0.315$) highlights the longer-term pathway through which mentoring, job rotation, and soft-skill enhancement foster adaptability, problem-solving, and teamwork—capabilities essential for navigating variability in raw material quality and equipment conditions (Armstrong, 2020; Aziz et al., 2021). Development initiatives signal career progression and organizational support, which elevate motivation and engagement; these psychological outcomes often mediate the link between HR practices and effectiveness, strengthening sustained performance in dynamic production contexts (Sinaga, 2021; Robinson, 2021).

Third, the simultaneous influence of training and development underscores their complementarity: training satisfies immediate technical needs, while development builds resilience for future requirements. This dual mechanism is well suited to industries undergoing incremental technological adjustments, such as milling parameter updates or the adoption of improved inspection routines, where short-term skill acquisition must be backed by long-term capability growth to maintain consistency and quality over time (Noe, 2020; Armstrong, 2020).

Fourth, instrument and model diagnostics bolster the credibility of these findings. The absence of multicollinearity indicates that training and development capture distinct yet related aspects of HR interventions, enabling clear interpretation of partial effects. Normal residual behavior and stable variance further support unbiased estimation, suggesting that the observed relationships are not artifacts of data irregularities but reflect genuine operational dynamics at the plant (Sekaran & Bougie, 2016; Robinson, 2021).

Fifth, the practical implications for PT Sriana Putra Group involve configuring integrated HR programs. Training should be modular, job-task specific, and reinforced through on-the-job practice and supervisor feedback to enhance transfer of learning. Development should incorporate mentoring pathways, cross-functional rotations, and continuous soft-skill cultivation to strengthen communication and collaborative problem-solving—capabilities that stabilize workflow and reduce rework (Noe, 2020; Armstrong, 2020).

Sixth, aligning HR interventions with needs analysis and transfer conditions is essential. Programs that are not tailored to plant realities—equipment types, typical failure modes, and common quality issues—risk muted impact. Clear performance metrics (e.g., first-pass yield, defect rate, cycle time) and feedback loops help calibrate content relevance and instructional methods, thereby enhancing the durability of effectiveness gains on the shop floor (Noe, 2020; Sekaran & Bougie, 2016).

Seventh, the study's limitations should be acknowledged. The cross-sectional design constrains causal claims over time, and reliance on self-report measures may introduce common-method bias or social desirability. Mitigations included anonymity, expert content validation, and assumption testing, yet future research could adopt longitudinal tracking or mixed methods—combining surveys with observational data and production KPIs—to triangulate effectiveness changes following specific training and development cycles (Sekaran & Bougie, 2016; Robinson, 2021).

Eighth, situating the findings in broader HRM theory, the results align with the human capital and ability–motivation–opportunity (AMO) frameworks: training builds "ability," development strengthens "motivation" through career support and "opportunity" via role expansion, jointly improving effectiveness. For process industries like rice milling, this integrated HR architecture offers a credible route to sustained operational excellence, reinforcing prior evidence that well-designed training and development contribute meaningfully to both individual performance and organizational outcomes (Aziz et al., 2021; Trirahayu, 2023).

CONCLUSION

This study set out to examine whether training and employee development influence work effectiveness at PT Sriana Putra Group and to assess their simultaneous effects. Based on the analysis of 120 production employees, both training and development demonstrated positive and statistically significant relationships with work effectiveness, and the multiple-regression model confirmed that their combined contribution explains a substantial portion of the variance in effectiveness. These findings directly answer the research objectives: training improves job-aligned competencies that reduce errors and stabilize

throughput, development strengthens longer-term capabilities—such as adaptability, problem-solving, and teamwork—that sustain performance under varying operational conditions, and together they act in a complementary manner to elevate effectiveness in a process-intensive environment.

Beyond addressing the research questions, the study adds practical and scholarly value to industrial engineering and operations management. At the plant level, the results substantiate the efficacy of integrating technical training with structured development pathways as a feasible intervention to improve first-pass yield, cycle-time adherence, and defect minimization—key indicators of effectiveness in milling operations. Conceptually, the findings reinforce capability-building perspectives in industrial systems by showing how targeted human-resource mechanisms translate into measurable operational outcomes, offering a replicable approach for similar process industries. The evidence supports the adoption of needs-based training content, on-the-job reinforcement, mentoring, and rotation programs as part of a continuous improvement architecture in production settings, thereby contributing to the broader science of designing human-centered, reliable, and efficient work systems.

While these conclusions are grounded in the observed data and model diagnostics, they remain bounded by the study's cross-sectional design and reliance on self-reported measures. Future work can extend this contribution by tracking longitudinal changes in effectiveness following specific training and development cycles and by triangulating survey responses with plant performance indicators. Within these boundaries, the current study provides a clear, evidence-supported answer to the research formulation and demonstrates tangible improvements relevant to industrial engineering practice and organizational performance.

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