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An Analysis of the Effect of Training and Career Development on Employee Productivity

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ABSTRACT

Employee productivity is a key determinant of organizational competitiveness, yet evidence on how training and career development contribute to it remains inconsistent. This study aims to analyze the effect of training and career development on employee productivity using a literature review method. Sources were identified from academic databases for the period 2019 to 2025, screened against inclusion criteria, and synthesized through thematic content analysis. The findings indicate that training is generally positively related to productivity, although its effect depends on the transfer of learning and the context in which it is applied. Career development shows a more consistent positive relationship, operating through perceived organizational support and organizational attachment. When combined, the two practices are associated with higher productivity, partly through job satisfaction and organizational commitment. These results suggest that organizations should integrate training programs with clear career pathways. Future research should further test these relationships empirically using objective productivity measures.

INTRODUCTION

In the contemporary business environment, organizations compete less on capital and technology than on the quality of their people. Rapid digitalization, automation, and the growing use of artificial intelligence continuously change the skills required in the workplace. The World Economic Forum (2023) reports that employers expect a substantial share of workers' core skills to be disrupted within five years, and that a majority of the workforce will need additional training in the same period. Under these conditions, employee productivity, the output an employee generates relative to the resources and time invested, is a central determinant of whether an organization can sustain its performance and competitiveness.

Human capital theory offers a classic explanation of this relationship. Becker (1964) argued that expenditure on education and training is an investment that raises workers' knowledge and skills and, in turn, their productivity. Noe (2020) defines training as a planned effort by an organization to facilitate employees' learning of job-related competencies, while Armstrong and Taylor (2020) emphasize that training and development form a core part of human resource management because they close the gap between current and required performance. Empirical reviews support this view. Aguinis and Kraiger (2009) concluded that training and development benefit individuals and teams, organizations, and society, and Tharenou et al. (2007) found that training is associated with improved organizational-level outcomes, including productivity.

Recent studies continue to report positive associations. Sija (2024) examined manufacturing enterprises and found that training and development correlated positively and significantly with employee productivity and overall performance ($r = 0.679$, $p < 0.001$). A broader body of recent research likewise indicates that continuous learning, upskilling, and professional development improve individual performance, innovation, and job proficiency (Yáñez-Araque et al., 2023). Training is therefore widely regarded as a strategic investment rather than a cost.

Training alone, however, does not determine whether employees stay productive over the long term. Career development, the set of activities through which employees plan their growth paths and organizations provide opportunities for promotion, rotation, mentoring, and skill advancement, complements training by giving employees a clear sense of direction and a reason to apply what they have learned. Greenhaus et al. (2019) describe career management as a process in which individuals and organizations jointly shape the individual's progress, and a clear career path tends to increase motivation, commitment, and engagement. When employees receive training but see no prospect of advancement, the value of the training may not fully translate into productivity. When career development opportunities exist without adequate skill-building, employees may lack the competencies to take advantage of them. This interdependence is why training and career development are often studied together.

Despite the strong theoretical foundation, the empirical evidence is not uniform. Mardiyana and Hidayat (2023), studying village officials, found that job training did not affect productivity directly, whereas career development did, and that job training and career development together influenced job satisfaction. These mixed results suggest that the effect of training and career development on productivity depends on the context, the type of organization, the quality and relevance of the programs, and the characteristics of the employees. Differences in how studies measure productivity, which is sometimes proxied by self-reported performance, may further explain the inconsistent findings. Such variation leaves a practical question unanswered: to what extent does each of the two practices, and the two combined, contribute to productivity in a specific organizational setting?

The problem is also practical. Many organizations invest considerable budgets in training yet struggle to demonstrate returns. Common weaknesses include programs that are

not aligned with job requirements or strategic goals, training that is not followed by clear career opportunities, limited transfer of learned skills to daily tasks, and the absence of systematic evaluation. Employees who perceive their development as neglected tend to show lower motivation and a higher intention to leave, which raises turnover and recruitment costs and weakens productivity further. Managers therefore need empirical evidence on whether, and how much, training and career development actually improve productivity so that scarce resources are allocated effectively.

In the Indonesian context, improving the quality of human resources and labor productivity remains an ongoing national and organizational concern, particularly as companies adapt to digital transformation and intensifying regional competition. Local organizations, whether in the private sector, state-owned enterprises, or public institutions, often face limited training budgets and uneven career management systems. Studies conducted in the setting of this research are still relatively few, and many existing findings come from other sectors or countries whose labor markets and organizational cultures differ. Evidence from the specific object of this study is therefore needed so that conclusions rest on local conditions rather than being assumed from studies elsewhere.

Based on the above, the present study aims to analyze the effect of training and career development on employee productivity. By testing both variables partially and simultaneously, the study seeks to clarify which factor contributes more and whether their combination is stronger than either alone. Theoretically, it contributes to the human resource management literature by adding empirical evidence on human capital theory in a specific context. Practically, it provides management with a basis for designing training programs and career development systems that are better targeted and more likely to raise productivity

METHOD

This study employs a literature review as its research method. A literature review is a research methodology that collects, evaluates, and synthesizes existing research on a specific topic in order to build an integrated understanding, identify patterns and inconsistencies, and reveal gaps for future research (Snyder, 2019). This approach is appropriate because the study aims to analyze the effect of training and career development on employee productivity as reported in prior empirical work, particularly in light of the mixed findings discussed in the background. The review follows a systematic and transparent procedure, adapting the principles of evidence-based review proposed by Tranfield et al. (2003) and the reporting guidelines of the PRISMA 2020 statement (Page et al., 2021), so that the process of selecting and analyzing sources can be traced and replicated.

The data of this study are secondary data in the form of published scholarly articles. Sources are identified through searches in reputable academic databases, namely Google Scholar, Scopus, ScienceDirect, Emerald Insight, and Garuda, which covers Indonesian national journals. The search uses combinations of keywords connected with Boolean

operators, such as "training," "career development," "employee productivity," "employee performance," and "human capital." Following the recommendation of Webster and Watson (2002), the search is complemented by a backward and forward citation check of key articles so that relevant studies not captured by the keyword search are not overlooked. The search is limited to the most recent period, 2019 to 2025, to ensure that the review reflects current evidence, while foundational theoretical works are retained as the conceptual basis.

Articles are selected through several stages: identification, screening, eligibility assessment, and final inclusion (Page et al., 2021). The inclusion criteria are that an article (a) is published in a peer-reviewed journal in English or Indonesian, (b) examines training, career development, or both in relation to employee productivity or closely related performance outcomes, (c) uses an explicit empirical method, and (d) is available in full text. Articles are excluded if they are duplicates, opinion pieces, or unpublished manuscripts, or if they do not address the relationship between the variables under study. The methodological quality and relevance of each included article are then appraised, considering the clarity of the research design, the adequacy of the sample, and the soundness of the analysis, in line with the guidance of Xiao and Watson (2019).

Data from the selected articles are extracted into a matrix that records the author and year, research context, sample, measurement of variables, analytical technique, and main findings. The extracted data are analyzed using thematic content analysis, which involves familiarizing with the data, coding relevant findings, grouping codes into themes, and reviewing the themes against the research objectives (Braun & Clarke, 2006). The synthesis compares the direction and strength of the effects across studies, explains inconsistencies by examining differences in context and measurement, and organizes the results around the study's two independent variables and its dependent variable (Paul & Criado, 2020). The conclusions drawn from this synthesis form the basis for answering the research question and for proposing directions for future empirical research.

RESULTS AND DISCUSSION

Results

The synthesis draws on studies from several settings, including hospitality, manufacturing, public administration, and cross-industry meta-analytic evidence. The findings are organized around the three variables of the study: the relationship between training and employee productivity, the relationship between career development and employee productivity, and the joint effect of both practices together with the mechanisms that connect them.

Training and employee productivity

Most of the reviewed studies report a positive association between training and productivity-related outcomes. In a study of manufacturing enterprises, Sija (2024) found a significant positive correlation ($r = 0.679$, $p < 0.001$) between training and development and

employees' productivity and overall performance. In the hotel sector, Hosen et al. (2024) reported that training and development fostered work performance among hotel personnel. Earlier syntheses point in the same direction: Aguinis and Kraiger (2009) concluded that training yields benefits for individuals, teams, and organizations, and Tharenou et al. (2007) found that training is positively associated with organizational-level outcomes. Arthur et al. (2003), in a meta-analysis, further showed that the size of training effects depends on design and evaluation features such as the delivery method and the criteria used to measure effectiveness.

Not every study supports a direct effect, however. Mardiyana and Hidayat (2023), in a study of village officials, found that job training had no effect on productivity, although career development did affect productivity. This divergence is the inconsistency that motivated the present review, and it is taken up in the Discussion. At the level of the broader literature, an editorial in Frontiers in Psychology observes that training contributes to organizational effectiveness through the transfer of training (Yáñez-Araque et al., 2023), which implies that the benefit of training depends on whether learning is actually applied on the job.

Career development and employee productivity

Evidence for career development is more consistent. In a meta-analysis of more than 1,000 articles, Ng et al. (2024) found that employer-sponsored career development practices are related to job performance and to lower turnover, through perceived organizational support and organizational attachment. The relationship was stronger when the practices signaled greater care, namely when they were available rather than merely used, institutionally embedded rather than relational, and career-focused rather than job-focused. At the single-study level, Hosen et al. (2024) likewise found that career development enhances work performance. The only reviewed study reporting a clear effect of career development on productivity alongside a null training effect was Mardiyana and Hidayat (2023), which suggests that, in some settings, career development may be the stronger of the two drivers.

Joint effect and mediating mechanisms

Several studies examine both practices at once. Mardiyana and Hidayat (2023) reported that job training, career development, and job satisfaction together influenced productivity, and that training and career development together influenced job satisfaction. Evidence on mechanisms points to attitudinal mediators. Hosen et al. (2024) found that organizational commitment mediated the link between training and development, career development, and work performance. Ng et al. (2024) identify perceived organizational support and organizational attachment as the mediating mechanisms for career development practices. Taken together, the reviewed evidence indicates that training and career development tend to improve productivity partly by strengthening employees' satisfaction, commitment, and attachment to the organization, not only by raising skills.

Summary of findings

Across the reviewed literature, three patterns emerge. First, training is generally positively related to productivity, but the effect is not universal and appears conditional on how well learning is transferred and how productivity is measured. Second, career development shows a more consistent positive relationship with performance and productivity. Third, when the two practices are examined together, they jointly relate to productivity, often through satisfaction and commitment as intervening variables.

Discussion

Training and productivity (H1)

The predominantly positive findings on training are consistent with human capital theory, which holds that spending on training raises the knowledge and skills embodied in workers and therefore their output (Becker, 1964; Noe, 2020). H1, that training has a positive and significant effect on employee productivity, is therefore largely supported by the reviewed evidence. The conditional nature of the effect is nonetheless important. Blume et al. (2010) showed in a meta-analysis that transfer of training depends on trainee characteristics, program design, and the work environment, so a program can produce learning without producing better performance if employees cannot or are not motivated to apply what they learned. The four-level evaluation framework of Kirkpatrick and Kirkpatrick (2006) expresses the same logic: reaction and learning do not guarantee changes in behavior and results.

This reasoning offers a plausible explanation for the null training effect reported by Mardiyana and Hidayat (2023). In public-sector settings with limited incentives to apply new skills, or where training content is poorly matched to tasks, training may not translate into measurable productivity. Differences in measurement may also contribute: studies that use self-reported performance as a proxy for productivity can yield different results from studies that measure output directly, a point that underlines why the review treats productivity and performance outcomes with caution. Context therefore matters, and the inconsistency in the literature is better read as evidence of boundary conditions than as evidence that training is ineffective.

Career development and productivity (H2)

The more consistent evidence for career development supports H2. Greenhaus et al. (2019) describe career management as a joint process in which organizations provide opportunities and resources while individuals pursue their own growth, and clear advancement prospects give employees a reason to invest effort in their work. The meta-analytic findings of Ng et al. (2024) add a social exchange explanation: when organizations offer career development, employees perceive that the organization cares about them, and they reciprocate through stronger attachment and better performance. The moderating results are practically important, since practices that are genuinely available, embedded in institutional systems, and focused on the employee's career send a stronger signal of support than informal or job-specific

measures. This also helps explain why the effect of training can be weaker than that of career development in some settings: training that is not connected to a visible career path may be perceived as a task requirement, whereas career development communicates long-term investment.

Joint effect and mechanisms (H3)

The evidence on joint effects supports H3, that training and career development simultaneously influence employee productivity. Armstrong and Taylor (2020) argue that human resource practices work best when they reinforce one another, and the reviewed studies are consistent with this view. Training builds the ability to perform, while career development sustains the motivation to apply that ability. The mediation results of Hosen et al. (2024) and Ng et al. (2024) refine this picture by showing that commitment, satisfaction, and perceived support are the channels through which both practices operate. This suggests that the combined effect is not simply additive; each practice strengthens the psychological conditions that allow the other to work. Employees who receive training and also see a credible path for advancement are likely to be both more capable and more willing to perform.

Implications

For managers, the synthesis suggests that training budgets should be accompanied by career development mechanisms, such as defined promotion criteria, mentoring, and job rotation, so that new skills are used and rewarded. Programs should also be aligned with job requirements and evaluated beyond participant satisfaction, in line with the four-level framework, so that the contribution of training to productivity can be demonstrated. For organizations in the Indonesian context, where training budgets are often limited, the evidence suggests that investing in clear career pathways may be a cost-effective complement to formal training. For researchers, the findings show that productivity should be measured as consistently and objectively as possible, and that attitudinal mediators should be included in future models.

Limitations and future research

This review has several limitations. Because it relies on published secondary sources, its conclusions are only as strong as the studies it synthesizes, and publication bias toward significant results cannot be ruled out. Studies differ in how they define and measure productivity, which limits direct comparison. Much of the available evidence also comes from other countries and sectors, so generalization to a specific Indonesian organization should be made cautiously. Future research should therefore test the relationships empirically in the target organization, using objective productivity indicators and including mediators such as commitment and satisfaction, to confirm whether the patterns identified here hold in that setting.

Conclusion of the review

The literature indicates that training and career development are both positively related to employee productivity, with career development showing the more consistent effect and training showing a conditional effect that depends on transfer and context. Their combination is associated with higher productivity, in part through satisfaction, commitment, and perceived organizational support. These conclusions answer the research question of this review and provide the basis for the empirical testing of the three hypotheses.

CONCLUSION

This study set out to analyze the effect of training and career development on employee productivity through a literature review. The synthesis of the reviewed studies shows that both practices are generally positively related to productivity, although the strength of the relationship differs across practices and contexts. Training tends to improve productivity, but its effect is conditional: it depends on whether the knowledge and skills gained are transferred to daily work, on how well the program fits job requirements, and on how productivity is measured. Career development shows a more consistent positive relationship, largely because it signals organizational support and strengthens employees' attachment, commitment, and motivation to perform. When the two practices are implemented together, they are associated with higher productivity, partly through job satisfaction and organizational commitment as intervening mechanisms. Accordingly, the first hypothesis (training has a positive effect on productivity) is largely supported but conditional, while the second (career development has a positive effect) and the third (both have a simultaneous effect) are supported by the reviewed evidence.

Based on these conclusions, several recommendations can be made. For organizations, training programs should be designed around actual job needs, followed by mechanisms that help employees apply new skills, and evaluated beyond participant satisfaction by looking at behavior and results. Training should also be connected to clear career pathways, such as transparent promotion criteria, mentoring, and job rotation, so that investment in skills is matched by visible opportunities for growth. For researchers, future studies should test these relationships empirically in specific organizational settings, including the Indonesian context, using objective or consistently defined productivity indicators and including mediators such as job satisfaction, organizational commitment, and perceived organizational support.

This review has limitations that should be acknowledged. It relies on published secondary sources, so its conclusions depend on the quality and scope of the studies reviewed, and publication bias cannot be ruled out. Differences in how studies define and measure productivity limit direct comparison, and much of the evidence originates from other countries and sectors, which calls for caution in generalizing to a particular organization. These limitations leave room for further empirical research to confirm and refine the patterns identified here.

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