

Educational Mismatch and Human Capital Underutilization in Indonesia: A Talent Allocation Perspective

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ABSTRACT

Indonesia's education-employment mismatch is usually discussed as a labor-market imbalance. That view is necessary but incomplete for human resource management because educational-occupational mismatch does not show whether an employee's usable capability is deployed inside the organization. This study develops a talent-allocation interpretation through a critical narrative synthesis of secondary evidence. Indonesian evidence from Statistics Indonesia, Sakernas-based studies, and the World Bank is combined with 27 DOI-verified journal articles published between 2020 and 2026. The analysis separates objective educational mismatch from perceived overqualification and uses the latter only as an organizational lens on how employees may respond after placement. The evidence suggests that educational mismatch is best read as an allocation signal rather than direct proof of wasted human capital. Underutilization becomes an HRM problem when relevant capability remains unused and the organization offers no credible route toward more demanding work. Wage penalties, lower job satisfaction, boredom, and quit behavior can accompany this condition, but these outcomes depend on job content and employment opportunities inside the firm. The article defines talent allocation failure as persistent underuse of relevant capability without an effective mechanism for redeployment. This framing moves the Indonesian mismatch debate from credential matching toward the quality of capability use.



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INTRODUCTION

Indonesia has increased the educational attainment of its workforce, but the productive value of that expansion depends on the jobs into which people move. The mismatch is especially visible among younger workers. Statistics Indonesia reported in 2025 that more than one-third of young workers were vertically mismatched, while youth unemployment was roughly twice the national rate (BPS-Statistics Indonesia, 2025). The figure should not be generalized to the entire workforce, yet it captures an important tension. Some educated workers struggle to enter employment, while others enter positions that demand less education than they possess. Employment therefore does not settle the question of human-capital use. A worker can be employed and still be placed where a substantial part of his or her education has little relevance to the work being performed. For HRM, that gap matters because organizations receive the worker after the education system and labor market have already done part of the sorting. The firm cannot undo the worker's schooling or the national job structure, but it can still decide whether the capability that arrives with the employee is recognized, stretched, or left largely outside the job.

Vertical mismatch compares educational level with the level normally required by an occupation. Horizontal mismatch concerns the relation between field of study and field of work. Neither should be confused with skill mismatch, because schooling does not measure actual skill perfectly. Schweri et al. (2020) show why field mismatch can carry different consequences depending on the type of vocational preparation, while Chuang and Liang (2022) distinguish losses associated with overeducation from those associated with skill mismatch. That distinction is not technical housekeeping. An employee may appear overeducated by an occupational code and still lack

capabilities needed for a more demanding role. Another employee may have usable capability that the present job genuinely leaves idle. The first case is a credential mismatch; the second is much closer to human-capital underutilization.

The Indonesian labor market gives the distinction practical weight. The World Bank's 2026 Growth and Jobs Report describes job creation as concentrated too heavily in lower-value activities and argues that higher-productivity, middle-class jobs are not expanding fast enough (World Bank, 2026). A more educated labor supply can therefore meet a job structure that has not changed at the same pace. Training graduates more intensively cannot by itself create work of greater complexity. Indonesian Sakernas-based research also shows that educational mismatch is not confined to one demographic group or a single transition cohort. Sitorus and Wicaksono (2020) identify individual and labor-market correlates of mismatch and related wage differences, while Khoiruddin et al. (2024) find that age, gender, education, and regional characteristics shape the probability of overeducation and undereducation among educated workers. The national problem is broader than the youth statistic, even though the youth evidence makes it unusually visible. The point is not that low-value work is inherently unnecessary. The problem appears when the educational profile of entrants changes faster than the complexity of the positions available to them, because the resulting mismatch can persist even when both hiring and training systems are functioning as designed.

Much of the economic literature asks whether mismatch reduces wages. It often does, although the estimated penalty depends on occupation, ability, skill, and measurement method (Veselinovic et al., 2020; Palczyńska, 2021; Wen & Maani, 2022). Indonesian evidence similarly links mismatch to earnings differences among migrant and native workers (Sitorus & Wicaksono, 2021). A wage penalty is useful evidence of how the labor market values surplus schooling, but it is not a direct measure of lost productivity. Human resource management begins where that inference becomes uncertain. Once a worker has been hired, the organization controls job content, distributes responsibility, evaluates contribution, and decides whether movement to other work is possible. The same educational mismatch can therefore end as a temporary compromise or persist as an organizational utilization problem.

Perceived overqualification helps explain that second stage but should not be used as a substitute measure for objective mismatch. Lee et al. (2021) find opposing pathways between perceived overqualification and task performance. Surplus qualification can support self-efficacy while poor fit can produce negative reactions. Pan and Hou (2024) provide an especially useful bridge because objective overqualification affected job satisfaction through perceived overqualification, and the relationship changed with internal and external employment opportunities. The employee's interpretation of the mismatch is therefore partly shaped by whether there is somewhere better to move. Liu et al. (2024) reach a related conclusion from an HRM perspective: leadership conditions change the pathways linking perceived overqualification with performance, creativity, and cynicism. Objective placement and subjective response are related, but they remain analytically different.

A talent-allocation perspective is useful precisely because it does not treat every mismatch as failure. Some people accept lower-level jobs for location, flexibility, security, or family reasons. Others enter a role below their education while expecting quick progression. Undereducated workers may possess substantial experience that an education-based classification misses. The narrower concern is persistent underuse. Educational mismatch acts as an observable signal that allocation may be weak; human-capital underutilization exists only when relevant capability is present but the work does not use it adequately. Talent allocation failure is narrower again. It occurs when that underuse persists and the organization has no credible mechanism for moving the capability toward work that can use it. Framed this way, the Indonesian mismatch problem becomes an HRM question about deployment rather than a demand for perfect symmetry between degrees and job titles. The distinction also keeps the article from turning an aggregate labor-market statistic into a claim about individual psychology. A person can be objectively overeducated without feeling overqualified, and an employee can feel underused even when an occupation code classifies the education-job match as normal.

RESEARCH METHODS

The study uses a critical narrative synthesis of secondary evidence and does not claim exhaustive coverage of the educational mismatch literature. The Indonesian evidence base draws principally on Statistics Indonesia's 2025 publication on education–employment mismatch among

youth, Sakernas-based journal studies, and the World Bank's 2026 analysis of growth and job quality. The ILO's 2024 youth-employment report is used only for broader international context on school-to-work transitions and skills mismatch, not to estimate mismatch prevalence in Indonesia.

The analysis was organized around an allocation sequence covering the capacity of available jobs to absorb educated labor, the quality of worker–job placement, and the extent to which work design or internal opportunities allow underused capability to move toward more demanding tasks. Mechanisms were retained only when directly examined in the cited studies or clearly identified as interpretations of Indonesian institutional evidence. Accordingly, the study does not claim causal estimates of firm-level productivity, retention, or talent misallocation in Indonesia.

RESULTS AND DISCUSSION

1. From Educational Mismatch to Potential Underutilization

More education and skill shortage can coexist because they refer to different parts of the allocation problem. BPS-Statistics Indonesia (2025) reports both overeducation and undereducation among young workers, while the World Bank (2026) continues to identify skill gaps alongside weak creation of higher-productivity jobs. There is no contradiction if some occupations struggle to find particular capabilities while other workers hold qualifications that available jobs do not require. Treating the whole problem as insufficient training misses the demand side. It can even increase the stock of education without changing the work into which that education is allocated. The ILO's global youth evidence similarly shows that school-to-work transitions remain affected by mismatch even where educational participation has improved (International Labour Organization, 2024). Employers can experience a shortage in one occupation while recruiting overeducated workers into another. The managerial consequence is that a general call for more skills may be correct at the economy level and still be a poor diagnosis of a particular firm's staffing problem.

Credentials also exaggerate certainty. Palczyńska (2021) finds that cognitive skills and personality explain part of the wage pattern attributed to overeducation, and Chuang and Liang (2022) show that education mismatch and skill mismatch are not interchangeable. Degree level is therefore a useful screening variable but a weak stand-alone measure of productive capacity. An HR system that tries to eliminate educational mismatch by matching credentials more mechanically could make allocation worse. The more useful question is whether the employee possesses capability that the current work could use but does not. Evidence about task performance, prior experience, and demonstrated problem solving is needed before a mismatch can be interpreted as unused productive capacity.

Persistence matters because a temporary compromise is not the same as long-term underuse. Sevilla et al. (2021), using a trajectory approach, show that educational mismatch can follow different paths rather than disappearing uniformly after labor-market entry. Salas-Velasco (2021) likewise finds that graduate mismatch is shaped by the transition into work and by the characteristics of the job obtained. A graduate who takes a lower-level job for six months while searching elsewhere is analytically different from a worker who remains in similar work for years, accumulates experience below the original qualification level, and becomes increasingly difficult to reallocate. The second pattern is where an HR interpretation becomes more important.

Indonesian wage evidence reinforces the concern without resolving it. Sitorus and Wicaksono (2020, 2021) find earnings differences associated with educational mismatch, while international estimates also show penalties that vary across sectors and occupations (Veselinovic et al., 2020; Lasso-Dela-Vega et al., 2023). The penalty should be read carefully. It indicates that additional schooling is not rewarded as though it were required by the job. It does not show how much capability is idle, nor whether a better assignment would raise firm productivity. Wage data point to a valuation gap; the utilization question still has to be answered inside the organization. A worker can therefore carry a wage penalty without giving the firm a measurable productivity loss, just as a worker can appear well paid while still being assigned below his or her usable capacity.

Women appear disproportionately exposed to overeducation in recent Indonesian evidence (Khoiruddin et al., 2024). Boto-García and Escalonilla (2022) also find gender differences in the drivers of graduate overeducation. These patterns matter because allocation can be weak even when recruitment rules look formally neutral. A firm may ask only whether an applicant can perform the vacancy that exists. It may never ask whether repeated placement of higher-qualified applicants into narrow jobs is concentrating underuse in particular groups. The HR problem is not solved by proving that the hire was

competent enough for the position. The pattern also raises an equity question for HR systems because repeated assignment below capability can accumulate differently across groups even when formal hiring standards are identical.

Undereducation deserves a different interpretation. Formal education below the usual occupational requirement can coexist with experience, vocational learning, or firm-specific skill. In such cases the classification may reveal more about the weakness of credential measures than about a worker's capacity. Overeducation raises the opposite possibility because the visible qualification exceeds what the job normally demands. Even then, surplus schooling is only a warning sign. Human-capital underutilization requires evidence that capability relevant to more demanding work is actually present and remains unused. This is why undereducation should not automatically be framed as a talent deficit requiring remedial training.

Employers can make mismatch persistent without intending to do so. When vacancies are scarce, hiring a graduate into routine work may reduce recruitment risk because the employer can choose from an oversupplied pool. Zheng et al. (2021) show that overeducation and major mismatch can coexist with substantial differences in returns across higher-education tiers. The transaction can look entirely successful: the vacancy is filled and the applicant accepts. Nothing in that outcome guarantees efficient use of the person's education. If the underlying task content remains unchanged while credential requirements rise, educational expansion can be absorbed as credential inflation rather than as more complex work.

Human-capital underutilization is therefore narrower than educational mismatch. The distinction is essential to the paper's HRM claim. Educational mismatch is observable from the relation between education and occupation. Underutilization concerns the use of relevant capability. Talent allocation failure requires persistence as well: the capability remains underused and the organization offers no realistic route for the mismatch to close. This sequence avoids calling every overeducated worker a wasted resource, yet it also prevents organizations from treating a completed hire as evidence that allocation is already efficient.

2. When Mismatch Becomes an Organizational Utilization Problem

A mismatch becomes an organizational problem when it changes what employees can contribute or how they respond to the job. Park and Luo (2023) connect educational mismatch with job satisfaction among young employees, while Wen et al. (2023) link educational job mismatch with satisfaction, on-the-job training, and quit behavior over time. These studies do not show that Indonesian firms experience the same effects at the same magnitude. They do show that mismatch can continue after recruitment rather than ending when the employment contract begins. Job content and organizational opportunity become part of what the mismatch means. The organizational stage is therefore analytically separate from the labor-market stage, even though the two are connected.

Perceived overqualification offers a closer view of that process. Lee et al. (2021) show that employees who feel overqualified can move through both positive and negative pathways. Surplus capability may support self-efficacy, but poor fit can also undermine the employment relationship. Pan and Hou (2024) make the boundary more precise. Objective overqualification was related to perceived overqualification and then to job satisfaction, yet perceived internal employment opportunities changed the pattern. A worker who can see credible movement inside the organization does not necessarily interpret surplus qualification in the same way as a worker who sees the current role as a dead end. Internal opportunity matters here because it changes the meaning of the present job. The same narrow assignment can be tolerable when employees see it as temporary and far more costly when they see no plausible path away from it. That difference cannot be observed from an education-occupation code, yet it determines whether surplus qualification becomes a continuing employee-relations problem.

Boredom is one way underuse can become visible. Bochoridou and Gkorezis (2024) find that work-related boredom helps explain the association between perceived overqualification and intention to leave, with high-performance work systems altering part of that relationship. The result is useful because boredom is easily treated as a personal motivation problem. When the work repeatedly asks for less than the employee can reasonably do, however, the problem may sit in the assignment itself. Adding motivational language to an unchanged job does not solve that condition. Repeated boredom is especially informative when it follows a stable pattern of low task demand rather than a temporary lull in workload.

Retention evidence points in the same direction without making mismatch deterministic. Piotrowska (2022) finds that job attributes affect the relationship between perceived overqualification and retention. Challenging work, autonomy, or a credible chance to move can matter even when the formal job is below the employee's qualification level. This is why exact degree-job matching is a poor HR target. A statistically mismatched employee may be well used if the actual work stretches capability and provides progression. A formally matched employee may still be poorly used when the role is narrow and skills remain idle.

Training can either reduce underutilization or deepen it. Wen et al. (2023) place on-the-job training inside the dynamic relationship between mismatch and quit behavior, which is more useful than treating training as an automatic remedy. An overeducated employee does not necessarily need more generic learning. The harder question is whether learning changes what the employee will be allowed to do. Training that adds capability without changing assignment, responsibility, or access to other roles may increase the stock of human capital while leaving its utilization almost untouched. A useful development intervention therefore links learning to a specific change in responsibility, role, or internal opportunity rather than counting course participation as the outcome.

Reward systems can create a similar disconnect. Baktash (2026) finds that performance pay changes the wage relationship associated with overeducation in Germany. That institutional setting cannot be transferred mechanically to Indonesia, but the result identifies a relevant HR mechanism. Pay and performance systems signal which forms of contribution the organization recognizes. If a worker can take on more difficult work but additional responsibility has no effect on evaluation or reward, the organization has little structure for converting surplus capability into recognized value. Underuse can persist even in a system that appears strongly performance-oriented.

Leadership matters for the same reason. Liu et al. (2024) report dual pathways between perceived overqualification and employee outcomes, with transformational leadership affecting whether surplus qualification is connected with performance, creativity, or cynicism. Good leadership cannot permanently compensate for a job that is structurally too narrow, but managers control access to difficult tasks long before formal job descriptions are rewritten. They decide who is trusted with a problem, who is given discretion, and whose capability becomes visible. Those everyday allocation decisions can either expose surplus capability or leave it dormant.

The career cost can become larger when mismatch lasts. Eguia et al. (2023) document wage scarring among young overeducated graduates, and Gaeta et al. (2023) find wage penalties among Ph.D. holders that differ across the wage distribution. Jones et al. (2025) report both earnings and job-satisfaction consequences among graduates in China. Early placement affects the experience a worker accumulates and the wage history later employers observe. After several years in lower-level work, the original reason for accepting the job may matter less than the career record that has been created. A temporary compromise can therefore become a persistent allocation path. Career histories then begin to reinforce the original placement. Employers hiring later may observe years of lower-level experience and treat that record as evidence of market value, even when the first mismatch was caused by weak demand rather than weak capability. In that sense, persistence can change both the worker's opportunities and the information future employers use to judge the worker.

Skill evidence prevents that argument from becoming credential determinism. Kang and Hong (2025) show that wage penalties vary with skill among heterogeneous workers, and Murillo Huertas and Raymond (2024) separate education, mismatch, and occupational status using PIAAC data. Objective education measures should therefore trigger investigation rather than judgment. A worker whose degree exceeds the occupational norm may not possess surplus job-relevant skill; another worker may have capability well beyond what the credential suggests. Direct assessment of capability is more informative for HR decisions than a degree label alone. That is why direct capability evidence matters most when the credential signal and the job history point in different directions.

Unused capability is difficult to see in company accounts. Payroll records contain the wage that was paid, not the value of tasks never delegated or ideas never requested. Turnover becomes visible only after the employee leaves, when the cause is mixed with pay, supervision, external opportunities, and personal circumstances. Human-capital underutilization is therefore partly an opportunity cost rather than a booked expense. The firm has hired access to capability but has not built enough work around it. That is the point at which a mismatch recorded in labor statistics can become a management problem, although the size of the cost cannot be estimated from the secondary evidence used here.

3. Organizational Adjustment after Mismatched Placement

Allocation does not end when recruitment identifies a technically acceptable candidate. The vacancy itself may already be part of the problem. When firms repeatedly raise education requirements for work whose content has not changed, they reduce hiring uncertainty but increase the chance of bringing in capability that the role cannot use. Capability-based assessment is harder because it asks what the applicant can actually do and what the job is likely to demand, rather than treating a degree as a convenient ceiling or floor. The purpose is not to remove credentials from recruitment. It is to stop credential fit from becoming a substitute for thinking about the work. This is also where a firm can create mismatch through overcredentialing. If a routine role is consistently filled with graduates simply because graduates are readily available, the organization may raise the educational profile of the workforce without changing the productive content of the work. The immediate hire can look safe while the longer allocation remains weak.

The strongest corrective mechanism is a credible route from current work to better use. Pan and Hou (2024) show that internal employment opportunities change how objective overqualification is translated into perceived overqualification and job satisfaction. Piotrowska (2022) similarly shows that job attributes condition retention. These findings fit a broader allocation logic: employees can tolerate an imperfect first placement when the job is changing or when movement is real. What becomes costly is a mismatch that has nowhere to go. The corrective route has to be observable rather than rhetorical; employees need evidence that internal movement or broader responsibility actually occurs.

That route does not always require promotion. A supervisor can widen the complexity of work before a formal position changes, and a lateral move can use capability that the original unit does not need. Lee et al. (2021) and Liu et al. (2024) both suggest that employees respond differently when surplus capability can be converted into efficacy or meaningful contribution. Internal labor markets matter here because they make the organization, rather than the external market, capable of correcting an initial placement. When employees must resign to find work that uses them better, the firm loses both the person and whatever firm-specific knowledge has accumulated.

Learning has value only when it connects to that movement. The ILO's 2024 youth report treats mismatch and school-to-work transitions as continuing concerns internationally, but the organizational lesson is not simply to train more. A development program should change the range of work a person can credibly enter. If the role remains unchanged and internal mobility is blocked, additional training can produce a better-qualified version of the same underused employee. The failure is then not lack of development expenditure but the absence of a deployment path. Development is therefore part of allocation only when it changes future deployment.

Performance systems can either support that path or quietly close it. Baktash's (2026) findings on performance pay do not establish what Indonesian firms should pay, yet they show that the return to overeducation depends partly on how contribution is rewarded. A firm that measures only output from the current narrow role has little way to recognize capability that could be used elsewhere. The problem is not that workers deserve pay for unused degrees. It is that wider responsibility must be visible in evaluation if the organization expects people to take it on.

Firm-level evidence increasingly makes the organizational role difficult to dismiss. Berloff et al. (2026) link human resource practices with educational mismatch using a firm-level measure that distinguishes different mismatch patterns. The study is European and cannot establish the prevalence of the same mechanisms in Indonesia, but it supports a central proposition of this article: mismatch is not determined only by education systems and labor supply. Firms help shape whether an initial mismatch persists through the way they organize work and people. The relevance for Indonesia is interpretive rather than numerical: the study shows that firm practices belong in the mismatch explanation, not that Indonesian firms exhibit the same coefficients.

There are limits to what employers can correct. The World Bank's 2026 diagnosis of Indonesia points to a structural shortage of higher-productivity job creation. An individual firm cannot absorb every graduate into complex work, and HR practice cannot manufacture national demand. The distinction between structural mismatch and organizational underuse is therefore important. Better job creation reduces the pressure that pushes educated workers toward lower-level employment. Better allocation reduces the amount of avoidable underuse that remains after workers are already inside firms. Macro constraints and organizational choices should therefore be treated as nested rather than competing explanations.

Surplus qualification can also be deliberate. A growing firm may hire someone ahead of current job requirements because the role is expected to expand. A worker may accept the arrangement because promotion is credible. In those cases, the gap between education and present work is not necessarily inefficient. It becomes problematic when the expected movement fails to occur and the organization continues to acquire more capability than its jobs can absorb. Persistence, not the mere existence of surplus education, is what turns the mismatch into a stronger signal of allocation failure.

For that reason, an exact education-job match should not become the main HR metric. A useful diagnostic asks whether employees use capabilities that are relevant to harder work, whether responsibility changes when those capabilities become visible, and whether internal movement corrects prolonged misplacement. These measures are less tidy than comparing degrees with occupation codes, but they are closer to utilization. Talent allocation failure is best understood as persistent underuse of relevant capability combined with the absence of a credible corrective route. The concept does not replace labor-market mismatch. It identifies the organizational condition that mismatch may reveal but cannot prove on its own. A firm may never eliminate mismatch completely, and it does not need to. The managerial standard is whether underused capability can move when a better use becomes available.

CONCLUSION

Educational mismatch in Indonesia is large enough to justify concern, but it should not be treated as direct evidence that the country's human capital is being wasted. BPS-Statistics Indonesia (2025) documents substantial vertical mismatch among young workers, Indonesian Sakernas studies show broader patterns of overeducation and undereducation, and the World Bank (2026) points to a job structure that still creates too little higher-productivity work. Together, these sources establish an allocation problem. They do not tell us whether a particular employee's capability is unused inside a particular firm. The distinction matters because otherwise a national mismatch statistic is asked to carry more organizational meaning than it can support.

Human-capital underutilization begins where that second condition can be established. The employee possesses relevant capability, the present work uses too little of it, and the gap persists. Perceived-overqualification research shows why internal opportunity matters once workers experience such a gap, while recent firm-level evidence indicates that HR practices are associated with mismatch rather than being irrelevant after hiring. Talent allocation failure is therefore a conditional organizational diagnosis, not another name for overeducation. What turns the condition into failure is not the employee's degree by itself but the persistence of unused, relevant capability after the firm has had a reasonable opportunity to reallocate it.

The next empirical step in Indonesia is not another count of degree-job mismatch alone. Firm-level research should connect objective placement with direct measures of skill use, changing job content, and internal movement over time. The managerial issue is ultimately simple: education creates potential human capital, but organizations create much of the work through which that potential is either used or left idle.

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