



Perceived Replaceability as a Relational Employment Signal: A Sequential Model of Identity Threat, Work Meaning, Engagement, and Withdrawal

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ABSTRACT

As organizations increasingly structure work in ways that emphasize comparability and interchangeability, employees may come to view their own contributions as readily replaceable. This study examines perceived replaceability as a relational cue within the employee – organization relationship and investigates its implications for withdrawal behavior. We argue that employees who perceive themselves as replaceable are more likely to experience identity threat, which weakens perceived work meaning and, in turn, lowers work engagement, thereby increasing withdrawal behavior. We further propose that perceived organizational appreciation reduces the extent to which replaceability perceptions are experienced as identity threatening. The proposed model was tested with three-wave, multi-source data from 406 employee–supervisor dyads. The results indicate that perceived replaceability is associated with withdrawal behavior both directly and through the sequential pathway involving identity threat, work meaning, and work engagement. In addition, perceived organizational appreciation attenuates the positive relationship between perceived replaceability and identity threat. These findings contribute to the employee withdrawal literature by showing how relational signals of substitutability can erode employees' psychological attachment to work and by highlighting the protective role of organizational appreciation and meaningful work.

1. Introduction

Organizations today increasingly coordinate work through formalized procedures, clearly specified roles, and technology - supported performance systems. These arrangements often enhance efficiency by making work more transparent and comparable across employees^[1,2]. Yet such systems may also carry unintended symbolic consequences. When performance is rendered highly visible, standardized, and easy to benchmark, employees may infer not only how well they are doing, but also how easily their contributions could be substituted by others. Recent research on digital control and

algorithmic organizing suggests that these work arrangements can reshape how employees interpret their place in the organization, especially when labor becomes more measurable and interchangeable^[3,4].

This possibility is consequential because withdrawal behavior often signals deterioration in the employee–organization relationship. Existing research has shown that employees are more likely to reduce effort, disengage psychologically, or distance themselves from work under unfavorable conditions, weakened attachment, or poorer exchange relationships^[5-7]. However, most prior work has concentrated on well-studied antecedents such as insecurity, dissatisfaction, or low support. Considerably less attention has been given to whether employees may also withdraw when

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organizational arrangements imply that they are not distinctive or particularly difficult to replace. This issue deserves closer attention because organizations communicate value not only through rewards and interpersonal treatment, but also through the way work itself is structured.

In this study, we focus on perceived replaceability, defined as employees' belief that their role or contribution can be readily carried out by others. This perception is conceptually different from job insecurity and perceived organizational support. Job insecurity concerns uncertainty about the continuity of employment, whereas perceived organizational support captures a broader belief that the organization cares about employees and values their well-being. By contrast, perceived replaceability speaks more directly to whether employees see themselves as unique, significant, and difficult to substitute within the employment relationship. In this sense, it can be understood as a relational employment signal that informs employees' interpretation of their own standing and worth in the organization^[8,9]. Prior work on standardized work systems and digital monitoring also suggests that such arrangements may implicitly communicate substitutability and thereby shape employees' sense of distinctiveness and relational attachment^[3,4].

A relational view of replaceability further suggests that its consequences are unlikely to be immediate or purely behavioral. Employees derive part of their self-definition from work roles, and threats to valued identities can provoke strong cognitive and affective responses^[9,10]. When employees interpret organizational conditions as signaling that they are easily replaceable, they may begin to question whether their role is personally significant or socially valued. Such concerns are likely to affect the extent to which work feels meaningful. Research on meaningful work has shown that people are more motivated and psychologically invested when they regard their work as worthwhile, purposeful, and connected to a valued sense of self^[11-13]. Meta-analytic evidence likewise indicates that meaningful work is positively associated with motivational and engagement-related outcomes and negatively associated with withdrawal-related tendencies^[14].

These arguments also have implications for work engagement. Engagement reflects the extent to which employees bring energy, dedication, and attention to their work^[15]. Although job resources matter, engagement also depends on whether employees see their work as worth investing in^[16]. If employees come to view themselves as interchangeable and their work as less meaningful, their willingness to devote effort and attention to role performance may weaken. Over time, this erosion in psychological investment may be expressed in forms of withdrawal. Seen from this angle, withdrawal is better understood as the end point of a gradual process through which adverse relational signals undermine employees' connection to their work.

The present study develops this argument by conceptualizing perceived replaceability as a relational employment signal and examining how it relates to withdrawal behavior through identity threat, work meaning, and work engagement. We also introduce perceived organizational appreciation as a boundary condition. Appreciation may shape how employees interpret replaceability cues: when employees believe that the

organization genuinely recognizes and values their contribution, cues of substitutability may be less likely to be taken as evidence of personal insignificance. In contrast, when appreciation is weak, the same cues may be more readily interpreted as threatening to one's work-based identity.

Using three-wave, multi-source data from 406 employee-supervisor dyads, this study makes several contributions. First, it extends research on employee withdrawal by identifying perceived replaceability as a distinct relational antecedent that is not reducible to job insecurity or organizational support. Second, it advances a process explanation that links replaceability perceptions to withdrawal through a sequence of psychological mechanisms involving identity threat, work meaning, and work engagement. Third, it highlights perceived organizational appreciation as a relational buffer that may weaken the harmful implications of replaceability cues. Together, these contributions broaden understanding of how employees interpret organizational signals about their value and why such interpretations can shape disengagement and withdrawal in contemporary workplaces.

2. Literature review and hypotheses

2.1. Perceived replaceability as a relational employment signal

Employees do not respond to work arrangements only in instrumental terms; they also interpret what those arrangements imply about their place in the organization. When jobs are designed in ways that make performance highly comparable and labor easily exchangeable, employees may infer that their role is not especially distinctive. In this sense, perceived replaceability concerns more than task flexibility. It reflects an employee's belief that his or her contribution can be readily substituted by others and therefore carries implications for perceived standing within the employment relationship.

This perception should be distinguished from adjacent constructs. Job insecurity refers primarily to uncertainty about whether one will continue to hold the job^[17]. Perceived organizational support, in contrast, captures a broader belief that the organization values employees and cares about their well-being^[7,18]. Perceived replaceability addresses a different issue: whether employees see themselves as uniquely valued or as functionally interchangeable. Prior work on objectification and fungibility at work similarly suggests that employees may experience organizational treatment as devaluing when they are treated as replaceable resources rather than as distinctive contributors^[19]. Earlier research on felt dispensability also indicates that perceptions of being unnecessary or interchangeable can reduce psychological investment in collective tasks^[20]. These perspectives support the view that replaceability is not merely an economic condition but a relational signal about personal significance.

The relationship between perceived replaceability and identity threat may not be equally strong in all settings. In highly skilled or developmental work contexts, employees may sometimes interpret replaceability cues as a challenge to improve capabilities rather than as direct devaluation.

However, in standardized and closely monitored service roles, where employees have fewer opportunities to demonstrate idiosyncratic value, replaceability cues are more likely to be interpreted as evidence that the organization does not regard the employee as distinctive. The present study therefore focuses on labor-intensive service settings, where the identity implications of substitutability should be especially salient.

From an identity perspective, this signal is consequential. Employees often rely on work roles to maintain a sense of competence, distinctiveness, and relevance. Identity threat occurs when events or cues are appraised as potentially harming the value, meanings, or enactment of a valued identity^[10]. If organizational arrangements suggest that one's contribution is easily substitutable, employees may experience this not merely as a structural feature of work, but as a devaluation of the self in the work context. Under such conditions, work-based identity is more likely to feel unsettled or undermined. Therefore, perceived replaceability should increase identity threat.

Hypothesis 1 (H1): Perceived replaceability is positively associated with identity threat.

2.2. Identity threat and work meaning

Work becomes meaningful, in part, when employees are able to connect what they do with a valued sense of self. Meaning is not produced by tasks alone; it is also shaped by whether employees can see their work as affirming, worthwhile, and personally significant^[11,21-23]. Meaningful work research has repeatedly shown that significance, purpose, and self-congruence are central to employees' motivation and well-being^[12-14,24].

Identity threat should therefore undermine work meaning because it damages one of the foundations through which meaning is constructed. When employees feel that who they are at work is being questioned, diminished, or devalued, it becomes harder to experience their role as worthwhile and important. Even when the formal content of the job remains unchanged, the meaning attached to that work may erode if employees no longer see it as supporting a valued self-concept.

There may be circumstances in which identity threat stimulates coping, identity work, or proactive attempts to restore self-worth. However, such restorative responses require social resources, autonomy, or credible signals that the threatened identity can be repaired. In the absence of such resources, identity threat is more likely to weaken the perceived meaningfulness of the role. Accordingly, greater identity threat should be associated with lower work meaning.

Hypothesis 2 (H2): Identity threat is negatively associated with work meaning.

2.3. Work meaning and work engagement

Employees are more likely to invest themselves in work when they believe that what they do matters. Work meaning provides a reason for sustained psychological involvement because it links everyday activities to a broader sense of value and purpose. When employees experience their work as worthwhile, they are more inclined to devote energy, attention, and commitment to it.

This logic aligns with existing research showing that meaningful work is associated with stronger motivation and engagement-related states^[13,14,24]. It is also consistent with the view that work engagement reflects an active investment of the self in role performance^[16,25,26]. Employees who experience higher work meaning should therefore be more vigorous, more dedicated, and more absorbed in their work than those who see their work as lacking significance.

The meaning–engagement link should be particularly relevant in standardized work contexts. When work tasks are routine or tightly specified, employees may have limited discretion to redesign tasks, so the subjective meaning attached to work becomes an important motivational resource. Conversely, when work feels insignificant, employees have fewer psychological reasons to maintain high levels of energy and dedication. Thus, work meaning should be positively associated with work engagement.

Hypothesis 3 (H3): Work meaning is positively associated with work engagement.

2.4. Work engagement and withdrawal behavior

Withdrawal behavior refers to actions through which employees reduce their connection to work, such as withholding effort, avoiding responsibilities, or becoming psychologically detached from role demands^[5]. Prior withdrawal research has shown that employees' work attitudes and motivational states are important predictors of behavioral distancing from the job^[6].

Work engagement should therefore be negatively related to withdrawal behavior. Employees who approach work with energy, dedication, and attentiveness are less likely to distance themselves from job responsibilities. By contrast, when engagement is low, employees may be more inclined to conserve effort, disengage from tasks, and retreat from active involvement. This expectation is consistent with prior findings linking engagement to favorable behavioral outcomes and linking disengagement to withdrawal-related responses^[6,16].

At the same time, withdrawal is not necessarily an immediate reaction to every negative experience. Employees may continue to comply with formal job requirements even when psychological investment declines. For this reason, engagement is theorized here as the more proximal motivational state through which earlier identity and meaning processes are translated into observable withdrawal. Thus, lower work engagement should be associated with higher withdrawal behavior.

Hypothesis 4 (H4): Work engagement is negatively associated with withdrawal behavior.

2.5. The moderating role of perceived organizational appreciation

Although perceived replaceability may be threatening, employees are unlikely to interpret it in exactly the same way across contexts. Their broader relationship with the organization should shape whether cues of substitutability are viewed as merely structural or as personally devaluing. One factor that may be especially relevant is perceived organizational appreciation, that is, the belief that the

organization notices and values one's contribution.

When appreciation is high, employees may be less likely to interpret replaceability cues as evidence that they are insignificant. Organizational recognition can provide an alternative basis for self-worth, making potentially adverse signals less damaging to work-based identity. When appreciation is low, however, employees have fewer relational cues indicating that they are valued, so replaceability perceptions may more readily translate into identity threat. This expectation is consistent with organizational support research showing that perceived valuation by the organization shapes how employees interpret workplace experiences^[7,27,28], as well as with relational perspectives emphasizing the role of broader exchange context^[29]. Thus, perceived organizational appreciation should weaken the positive relationship between perceived replaceability and identity threat.

Hypothesis 5 (H5): Perceived organizational appreciation moderates the relationship between perceived replaceability and identity threat, such that the positive association is weaker when perceived organizational appreciation is high.

2.6.A Sequential process linking perceived replaceability to withdrawal

The preceding arguments suggest that the effect of perceived replaceability on withdrawal behavior is best understood as an unfolding process rather than a simple one-step relationship. When employees perceive themselves as easily substitutable, they are more likely to experience threat to their work-based identity. This, in turn, should diminish the extent to which their work feels meaningful. Reduced meaning should make strong engagement less likely, and lower engagement should ultimately increase withdrawal behavior.

A sequential mediation model is theoretically preferable to a purely parallel mediation model for two reasons. First, the three mediators represent different levels of psychological processing. Identity threat is a self-evaluative appraisal of what replaceability means for who one is at work. Work meaning is an interpretive judgment about whether the role remains worthwhile and significant. Work engagement is a motivational state reflected in energy, dedication, and involvement. These processes are related, but they are not interchangeable. The model therefore assumes a movement from identity appraisal, to meaning evaluation, to motivational investment, and finally to behavioral withdrawal.

Second, the ordering reflects the temporal logic of relational signal interpretation. A replaceability cue first challenges employees' perceived personal significance in the organization; this identity-based concern then changes the meaning employees attach to their work; reduced meaning weakens the motivation to invest oneself in the role; and lower engagement makes withdrawal more likely. If the mediators operated only in parallel, the model would imply that identity threat, work meaning, and engagement independently transmit the effect of replaceability without explaining how one psychological state gives rise to the next. Such a model would be less consistent with identity and meaningful work theories, which suggest that self-relevant appraisals shape perceived meaning and that perceived

meaning underlies engagement.

This sequential perspective is also important because it does not assume that employees withdraw immediately after perceiving themselves as replaceable. Instead, withdrawal is treated as the downstream consequence of a gradual deterioration in identity affirmation, experienced meaning, and work investment. The proposed pathway therefore captures a more specific mechanism through which relational employment signals become translated into withdrawal behavior.

Hypothesis 6 (H6): Perceived replaceability is positively related to withdrawal behavior through the sequential mediation of identity threat, work meaning, and work engagement.

3.Methods

3.1.Research design and procedure

The study was designed as a temporally separated, multi-source field survey to examine the proposed relationships more rigorously. A staged data-collection approach was used so that the focal predictor, intervening variables, and outcome measures were not gathered from the same respondent at the same point in time, thereby reducing concerns associated with common method bias^[30]. Data were obtained from frontline employees and their direct supervisors working in service organizations in China.

Information was collected across three survey waves, with an interval of about two weeks between adjacent waves. This spacing was selected because the focal perceptions and psychological states were expected to show some short-term movement while still remaining sufficiently stable to support theorizing about cross-wave relationships. In the first wave, employees provided responses on perceived replaceability, perceived organizational appreciation, and demographic characteristics. In the second wave, the same employees reported identity threat and work meaning. In the final wave, supervisors assessed employee work engagement and withdrawal behavior. Collecting data in this sequence allowed the explanatory variables, intervening states, and behavioral outcomes to be drawn from different sources and separated in time.

Before the survey process began, respondents were told that the project was being conducted solely for academic research purposes. They were also informed that participation was voluntary, that their answers would be treated confidentially, and that individual-level responses would not be shared with their organizations.

3.2.Sample

The final sample consisted of 406 employee-supervisor dyads. Employees were frontline staff working in labor-intensive service settings, where work processes are typically standardized and closely monitored. Such contexts are appropriate for examining perceived replaceability because employees in these roles are more likely to encounter cues suggesting that their contributions are comparable and

potentially substitutable.

Approximately 52% of the employees were female, and the average organizational tenure was 4.7 years ($SD = 2.3$). Immediate supervisors were responsible for overseeing employees' daily work and were therefore in a suitable position to assess work engagement and withdrawal-related behaviors.

3.3. Measures

All key constructs were assessed with established measures or theoretically grounded item adaptations suitable for the present study context. Unless indicated otherwise, responses were recorded on a five-point scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The questionnaire was originally developed in English and then translated into Chinese using a back-translation approach to preserve equivalence across languages^[31]. Two bilingual management scholars reviewed the translated version. Minor wording revisions were made to improve contextual fit while retaining the intended meaning of the original scales. The adaptive revisions mainly involved specifying "my current organization," "my current job," or "my contribution in this organization" so that respondents evaluated replaceability and appreciation in the focal employment relationship rather than in the general labor market.

Perceived replaceability. Perceived replaceability was captured with four items adapted from research on workplace objectification and fungibility, in which employees are treated as interchangeable or replaceable resources^[19], and from earlier work on felt dispensability in group tasks^[20]. Because these prior studies do not offer a ready-made measure tailored to employee–organization relationships, the items were contextualized to assess employees' belief that their current role and contributions could be readily performed by others in the organization. Example wording included statements about whether "someone else could easily take over my work" and whether "my contribution in this organization is easily replaceable."

Perceived organizational appreciation. This construct was measured with four items adapted from the perceived organizational support literature, especially items capturing whether the organization values employees' contributions and appreciates their effort^[7,18]. The wording was narrowed from general support and care to appreciation for contribution, because the present study conceptualizes appreciation as a relational signal of recognition. Example wording included statements about whether "my organization appreciates the contribution I make" and "my organization recognizes the value of my work."

Identity threat. Identity threat was assessed with four items adapted from Petriglieri's^[10] conceptualization of identity threat and the threat-to-identity value, meanings, and enactment measures developed by George et al^[32]. The items were revised to focus specifically on employees' work-related identity in the current organization. The scale assessed whether employees felt that their distinctiveness, value, or sense of who they are at work was being undermined.

Work meaning. Work meaning was measured with four items drawn from the Work and Meaning Inventory

developed by Steger et al^[12]. Items were selected and adapted to reflect positive meaning and perceived significance in the current job context.

Work engagement. Supervisors rated employee work engagement using an adapted version of the Utrecht Work Engagement Scale^[15]. Although engagement includes internal psychological elements, it also manifests behaviorally in visible forms such as energy, dedication, and involvement in work tasks, making supervisor evaluation appropriate in this context.

Withdrawal behavior. Withdrawal behavior was likewise rated by supervisors. The measure was adapted from Hanisch and Hulin^[5] and captured behavioral indications of reduced involvement in work, including lowered effort, avoidance of responsibilities, and psychological detachment from assigned duties.

3.4. Control variables

Gender, age, education, and organizational tenure were included as control variables because they may be associated with employee attitudes and behavioral outcomes. Including these variables helped reduce the possibility that the observed relationships were attributable to demographic differences rather than the focal constructs. We recognize, however, that other work-design and relational variables may also influence replaceability perceptions and withdrawal behavior. Because the original survey did not include validated measures of work complexity, task interdependence, and organizational justice, these variables could not be entered as additional controls in the current analyses. This issue is acknowledged explicitly in the limitations section and treated as an important direction for future research.

3.5. Analytical strategy

The hypotheses were examined through a sequence of complementary analyses. Structural equation modeling was conducted in AMOS 26.0 to evaluate both the measurement properties of the constructs and the structural relations among them. The first step was to estimate a confirmatory factor model to determine whether the six focal variables were empirically distinct. Model adequacy was judged using commonly reported fit indices, including CFI, TLI, GFI, and RMSEA.

After establishing the measurement structure, the hypothesized direct paths among perceived replaceability, identity threat, work meaning, work engagement, and withdrawal behavior were assessed in the structural model. The moderating role of perceived organizational appreciation was then tested through the interaction between perceived replaceability and perceived organizational appreciation in predicting identity threat. To evaluate the indirect mechanism proposed in the study, the sequential mediation model was estimated using bootstrapping with 5,000 resamples, following the general logic recommended by Preacher and Hayes^[33]. Confidence intervals were used to determine the significance of indirect effects.

The overall design provides a stronger basis for inference than a single-wave self-report study because the data were

collected across different time points and from more than one source. In particular, having supervisors rate the focal behavioral outcomes helps reduce concerns that the observed associations are merely artifacts of same-source reporting.

4. Results

4.1. Descriptive statistics and correlations

Table 1 presents the means, standard deviations, and correlations among the study variables. Perceived

replaceability was positively related to identity threat and withdrawal behavior, but negatively related to work meaning and work engagement. Identity threat was negatively associated with work meaning and work engagement, and positively associated with withdrawal. Work meaning was positively associated with work engagement and negatively associated with withdrawal behavior. As expected, work engagement was negatively related to withdrawal behavior. Overall, the pattern of correlations was consistent with the proposed model, and none of the correlations exceeded the conventional threshold of .80, suggesting that multicollinearity was unlikely to be a serious concern.

Table 1. Descriptive statistics and correlations

Variable	Mean	SD	1	2	3	4	5	6
1 PR	3.24	0.89	—					
2 POA	3.41	0.84	-.33**	—				
3 IT	3.11	0.92	.67**	-.52**	—			
4 WM	3.78	0.81	-.52**	.39**	-.71**	—		
5 WE	3.65	0.87	-.32**	.25**	-.35**	.58**	—	
6 WW	3.02	0.95	.41**	-.32**	.35**	-.41**	-.61**	—

Notes: N = 406 ** p < .01

4.2. Reliability and validity

Table 2 shows that all constructs demonstrated satisfactory reliability and convergent validity. Cronbach's alpha values ranged from .87 to .90, composite reliability values ranged from .89 to .92, and average variance extracted values ranged from .67 to .74, all exceeding recommended thresholds. These results indicate acceptable internal consistency and convergent validity. In addition, discriminant validity was supported because the square roots of the AVEs were greater than the corresponding inter-construct correlations.

Table 2. Reliability and convergent validity

Construct	Items	Cronbach α	CR	AVE
PR	4	.88	.90	.69
POA	4	.87	.89	.67
IT	4	.89	.91	.72
WM	4	.90	.92	.74
WE	4	.88	.90	.69
WW	4	.87	.89	.67

4.3. Common method bias

Because several variables were collected through self-

report surveys, common method bias was assessed. Harman's single-factor test showed that the first factor accounted for 31.8% of the variance, which is below the conventional 50% threshold. In addition, the six-factor CFA model fit the data substantially better than the single-factor model. Although common method bias cannot be fully ruled out, the Harman test results, together with the superior fit of the six-factor model and the multi-wave, multi-source design, suggest that it is unlikely to provide a sufficient alternative explanation for the observed relationships.

4.4. Measurement model

Confirmatory factor analysis was conducted to examine the distinctiveness of the six focal constructs. The hypothesized six-factor model showed excellent fit to the data ($\chi^2/df = 1.15$, CFI = .994, TLI = .993, GFI = .956, RMSEA = .019). Moreover, it fit the data substantially better than the alternative models, including the five-factor, four-factor, and single-factor models. These findings indicate that the hypothesized six-factor model adequately represents the data and provide further support for the discriminant validity of the focal constructs.

Table 3. Confirmatory factor analysis results

Model	χ^2	df	χ^2/df	CFI	TLI	GFI	RMSEA
Six-factor model	191.11	166	1.15	.994	.993	.956	.019
Five-factor model	432.86	171	2.53	.921	.905	.872	.061
Four-factor model	681.40	175	3.89	.873	.851	.821	.087
Single-factor model	1234.77	189	6.53	.672	.640	.601	.142

4.5. Structural model

The structural model also demonstrated good fit ($\chi^2/df = 1.27$, CFI = .975, TLI = .973, RMSEA = .026). As expected, perceived replaceability was positively associated with identity threat ($\beta = .544$, $p < .001$), supporting H1. Identity threat was negatively associated with work meaning ($\beta = -.491$, $p < .001$), supporting H2. Work meaning was positively related to work engagement ($\beta = .490$, $p < .001$),

supporting H3. Work engagement was negatively associated with withdrawal behavior ($\beta = -.464$, $p < .001$), supporting H4. In addition, perceived replaceability remained positively associated with withdrawal behavior ($\beta = .197$, $p < .001$), indicating a significant direct effect. Among the control variables, only education showed a small positive relationship with withdrawal, whereas gender, age, and tenure were not significant. Taken together, these findings provide support for the hypothesized direct relationships among the focal variables.

Table 4. Structural model results (SEM)

Path	β	SE	t	p
PR $\rightarrow$ IT	.544	.041	13.14	<.001
IT $\rightarrow$ WM	-.491	.049	-10.60	<.001
WM $\rightarrow$ WE	.490	.057	8.78	<.001
WE $\rightarrow$ WW	-.464	.047	-9.65	<.001
PR $\rightarrow$ WW	.197	.051	3.92	<.001

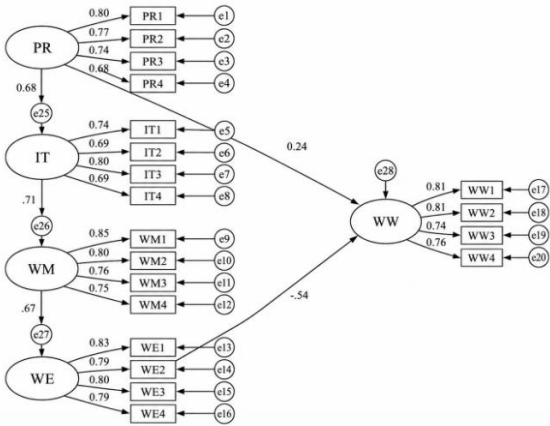


Fig 1. Structural model results

4.6. Moderation analysis

The moderating effect of perceived organizational appreciation was tested using PROCESS Model 1 with 5,000 bootstrap samples. The overall model predicting identity threat was significant ($R^2 = .441$, $F = 44.87$, $p < .001$). Perceived replaceability had a positive effect on identity threat ($\beta = .447$, $p < .001$), whereas perceived organizational appreciation had a negative effect ($\beta = -.313$, $p < .001$). More importantly, the interaction term was significant ($\beta = -.142$, $p < .001$), supporting H5. Simple slope analysis further showed that the positive association between perceived replaceability and identity threat was stronger when perceived organizational appreciation was low and weaker when it was high. Thus, perceived organizational appreciation buffered the identity-threatening effect of replaceability perceptions, consistent with H5.

Table 5. Moderation Analysis

Predictor	β	SE	t	p
PR	.447	.038	11.71	<.001
POA	-.313	.038	-8.27	<.001
PR $\times$ POA	-.142	.031	-4.59	<.001
GEN	-.184	.087	-2.12	.035
AGE	.060	.030	1.98	.048
EDU	-.030	.031	-.96	.339
TEN	.027	.031	.88	.380

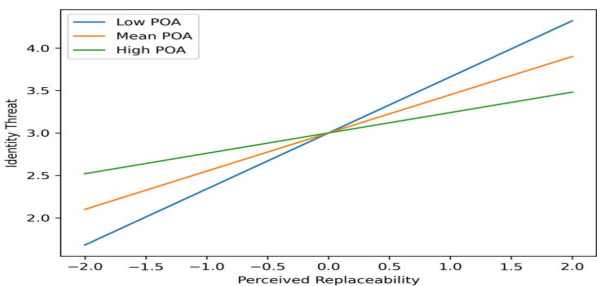


Fig 2. Moderation simple slope plot

4.7. Sequential mediation analysis

The sequential mediation model was tested using PROCESS Model 6 with 5,000 bootstrap samples. The total effect of perceived replaceability on withdrawal behavior was significant ($\beta = .353$, $p < .001$), and the direct effect remained significant after the mediators were included ($\beta = .199$, $p < .001$), indicating partial mediation. The total indirect effect was also significant (Effect = .154, 95% CI [.080, .227]).

The pattern of specific indirect effects provides a more nuanced interpretation of the mechanism. The hypothesized full sequential pathway through identity threat, work meaning, and work engagement was significant (Effect = .061, 95% CI [.040, .089]). In addition, the pathway through work meaning and work engagement was significant (Effect = .039, 95% CI [.017, .065]). By contrast, the simpler paths through identity threat alone, work meaning alone, work engagement alone, identity threat and work meaning, and identity threat and work engagement were not significant because their confidence intervals included zero. These results support the argument that replaceability perceptions are not automatically translated into withdrawal through any single psychological state. Rather, withdrawal appears to emerge most clearly when replaceability perceptions undermine identity, reduce meaning, and weaken engagement in sequence.

Table 6. Serial mediation analysis

Indirect Path	Effect	Boot SE	Boot LLCI	Boot ULCI
PR $\rightarrow$ IT $\rightarrow$ WW	.026	.031	-.037	.088
PR $\rightarrow$ WM $\rightarrow$ WW	.002	.011	-.020	.025
PR $\rightarrow$ WE $\rightarrow$ WW	.038	.025	-.010	.089
PR $\rightarrow$ IT $\rightarrow$ WM $\rightarrow$ WW	.003	.017	-.031	.036
PR $\rightarrow$ IT $\rightarrow$ WE $\rightarrow$ WW	-.015	.016	-.046	.015
PR $\rightarrow$ WM $\rightarrow$ WE $\rightarrow$ WW	.039	.012	.017	.065
PR $\rightarrow$ IT $\rightarrow$ WM $\rightarrow$ WE $\rightarrow$ WW	.061	.013	.040	.089

The unsupported indirect paths are theoretically informative. The non-significant PR $\rightarrow$ IT $\rightarrow$ WW path suggests that feeling identity threat alone may not be sufficient to produce observable withdrawal unless that threat changes how meaningful work feels and how strongly employees invest themselves in the role. The non-significant PR $\rightarrow$ WM $\rightarrow$ WW and PR $\rightarrow$ WE $\rightarrow$ WW paths indicate that meaning or engagement, when isolated from the preceding identity appraisal, do not fully capture the relational devaluation embedded in replaceability perceptions. Similarly, the non-significant PR $\rightarrow$ IT $\rightarrow$ WM $\rightarrow$ WW and PR $\rightarrow$ IT $\rightarrow$ WE $\rightarrow$ WW paths suggest that identity threat must be connected to both meaning loss and lower engagement before it becomes behaviorally consequential. Overall, the divergent indirect effects strengthen the case for the proposed serial mechanism rather than weakening it.

4.8. Robustness checks

Additional analyses indicated that the significance and direction of the main paths remained unchanged when control variables were excluded and alternative model specifications were examined, providing support for the robustness of the findings.

4.9. Summary of hypothesis testing

The empirical results were broadly consistent with the proposed framework. The evidence supported the expected positive relationship between perceived replaceability and identity threat, the negative association of identity threat with work meaning, the positive link between work meaning and work engagement, and the negative link between work engagement and withdrawal behavior. The moderation test also indicated that perceived organizational appreciation reduced the strength of the relationship between perceived replaceability and identity threat. In addition, the serial indirect effect linking perceived replaceability to withdrawal behavior through identity threat, work meaning, and work engagement was significant, providing support for the hypothesized sequential process.

5. Discussion and implications

5.1. Main findings

This study examined whether perceived replaceability helps explain why employees disengage from work and display greater withdrawal behavior. The findings indicate that employees who see themselves as more easily replaceable are more likely to experience identity threat, report lower work meaning, and receive lower supervisor ratings of work engagement, which in turn relate to higher withdrawal behavior. The results also show that perceived organizational appreciation reduces the extent to which replaceability perceptions translate into identity threat.

Taken together, these findings suggest that perceived replaceability is not a neutral perception about work design. Rather, it appears to function as a relational cue that shapes how employees interpret their value in the organization. When employees infer that they are readily substitutable, the implications extend beyond role structure or staffing flexibility; such perceptions can weaken the psychological foundations that sustain involvement in work.

5.2. Theoretical implications

This research contributes to the literature in several respects.

First, it broadens current understanding of the antecedents of employee withdrawal by identifying perceived replaceability as a distinct predictor. Much of the existing literature has linked withdrawal to unfavorable work conditions, job insecurity, weak support, or reduced attachment to the organization^[5,7,17]. The present findings indicate that employees may also withdraw when they perceive themselves as functionally interchangeable. This matters because replaceability concerns neither simple dissatisfaction nor direct fear of job loss. Instead, it captures an employee's interpretation of whether his or her contribution is uniquely valued within the employment relationship.

This distinction is theoretically important. Job insecurity focuses on uncertainty about continued employment, whereas

perceived replaceability reflects perceived substitutability despite the possibility that employment itself remains stable^[17]. An employee may feel confident about keeping the job and still conclude that the organization does not regard the role occupant as especially distinctive. In this respect, perceived replaceability adds to employee – organization relationship research by highlighting a relational signal that is not fully captured by support - based or insecurity - based explanations^[7,18,34].

Second, the study clarifies how replaceability perceptions become linked to withdrawal behavior. Rather than treating withdrawal as an immediate or isolated reaction, the findings support a gradual account. The significant serial indirect effect indicates that employees first experience a threat to work-based identity, then become less likely to see work as meaningful, and subsequently show lower engagement, which is associated with greater withdrawal. This process view complements prior identity research showing that threats to valued selves can have important consequences for attitudes and behavior^[10,32], and it also aligns with meaningful work research emphasizing the motivational importance of significance and worthwhileness^[11,12,14,24].

Third, the divergent indirect effects in Table 6 sharpen the theoretical contribution. The fact that not all indirect paths were significant suggests that perceived replaceability does not operate through any arbitrary route. Identity threat alone did not significantly transmit the effect to withdrawal, and the isolated paths through work meaning or work engagement were also not sufficient. Instead, the evidence points to a more specific sequence in which a relational employment signal first threatens identity, then erodes work meaning, then weakens engagement, and finally increases withdrawal behavior. This result responds to the possibility of a parallel mediation explanation by showing that the combined sequential process is more informative than treating identity threat, work meaning, and engagement as independent mediators.

Fourth, the study adds to work engagement research by locating engagement within a broader relational and interpretive context. Engagement has often been studied in connection with job resources, motivation, and performance outcomes^[15,16,35]. The present findings suggest that engagement also depends on whether employees can maintain a sense of value and significance in the organization. When organizational cues imply interchangeability, the willingness to invest energy and dedication may weaken because employees no longer experience work as affirming or worthwhile.

Finally, the moderating role of perceived organizational appreciation identifies an important boundary condition. Appreciation appears to shape how employees make sense of potentially adverse organizational cues. Even when work systems make roles appear substitutable, employees may be less likely to interpret those signals as threatening when they believe that the organization genuinely recognizes their contribution. In that sense, appreciation does more than create positive feelings; it changes the meaning employees attach to organizational conditions. This interpretation is consistent with research suggesting that perceived valuation by the

organization is central to employees' workplace interpretations^[7,27,34].

5.3. Practical implications

The findings also carry several implications for management practice.

First, organizations should audit the relational messages embedded in standardization, staffing, and performance-management systems. For example, in call centers, hotels, retail stores, logistics platforms, and other service settings, dashboards and scripts may be useful for coordination, but they may also make employees feel like interchangeable units. Before introducing new monitoring, scheduling, or benchmarking systems, managers should review whether the system communicates only comparability or whether it also recognizes individual expertise, customer relationships, problem-solving contributions, and learning progress.

Second, managers should avoid replaceability-oriented language during restructuring, automation, and performance conversations. Statements such as "anyone can do this job" or "people in this role are easy to replace" may appear efficient or realistic, but they can be interpreted as relational devaluation. A more constructive approach is to explain which tasks are standardized while also specifying where employees' judgment, experience, service quality, and relational knowledge remain important. This is especially important when organizations introduce self-service technologies, AI tools, or flexible staffing arrangements.

Third, appreciation practices should be specific and evidence based rather than generic. Because perceived organizational appreciation buffers the identity-threatening effect of replaceability, supervisors should connect recognition to concrete contributions. For instance, instead of saying "good job," a supervisor can state that an employee handled a difficult customer complaint, trained a new colleague, prevented an operational error, or maintained service quality during peak demand. Such recognition helps employees see that the organization notices contributions that are not fully captured by standardized metrics.

Fourth, organizations can protect work meaning by creating routine opportunities for employees to see the impact of their work. Service employees can be shown customer feedback, examples of problem resolution, or evidence of how their daily actions support team reliability and organizational reputation. Team briefings, after-action reviews, and short recognition meetings can be used to connect repetitive tasks to broader service outcomes. These practices are particularly valuable in standardized roles where employees may otherwise struggle to see why their work matters.

Finally, supervisors and HR professionals should treat withdrawal behavior as a warning signal of relational deterioration rather than only as a discipline problem. Reduced effort, avoidance of responsibility, lateness, or psychological distancing may indicate that employees feel undervalued or interchangeable. Practical responses may include one-to-one conversations about role value, redesigning tasks to include small areas of ownership, offering skill-development pathways, and giving employees visible opportunities to contribute ideas. These interventions are more

likely to address the underlying relational signal than simply increasing monitoring or punishment.

5.4. Limitations and future research

Several limitations should be acknowledged.

First, the study was conducted within a single national context and focused on labor-intensive service settings in China. Although these contexts are appropriate for examining replaceability perceptions, the findings may not generalize equally to other industries, occupations, or cultural environments. Future research could examine whether the proposed relationships hold in professional, knowledge-intensive, or less standardized work settings.

Second, while the three-wave and multi-source design strengthens confidence in the proposed relationships, it does not fully establish causality. The temporal separation between variables reduces some concerns about common method bias, but it cannot eliminate the possibility of reciprocal effects or omitted variables. Experimental designs or longer-term longitudinal studies would be useful for examining causal dynamics more directly.

Third, the present study controlled for demographic characteristics, but it did not include several potentially important confounding variables. Work complexity and task interdependence may affect both the extent to which employees feel replaceable and the likelihood that they disengage from work^[36]. Organizational justice may also shape whether employees interpret standardized work arrangements as fair coordination mechanisms or as signals of devaluation^[29,37]. Because these measures were not collected in the original survey, they could not be added as controls in the present analysis. Future research should include work complexity, task interdependence, organizational justice, and related work-design variables to test whether the proposed relationships remain robust beyond these alternative explanations.

Fourth, although the scale adaptation procedures were grounded in prior literature and showed acceptable reliability and validity, perceived replaceability remains a relatively underdeveloped construct in organizational research. Future studies should further validate this measure across occupations and cultures, compare it empirically with job insecurity, perceived organizational support, and workplace objectification, and examine whether different dimensions of replaceability have distinct effects.

Finally, additional mediators and moderators remain open for investigation. Future studies could examine whether factors such as leadership style, justice perceptions, emotional exhaustion, cynicism, psychological safety, or career development opportunities shape how employees interpret replaceability cues and respond to them over time. Such extensions would provide a fuller understanding of when replaceability perceptions become especially harmful and through what additional mechanisms their effects unfold.

6. Conclusion

This study shows that perceived replaceability has meaningful implications for employee withdrawal. When employees believe that they are easily substitutable, they are more likely to experience threat to their work-based identity, see less meaning in their work, invest less of themselves in their roles, and ultimately display greater withdrawal behavior. At the same time, perceived organizational appreciation can soften these effects by reducing the extent to which replaceability cues are experienced as threatening. Overall, the findings highlight the importance of relational signals in shaping employees' connection to work and underscore why recognition, meaningful work, and appreciation matter in sustaining engagement in contemporary organizations. By explaining why replaceability operates through a sequential process rather than through isolated psychological states, the study offers a more precise account of how employees move from relational devaluation to withdrawal.

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