

Perceived Quiet Firing and Turnover Intention in Education Technology Startups: A Serial Mediation Model

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ABSTRACT

Purpose – This study examines the sequential psychological processes theoretically proposed to connect perceived quiet firing with turnover intention among employees in Indonesian Education Technology startups, with psychological contract breach and work disengagement specified as theoretically ordered mediators whose sequential arrangement reflects an established theoretical logic rather than an empirically verified temporal sequence.

Design/methodology/approach – Survey data were collected from 190 employees across eight Education Technology startups in Indonesia. Partial least squares structural equation modeling (PLS-SEM) was used to estimate direct, indirect, and serial mediation pathways among the four constructs.

Finding/Results – Psychological contract breach predicted work disengagement, while work disengagement emerged as the most proximate structural predictor of turnover intention. Neither the direct path from perceived quiet firing nor that from psychological contract breach to turnover intention reached significance once the mediators were included. Bootstrapping confirmed the significance of the indirect effects through work disengagement and through the serial pathway involving psychological contract breach and work disengagement.

Originality/Value – The study extends the employee withdrawal literature by embedding perceived quiet firing in an indirect effects model that treats psychological contract breach and work disengagement as distinct stages rather than interchangeable mechanisms. Their ordering follows from theory, not from temporal observation, and whether the sequence actually unfolds in this direction across time remains a question for longitudinal research. The findings carry practical implications for Education Technology startups seeking to identify and address early-stage relational risk factors before they solidify into voluntary attrition.

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1. Introduction

Education Technology startups occupy a distinctive position among knowledge-intensive employers, attracting individuals who seek to combine educational purpose with technological work. The term "Education Technology organization" is used throughout this manuscript to refer to companies whose core business runs through digital educational service delivery, regardless of whether they are early-stage startups or more established startups that have moved past their founding phase. These individuals are usually motivated by more than just the potential financial gains from working in such organizations. Instead, they are also motivated by a desire to contribute to the field of education and to create positive impacts upon society as a result. The nature of these startups, however, also presents some challenges and difficulties for their employees. For example, the role requirements are not easily defined, the priorities of the organization shift from project to project, performance is frequently expected to be high, and the employees typically depend upon the others in the organization for much of their functionality and development. Thus, the psychological withdrawal from such organizations stems from factors beyond dissatisfaction with pay and responsibilities alone. How supervisors and organizations communicate support, extend recognition, deliver feedback, and provide growth opportunities may be decisive in shaping employees' overall assessment of their employment relationship (Rangrez, Amin, & Dixit, 2022; Ammirato et al., 2024; Scholze & Hecker, 2023).

The relational dimensions of work including feedback, recognition, developmental investment, carry particular weight in Education Technology environments, but not simply because Education Technology employees value these things more than other workers do. The structural conditions of Education Technology work make the absence of these resources especially hard to reattribute or dismiss. In hybrid and remote arrangements, the ambient relational cues that co-located employees take for granted such as hallway exchanges, visible supervisory presence, impromptu check-ins, are largely absent. When feedback stops arriving or recognition becomes infrequent in this kind of environment, employees have few alternative signals to draw on. The silence is diagnostic in a way it might not be in a dense, co-located workplace where a quiet week could mean any number of things. In Education Technology startups specifically, roles are often fluid and shaped by changing project demands the company is working on, the people have to engage with their supervisors to be both emotionally and functionally supported. A withdrawal of developmental access or role feedback in this context is not only a relational loss-it is an operational one. Finally, many Education Technology employees enter these organizations with a psychological contract that goes beyond standard transactional terms. The draw is often the mission: expanding access to learning, building meaningful technology, contributing to educational equity. This means the relational and developmental dimensions of work are not peripheral to their employment expectations; they are central to them. Perceived quiet firing strikes at exactly these expectations. The relational withdrawal it describes maps directly onto what Education Technology employees understood themselves to be signing up for, which is why its consequences may be sharper in this sector than in more transactionally oriented employment contexts.

A relational workplace phenomenon that has gained growing scholarly interest is perceived quiet firing. This study engages the concept with deliberate precision. Rather than referring to an overt managerial act, perceived quiet firing captures employees' subjective experience of diminished organizational support, reduced recognition, curtailed communication, exclusion

from meaningful involvement, and shrinking access to developmental resources. Critically, the construct carries no assumption that managers act with the deliberate intention of pushing employees out. The analytical focus rests entirely on how employees read and respond to the relational signals they receive, independent of whatever motivated those signals in the first place. Employees' psychological responses to perceived managerial distancing are therefore analyzed on their own terms, without inferring managerial intent (Anand, Doll, & Ray, 2024; Karadas & Çevik, 2025).

The concept of quiet firing is helpful in understanding why employees may leave a company; the link between quiet firing and employee exit is not likely direct. Instead, there are a variety of psychological elements that occur within employees following a decline in employee support and recognition. One of the most common psychological theories behind quiet firing is the psychological contract theory, which states that employees develop within their minds a representation of the expectations that their employer will fulfill for the employee (Rousseau, 1989; Morrison & Robinson, 1997; Topa et al., 2022). When employees believe that their employer is not fulfilling those expectations of them, dissatisfaction results. If employees feel as if those benefits are not being provided to them by the organization, their psychological contract with the organization is breached. Complementing this, the Job Demands-Resources framework suggests that the gradual depletion of job resources erodes the motivational energy employees direct toward their work (Bakker & Demerouti, 2007). Taking these perspectives together, work disengagement may serve as the most immediate psychological state connecting employees' perception of relational withdrawal with the eventual intention to leave.

Prior research offers a useful but partial foundation for the present inquiry. Anand, Doll, and Ray (2024) have validated quiet firing as a psychometrically sound employee perception, and Atiku, Jeremiah, and Genty (2025) have connected it empirically to turnover-related outcomes in service industry contexts. What this body of work does not yet address is the psychological mechanism that connects quiet firing to the intention to leave the organization. Most psychological contract literature suggests that employees must first determine whether the organization still has a psychological contract with the employee before they begin to develop the intention to leave the organization (Topa, Aranda-Carmena, & De-Maria, 2022). Once that assessment yields a conclusion of breach, motivational disengagement frequently follows (Rastogi, Pati, Krishnan, & Krishnan, 2018). By integrating these two mechanisms within a single serial mediation framework, the present study asks not merely whether perceived quiet firing is statistically associated with turnover intention, but through which theoretically specified psychological steps this association is proposed to operate. The steps are ordered by theory, not by observed timing, and the cross-sectional design used here tests whether the pattern of associations is consistent with that theoretical order rather than confirming the order itself. The proposed sequence draws on established theory rather than observed temporal data, and the cross-sectional evidence presented here tests statistical consistency with the model rather than its causal direction.

Indonesia's Education Technology sector sharpens the practical relevance of these questions. Indonesian digital education companies engage employees across a broad range of contractual arrangements, and employee retention in these organizations is sustained through a combination of organizational mission and interpersonal ties rather than material incentives alone. This makes it especially important to understand the process through which eroding

supervisory support and organizational investment can progressively translate into employees' decisions to exit.

Against this backdrop, the present study seeks to examine how quiet firing perceptions among employees in Indonesian Education Technology startups are connected to turnover intention. More specifically, the research investigates whether there is a mediating effect of both psychological contract breach and work disengagement on the relationship between psychological quiet firing and employee turnover. A survey of 190 employees from eight Education Technology startups in Indonesia was used to test the hypothesized model via Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM allows researchers to determine the relative strength of each of the proposed relationships between the four constructs of interest.

Three contributions distinguish this study. First, it extends the emerging scholarly conversation on quiet firing by embedding the construct within an employee withdrawal framework. Second, it proposes a theoretically ordered mediation model in which psychological contract breach and work disengagement jointly explain how perceived quiet firing is statistically associated with exit cognition through theoretically specified psychological mechanisms, clarifying the distinct functional roles each mediator plays. Third, it generates novel empirical evidence from the Indonesian Education Technology context — a setting that is both practically significant and underrepresented in organizational behavior research — with implications for practitioners seeking to detect and interrupt the early warning signs of disengagement-driven turnover.

2. Literature Review & Hypothesis Development

2.1. Perceived quiet firing

The qualifier “perceived” carries both theoretical and methodological significance in this study. Because managerial intent is rarely observable, researchers cannot directly verify whether any given pattern of supervisory behavior was designed to ease someone out. Following Anand, Doll and Ray (2024), quiet firing is therefore operationalized as an employee-level perception — specifically, employees' assessment that the support, recognition, communication, involvement, and developmental access available to them have deteriorated. This concept is related to the general understanding within organizational behavior of the idea that the attitudes and behaviors of employees are a result of their perception of the world around them, rather than the verifiable intentions of the managers within those organizations. Karadas and Çevik (2025) investigated the phenomenon of quiet firing, for instance, and discovered that quiet firings could be understood as a concept related to the perception of the employees within each organization, and how that perception can vary from employee to employee within different occupations.

Another distinction that must be made is between the concepts of quiet firing and quiet quitting. Quiet quitting relates to the actions that an employee takes to ensure that they are contributing the minimum amount to their employer's efforts and duties. Quiet firing, however, refers to the decrease in the support that is offered to employees within the workplace. For Education Technology startups in particular, many employees require a significant amount of effort to learn about and gain new skills in relation to the technology that they must produce and deliver to their customers. Therefore, if employees begin to feel as if they have less access to these types of training or learning resources, they may begin to believe that the company no longer values their employment by the organization.

Perceived quiet firing also needs to be distinguished from several constructs it sits near in the organizational literature. Perceived Organizational Support (POS) is the belief that an organization values the contributions of its employees and cares for their welfare (Rhoades & Eisenberger, 2002). Perceived quiet firing is more directional than this: it is not a low baseline of general care but a perceived trajectory of decline - a pattern of withdrawal that employees read as targeted rather than ambient. An employee can report moderate POS while still detecting that something in the relational dynamic has shifted.

Supervisor neglect and workplace ostracism each capture a narrower slice of the same territory. Neglect refers to passive inattention, a supervisor simply failing to perform expected duties. Ostracism focuses on exclusion from social interaction — being ignored or left out. Perceived quiet firing is broader than either: it involves the simultaneous erosion of multiple relational resources - feedback, recognition, communication, involvement, development access - experienced not as random omission but as a coherent signal of diminishing organizational investment. The bundled nature of the pattern is what makes it interpretively meaningful to employees.

Abusive supervision moves in the opposite direction entirely. It involves active hostile behavior - verbal aggression, public humiliation, sustained antagonism (Tepper, 2000). Perceived quiet firing operates through withdrawal, not commission. The relational damage comes from what is withheld, not what is inflicted. This distinction is theoretically and practically important. Employees experiencing abusive supervision can usually identify overt hostile behavior, whereas employees experiencing perceived quiet firing may struggle to identify a specific adverse act because the phenomenon operates primarily through withdrawal and omission. The distinction from psychological contract breach requires the most care, given that PCB functions as a mediator in the present model. Perceived quiet firing is the antecedent relational condition - the pattern of declining supervisory and organizational investment that employees observe and interpret. Psychological contract breach is the cognitive judgment those employees then form: a conclusion that the organization has failed to honor the implicit obligations it was understood to carry. Quiet firing is what employees perceive happening around them; breach is how they make sense of what it means. The two constructs are related by design in the present model - quiet firing is expected to activate breach - but they are not the same thing, and treating them as interchangeable would collapse the most theoretically important step in the proposed sequence.

2.2. Psychological contract breach

Psychological contract theory rests on the premise that an unwritten, mutually understood agreement exists between an employee and the organization. Rousseau (1989) conceptualizes the psychological contract as employees' subjective beliefs about what the organization is obligated to provide them in exchange for their contributions. When the organization falls short of those perceived obligations, a breach is said to occur (Morrison & Robinson, 1997; Robinson & Morrison, 2000). The nature of this construct is fundamentally cognitive: it is anchored in employees' evaluative assessments of whether what they have received matches what they believed they were owed.

PCB serves as the primary explanatory mechanism in this study because perceived quiet firing operates through incremental relational withdrawal rather than a discrete, identifiable broken promise. Morrison and Robinson (1997) argue that breach crystallizes when employees arrive at the cognitive judgment that the organization has failed to honor its expected obligations. Topa, Aranda-Carmena, and De-Maria (2022) further document the pervasive negative

consequences of breach for employee attitudes and behavioral intentions. As quiet firing gradually erodes the relational texture of the employment relationship, employees may incrementally revise their assessment of whether the organization continues to honor its implicit commitments — arriving, over time, at the conclusion that the relational terms of their employment have silently deteriorated. The following hypothesis is accordingly proposed:

H1: Perceived quiet firing is positively associated with psychological contract breach.

2.3. Work disengagement

Work disengagement constitutes the second explanatory mechanism in the proposed model, as breach does not automatically translate into turnover cognition. Grounded in Kahn's (1990) seminal conceptualization, disengagement captures employees' progressive psychological separation from their work role, encompassing reduced emotional investment, cognitive detachment, and behavioral withdrawal. Rastogi, Pati, Krishnan, and Krishnan (2018) further establish disengagement as a theoretically distinct withdrawal state — not simply the absence of engagement — with its own causal antecedents and downstream outcomes. This conceptual precision is important here: disengagement is treated as a motivationally driven withdrawal process that mediates the link between relational appraisal and exit-oriented thinking.

The link between psychological contract breach and work disengagement may be understood through a reciprocity logic: employees who conclude that the organization has not honored its obligations have reduced reason to sustain high levels of effort, initiative, or emotional connection to their work. A perceived change in the employment relationship to one that is less reciprocal may trigger a defensive withdrawal of motivational investment. In the Job Demands-Resources model supervisory support, recognition, autonomy, quality of feedback and access to development are resources that promote work engagement (Bakker & Demerouti, 2007). When employees perceive these resources as being systematically withheld or reduced, disengagement may emerge as a self-regulatory response to the perceived imbalance. On this basis, the following hypothesis is put forward:

H2: Psychological contract breach is positively associated with work disengagement.

2.4. Turnover intention

Turnover intention refers to the deliberate cognitive orientation an employee develops toward leaving their current organization. It is distinct from actual departure — capturing the motivational and evaluative state that typically precedes it — and is widely regarded as the most proximal attitudinal predictor of voluntary turnover. Tett and Meyer (1993) define it as an employee's conscious and deliberate intention to exit their organization. Mobley (1977) earlier proposed that this intention does not arise abruptly but accumulates incrementally through a cognitive withdrawal process rooted in deepening job dissatisfaction.

The association between work disengagement and turnover intention is theoretically coherent: employees who have progressively withdrawn their emotional, cognitive, and behavioral investment from work are likely to develop a growing orientation toward exit. Beyond meeting the requirements of a particular job, disengaged employees are likely to exhibit a weakening psychological bond with their company with each passing period. Saks (2006) interviewed thousands of employees and discovered a negative relationship between employee engagement and turnover intention. In Education Technology work settings, where employees must continually exhibit high levels of engagement with their work, a sign of disengagement is likely to indicate turnover intention. The following hypothesis is therefore proposed:

H3: Work disengagement is positively associated with turnover intention.

2.5. Serial mediation model

The ordering of constructs in the proposed serial mediation model is grounded in theory rather than derived from observed temporal data. The sequence from perceived quiet firing through breach and disengagement to turnover intention reflects what established frameworks predict should happen psychologically, not what has been tracked across time in any single study including this one. All variables were measured at one point in time, which means the model cannot confirm that perceived quiet firing temporally precedes breach, that breach precedes disengagement, or that disengagement precedes turnover intention in actual organizational settings. What the data can show is whether the observed pattern of associations is statistically consistent with the proposed theoretical order. Perceived quiet firing represents the antecedent relational workplace condition; psychological contract breach represents the cognitive-evaluative response through which employees make sense of that condition; work disengagement represents the resulting motivational withdrawal; and turnover intention represents the downstream exit cognition. This sequential logic aligns with Mobley's (1977) argument that leaving is a process unfolding through intermediate cognitive and affective stages, and with Tett and Meyer (1993), who position turnover intention as the proximal cognitive precursor to actual departure. Positioning breach before disengagement reflects the assumption that employees first make a relational judgment — that the employment relationship has been weakened — before withdrawing their psychological investment from their work role. Positioning disengagement before turnover intention reflects the assumption that exit cognition intensifies once relational appraisal is converted into reduced motivational engagement.

The model additionally accommodates a direct pathway from perceived quiet firing to work disengagement, independent of breach. For some employees, demotivation may set in not because they have cognitively concluded that their contract has been breached, but simply because the resources necessary to sustain motivation — feedback, recognition, developmental support — are perceived as no longer available. Thus, perceived quiet firing may reach work disengagement through two routes simultaneously: one passing through the cognitive filter of psychological contract breach, and one operating more directly through resource depletion dynamics. The following hypotheses follow from this reasoning:

H4: Perceived quiet firing is positively associated with work disengagement.

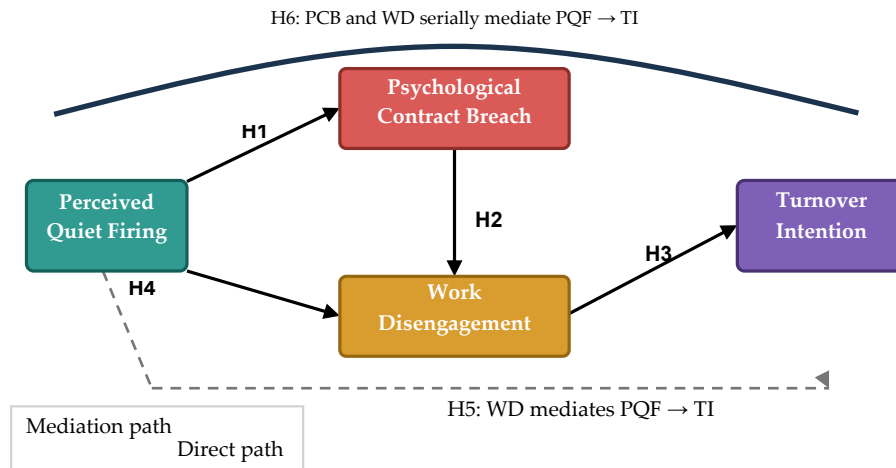
H5: Work disengagement mediates the relationship between perceived quiet firing and turnover intention.

H6: Psychological contract breach and work disengagement serially mediate the relationship between perceived quiet firing and turnover intention.

2.6. Hypothesis development and research model

The theoretical arguments developed in sections 2.1 through 2.5 converge on a serial mediation model linking the four focal constructs. Within this model, perceived quiet firing operates as the upstream relational condition, psychological contract breach serves as the cognitive-evaluative mechanism through which employees appraise that condition, work disengagement represents the motivational withdrawal consequence of that appraisal, and turnover intention constitutes the downstream exit cognition. Figure 1 presents the full conceptual structure.

Figure 1. Conceptual research model



Source: Authors' conceptualization.

3. Methodology

3.1. Research design

The present study is grounded in a quantitative, confirmatory research design oriented toward hypothesis testing. Its central aim is to examine how perceived quiet firing, psychological contract breach, work disengagement, and turnover intention are structurally interrelated. A self-administered survey instrument was selected as the primary data collection approach because all focal constructs represent internal psychological states — employee perceptions, cognitive evaluations, and behavioral intentions — that are most reliably captured through direct self-report. All of the data was collected at the same time and, therefore, forms a cross-sectional data set. Therefore, the study does not make any claims about causality or time.

3.2. Population, sample, and data collection

The study population comprised employees working in Education Technology startups and Education Technology startups across Indonesia. For this study, an Education Technology organization is one whose primary business model involves delivering or administering educational services through digital means. The term "Education Technology startups" is used throughout this manuscript as a broad organizational category rather than a strict developmental designation. The eight participating companies were not uniform in size or founding age: some were early-stage ventures with fewer than 50 employees, while others had between 100 and 500 staff and had moved into a scaling phase. What they shared was a digitally mediated educational service model, a reliance on technically and pedagogically flexible employees, and supervisory investment as the primary mechanism for role clarity and professional development. "startups" in this context refers to these shared operational characteristics rather than to organizational age specifically. The eight companies participating in this study represented several organizational types within this broad category, including online learning platforms that deliver structured curriculum content to registered learners, digital tutoring services that connect students with instructors through app-based or web-based interfaces, and education-oriented digital service startups whose core operations support learning management, assessment, or educational content production.

A purposive sampling strategy was adopted because perceived quiet firing can only be assessed meaningfully by employees who have accumulated sufficient organizational

exposure and who work within an identifiable supervisory relationship. Two eligibility conditions were applied. First, respondents were required to have a minimum organizational tenure of seven months. This threshold was established based on the typical probationary period of three to six months observed in Indonesian Education Technology startups. Employees who have passed the seven-month mark have therefore moved beyond the initial evaluation phase and had enough sustained exposure to their supervisor's relational behavior to form meaningful assessments of support, recognition, feedback quality, and developmental access. Thus, employees that have passed the seven-month mark have presumably experienced their probationary period and have had sufficient time to form an opinion regarding the supervisory relationship. Those still within or exiting their probationary period were excluded from the study due to the potential for their evaluation of the supervisory relationship to reflect elements of the probationary period rather than the relationship itself. Finally, employees were required to have a supervisor, team leader, or manager, to ensure that each individual had a supervisory relationship with someone.

The pilot ran in April 2026 with 23 employees from the same target population. None of them flagged confusion over any item, and the wording held up under a practitioner review conducted around the same time, so the survey entered the field in May 2026 without revision. Responses were received from 255 individuals. Following eligibility screening, 65 cases were excluded: 31 respondents reported tenure of fewer than three months and 34 reported tenures between three and six months, placing all excluded cases below the seven-month threshold. No cases were excluded solely on the basis of incomplete item responses or straight-lining after the tenure screen was applied. The final analytic sample comprised 190 usable responses. Table 1 shows the distribution of respondents across the eight participating companies. Company names are anonymized to protect organizational confidentiality. Responses were distributed reasonably evenly across all eight companies, with individual contributions ranging from 18 to 31 respondents per organization. No single company contributed more than 16.3% of the total sample, reducing the risk that the findings reflect the supervisory or organizational conditions of any one firm disproportionately.

Table 1. Respondent distribution by organization

Company	Respondents	Percentage
Company A	21	11.1 %
Company B	28	14.7 %
Company C	24	12.6 %
Company D	19	10.0 %
Company E	26	13.7 %
Company F	23	12.1 %
Company G	31	16.3 %
Company H	18	9.5 %

Recruitment through LinkedIn and organizational referrals carries a selection risk that is worth naming precisely. Employees who maintain active professional profiles and engage with workplace surveys tend to be more digitally connected, more reflective about relational dynamics at work, and more concentrated in urban labor markets than the broader Education Technology workforce. That last point matters here — heightened sensitivity to relational signals is not background noise in a study about perceived quiet firing; it is directly relevant to how the focal construct is likely to be scored. Employees who are more attuned to supervisory behavior may produce stronger PQF readings than a more representative cross-

section of Indonesian Education Technology workers would. The findings are most applicable to employees who share the profile of those recruited, and generalizations beyond that profile should be made carefully.

3.3. Measures

Each construct was operationalized using multiple reflective indicators rated on a five-point Likert-type agreement scale, with anchors ranging from 1 (strongly disagree) to 5 (strongly agree). Perceived quiet firing was assessed with a ten-item scale derived from Anand, Doll, and Ray (2024) about the feelings employees have regarding the lack of support from their supervisors. A representative item is: "My supervisor rarely provides feedback that allows for my development."

Psychological contract breach was operationalized with five items drawn from Robinson and Morrison (2000). These items tap into employees' cognitive judgment that the organization has not delivered on its implicit employment obligations. A sample item reads: "There is a discrepancy between what I expected from the organization and what I actually received."

The initial steps in item development were reviewing the work of Kahn (1990) on disengagement and the items developed by Rastogi, Pati, Krishnan, and Krishnan (2018). Based on these existing items, a pool of items was developed and reviewed by three different judges: an organizational behavior faculty member, a researcher with experience in studying employee withdrawal, and an HR professional with experience in the Education Technology industry. Some items were reworded based on the feedback from these judges, and two items were eliminated that were similar to the items that were later determined to be the quiet firing items. These remaining six items were included in the April 2026 pilot with 23 members of the targeted population. The pilot served a specific and limited purpose: to screen for comprehension problems and response scale ambiguity, not to conduct psychometric evaluation. Sample size constraints ruled out exploratory factor analysis at this stage. Participants raised no concerns about item clarity or the response format, so the instrument entered main data collection without revision. Work disengagement was measured using six items written for this study. Standard engagement scales were not reverse-scored as proxies for disengagement. The reason is straightforward: low engagement and active withdrawal are not the same thing. A reverse-scored item like "I feel energized at work" tells you the energy is absent; it does not tell you the employee has consciously pulled back. The distinction matters for a study where disengagement is theorized as a motivated response to perceived organizational withdrawal rather than simply a low baseline of work investment.

The six items were developed from Kahn's (1990) theoretical account of psychological disengagement as the concurrent withdrawal of emotional, cognitive, and physical presence from a work role, and from the behavioral indicators synthesized by Rastogi, Pati, Krishnan, and Krishnan (2018). Two items target emotional detachment, two target cognitive withdrawal, and two target behavioral reduction in effort and initiative. A representative item is: "I tend to carry out my work only to the minimum required." The full item set appears in Appendix A.

The scale was specified as reflective. Disengagement is treated here as a latent psychological state that expresses itself across emotional, cognitive, and behavioral channels simultaneously. An employee who has genuinely withdrawn from work would be expected to show signs of that withdrawal across all three channels, not selectively, which supports a reflective rather than formative measurement structure (Jarvis, MacKenzie, & Podsakoff, 2003).

Before entering the main PLS-SEM, an assessment of the reflective measurement model was conducted using the main study sample alone. These analyses are based upon the same population that was used to assess the structural model. Thus, these analyses are performed as an initial assessment of the model. Standardized loadings ranged from 0.865 to 0.905, Cronbach's alpha was 0.946, composite reliability was 0.957, and AVE was 0.788 — all within ranges that meet standard reflective measurement criteria. Because exploratory factor analysis was not conducted on the pilot sample, the CFA on the main sample serves as the primary source of initial psychometric evidence for this scale. These results are promising but bounded: the scale has not been tested outside this sample, this sector, or this national context. Although the six-item work disengagement scale exhibited satisfactory levels of reliability and validity, the fact that the scale was newly developed and utilized the same sample as the structural model indicates that these findings require replication with another sample of employees. Replication in independent samples is needed before the factor structure can be treated as established.

One concern worth addressing directly is whether the perceived quiet firing items and the disengagement items are measuring something too similar to be treated as distinct constructs. The short answer is that they are not, and the distinction is both theoretical and empirical. Perceived quiet firing items describe things the organization or supervisor is perceived to be doing less of — providing feedback, offering recognition, communicating, supporting development. Disengagement items describe things the employee is doing less of — investing effort, staying present, engaging beyond minimum requirements. The constructs point in opposite directions. One shows a decrease in organizational input. The other shows a decrease in employee output. The HTMT for the PQF-WD pair is 0.494, much lower than the desired 0.85. The cross-loadings for each item in the PLS-SEM measurement model show high loadings on their respective constructs and low loadings on the other three constructs within each model. Thus, the measurement spaces for the two constructs are empirically distinct.

Turnover intention was measured using four items adapted from Tett and Meyer (1993), capturing the degree to which employees consciously contemplate and plan for departure from their current organization. An illustrative item is: "I often think about the possibility of leaving my current organization."

3.4. Data analysis technique

Structural analysis was conducted using PLS-SEM via SmartPLS 4. Given the nature of the models to be analyzed, including for both direct and indirect effects, this analytical approach was chosen for the analysis. The analysis utilizes the two-stage approach that is often applied to these types of analyses (Hair et al., 2022). The first stage involves evaluating the measurement model to determine the reliability of the individual measures within each construct (Cronbach's alpha, composite reliability) and the validity of those constructs (average variance extracted, HTMT). The second stage assesses the structural model through measures of the strength of the relationships between the constructs in the model (path coefficients), measures of the variation in the outcomes that can be explained by the models (R^2), measures of the strength of the relationships between the constructs in the model (effect sizes), and measures of the usefulness of the models to explain the outcomes (predictive relevance), in conjunction with the bootstrapped indirect effect estimates to determine the strength of the indirect relationships between the variables in the model. Significance testing for direct and mediated pathways relied on bias-corrected bootstrapping with 5,000 resamples, generating 95% confidence intervals for all estimated effects. Predictive relevance was

evaluated via blindfolding with an omission distance of seven. To address the risk of common method variance, the study incorporated both design-level and statistical controls. At the design level, survey anonymity was preserved and participants were explicitly told that no response was more correct than another. At the statistical level, Harman's single-factor test was performed alongside full collinearity variance inflation factor (VIF) diagnostics following Kock (2015). Neither procedure suggested that common method bias constituted a material threat to the structural estimates.

4. Result and Discussion

4.1. Respondent profile

The analytic sample consisted of 190 employees drawn from eight Education Technology startups and digitally oriented education companies operating in Indonesia. The largest tenure subgroup — employees with one to three years of organizational experience — represented 54.7% of the sample. Around three quarters of the employees work from a hybrid or remote work arrangement. Most of the employees that responded to the survey were female at 57.9% and aged between 25 and 35 years of age representing 63.7% of the total sample of employees. Employment status categories — full-time, contract, part-time, and probationary — were captured through respondent self-classification. Given the seven-month minimum tenure requirement, all participants had adequate organizational experience to meaningfully assess their supervisory relationship and the quality of their employment. Employment status is therefore reported as a descriptive characteristic and is not used as a structural grouping variable in the model. The variables of employment status and length of tenure in the organization were measured separately. All individuals that were classified as being probationary had a tenure in their current organization of at least seven months, thus indicating their eligibility for the program. Additional context for Table 1 reveals that the jobs held by the respondents span a range of positions. For instance, some companies included individuals whose jobs were related to developing the content to be published within the TES applications, those related to the software development of the applications themselves, and those related to the operations of the companies in general. Furthermore, each of the companies that was surveyed included companies of different sizes; each organization ranges in size from less than 50 employees to organizations that include between 100 and 500 employees. Thus, each of these individuals represent a range of company sizes, which may lead to some differences in the structure of their relationships with their subordinates. Such differences are acknowledged in the present study.

Table 2. Respondent profile

Characteristic	Category	Frequency	Percentage
Tenure	7-12 months	43	22.6%
Tenure	1-3 years	104	54.7%
Tenure	More than 3 years	43	22.6%
Employment status	Full-time	94	49.5%
Employment status	Contract	46	24.2%
Employment status	Part-time	29	15.3%
Employment status	Probation	21	11.1%
Gender	Female	110	57.9%
Gender	Male	80	42.1%
Age	20-24 years	47	24.7%

Age	25-30 years	72	37.9%
Age	31-35 years	49	25.8%
Age	36-40 years and above	22	11.6%
Work system	Hybrid	81	42.6%
Work system	Work from home/remote	61	32.1%
Work system	Work from office	34	17.9%
Work system	Flexible	14	7.4%

Note: The "Probation" category under Employment Status reflects respondents' self-reported contract classification rather than active probationary status. All respondents in this category met the seven-month minimum tenure criterion.

Source: Primary data processed, 2026.

4.2. Measurement model

Assessment of the measurement model proceeded across four criteria: indicator loadings, internal consistency reliability, convergent validity, and discriminant validity. All four constructs satisfied the benchmarks associated with reflective measurement quality. Standardized item loadings ranged from 0.842 to 0.897, comfortably exceeding the commonly applied threshold of 0.70. Reliability was strong, with Cronbach's alpha ranging from 0.907 to 0.961 and composite reliability between 0.935 and 0.966 across all constructs. Average variance extracted (AVE) values fell between 0.738 and 0.798, all surpassing the 0.50 minimum criterion, thereby confirming convergent validity.

Table 3. Measurement model

Construct	Items	Loading range	Cronbach's alpha	CR	AVE
Perceived quiet firing	QF1-QF10	0.842-0.882	0.961	0.966	0.738
Psychological contract breach	PCB1-PCB5	0.884-0.898	0.937	0.952	0.798
Work disengagement	WD1-WD6	0.865-0.905	0.946	0.957	0.788
Turnover intention	TI1-TI4	0.879-0.891	0.907	0.935	0.783

Source: SmartPLS 4 output, 2026.

Discriminant validity was evaluated through the HTMT criterion. All pairwise HTMT values fell between 0.283 and 0.596, remaining well below the conservative 0.85 ceiling, which supports the distinctiveness of the four constructs. Notably, the lowest HTMT value involved the PQF-TI pairing, indicating that employees' perceptions of relational withdrawal are empirically separable from their exit intentions. The highest HTMT value emerged between PQF and PCB, a pattern consistent with the theoretical expectation that these two constructs are more proximally linked — as declining relational support is the primary antecedent of breach perception. Item-level loadings and cross-loadings are reported in Table 4. All 25 items loaded substantially on their intended constructs, with individual loadings ranging from 0.842 to 0.897 across the four scales. Cross-loadings were uniformly lower than the corresponding item loadings in every case, confirming that each item relates more strongly to its own construct than to any other. The WD items are of particular note given that the scale was developed for this study. All six WD items loaded between 0.869 and 0.897 on the work disengagement construct, while their highest cross-loadings on the other three constructs remained below 0.503. The PQF items similarly produced their highest values on the perceived quiet firing construct, with cross-loadings on PCB reaching at most 0.520 and cross-loadings on WD reaching at most 0.439. This pattern supports the empirical distinctiveness of the two

constructs at the item level, consistent with the theoretical and directional distinction described in Section 3.3.

Table 4. Item loadings and cross-loadings

Item	Construct	Loading	PQF	PCB	WD	TI
QF1	PQF	0.860	0.860	0.445	0.393	0.218
QF2	PQF	0.882	0.882	0.470	0.372	0.229
QF3	PQF	0.868	0.868	0.520	0.439	0.295
QF4	PQF	0.857	0.857	0.411	0.366	0.242
QF5	PQF	0.863	0.863	0.432	0.387	0.299
QF6	PQF	0.881	0.881	0.469	0.406	0.284
QF7	PQF	0.868	0.868	0.518	0.436	0.245
QF8	PQF	0.842	0.842	0.440	0.379	0.226
QF9	PQF	0.842	0.842	0.409	0.373	0.211
QF10	PQF	0.857	0.857	0.444	0.390	0.254
PCB1	PCB	0.896	0.478	0.896	0.493	0.296
PCB2	PCB	0.891	0.400	0.891	0.459	0.275
PCB3	PCB	0.886	0.490	0.886	0.481	0.312
PCB4	PCB	0.888	0.477	0.888	0.466	0.313
PCB5	PCB	0.894	0.509	0.894	0.468	0.301
WD1	WD	0.878	0.394	0.476	0.878	0.459
WD2	WD	0.869	0.403	0.489	0.869	0.475
WD3	WD	0.877	0.397	0.455	0.877	0.465
WD4	WD	0.891	0.382	0.443	0.891	0.427
WD5	WD	0.897	0.437	0.502	0.897	0.442
WD6	WD	0.869	0.399	0.439	0.869	0.436
TI1	TI	0.885	0.306	0.335	0.492	0.885
TI2	TI	0.884	0.253	0.262	0.389	0.884
TI3	TI	0.881	0.248	0.329	0.481	0.881
TI4	TI	0.893	0.222	0.264	0.450	0.893

Notes: Bold values indicate indicator loadings on their intended constructs. PQF = perceived quiet firing; PCB = psychological contract breach; WD = work disengagement; TI = turnover intention.

Source: SmartPLS 4 output, 2026.

Table 5. Discriminant validity: HTMT

Construct pair	HTMT	Decision
PQF – PCB	0.596	Accepted
PQF – WD	0.494	Accepted
PQF – TI	0.283	Accepted
PCB – WD	0.590	Accepted
PCB – TI	0.305	Accepted
WD – TI	0.551	Accepted

Notes: PQF = perceived quiet firing; PCB = psychological contract breach; WD = work disengagement; TI = turnover intention.

Source: SmartPLS 4 output, 2026.

In order to examine the collinearity of the structural model paths, the VIF values were examined. The values ranged from 1.000 to 1.749, both within the limits considered acceptable. Full collinearity VIF diagnostics (Kock, 2015) produced values between 1.355 and 1.869,

providing no grounds for concern that common method variance substantially distorted the model estimates. Taken together, these measurement model results provide a solid basis for proceeding to structural hypothesis testing.

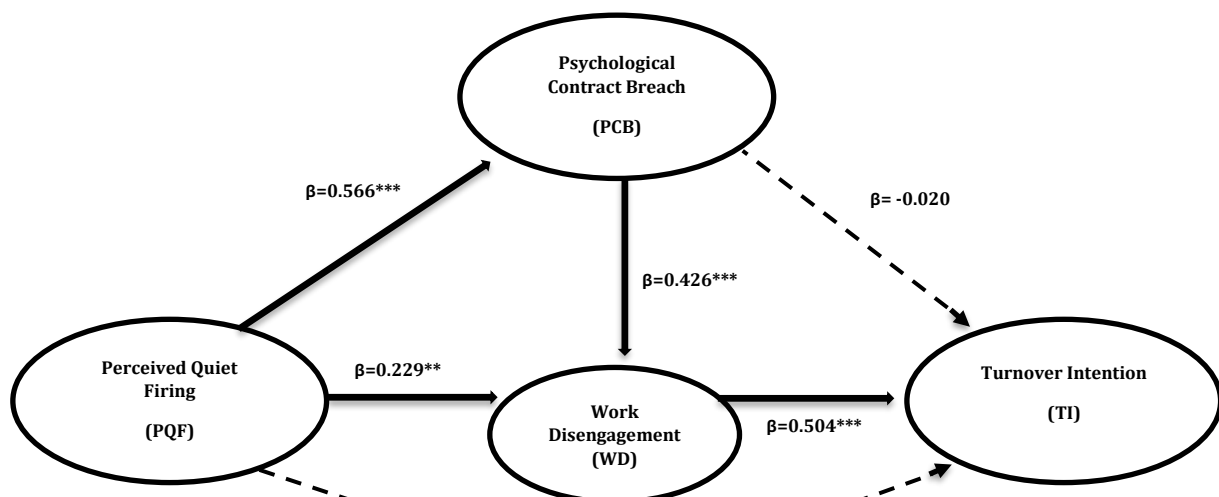
One measurement characteristic warrants brief comment. Cronbach's alpha values for perceived quiet firing (0.961) and work disengagement (0.946) are high enough to invite scrutiny for possible item redundancy. The loading patterns and conceptual coverage do not indicate obvious redundancy, although the high reliability coefficients warrant further examination of scale parsimony. Future research should compare the current scales with shorter alternatives using inter-item correlations, item-total correlations, predictive validity, and independent replication. Loading ranges across both scales show meaningful variation — 0.842 to 0.882 for PQF and 0.865 to 0.905 for WD — rather than the near-identical values that would indicate items are measuring the same narrow slice of content. PQF items span five conceptually distinct facets of relational withdrawal, and WD items cover three distinct withdrawal channels. In reflective measurement, strong inter-item correlation under these conditions reflects construct cohesion rather than duplication (Jarvis, MacKenzie, & Podsakoff, 2003).

4.3. Structural model and hypothesis testing

The structural model was examined in terms of path coefficients, explained variance (R^2), effect sizes (f^2), predictive relevance (Q^2), and bootstrapped mediation estimates. PQF accounted for 32.1% of the variance in PCB. Together, PQF and PCB explained 34.5% of the variance in WD. The combined set of predictors — PQF, PCB, and WD — accounted for 26.2% of the variance in TI. In addition to the variables included in this model, there are other potential influences upon TI from factors outside of the model entirely, such as compensation levels, labor market availability, career considerations, and even family and personal contingencies.

In terms of effect size, the PQF→PCB path yielded a large f^2 , while the PCB→WD and WD→TI paths produced medium effects, and the PQF→WD direct path registered a small effect. These effect sizes reflect the strength of statistical associations in a cross-sectional sample. They are consistent with the theoretically proposed ordering but do not speak to whether that ordering holds across time in actual organizational settings. They do not speak to causal direction or temporal precedence among the four constructs. Q^2 values were positive across all endogenous constructs, confirming adequate out-of-sample predictive relevance for the full model.

Figure 2. PLS-SEM results model



—— Significant Path ($p < 0.05$)
 - - - - Non-Significant Path ($p \geq 0.05$)

Notes: *** $p < 0.001$; ** $p < 0.01$; ns = not significant.

Source: SmartPLS 4 output, 2026.

Direct effect estimates are reported in Table 6. H1 was confirmed: PQF was positively and significantly associated with PCB. H2 was confirmed: PCB showed a significant positive association with WD. H3 was confirmed: WD exhibited the strongest direct association with TI in the model. H4 was also confirmed: PQF was directly and positively associated with WD. Neither the PQF→TI nor the PCB→TI direct path reached significance once the mediators entered the model. The PCB→TI coefficient deserves a brief note: at $\beta = -0.020$, the sign is negative, which sits oddly against a theory that predicts breach should push employees toward exit. The explanation is statistical rather than substantive. When an indirect path absorbs most of a predictor's effect on the outcome — as PCB→WD→TI does here at $\beta = 0.215$ — the algebraic partitioning in PLS-SEM can leave a small negative residual on the direct path. MacKinnon, Krull, and Lockwood (2000) call this inconsistent mediation. The total effect of PCB on TI is $\beta = 0.195$, positive and in the expected direction, which reflects the overall statistical association between the two constructs.

Table 6. Direct effects and hypothesis testing

Hypothesis / Path	B	t-value	p-value	Decision
H1: PQF → PCB	0.566	9.419	<0.001	Supported
H2: PCB → WD	0.426	5.938	<0.001	Supported
H3: WD → TI	0.504	6.471	<0.001	Supported
H4: PQF → WD	0.229	3.186	0.002	Supported
PQF → TI	0.039	0.497	0.620	Not supported
PCB → TI	-0.020	-0.242	0.809	Not supported

Notes: PQF = perceived quiet firing; PCB = psychological contract breach; WD = work disengagement; TI = turnover intention.

Source: SmartPLS 4 output, 2026.

Indirect effect estimates are shown in Table 7. H5 was supported: WD significantly mediated the PQF→TI relationship. H6 was also supported: the full serial pathway from PQF through PCB, then through WD, to TI was statistically significant. By contrast, the pathway running from PQF through PCB alone — bypassing WD — was non-significant, indicating that PCB connects to TI primarily via the motivational withdrawal stage represented by work disengagement.

The total effect of perceived quiet firing on turnover intention, combining the non-significant direct path with all indirect paths through the mediators, was $\beta = 0.264$ (total indirect $\beta = 0.225$, direct $\beta = 0.039$). The non-significant direct path combined with significant indirect paths through psychological contract breach and work disengagement indicates that the relationship between perceived quiet firing and turnover intention operates entirely through the proposed mediators. In contemporary mediation terminology, this pattern is better described as indirect-only mediation rather than full mediation, because the latter term implies that a previously significant direct effect was absorbed by the mediators. In the present model, the direct path was not significant even without the mediators in the structural equation, which means the total effect of quiet firing on turnover intention is better understood as mediated from the

outset rather than reduced through mediation. Effect sizes for each structural path are reported in Table 8.

Table 7. Indirect effects

Indirect path	β	95% CI	p-value	Decision
H5: PQF → WD → TI	0.115	[0.044, 0.201]	0.002	Supported
H6: PQF → PCB → WD → TI	0.122	[0.069, 0.187]	<0.001	Supported
PQF → PCB → TI	-0.011	[-0.104, 0.072]	0.805	Not supported
Total indirect: PQF → TI	0.225	[0.118, 0.341]	<0.001	Supported
PCB → WD → TI	0.215	[0.127, 0.319]	<0.001	Supported

Notes: PQF = perceived quiet firing; PCB = psychological contract breach; WD = work disengagement; TI = turnover intention; CI = confidence interval.

Source: SmartPLS 4 output, 2026.

Table 8. Effect sizes and model fit

Path	β	F ²	Decision
PQF → PCB	0.566	0.472	Large
PCB → WD	0.426	0.139	Small
PQF → WD	0.229	0.040	Small
WD → TI	0.504	0.198	Medium
PQF → TI (direct)	0.039	0.002	Negligible
PCB → TI (direct)	-0.020	0.001	Negligible

Notes: β = standardized path coefficient; f^2 = effect-size interpretation follows commonly used PLS-SEM guidelines: $f^2 < 0.02$ indicates a negligible effect; $0.02 \leq f^2 < 0.15$ indicates a small effect; $0.15 \leq f^2 < 0.35$ indicates a medium effect; and $f^2 \geq 0.35$ indicates a large effect.

Source: SmartPLS 4 output, 2026.

4.4. Discussion

The strong link between perceived quiet firing and psychological contract breach extends the work of Anand, Doll, and Ray (2024) in that it indicates that the experience of relational withdrawal in the workplace is linked not only to employees' perceptions of support but also to their evaluations of the extent to which the organization has fulfilled its implicit obligations. These results expand the application of psychological contract theory by providing evidence for its utility in contexts marked by organizational ambiguity rather than overt breach occurrences. Because quiet firing is theorized to unfold gradually through reduced responsiveness rather than overt action, employees are proposed to draw on cumulative relational signals when reassessing whether the organization's commitments to fairness, reciprocity, and developmental investment remain intact. The present data cannot confirm that this process unfolds in this sequence over time, though the pattern of associations is consistent with that reading.

The confirmed association between psychological contract breach and work disengagement is consistent with Topa, Aranda-Carmena, and De-Maria's (2022) broader finding that breach produces a range of adverse employee outcomes. What the present study adds is a more precise characterization of how this outcome manifests: rather than translating directly into exit intentions, the consequence of breach appears to be primarily motivational in nature. Employees respond to perceived obligation violations by pulling back their emotional, cognitive, and behavioral investment in work — a dynamic that Rastogi, Pati, Krishnan, and Krishnan (2018) link to experiences of organizational unfairness and resource withdrawal. This positions work disengagement not merely as a symptom of breach but as a critical

intervening state through which relational deterioration is converted into withdrawal-oriented cognition.

Among all direct paths in the model, work disengagement emerged as the most proximate predictor of turnover intention. This finding underscores that employees' exit cognition is more immediately tied to their motivational disengagement from work than to either perceived quiet firing or psychological contract breach considered independently. Theoretically, this aligns with staged models of voluntary withdrawal, wherein employees undergo a sequence of evaluative and motivational shifts before consolidating an intention to leave. By the time disengagement is visible, a late-stage cognitive transition toward departure may already be well underway. For Education Technology startups, this implies that managerial attention must be directed upstream — toward relational warning signals such as deteriorating feedback exchanges, declining recognition, marginalization from key decisions, and blocked pathways to development.

The direct effect of perceived quiet firing on work disengagement, though modest in size, is theoretically informative. It suggests that the route from quiet firing to disengagement is not exclusively channeled through the cognitive appraisal of breach. For a subset of employees, motivational withdrawal may be triggered more immediately — not because they have explicitly concluded that their psychological contract has been violated, but because the resources required to sustain engagement are perceived to be draining away. This interpretation is aligned with the resource conservation logic embedded in the Job Demands-Resources model. Nonetheless, the substantially stronger indirect pathway running through psychological contract breach suggests that relational evaluation remains the dominant explanatory mechanism connecting perceived quiet firing to disengagement.

The mediation results extend Atiku, Jeremiah, and Genty (2025) by tracing the route through which quiet firing connects to exit cognition. Once breach and disengagement enter the model, neither PQF nor PCB retains a significant direct path to turnover intention. The small negative coefficient on PCB→TI warrants a direct comment. It does not mean breach reduces exit thinking — the total effect of PCB on TI is $\beta = 0.195$, squarely positive. The negative sign on the direct path is a partitioning artifact: when the indirect route through disengagement is this strong, the residual left for the direct path can tip slightly negative, a pattern MacKinnon, Krull, and Lockwood (2000) identify as inconsistent mediation. The substantive conclusion is that breach connects to turnover intention through disengagement — the cognitive stage feeds the motivational one, and it is the motivational one that directly precedes exit cognition. The serial mediation result is consistent with the proposition that PCB and work disengagement occupy distinct, theoretically ordered roles in the process connecting perceived relational decline to turnover cognition. Whether this ordering reflects an actual temporal sequence remains a question for research designs that can track these constructs across time.

The theoretical relevance of these findings also connects to the context of Indonesia specifically. For example, authors Scholze and Hecker (2023) have noted that the job resources that exist within many digital work environments have a significant impact upon the motivation of employees within those organizations. The prevalence of hybrid and remote working arrangements in the current sample could aggravate this phenomenon: without regular face-to-face interaction, employees have relatively few incidental encounters for interpreting ambiguous or diminished supervisory behavior. Silence, lack of feedback, and absence of recognition may thus be interpreted as more diagnostic indicators of organizational withdrawal than they might be in traditional co-located setups. This context contributes to

further explain the strong relationship between perceived quiet firing and psychological contract breach, and indicates the need to design intentional, purposeful relational practices within Education Technology workplaces.

Taken together, the findings substantiate a serial mediation account of the relationship between perceived quiet firing and turnover intention. The observed pattern is consistent with a theoretically proposed sequential psychological process in which relational evaluation and motivational disengagement occupy ordered but non-interchangeable roles. This account also helps to explain the differences in the responses that different employees have to quiet firing. Some employees will have a higher tolerance for the lack of support from their supervisors before they begin to form a desire to leave their job than others. Thus, this model allows for additional depth to be provided to the literature regarding employee withdrawal regarding the specific reasons for such a withdrawal.

5. Conclusion and Suggestion

This study drew on responses from 190 employees across eight Indonesian Education Technology startups to examine whether perceived quiet firing reaches turnover intention through psychological contract breach and work disengagement, in that order. The PLS-SEM results supported the model. The ordering itself, however, rests on theory rather than on observed sequence — what the cross-sectional data can show is that the proposed arrangement fits the pattern of associations; it cannot show that employees actually move through these stages in this direction across time. Perceived quiet firing was significantly positively associated with both psychological contract breach and work disengagement. Psychological contract breach predicted work disengagement, with work disengagement emerging as the most proximal structural antecedent of turnover intention. Once the mediators were included in the model, neither perceived quiet firing nor psychological contract breach retained a significant direct path to turnover intention.

The principal theoretical contribution is the specification of a psychologically grounded sequence through which perceived quiet firing is proposed to connect with turnover intention. The word "sequence" here refers to a theoretically justified ordering of constructs, not a verified temporal progression. The cross-sectional evidence shows this ordering is statistically viable; whether it holds across time is a question for longitudinal research. The cross-sectional evidence shows this specification is statistically viable; confirming the temporal ordering requires longitudinal data. The absence of a significant direct path from perceived quiet firing to exit cognition, once the mediators are in the model, affirms startups that relational appraisal and motivational disengagement are not peripheral variables but constitutive stages of the withdrawal process. Psychological contract breach operates as the mechanism through which employees cognitively evaluate the employment relationship, while work disengagement represents the subsequent motivational consequence of that evaluation. Treating these two constructs as substitutable in employee withdrawal research would obscure the distinct theoretical functions they serve.

Additionally, the study adds to a larger but growing body of empirical work on perceived quiet firing by grounding it empirically within Education Technology startups. These environments are typified by a unique reliance on employee flexibility, personal autonomy, and adherence to the organizational mission. Such employees may interpret a shrinkage of their levels of supervisory support, recognition, communication, or developmental investment as evidence of the organization's diminished dedication to them. This reframing of the nature

of the employment relationship, according to the research, is what activates the motivational withdrawal and exit cognition that ensues.

The following logic is practical and follows from the above findings. Intervention must happen before disengagement becomes visible. At the point where an employee is performing only the minimum of the job requirements and refusing to participate in team meetings or tasks beyond their job description, the employee has already processed their thoughts regarding the job and their role in the organization. Waiting to take any action until after such behavioral disengagement has occurred means that the organization is responding to a late-stage process of disengagement on the part of that employee.

At the supervisor level, the best lever exists in the change to the conversations that take place between the manager and the employee. Conveying information regarding role clarity, recognition, development and career can ensure that the supervisor still feels invested in the employee. In hybrid and remote Education Technology environments, where employees cannot read organizational investment through physical proximity or informal interaction, these conversations are not a nice addition to supervisory practice. They are the main channel through which employees form judgments about whether the organization still values them.

At the organizational level, the learning assignments and opportunities for employees should be visible to all employees. If employees are not able to see how the organization distributes such opportunities, it is likely that employees will believe that they are being “quiet fired” by the organization. By making such opportunities visible and distributed in a manner that all employees can understand, the organization can reduce the likelihood that any such interpretations of such processes lead to employees believing that they are being quietly fired by the organization.

HR functions in Education Technology startups should consider moving disengagement screening upstream, before exit interviews and after onboarding, rather than treating it as a reactive measure. Periodic team-level pulse surveys that ask directly about perceived supervisory support, recognition frequency, and communication quality would allow organizations to detect breach-level signals while employees are still psychologically present enough for relational repair to be possible. The data from this study suggest that once work disengagement is established, turnover intention is already close behind.

A key implication concerns the timing of organizational intervention. Managerial action that waits until disengagement is visibly manifest — evidenced by reduced voluntary effort, declining communication, and withdrawal from discretionary activities — may already be responding to a late-stage process. By that point, turnover cognition may be taking shape. Preventive strategies must therefore operate upstream, at the level of the relational conditions that precede breach: sustained supervisory communication, transparent recognition of contributions, and equitable distribution of development opportunities.

6. Limitations and Future Research

Several limitations require transparent acknowledgment. The most consequential concerns the cross-sectional design and its implications for the serial mediation interpretation. The manuscript uses phrases such as “sequential psychological process” and “ordered pathway” to describe the proposed model, but these terms refer to a theoretically specified ordering of constructs rather than to a temporal process that has been observed or tracked. All four constructs were measured at the same point in time. The proposed ordering — perceived quiet firing preceding breach, breach preceding disengagement, and disengagement preceding turnover intention — is grounded in psychological contract theory, the Job Demands-

Resources model, and established frameworks of employee withdrawal, but it remains a theoretical proposition in this study. The statistical associations reported here are consistent with that proposition; they cannot confirm it as a temporal sequence. Future research should test the model using time-lagged panel surveys or experience-sampling designs that capture breach, disengagement, and exit cognition at separate measurement points, allowing the proposed ordering to be evaluated against actual data on how these states develop over time. Second, the sampling approach has directional limitations that matter for how the findings should be read. LinkedIn recruitment and organizational referrals tend to reach employees who are more digitally active, more reflective about workplace relationships, and concentrated in urban Indonesian labor markets (Jakarta, Bandung, Surabaya) where Education Technology startups cluster and where competitive hiring conditions already elevate turnover cognition. These are not neutral characteristics in a study about perceived quiet firing. Employees who pay close attention to relational dynamics at work are more likely to notice — and score highly on — the kinds of supervisory withdrawal the PQF scale captures. Employees in dense urban labor markets have more visible exit options, which compresses the psychological distance between disengagement and turnover intention. Both conditions could pull the observed path coefficients upward relative to what a more representative Education Technology sample would produce. Future research should deliberately seek out non-urban workers and smaller companies that fall outside the typical LinkedIn professional network. A separate but related concern is within-company clustering. All 190 respondents were nested inside eight organizations, and employees who share a supervisory culture, HR practices, and organizational conditions are not fully independent of one another. The even spread across companies, 18 to 31 respondents per firm — limits the influence of any single organization, but it does not resolve the nesting problem. Multilevel modeling in future work would allow between-company variance to be separated from individual-level effects rather than left in the residual.

Third, all constructs were measured through employee self-report. While procedural safeguards, Harman's single-factor test, and full collinearity VIF diagnostics collectively suggest that common method variance did not substantially distort the structural estimates, single-source data introduces an inherent limitation that these tests cannot fully eliminate. Future research would benefit from methodological triangulation — incorporating supervisor assessments, HR records, behavioral indicators, or longitudinal turnover data — to strengthen confidence in the relationships identified.

Fourth, the survey instrument lacked formal attention-check items. Inattentive responses were partially controlled through the exclusion of straight-lining and missing-value patterns, but dedicated validity screening would provide stronger assurance of data quality in future replications. Fifth, the work disengagement scale was developed for this study and appears here for the first time in a published context. The development procedure included theoretical item generation from Kahn (1990) and Rastogi et al. (2018), independent content review by three judges, and a pilot administration with 23 respondents screened for comprehension. Exploratory factor analysis was not conducted during piloting, as the sample size did not support it; the unidimensional structure was instead evaluated through confirmatory factor analysis on the main sample. The psychometric results were satisfactory within this context, but one sample from one national setting is not sufficient grounds for treating the factor structure as generalizable. Independent replication — ideally across sectors, employment

arrangements, and cultural settings — is necessary before the scale can be adopted with confidence in other research contexts.

Whether the serial indirect pathway identified here holds equally across gender subgroups and work arrangements — on-site, hybrid, and fully remote — remains an open question. Employees navigating hybrid and remote contexts may be particularly sensitive to supervisory withdrawal precisely because ambient relational cues are already sparse in those settings; female employees in Indonesian EdTech companies may interpret developmental exclusion differently from their male counterparts given the gendered dynamics of career sponsorship in this sector. These are substantive questions rather than minor moderating footnotes, and testing them properly requires measurement invariance to be established through the MICOM procedure before group comparisons are attempted. Future research should treat moderated mediation across these subgroups as a primary aim rather than a supplementary check. Additionally, this study used turnover intention as a proxy for voluntary exit rather than observed departure, which is standard practice in withdrawal research but limits the strength of behavioral inference. Linking the serial mediation pathway to longitudinal HR records on actual resignation would substantially strengthen the practical relevance of these findings.

Future research directions may explore cultural and value-related moderators in the perceived quiet firing to withdrawal process. In the Indonesian context, Islamic Work Ethics, which are based on the principles of trust, justice, and excellence, may influence employees' perceptions of fairness and reciprocity in organizations, thereby increasing or decreasing their reactions to perceived relational withdrawal. If Islamic Work Ethics moderates the relationship between perceived quiet firing and psychological contract breach, or between breach and disengagement, studies in that direction could have relevance to the quiet firing literature, as well as to the emerging literature on Islamic management values at work in Indonesian startups (Akhmadi et al., 2023; Faizah et al., 2024).

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Declaration of AI and AI-assisted technologies in the writing process

The author(s) used ChatGPT by OpenAI only for brainstorming, language editing, formatting assistance, and to improve clarity during the preparation of this manuscript. The tool was not employed for creating research data, interpreting empirical results, or replacing the authors' academic judgment. After using this tool, the author(s) carefully reviewed, revised, and edited all content and take full responsibility for the accuracy, originality, and integrity of the manuscript.

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Appendix A. Survey Items and Individual Loadings

Perceived Quiet Firing

Adapted from Anand, Doll, and Ray (2024)

QF1 ($\lambda = 0.860$). My supervisor rarely provides feedback that supports my development.

QF2 ($\lambda = 0.882$). My supervisor has reduced the amount of support provided to me compared with before.

QF3 ($\lambda = 0.868$). I receive less recognition from my organization than I used to.

QF4 ($\lambda = 0.857$). My involvement in team decisions has decreased over time.

QF5 ($\lambda = 0.863$). My organization communicates with me less frequently than it previously did.

QF6 ($\lambda = 0.881$). I feel excluded from important discussions that affect my work.

QF7 ($\lambda = 0.868$). My access to learning and development resources has been reduced.

QF8 ($\lambda = 0.842$). My supervisor pays less attention to my professional growth than before.

QF9 ($\lambda = 0.842$). The organization no longer appears to be invested in my future here.

QF10 ($\lambda = 0.857$). I have been given fewer meaningful responsibilities than I previously had.

Psychological Contract Breach

Adapted from Robinson and Morrison (2000)

PCB1 ($\lambda = 0.896$). There is a discrepancy between what I expected from the organization and what I actually received.

PCB2 ($\lambda = 0.891$). My organization has broken many of its promises to me.

PCB3 ($\lambda = 0.886$). I have not received everything that was promised to me in exchange for my contributions.

PCB4 ($\lambda = 0.888$). My organization has failed to fulfill the obligations it promised to me.

PCB5 ($\lambda = 0.894$). I feel that my organization has not honored the terms of our agreement.

Work Disengagement

Developed for this study

WD1 ($\lambda = 0.878$). I tend to perform only the minimum amount of work required.

WD2 ($\lambda = 0.869$). I find it difficult to remain emotionally present while performing work-related tasks.

WD3 ($\lambda = 0.877$). I rarely go beyond what is strictly necessary in my job.

WD4 ($\lambda = 0.891$). My mind often drifts away from what I am supposed to be doing at work.

WD5 ($\lambda = 0.897$). I have stopped investing effort in tasks that are not immediately monitored.

WD6 ($\lambda = 0.869$). I feel detached from the work I do each day.

Turnover Intention

Adapted from Tett and Meyer (1993)

TI1 ($\lambda = 0.885$). I often think about the possibility of leaving my current organization.

TI2 ($\lambda = 0.884$). I am actively looking for opportunities to work elsewhere.

TI3 ($\lambda = 0.881$). I intend to leave this organization within the next year.

TI4 ($\lambda = 0.893$). I would leave this organization as soon as possible if I had the opportunity.

Note. All items were rated using a five-point Likert-type agreement scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The symbol λ represents the standardized outer loading obtained from the SmartPLS 4 output generated in 2026.