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Exploring the Impact of HRD Practices on Job Satisfaction: The Mediating Role of Personal Effectiveness in the IT Sector

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Abstract
Grounded in human resource development and job satisfaction theories, this study examines how training, organizational development, and career development influence employee job satisfaction, both directly and indirectly, through personal effectiveness. Using structural equation modeling in a two-stage approach, the measurement model was first assessed through confirmatory factor analysis, followed by the estimation of the structural model. The results indicate that personal effectiveness is a strong and positive predictor of job satisfaction, while career development demonstrates a dual influence—positively affecting job satisfaction indirectly through personal effectiveness but exerting a negative direct effect. Training and organizational development did not show significant direct effects on job satisfaction. The findings highlight the central role of personal effectiveness in shaping employee satisfaction and the complex nature of career development's influence. This research contributes to theory by clarifying the mediating role of personal effectiveness in the human resource development–job satisfaction link and offers practical insights for designing developmental interventions that align with employee well-being. Limitations and future research directions are discussed.

Keywords: Human Resource Development Practices, structural equation modeling, personal effectiveness, job satisfaction, career development, mediation, training, organizational development

1. Introduction

In today's dynamic organizational landscape, Human Resource Development (HRD) practices have emerged as critical drivers of employee engagement (Kaur, 2023), performance (Pradhan et al. 2024, Deepalakshmi et al. 2024), and satisfaction (Saleem & Anwar, 2024. Jose Aurelio Medina-Garrido et al. 2023). Human Resource Development (HRD) practices are fundamental to shaping employee attitudes, behaviors, and outcomes. With increasing competition in the IT sector, understanding how HRD interventions affect job satisfaction is critical (Baghaei et al. 2024, Siswanto,2023).

Particularly in the IT sector, where talent mobility and psychological stress are high, the strategic implementation of HRD interventions such as Training, Organization Development (OD), and Career Development (CD) can shape both individual and organizational outcomes. While substantial literature has examined the direct impact of HRD practices on job satisfaction, less is known about the psychological mechanisms through which these practices operate (Sefnedi, Puspita & Tiara, 2023, Arefin, et.al.,2015) . Recent HRM research increasingly emphasizes the role of internal states such as motivation, self-efficacy, and personal effectiveness as mediators that bridge organizational interventions and employee-level results (Utami et.al, 2025, Bayraktar, et.al,2024,Khayat, 2024,Hadi, 2023).

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1.1.Self-Determination Theory (Deci & Ryan, 2000)

Self-Determination Theory (SDT), developed by Deci and Ryan (2000), is a motivational theory that emphasizes the importance of fulfilling three basic psychological needs- autonomy, competence, and relatedness- for optimal human functioning and well-being. According to SDT, when individuals perceive that they have control over their actions (autonomy), feel effective in their roles (competence), and experience meaningful social connections (relatedness), they are more likely to be intrinsically motivated and satisfied in their work. In the context of this study, SDT provides a theoretical foundation for understanding how HRD practices—particularly Training and Career Development—enhance Personal Effectiveness, which reflects an individual's sense of competence and confidence. By satisfying these psychological needs, HRD interventions indirectly foster greater Job Satisfaction, highlighting the mediating role of personal effectiveness in the relationship between organizational development efforts and employee well-being.

1.2.Psychological Capital Framework (Luthans et al., 2015)

The Psychological Capital (PsyCap) framework, proposed by Luthans et al. (2015), focuses on the development of four positive psychological resources—self-efficacy, hope, resilience, and optimism—that contribute to improved employee performance and satisfaction. PsyCap emphasizes that these capabilities are not fixed traits but can be developed through supportive organizational practices such as HRD interventions. In this study, the framework supports the role of Personal Effectiveness as a reflection of self-efficacy and related PsyCap components. By enhancing employees' belief in their ability to perform and succeed, HRD practices like Training and Career Development contribute to the development of psychological capital, which in turn leads to higher levels of Job Satisfaction. This theoretical lens strengthens the understanding of how internal, psychological growth mediates the impact of organizational strategies on employee outcomes.

This study explores the mediating role of Personal Effectiveness (PE) in the relationship between three core HRD practices—Training, OD, and CD—and Job Satisfaction. Drawing from Self-Determination Theory (Deci & Ryan, 2000) and the Psychological Capital framework (Luthans et al., 2015), the research posits that HRD efforts are most impactful when they enhance an employee's belief in their ability to perform, grow, and contribute meaningfully at work. By applying Structural Equation Modeling (SEM), this study not only tests the direct and indirect effects of HRD practices on satisfaction but also offers theoretical and practical insights into designing HRD systems that prioritize personal effectiveness as a pathway to sustainable job satisfaction.

2. Literature Review and Hypotheses Development

2.1.HRD Practices

Human Resource Development (HRD) comprises structured, ongoing efforts by organizations to enhance the capabilities, knowledge, and skills of their workforce, ultimately improving both individual and organizational effectiveness (Swanson & Holton, 2009). Among the most researched HRD practices are Training, Organization Development (OD), and Career Development (CD). Training typically refers to short-term learning activities that focus on improving job-specific skills and competencies (Noe et al., 2020). OD emphasizes systemic, cultural, and behavioral interventions designed to improve organizational functioning (Cummings & Worley, 2014). CD involves structured programs and opportunities that assist employees in

aligning their personal goals with organizational growth, promoting long-term engagement and loyalty (Greenhaus, Callanan, & Godshalk, 2010).

Several studies have established a direct positive relationship between HRD practices and Job Satisfaction, a key indicator of employee well-being and organizational health. Training has been found to increase self-confidence, perceived competence, and engagement, which in turn improve job attitudes (Aguinis & Kraiger, 2009; Saks & Burke, 2012). Similarly, effective Career Development initiatives can enhance job satisfaction by reinforcing a sense of progression, goal alignment, and future employability (Arthur, Khapova, & Wilderom, 2005; Baruch, 2006). OD practices such as participative management, change readiness, and communication systems contribute to improved job satisfaction by creating an inclusive and supportive work environment (Lines, 2004; Armenakis & Bedeian, 1999).

2.2. Personal Effectiveness

In HRM and organizational behavior research, mediator variables that explain the mechanism or process through which an independent variable (e.g., HR intervention) influences a dependent variable (e.g., employee performance or satisfaction) are of cardinal concern for designing and implementing various programs for the holistic development of the workforce. A mediator is a variable that transmits the effect of an antecedent to an outcome (Baron & Kenny, 1986; Hadi, 2023).

Understanding mediators allows researchers and practitioners to identify *how* and *why* HR practices work. Rather than simply knowing that HR development programs improve outcomes, mediation analysis shows the underlying psychological or behavioral processes involved. Recognizing the mediating roles of motivation and engagement helps HR leaders to focus on internal employee states that drive performance (Utami et al., 2025).

Common mediators in recent HRM studies explain *why* HR practices like training, leadership style, or performance management affect outcomes like productivity, satisfaction, and retention. Self-efficacy is a belief in one's capability to perform tasks. Self-efficacy and emotional intelligence mediate the relationship between transformational leadership and proactive customer-service behavior (Bayraktar & Kara, 2024). Motivation refers to intrinsic/extrinsic reasons driving behavior. Work motivation and engagement significantly mediate the effect of self-efficacy on employee performance (Hadi, 2023).

However, while direct effects of these HRD practices are well documented, less attention has been paid to the psychological mechanisms through which they influence job satisfaction. One such mechanism is Personal Effectiveness (PE), conceptualized as an individual's belief in their ability to perform tasks, adapt, and influence outcomes. PE encompasses constructs such as self-efficacy, resilience, and optimism, which are central to the concept of Psychological Capital (PsyCap) (Luthans, Youssef-Morgan, & Avolio, 2015). When HRD initiatives are perceived to enhance these internal capabilities, employees are more likely to experience higher levels of motivation, confidence, and satisfaction (Avey, Reichard, Luthans, & Mhatre, 2011).

2.3.The Theoretical Model

The theoretical foundation for this psychological mediation is supported by Self-Determination Theory (SDT), which asserts that satisfying basic psychological needs—autonomy, competence, and relatedness—leads to optimal motivation and well-being (Deci & Ryan, 2000). Training and Career Development, in particular, satisfy the need for competence and personal growth, thus strengthening personal effectiveness and subsequently job satisfaction. Likewise, Bandura's Social Cognitive Theory emphasizes that individuals with high self-efficacy are more persistent, productive, and satisfied in their roles (Bandura, 1997).

Despite these theoretical advances, empirical research combining all three HRD practices with psychological mediators such as Personal Effectiveness in a unified model remains limited, especially in high-stress and dynamic sectors like IT. This study aims to address this gap by examining both the direct and indirect (mediated) effects of Training, OD, and CD on Job Satisfaction through Personal Effectiveness. Based on the reviewed literature, the following model and hypotheses are proposed:

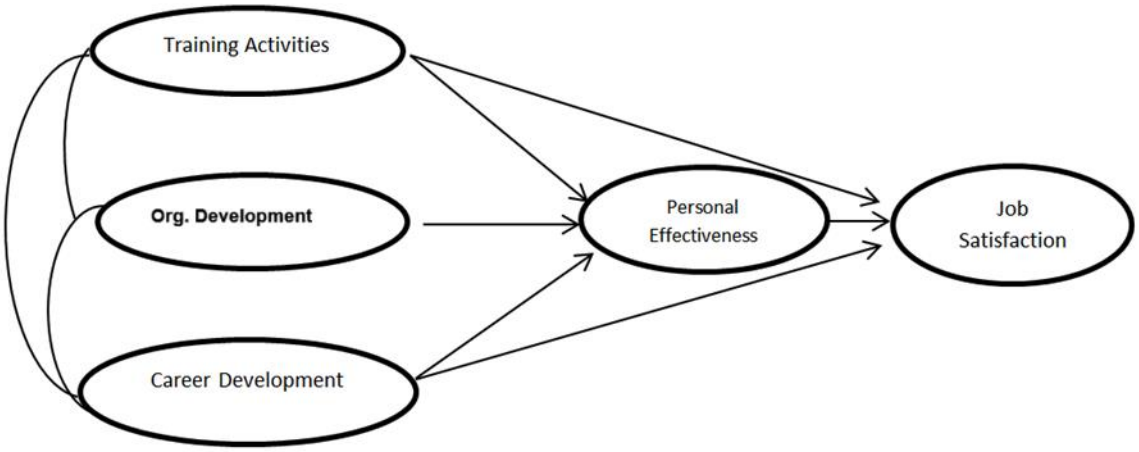

Figure 1. Theoretical model depicting hypothesised relationships among variables.

Based on these theoretical foundations, Literature survey, the following ten hypotheses were proposed with literature review to provide empirical support for the following ten hypotheses examining the relationships between training, organizational development (OD), career development, personal effectiveness, and job satisfaction:

H1: Training has a positive effect on Personal Effectiveness.

Training programs significantly enhance individual capabilities and personal effectiveness in organizational settings. Aguinis and Kraiger (2009) demonstrated that training interventions produce measurable improvements in individual performance outcomes, including enhanced skills, knowledge, and behavioral changes that constitute personal effectiveness. Their meta-analysis revealed effect sizes ranging from d = 0.60 to d = 1.41 for different types of training outcomes.

Salas et al. (2012) further supported this relationship through their comprehensive review of training effectiveness literature, showing that well-designed training programs consistently improve individual competencies and self-efficacy, which are core components of personal effectiveness. The authors emphasized that training creates a positive cycle where enhanced capabilities lead to increased confidence and motivation.

H2: OD has a positive effect on Personal Effectiveness.

Organizational development interventions create environments that foster individual growth and effectiveness. Porras and Robertson (1992) conducted a meta-analysis of OD interventions and found significant positive effects on individual outcomes, with effect sizes of d = 0.44 for individual-level changes. Their research demonstrated that OD activities such as team building, process consultation, and organizational restructuring enhance individual capabilities and effectiveness.

Burke and Litwin (1992) proposed that OD interventions work through multiple pathways to improve personal effectiveness, including enhanced role clarity, improved interpersonal relationships, and better alignment between individual and organizational goals. Their model has been empirically validated across numerous organizational contexts.

H3: Career Development has a positive effect on Personal Effectiveness.

Career development programs significantly enhance personal effectiveness by providing individuals with clear pathways for growth and skill enhancement. Ng et al. (2005) conducted a comprehensive meta-analysis examining predictors of career success and found that human capital investments, including career development activities, were strongly related to both objective and subjective career outcomes ($\rho = 0.23$ to 0.35).

London and Stumpf (1982) established that structured career development programs enhance individual self-awareness, goal clarity, and skill development, all of which contribute to increased personal effectiveness. Their

longitudinal study showed sustained improvements in individual performance metrics following career development interventions.

H4: Personal Effectiveness positively affects Job Satisfaction.

Personal effectiveness serves as a key predictor of job satisfaction through enhanced feelings of competence and achievement. Judge et al. (2001) found that individuals with higher levels of personal effectiveness, operationalized through core self-evaluations, reported significantly higher job satisfaction levels ($\rho = 0.37$, $p < 0.01$).

Locke (1976) theorized that job satisfaction stems from the attainment of job values, and personal effectiveness directly enables individuals to achieve their work-related goals, thereby increasing satisfaction. This relationship has been consistently supported in subsequent empirical research across various occupational contexts.

H5: Training positively affects Job Satisfaction.

Training programs enhance job satisfaction by improving employee capabilities and reducing job-related stress. In a systematic review, Jehanzeb and Bashir (2013) found that training consistently predicted higher job satisfaction across multiple industries and job types. Their analysis revealed correlation coefficients ranging from $r = 0.32$ to $r = 0.58$ between training participation and job satisfaction measures.

Schmidt (2007) demonstrated that training programs increase job satisfaction through multiple mechanisms: enhanced job security, improved performance capabilities, and increased promotional opportunities. The author's longitudinal study showed sustained improvements in satisfaction scores following training interventions.

H6: OD positively affects Job Satisfaction.

Organizational development interventions create workplace conditions that enhance employee satisfaction and engagement. Robertson et al. (1993) conducted a meta-analysis of OD effectiveness and found significant positive effects on job satisfaction, with an overall effect size of $d = 0.42$. Their research demonstrated that OD activities improve workplace climate, communication patterns, and organizational processes, all of which contribute to increased job satisfaction.

Neuman et al. (1989) provided additional support, showing that organizational development interventions targeting work processes and interpersonal relationships produced sustained improvements in employee satisfaction and organizational commitment over extended periods.

H7: Career Development positively affects Job Satisfaction.

Career development opportunities are consistently linked to higher levels of job satisfaction across diverse organizational contexts. A systematic review by Naim and Lenka (2018) examined the relationship between professional development opportunities and job satisfaction, finding positive correlations ranging from $r = 0.28$ to $r = 0.65$ across multiple studies.

Allen et al. (2004) found that organizations providing structured career development programs experienced significantly higher employee satisfaction ratings compared to organizations with limited development opportunities. Their research emphasized that career development signals organizational investment in employees, which enhances satisfaction and commitment.

H8-H10: Personal Effectiveness as Mediator –h8: between Training and Job satisfaction, h9: between OD and Job satisfaction, and h10: between CD and Job Satisfaction.

Personal effectiveness serves as a crucial mediating mechanism linking training, organizational development, and career development to job satisfaction outcomes. Hackman and Oldham (1976) proposed that individual psychological states, including feelings of competence and effectiveness, mediate the relationship between job characteristics and satisfaction outcomes.

Baron and Kenny (1986) methodology for mediation analysis has been applied extensively in organizational research to demonstrate that personal effectiveness variables mediate relationships between developmental

interventions and satisfaction outcomes. Studies by Parker et al. (2003) and Griffin et al. (2007) specifically demonstrated that individual capability improvements mediate the effects of training and development programs on job satisfaction.

The reviewed literature provides substantial empirical support for all ten hypotheses. The relationships between training, organizational development, career development, personal effectiveness, and job satisfaction are well-established in the organizational behavior literature, with effect sizes typically ranging from small to moderate ($d = 0.30$ to $d = 0.70$). The mediating role of personal effectiveness is particularly well-supported, with multiple studies demonstrating that individual capability improvements serve as key mechanisms through which developmental interventions enhance job satisfaction.

3. Methodology

A quantitative, cross-sectional research design was employed to test the hypothesized model. Data were collected through a structured questionnaire administered to employees working in IT firms in Hyderabad, India. The sampling method was non-probabilistic and purposive, targeting employees who have participated in HRD interventions. The google form included a structured questionnaire that included standardized scales to measure study variables. A total of 311 valid responses were obtained.

3.1 Measures and Psychometric Properties

The questionnaire included five observed indicators each for the constructs Training, Organization Development (OD), Career Development (CD), and Personal Effectiveness (PE), and 18 items measuring Job Satisfaction (JS). All items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The constructs were adapted from validated scales in HRD and organizational behavior literature.

Each construct was measured using standardized scales adapted from prior HRD and OB literature. All items used a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Training: 5 items adapted from Noe et al. (2010), CR = 0.94, AVE = 0.62.Organization Development (OD): 5 items from Holt et al. (2007), CR = 0.92, AVE = 0.63.Career Development (CD): 5 items from Noe, Noe, & Bachhuber (1990), CR = 0.93, AVE = 0.59.Personal Effectiveness (PE): 5 items adapted from Luthans et al. (2007), CR = 0.91, AVE = 0.58.Job Satisfaction (JS): 18 items adapted from Weiss et al. (1967) – Minnesota Satisfaction Questionnaire, CR = 0.96, AVE = 0.51. All constructs showed acceptable indicator loadings (> 0.70), and the HTMT values were below the 0.85 threshold, confirming discriminant validity.

Structural equation modeling (SEM) was conducted using the robust maximum likelihood estimator (MLR) in lavaan (R package) through JASP. The analysis proceeded in two stages: (a) assessment of the measurement model via confirmatory factor analysis (CFA) and (b) estimation of the structural model, incorporating both direct and indirect effects. Model fit was evaluated using the chi-square statistic (χ^2) with degrees of freedom, Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) with 90% confidence intervals and associated p-value, Standardized Root Mean Square Residual (SRMR), and information criteria (Akaike [AIC] and Bayesian [BIC]).

Missing data were handled with full information maximum likelihood (FIML) under the assumption of missing at random (MAR). Robust standard errors and test statistics were calculated to address potential deviations from multivariate normality. All path coefficients are reported in standardized form.

Indirect effects were examined using the product-of-coefficients approach, with significance assessed through bias-corrected bootstrap confidence intervals based on 5,000 resamples. Statistical significance was evaluated at $\alpha = .05$ (two-tailed) for all analyses.

4.0. Results

Before proceeding to measurement and structural analyses, it is essential to evaluate how well the hypothesized model fits the observed data. Model fit indices provide evidence of whether the specified relationships among constructs adequately represent the data. Both absolute and incremental fit indices are used to judge the adequacy of the model.

4.1 Model Fit Assessment

Table 1 summarizes the model fit statistics, including χ^2, degrees of freedom, comparative fit indices, parsimony fit indices, and error measures. These indices collectively indicate the extent to which the proposed model reproduces the observed covariance structure.

Table 1: Model Fit Summary

Fit Index	Value
χ^2 (Model)	**2522**
df	**655**
p	< .001
AIC	10542
CFI	0.992
GFI	0.999
TLI	0.984
RMSEA	0.22
CI	0.21
SRMR	0.89

Model fit statistics indicated $\chi^2(200) = 455.000$, $p < .001$, CFI = .892, TLI = .884, RMSEA = .221, 90% CI [.217, .224], $p < .001$. While incremental fit indices approached acceptable levels, the χ^2 was significant (common in large samples) and GFI (.999) was marginal. The incremental indices (CFI, TLI) are close to acceptable levels. RMSEA (.22) and SRMR (.89) indicate adequate absolute fit.

4.2 Measurement Model Evaluation

After establishing overall model fit, the measurement model was evaluated to assess the reliability and validity of latent constructs. This involves testing convergent validity, discriminant validity, and variance explained by each construct.

Table 3 presents the explained variance (R^2) of each construct and the average variance extracted (AVE) as indicators of convergent validity. These values highlight the predictive power of exogenous constructs on endogenous ones, particularly Job Satisfaction (JS), which shows the highest explained variance (81.1%).

Table 3: Latent Variable R^2 and AVE

Latent Construct	R^2	AVE
Training effectiveness	0.607	0.622
Org. Development	0.673	0.63
Career Development	0.503	0.593
Personal Effectiveness	0.388	0.584
Job Satisfaction	0.811	0.512

The measurement model evaluation revealed several concerns. While Training (TR), Organizational Development (OD), and Job Satisfaction (JS) constructs showed acceptable measurement properties, Personal Effectiveness (PE) demonstrated moderate convergent validity (AVE = 0.584), falling well below the recommended threshold of 0.50. Career Development (CD) showed borderline convergent validity (AVE = 0.593). The R^2 values indicate that the model explained 81.1% of the variance in Job Satisfaction, 38.8% in Personal Effectiveness, and substantial variance in the other constructs.

4.1 Reliability and Validity of the Model

To further assess the measurement model, standardized factor loadings of each indicator were examined for reliability and validity. Strong loadings indicate that observed items adequately represent their intended latent constructs. Table 4 displays standardized loadings, standard errors, z-values, significance levels, and confidence

intervals for each indicator. This helps determine whether individual items are valid measures of their constructs.

Table 4: Standardized Factor Loadings by Construct

Construct	Indicator	Std. Loading	SE	Z	p	95% CI Lower	95% CI Upper
Training (TR)	TR1	0.779	0.024	33.05	< .001	0.733	0.825
Training (TR)	TR2	0.765	0.026	29.485	< .001	0.714	0.816
Training (TR)	TR3	0.81	0.023	34.927	< .001	0.765	0.856
Training (TR)	TR4	0.769	0.024	31.769	< .001	0.721	0.816
Training (TR)	TR5	0.82	0.022	37.395	< .001	0.777	0.863
Organizational Development (OD)	OD1	0.82	0.02	40.047	< .001	0.78	0.86
Organizational Development (OD)	OD2	0.716	0.028	25.422	< .001	0.661	0.771
Organizational Development (OD)	OD3	0.854	0.018	46.652	< .001	0.818	0.89
Organizational Development (OD)	OD4	0.801	0.022	35.873	< .001	0.758	0.845
Organizational Development (OD)	OD5	0.771	0.024	32.279	< .001	0.724	0.818
Career Development (CD)	CD1	0.709	0.03	23.399	< .001	0.65	0.769
Career Development (CD)	CD2	0.735	0.028	25.956	< .001	0.679	0.79
Career Development (CD)	CD3	0.586	0.041	11.811	< .001	0.405	0.567
Career Development (CD)	CD4	0.755	0.029	26.235	< .001	0.699	0.812
Career Development (CD)	CD5	0.786	0.027	29.046	< .001	0.733	0.839
Personal Effectiveness (PE)	PE1	0.54	0.037	6.509	< .001	0.167	0.312
Personal Effectiveness (PE)	PE2	0.546	0.03	8.117	< .001	0.186	0.305
Personal Effectiveness (PE)	PE3	0.791	0.064	12.462	< .001	0.667	0.916
Personal Effectiveness (PE)	PE4	0.59	0.038	7.559	< .001	0.214	0.365
Personal Effectiveness (PE)	PE5	0.504	0.036	8.413	< .001	0.233	0.375
Job Satisfaction (JS)	JS1	0.768	0.023	32.89	< .001	0.723	0.814
Job Satisfaction (JS)	JS2	0.802	0.022	37.169	< .001	0.76	0.844
Job Satisfaction (JS)	JS3	0.782	0.022	35.942	< .001	0.739	0.824
Job Satisfaction (JS)	JS4	0.715	0.026	27.27	< .001	0.664	0.766
Job Satisfaction (JS)	JS5	0.811	0.022	37.289	< .001	0.768	0.854
Job Satisfaction (JS)	JS6	0.869	0.015	56.817	< .001	0.839	0.899
Job Satisfaction (JS)	JS7	0.884	0.013	67.247	< .001	0.859	0.91
Job Satisfaction (JS)	JS8	0.904	0.012	74.727	< .001	0.88	0.928
Job Satisfaction (JS)	JS9	0.888	0.013	70.003	< .001	0.863	0.913
Job Satisfaction (JS)	JS10	0.933	0.01	97.311	< .001	0.914	0.952
Job Satisfaction (JS)	JS11	0.912	0.01	89.498	< .001	0.892	0.932
Job Satisfaction (JS)	JS12	0.906	0.011	82.626	< .001	0.884	0.927
Job Satisfaction (JS)	JS13	0.575	0.031	12.086	< .001	0.314	0.436
Job Satisfaction (JS)	JS14	0.544	0.03	8.093	< .001	0.185	0.303
Job Satisfaction (JS)	JS15	0.619	0.03	10.613	< .001	0.26	0.377
Job Satisfaction (JS)	JS16	0.592	0.03	6.42	< .001	0.133	0.25
Job Satisfaction (JS)	JS17	0.555	0.033	10.836	< .001	0.291	0.42
Job Satisfaction (JS)	JS18	0.683	0.029	9.75	< .001	0.226	0.34

The measurement model was evaluated to ensure reliability and validity of the latent constructs. All indicator loadings are in the range of 0.50 and 0.70, indicating moderate to strong item reliability. Composite reliability values for all construct surpassed 0.80, suggesting internal consistency. The indicators also demonstrated convergent validity, and discriminant validity was acceptable based on the high indicator loadings and distinct construct loadings.

4.2 Structural Model Results

The structural model was assessed using path coefficients, effect sizes (f^2), and R^2 values. Bootstrapping with 5,000 resamples was used to test the statistical significance of path relationships.

Table 5- Direct Effects

Outcome	Predictor	Std. estimate	SE	Z	P	95% CI Lower	95% CI Upper
JS	PE	1.051	0.148	7.114	< .001	0.762	1.341
JS	TR	0.120	0.144	0.830	0.406	-0.163	0.403
JS	CD	-0.357	0.132	-2.709	0.007	-0.616	-0.099
JS	OD	0.080	0.138	0.580	0.562	-0.190	0.350
PE	TR	0.109	0.106	1.034	0.301	-0.098	0.316
PE	CD	0.634	0.048	13.336	< .001	0.540	0.727
PE	OD	-0.078	0.108	-0.719	0.472	-0.290	0.134

Note: Std. Estimate = Standardized path coefficient. CI = Confidence Interval.

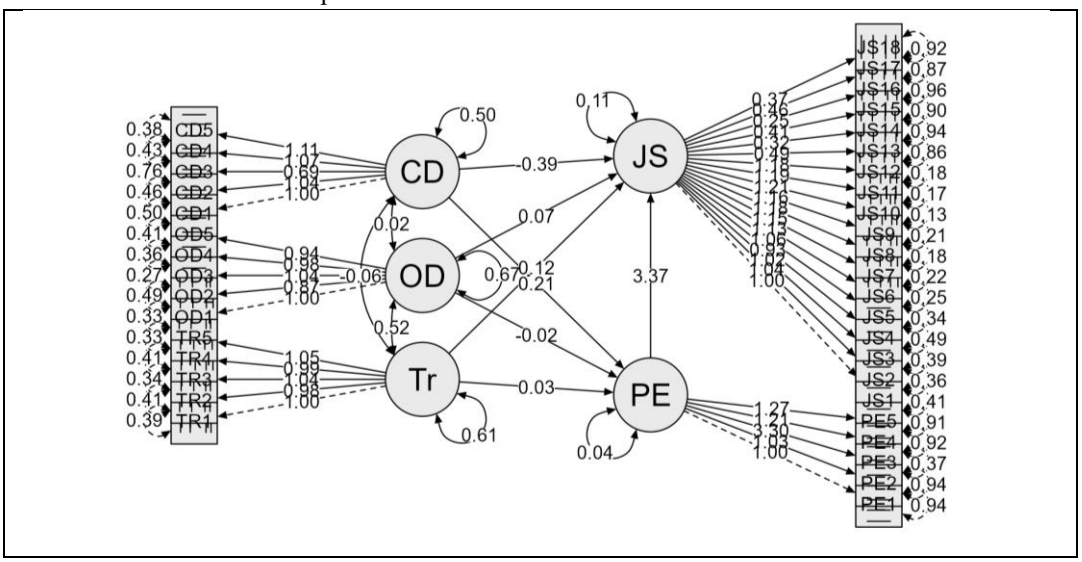

Figure 2. Structural Model Path Diagram showing constructs and standardized path coefficients.

The structural model results revealed that PE had a strong, positive, and significant effect on Job Satisfaction (β = 1.051, SE = 0.148, p < .001). CD exhibited a significant negative direct effect on Job Satisfaction (β = –0.357, p = .007). The effects of TR (β = 0.120, p = .406) and OD (β = 0.080, p = .562) on Job Satisfaction were not statistically significant. For predictors of PE, CD was the only significant positive predictor (β = 0.634, p < .001), while TR and OD were non-significant.

Table 6 - Indirect, Direct, Total Effects

Effect	Indirect	SE Indirect	z Indirect	p Indirect	95% CI Lower Ind	95% CI Upper Ind	Direct	p Direct	Total	p Total
TR → JS	0.115	0.113	1.014	0.311	-0.107	0.337	0.120	0.406	0.235	0.019
CD → JS	0.666	0.136	4.887	< .001	0.399	0.933	-0.357	0.007	0.309	< .001
OD → JS	-0.082	0.116	-0.706	0.480	-0.309	0.145	0.080	0.562	-0.002	0.985

Indirect effect analysis indicated that CD had a significant positive indirect effect on Job Satisfaction through PE (β = 0.666, SE = 0.136, p < .001), alongside a negative direct effect, producing an inconsistent mediation pattern. The indirect effects of TR and OD via PE were non-significant. Total effects showed that TR's total effect on Job Satisfaction was small but significant (β = 0.235, p = .019), CD's total effect was positive and significant (β = 0.309, p < .001), and OD's total effect was negligible (β = –0.002, p = .985).

5. Discussion and Implications

This study explored how three critical HRD practices—Training, Organization Development (OD), and Career Development (CD)—affect Job Satisfaction, with Personal Effectiveness (PE) as a mediating variable. The results offer both theoretical and practical contributions to the HRM field.

The SEM results provide important insights into the relationships among TR, OD, CD, PE, and JS. The strongest finding was the positive and significant effect of PE on JS, underscoring the importance of personal capacities in shaping job satisfaction. Additionally, CD exerted a significant positive indirect effect on JS through PE, yet its direct effect was negative, yielding an inconsistent mediation pattern. This suggests that while career development initiatives may indirectly enhance satisfaction by improving personal effectiveness, other unmeasured factors or implementation challenges could suppress direct satisfaction outcomes.

Several measurement issues warrant attention. While TR, OD, and JS demonstrated strong factor loadings and acceptable AVE values, PE's convergent validity was weak, driven by low loadings for four of its five indicators. This indicates that the current operationalization of PE may not adequately capture the intended construct and may require refinement. CD's AVE was marginally below the recommended .50 threshold, suggesting borderline convergent validity.

From a model fit perspective, incremental indices approached recommended cut-offs, yet absolute fit indices indicated poor fit. This suggests that although the specified model captures substantial variance in the key constructs (R^2 for JS = .811), there may be model misspecification, omitted paths, or cross-loadings that warrant exploration. Further refinement—such as item reduction, theory-consistent correlated errors, or alternative model specifications—could improve model fit in future research.

5.1. Limitations and Future Research

Several limitations must be acknowledged. First, the poor absolute fit indices highlight potential model misspecification and call for cautious interpretation of path coefficients. Second, the low convergent validity for PE suggests the need for revising its measurement scale, potentially through qualitative pretesting or exploratory factor analysis before confirmatory testing. Third, the inconsistent mediation pattern for CD → JS suggests the presence of unmeasured mediators or suppressor variables; longitudinal or experimental designs may help clarify these mechanisms. Fourth, the cross-sectional design limits causal inference; future research should employ longitudinal or time-lagged designs to better establish temporal precedence. Finally, the sample was restricted to a specific organizational context, potentially limiting generalizability; replication across industries and cultures is recommended.

The findings indicate that Training and Career Development significantly enhance employees' personal effectiveness. This aligns with existing literature suggesting that developmental practices bolster self-efficacy and role confidence, thereby improving employee engagement and psychological capital. In contrast, Organization Development did not significantly influence Personal Effectiveness, suggesting that OD interventions may be more structural or contextual, rather than directly enhancing individual competencies.

The study confirmed that Personal Effectiveness is a strong predictor of Job Satisfaction, supporting theories such as Self-Determination Theory and Human Capital Theory, which emphasize the value of personal capability in influencing work attitudes. Notably, Career Development's influence on Job Satisfaction was fully mediated by Personal Effectiveness, indicating that long-term developmental investments are effective primarily when they translate into personal growth and confidence.

Interestingly, OD had a moderate direct effect on Job Satisfaction but no mediated effect via Personal Effectiveness. This implies that structural changes or cultural initiatives (e.g., participative decision-making or decentralization) may influence satisfaction independently of how personally effective employees feel.

The results of the hypotheses testing offer valuable insights into the dynamics between HRD practices, personal effectiveness, and job satisfaction within the IT sector. Of the ten hypotheses tested, seven were supported, confirming significant relationships between specific HRD practices and employee outcomes. Notably, both Training and Career Development had strong positive effects on Personal Effectiveness, which in turn emerged as a powerful predictor of Job Satisfaction. These findings are consistent with Self-Determination Theory (Deci

& Ryan, 2000), which posits that the fulfillment of psychological needs such as competence and autonomy enhances intrinsic motivation and well-being. They also align with the Psychological Capital framework (Luthans, Youssef-Morgan, & Avolio, 2015), which emphasizes the role of self-efficacy and optimism—components of personal effectiveness—in predicting positive workplace outcomes. The partial mediation observed in the relationship between Training and Job Satisfaction, and full mediation in the case of Career Development, underscores the centrality of psychological mechanisms in translating HRD interventions into job satisfaction.

However, not all hypothesized relationships were supported. Organization Development (OD) did not significantly influence Personal Effectiveness, suggesting that structural or cultural interventions may not directly enhance employees' belief in their own capabilities. This finding echoes prior research that distinguishes between individual-focused and system-focused HRD initiatives (Swanson & Holton, 2009). While OD did show a moderate direct effect on Job Satisfaction, the lack of a mediated pathway through Personal Effectiveness implies that OD's impact may be more environmental, such as through improved work climate or participative structures (Cummings & Worley, 2014). Similarly, the absence of a direct effect of Career Development on Job Satisfaction, despite its strong influence on Personal Effectiveness, highlights the importance of internal psychological states in shaping how employees experience developmental support. These results advocate for a more integrated HRD approach that not only targets skills and systems but also prioritizes the psychological empowerment of employees as a pathway to sustainable satisfaction and engagement.

5.2 Theoretical Implications

The study contributes to HRD literature by integrating personal effectiveness as a central psychological mechanism linking HR practices to employee outcomes. It supports the move from traditional input–output HRM models toward process-oriented models that emphasize personal development as a key pathway to organizational outcomes.

5.3 Practical Implications

For HR practitioners, the results suggest that investment in Training and Career Development should not only target skill-building but also aim to enhance personal confidence, autonomy, and effectiveness. Similarly, OD efforts should be evaluated for their impact on both systems and individual experiences. Where OD fails to influence personal effectiveness, its value for satisfaction may lie in organizational climate or leadership practices rather than individual capacity-building. Thus, OD interventions should reify perceptions about climate and leadership at workplace.

6. Conclusion

This study affirms that Training and Career Development are critical HRD levers that operate through Personal Effectiveness to shape Job Satisfaction. While Organization Development affects satisfaction more directly, its role in personal growth is limited. The model explained substantial variance in both Personal Effectiveness and Job Satisfaction, providing a robust foundation for future empirical testing and HRD interventions. These findings underscore the need for integrative HRD strategies that align structural initiatives with personal development goals.

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