

Employee Turnover Models: A Review of Conventional and Contemporary Approaches and Future Research Direction

Muhammad Shafique

University of Engineering & Technology, Lahore, Pakistan

dierctoruael@uet.edu.pk

Mehreen Fatima

The University of Lahore, Lahore, Pakistan

Ayesha Shafique

DESCON Engineering, Lahore, Pakistan

Abstract

Employee turnover is a key aspect of the organizational structure that has been extensively studied in management literature. Multiple factors contribute to employee turnover, which can be either directly job-related or indirectly job related. Nevertheless, the process of finding these factors is a challenging and daunting endeavor, and academics are constantly striving to create improved models. Previously extensive research has been conducted on the fundamental factors that contribute to employee turnover. Contemporary approaches today challenge the predictive power of established models of employee turnover, which have remained mostly unaltered over many decades. This paper provides concise summaries of the key theories on employee turnover, along with suggestions for future research.

Keywords: Employee Turnover models turnover intention, job embeddedness, employee retention, job satisfaction, job performance

Introduction

The human resource framework within an organization is characterized by dynamic components encompassing both stocks and flows and not by static elements anymore (Bartholomew et al., 1991). Employee turnover emerges as a critical flow within this system. When a person departs from a company, it has many impacts that not only influence the organization but also the individual employee and society. Cascio (2000) shows that the expense of replacing an employee who resigns from a position ranges from 1.5 to 2.5 times the yearly compensation allocated for that role. According to Robinson and Dechant (1997), organizations incur significant financial expenditures, and personnel face high switching costs. Dess and Shaw (2001) have proposed an alternative viewpoint on turnover, explicitly focusing on the depletion of human capital. According to Holtom et al. (2006, p. 316), this aspect is increasingly acknowledged as essential for achieving success in modern organizations. Organizations aim to reduce turnover rates due to the substantial financial burden associated with staff turnover (Hom & Griffeth, 1995; Richard et al., 1995; Ramlall, 2003; Tang, 2005). Within this framework, the primary duty of HR experts is to manage and retain top-performing personnel for an extended duration within the firm.

Conventional Approaches of Employee Retention

Gaining insight into the factors that contribute to an individual's decision to stay with a company is crucial. Several ideas have been postulated to elucidate the factors influencing employee retention and turnover. Conventional methodologies encompass the notion of organizational equilibrium as projected by March and Simon in 1958, the met expectations model developed by Porter and Steers in 1973, the linkage model introduced by Mobley in 1977, and subsequent contributions by Mobley et al. in 1978. The following research studies have been based on these works and have further explored the factors influencing the need to move (such as job satisfaction and organizational commitment) and the ease with which that movement can happen (alternative job prospects). A comprehensive analysis of these methods is discussed here.

Organizational Equilibrium Theory

The conventional school of thought has widely referenced the organizational equilibrium theory proposed by March and Simon (1958). This theory posits that employees remain in the organization until the rewards or incentives they receive are balanced with their contributions to the organization. The balance between compensation and contribution is identified by two factors, namely ease of movement, which refers to an employee's ability to quit their current position for a similar opportunity, and desire to move, which is typically impacted by one's level of

happiness. According to this perspective, job satisfaction is a significant and primary factor in determining employee turnover. Multiple studies have established job satisfaction as an indicator of employee retention consistently overtime (Oktay, 1992; Hellman, 1997; Umamaheswari & Krishnan, 2015; Zopiatis et al., 2018; Salleh et al., 2020; Yukongdi, & Shrestha, 2020; Zhang, & Li, 2020; Bharadwaj et al., 2022), and have demonstrated its direct impact (Klenke-Hamel & Mathieu, 1990; Liou, 1998; Lambert et al., 2001; DeConinck, & Stilwell, 2004; Kabungaidze et al., 2013; Skelton et al., 2020; Kanchana & Jayathilaka, 2023). Many later turnover theories are derived from March and Simon's notion.

Met Expectations Theory

Porter and Steers (1973) addressed a fundamental inquiry regarding job satisfaction, defining it as an individual's perception of their job meeting their expectations across four primary dimensions: organizational factors, the workgroup, job content, and the individual. Their evolving expectations decide an individual's tenure with an organization. There is a positive correlation between the degree to which a person's expectations are fulfilled in their employment and the probability of them remaining in that position. Porter and Steers (1973) support the notion by stating that the decision to engage or disengage can be perceived as a deliberative process wherein individuals weigh received or anticipated rewards against their desired expectations (p. 171). The psychological viewpoint of turnover focuses on individual differences in expectations, which lead to variations in attitudes and behaviors.

Causal Model

Price (1977, p. 66-91) introduced a causal model outlining five critical factors of turnover: compensation levels, instrumental communication, formal communication, integration, and centralization. Based on the model, the initial four factors are believed to impact turnover by affecting job satisfaction, whereas centralization directly correlates with turnover. Alternative career possibilities influence the correlation between work satisfaction and employee turnover.

Martin Jr. (1979) proposed a causal model to examine the determinants of an employee's intention to leave an organization, focusing on social-psychological motivational processes. The model identified instrumental communication, routinization, distributive justice, and opportunity as determinants that influence the intention to leave through job satisfaction. At the same time, upward mobility directly impacted on turnover intention. Moreover, four demographic variables, namely occupation, age, education, and sex, were also significant.

Price and Mueller (1981) updated a previous causal model by incorporating intervening variables: training, kinship responsibility, and intent to stay (commitment).

Factors like routinization, instrumental communication, opportunities for promotion, and involvement in decision-making substantially impact job satisfaction. This, in turn, affects turnover through the intention to stay or commitment to the job. The study identified opportunity as the second most significant direct factor influencing turnover.

Price (2001) developed an alternate causal model and its corresponding measures after reviewing a series of investigations. The Chu et al. (2003) study conducted in Taiwan tested this concept on hospital nurses. The results suggest that the updated causal factors may elucidate 45% of the variation in job satisfaction. Seo et al. (2004) analyzed the causal model in another investigation carried out in Korea and determined that four structural factors (workload, pay, supervisory support, and routinization), two psychological factors (positive and negative affectivity), along with one environmental factor (job opportunity), collectively explained 53% of the fluctuations in job satisfaction.

Intermediate Linkage Model

However, sequences of intermediary stages establish a connection between job satisfaction and dissatisfaction and eventually affect the final decision to stay in the organization or leave. A linking model that illustrates the process by which a dissatisfied employee decides to leave the company was put out by Mobley (1977). Job dissatisfaction sets off a cascade of withdrawal thoughts, including contemplating resignation, estimating the benefit of looking for other jobs and leaving, intending to search for a job, looking for alternatives, assessing alternatives, and comparing them with the current position. An individual develops the intention to leave the organization and eventually leave when they find another employment that they deem more enticing than their current position. The model's essential contribution lies in identifying multiple variables and arranging them in a sequence as intervening factors between satisfaction or dissatisfaction and the decision to stay or leave a job.

Mobley et al. (1978) observed that the intention to quit serves as an immediate antecedent to the decision-making process of job withdrawal without developing a direct effect of alternative job opportunities on the intentions to search for and quit a job. The model proposed by Mobley et al. (1977) gained mixed support, as evidenced by cross-validation analyses of the results of their study. Subsequently, Bannister and Griffeth (1986) utilized a path analytic method with data derived from Mobley et al. (1978) and established support for a simplified version of this model. Likewise, Dalessio et al. (1986) employed the path analytic technique to analyze the datasets again based on Mobley et al.'s (1978) fundamental model confirming the proposed linkage. However, some discrepancies and inconsistencies were noted due to diverse samples and constructs.

In their subsequent work, Mobley et al. (1979) put forward an extended version of the model. They advocated for integrating factors such as attraction-expected utility for current and alternative roles, non-work (personal) values, satisfaction, and turnover's non-work consequences. This conceptual model underscores the significance of individual differences in expectations, perceptions, values, and occupational contexts. It acknowledges beliefs concerning the non-work outcomes of quitting or remaining in a job to quit, which are recognized as the immediate antecedent of turnover. This model led to the development of the pull theory, which posits that external factors significantly influence the decision to "pull" an employee from their current organization. The primary focus of the Mobley et al. (1979) model was to encompass a broad range of predictors and sequence them between dissatisfaction and turnover as intervening variables.

Lee and Rwigema (2005) reexamined Mobley's model by conceptualizing employee turnover as a dynamic process in a retrospective study. They revisited the respondents' commitment, satisfaction, and withdrawal intention at three intervals before the decision to stay or leave. While the traditional processes and variables were not contested, this study found that changes in variables were significantly more prognostic of the ultimate turnover outcome, aligning with the propositions set forth by Mobley's model.

Alternative Linkage Model

Hom et al. (1984) introduced an alteration in Mobley's model as an alternate process model and outlined two distinct decision pathways. When contemplating quitting, employees assess their intention to leave and evaluate the anticipated benefits of quitting. They then initiate a job search to compare alternatives with their current position or by resigning directly. Furthermore, perceived social pressure is a significant factor influencing employee withdrawal behavior. Subsequently, in 1991, Hom and Griffeth led a two-phase study. Following construct validation, they used structural equation modeling to examine a longitudinal adaptation of Hom et al.'s (1984) model. Results revealed that the new model demonstrated a superior fit compared to the original model of Mobley.

Unified Model

Bluedorn (1982) formulated a unified model by incorporating the causal model proposed by Price (1977), the linkage model introduced by Mobley (1977), and the organizational commitment approach. In line with Price's (1977) framework, job satisfaction within the integrated model is influenced by many variables such as promotion opportunities, formalization, centralization, instrumental communication, pay, equity, member integration, and routinization. Additionally, the model posits that

individual attributes also shape an employee's job satisfaction. Path analysis on the model supported causal relationships between job satisfaction, organizational commitment, intention to quit, and turnover, with organizational commitment as an intervening variable in the turnover process. Moreover, the analysis indicated direct pathways from routinization, age, and job opportunities to turnover (Bluedorn, 1982, p. 149).

Comprehensive Process Model

Steers and Mowday's (1981) comprehensive process model stood out for recognizing the influence of information about an available job and an organization and job performance on affective responses. In addition, this model identified organizational commitment or job involvement as antecedents to an employee's intent to leave other than job satisfaction. This model posits that non-work factors exert a more significant effect than those identified in preceding research. Furthermore, it ascertained that organizational experiences, job-related expectations and values, and job performance predict a person's affective response to a job. Lee and Mowday (1987) conducted the first comprehensive test of this model in a financial institution. The findings of this study propose that met expectations, job attitudes, job values, intention to leave the job, and quitting the job were all associated with many, although not all, of the postulated antecedent variables. A considerable portion of the unique variance in job values and met expectations was explained by the information offered about a job and its organization. Met expectations, job performance, organizational characteristics, job values, and organizational experiences accounted for a considerable amount of incremental variance in affective responses. In the same way, organizational commitment, job satisfaction, and job involvement were found to explain a considerable portion of the incremental variance in developing the intention to quit.

Cusp Catastrophe Model

Sheridan and Abelson (1983) pointed out three shortcomings in the existing turnover theories, i.e., cross-sectional nature, varying time interval between questionnaire survey and actual termination, and continuous/linear relationship between different stages of turnover. Considering turnover a dynamic process, they introduced the cusp catastrophe model that offers several prepositions to explain how two determinants, organizational commitment, and job tension, affect withdrawal behavior. Continuous decreases in commitment and increases in job tension abruptly convert into termination, considering withdrawal behaviors as nonlinear/discontinuous. Similarly, the model uniquely proposed that employees with different commitment and job tension levels might behave similarly. However, this model lacks subsequent empirical support.

Investment Model

Farrell and Rusbult (1981) projected an investment model of employee turnover, building upon the interdependence perspective introduced by Kelley and Thibaut (1978). According to this model, employee turnover is influenced by job rewards, job investments, job costs, employee orientation, and alternative values. Job satisfaction is primarily predicted by the rewards and costs associated with the job, while a combination of rewards, costs, alternative values, and investment size influences job commitment. Both job satisfaction and job commitment are associated with job turnover, with job commitment demonstrating a stronger relationship with turnover than job satisfaction. Job investments such as service tenure, retirement programs, and non-portable skills increase commitment by raising leave costs. The investment model posits that job commitment should directly predict job turnover negatively.

Consequently, turnover is negatively correlated with satisfaction, job rewards, and investments and positively correlated with alternative value and job costs. Rusbult and Farrell (1983) carried out a longitudinal study to validate the investment model. Their findings indicated that increased job rewards and decreased job costs led to higher job satisfaction. In contrast, high commitment was associated with low costs, high rewards, large investment size, and poor alternative quality. Furthermore, differences between employees who stayed with the organization and employees who quit were observed over time in various factors of the investment model, including changes in rewards, costs, alternative quality, and investment size. Individuals who quit experienced an increase in costs, declines in rewards, enhancements in alternative quality, and reductions in investment size compared to those who decided to stay.

Equity Theory

Equity theory provides an alternative explanation for job dissatisfaction and turnover reasons. According to this theory, when employees compare the ratio of organizational rewards to his/her contributions with that of a referent, they experience dissatisfaction if the ratios differ (Adams, 1963; 1965). Voluntary turnover can be a response to this perceived inequality. Griffeth and Gaertner (2001) investigated the effect of the perception of inequity on the turnover process and identified that inequity perceptions affect turnover through their effect on job satisfaction. Their study corroborated previous research findings regarding the predictive strength of inequity perceptions on turnover.

Contemporary Approaches of Employee Retention

Traditional turnover models often depict employees leaving organizations due to negative job attitudes and staying due to positive job attitudes. However, recent research suggests this explanation does not hold in all turnover cases. A meta-analysis was conducted by Hom and Griffeth (1995) and Griffeth et al. (2000), which supported the notion that work attitudes, such as job satisfaction, play a minor part in the overall turnover. Consequently, new theories are needed to explain employee turnover. The unfolding model, developed by Lee and Mitchell 1994 Lee et al. 1996 and Lee et al., 1999 and the job embeddedness framework (Mitchell et al., 2001) represent efforts to develop alternative theories. These contemporary theories offer different perspectives on the phenomenon of employee turnover. The unfolding model elucidates the complexity of voluntary turnover by proposing four paths that employees may follow when considering leaving an organization. In contrast, the job embeddedness framework emphasizes the role of accumulated social capital and job embeddedness in deterring voluntary turnover. Employees get committed to organizations through organizational and community links, fit, and sacrifice components. Empirical findings support the significance of job embeddedness in predicting voluntary turnover or withdrawal cognition across various studies.

Unfolding Model of Employees Turnover

Lee and Mitchell (1994) assert that leaving an organization is much more intricate than previously acknowledged in literature. They propose that factors beyond job dissatisfaction can instigate an employee's decision to leave. Introducing the unfolding model, they delineate four paths employees may take when contemplating departure from an organization. Three paths necessitate some form of "shock" or external push, prompting employees to reconsider their affiliation with their employer. These shocks can encompass a wide array of positive and negative experiences, anticipated or unexpected, internal or external, such as marriage, childbirth, job transfers, or receiving an offer from another company. Subsequently, Lee et al. (1996) established that these four paths, as outlined in the unfolding model, accounted for 63% of the departure process within their respondent sample.

However, 27% of their sample did not align with any predefined path, highlighting ambiguities and gaps in the model. In response to unmatched responses from participants, Lee et al. (1999) revised and expanded the unfolding model to mitigate conceptual ambiguities. Their study enhances our comprehension of voluntary turnover by addressing the questions surrounding how and why individuals choose to leave their organizations. A significant contribution of the unfolding model lies in its introduction of "shocks" as pivotal events initiating a psychological evaluation process preceding job resignation. These studies underscore that individuals depart from their

jobs not solely due to negative influences, such as job dissatisfaction and lack of organizational commitment, but also in response to unforeseen "shocks."

Holtom et al. (2005) analyzed 1,200 cases of voluntary turnover across various industries. They found that in over 60% of cases, the immediate reason for turnover was a 'shock' instead of collected job satisfaction. Donnelly and Quirin (2006) also validated the unfolding model and demonstrated it through a sample of practicing accountants. They found that 86% of respondents fit into one of the hypothesized paths of the model. Similarly, Holt et al. (2007) confirmed the model with 83% of voluntary leavers from the Air Force following the proposed and modified paths. Morrell (2005) identified three broad groups in exploring the nursing turnover decision process: those triggered by a hostile and unexpected work-related shock, those prompted by a personal, positive, and expected shock, and those who made conventional decisions with a gradual unfolding of separation.

While the unfolding model enriches our understanding of voluntary turnover and covers the questions of how and why people quit their businesses, according to Joseph et al. (2007), the unfolding model's most significant novelty includes an "impulsive" way to quit and the rational decision-making process given in standard turnover models. Recent findings (Morrell et al., 2008) question its generalizability, as a significant portion of nurse leavers (81%) did not conform to the proposed path patterns of the model. They attribute these failures to measurement flaws, occupational group characteristics, and a constrained labor market for leavers.

Job Embeddedness Framework

The study of employee retention has historically received less attention in understanding how employees decide to remain with an organization and the factors influencing this attachment. Staying and leaving entails distinct psychological and emotional processes. According to Holtom et al. (2006), accumulated social capital and job embeddedness emerge as crucial determinants of organizational retention, potentially outweighing the significance of job satisfaction. Mitchell et al. (2001) presented the unique organizational attachment construct, namely job embeddedness, to explicate the impact of factors related to work and those not related to work on employees' decision to stay with the organization, thus discouraging the decision to leave the organization voluntarily. Personnel develop attachments to organizations through organizational and community links, fit, and sacrifice. The vital dimensions of job embeddedness encompass individuals' links within and outside their jobs, the perceived fit between their self-concept and the organizational environment, and the sacrifices they endure by relinquishing their jobs and their associated aspects of life.

Empirically tested research studies support the predictive power of job embeddedness in voluntary turnover or withdrawal cognition across various studies (Mitchell & Lee, 2001; Mitchell et al., 2001; Lee et al., 2004; Holtom & O' Neill, 2004; Wijayanto & Kimono, 2004; Cunningham et al., 2005; Tanova, 2006; Mallol et al., 2007; Shafique et al., 2007; Crossley et al., 2007; Tanova & Holtom, 2008; Halbesleben et al., 2008).

Other Explanations

Kim, Milliman, and Lucas (2020) explored the link between corporate social responsibility and employees' intention to stay. The researchers focused on explaining how various dimensions of CSR can improve employees' overall quality of work life and intention to stay, mediated by the mechanism of organizational identification, drawing upon the theory of social exchange and social identity. The study collected survey responses from employees working at a casino hotel company in the United States. Their study revealed that organizational identification demonstrated positive direct and indirect effects on the intention to stay through better quality of work-life. Furthermore, both ethical and philanthropic elements of corporate social responsibility indirectly impact the intention to stay through improved quality of work-life and organizational identification.

Although engaging work stands out as the most influential factor in attracting and retaining employees within the job market, Boxall, Macky, and Rasmussen (2003) also indicate a significant employee expectation that management should make personnel decisions based on merit. Furthermore, it is evident that extrinsic rewards, such as compensation, career advancement, and job security, contribute to both employee retention and turnover. This study supports the notion that an increasing emphasis is being placed on achieving a healthy work-life balance and emphasizes the importance of fostering positive relationships with colleagues and supervisors in retaining employees.

Recognizing the importance of employee retention for organizational functioning and competitiveness, Kyndt, Dochy, Michielsen, and Moeyaert (2009) examined the organizational and personal factors that influence it. Of particular interest is the role of employee learning, as it is viewed as a supportive factor in employee retention. A survey was administered to 349 employees, supplemented by 11 in-depth interviews to contextualize the quantitative findings. The study offered a substantial positive impact of employee appreciation and stimulation on employee retention. Additionally, they found the potential of personal development in enhancing employee retention, presenting new avenues for exploration. Furthermore, they highlighted the influence of individual differences on employee retention, indicating a positive

relationship between leadership skills and seniority while noting a negative correlation between readiness and initiative towards learning and retention.

In this regard, Younis, Ahsan, and Chatteur (2023) proposed a conceptual model for employee retention by investigating the snowball effect, centrality measures, network position, and network type. They indicated that a central network position was not consistently linked with adverse turnover outcomes. Furthermore, the snowball effect, wherein employees in similar network positions exhibit increased turnover, becomes more pronounced in situations characterized by negative employee sentiment, entrepreneurship, low group efficacy, and misaligned group values. They focused on various themes to consolidate various determining factors of an organizational network, thereby demonstrating how employee turnover can be predicted with the help of social network theory. The conceptual model proposed in the study provided insights into identifying star performers and proposing effective retention strategies.

Future Research Directions

Integration of Employee Turnover Models

Despite the earlier approaches delineating employee retention, scholars contend that a pressing necessity exists to amalgamate contemporary methodologies with conventional frameworks to formulate a novel model. Within the discourse surrounding the association between performance and turnover, Allen and Griffeth (1999, p. 533) posit the indispensability of incorporating both the desire and the ease of movement into any comprehensive model elucidating the relationship between performance and turnover and advocating for the incorporation of more contemporary approaches in research within this domain. Joseph et al. (2007, p. 564) contrast the unfolding model, equilibrium theory, and job embeddedness to explain the withdrawal thoughts, arguing that studies on retention predominantly counted on the theory of organizational equilibrium (March & Simon, 1958). They argue that present-day viewpoints on turnover, such as the job embeddedness theory and the unfolding model, can furnish fresh insights into employee retention, thus presenting numerous avenues for forthcoming research. Crossley et al. (2007) conducted introductory research on integrating models and scrutinized how job embeddedness and satisfaction could be amalgamated. In light of this perspective, it is considered appropriate to utilize both traditional and contemporary approaches to bring forth a more inclusive and wide-ranging integrated employee retention model that encompasses the maximum number of antecedents that impact retention with their interactions to be examined using advanced analytical techniques.

What is Important? An aggregate of all Dimension of Job Embeddedness or only Organization Embeddedness

Critics note that only half of the component "organization embeddedness" within the broader construct of job embeddedness exhibit a significant correlation with performance ($r = .19$) and impact it through organizational commitment. Upon scrutinizing preceding research outcomes, it becomes apparent that the two aspects of job embeddedness do not demonstrate consistent results when their relationship is tested. Mitchell et al. (2001) observe a stronger bivariate correlation between organizational embeddedness, satisfaction, commitment, and retention in contrast to community embeddedness. Another research study also identified that there existed a significant relationship between intention to stay and organizational embeddedness but the relationship with community embeddedness remained insignificant (Shafique et al., 2011). Allen (2006) found no support for the relationship between community embeddedness and turnover of newcomer employees. Lee et al. (2004) examined the association between job embeddedness and organizational citizenship behavior and performance. He discovered that the relationship between organization embeddedness, organizational citizenship behavior, and job performance is significant.

On the other hand, off-the-job embeddedness does not show significant results. Another study discussed temporal, network, and prestige embeddedness for tenured and non-tenured faculty members (Emmerik & Sanders, 2004). They established this model within an organizational context and concluded that it is variably related to faculty members' jobs and contextual performance. This indicates that from an employee's perspective, community embeddedness may exert minimal influence on their performance outcomes, as organizations primarily influence aspects within their direct control.

Professional Embeddedness or Professional Commitment?

A few studies have investigated the relationship between professional commitment and employee turnover. However, this perspective needs to be broadened by investigating individuals' alignment, connections, and sacrifices associated with their profession. Professional fitness refers to the degree to which a person's capabilities align with the requirements of a particular occupation. In the same way, links denote an individual's ties to socialization, occupation, people, and professional activities. Sacrifice encompasses the losses incurred by leaving one's occupation—the more robust the perceived congruence, connections, and sacrifices, the greater the professional embeddedness. Further exploration is required to comprehend the potential convergence or divergence between organization embeddedness and professional embeddedness. Organizational embeddedness may substantially impact occupational embeddedness more than vice versa (Ng & Feldman, 2007, p. 339). This

inquiry is particularly relevant for assessing an individual's career orientation and professional identity. Additionally, factors that foster embeddedness at various career stages warrant exploration.

Job Embeddedness in Virtual Workplaces

With the proliferation of virtual workplaces and network organizations, it is pertinent to reexamine employee turnover concerning key factors such as professional commitment, organizational commitment, and job embeddedness in novel workplace settings where many organizational interactions occur virtually via computers or phones. Do these virtual interactions foster similar levels of bonding as those established in person?

Causal Relationship

Reasonable work has been undertaken, building on the foundational research of Mitchell et al. (2001). Although these studies have examined and contrasted the precursors of stay derived from traditional and contemporary methodologies, much remains predictive and confined to bivariate analysis. It is advisable to revisit prior research employing structural equation modeling techniques to explore the potential causal relationships among antecedents of employee turnover.

Quantification and Mathematical Explanation of Employee Turnover Models

Quantifying and elucidating managerial phenomena through mathematical models present promising avenues for organizational researchers. Researchers can delve into how increased organization embeddedness contributes to employee retention by employing mathematical techniques. Additionally, social network analysis techniques could aid in elucidating the actual dynamics of employees' connections, distinguishing between healthy and unhealthy links. Holtom et al. (2008, p. 257) advocate for this approach, underscoring the need to observe the quality of links, such as effect, and how links of high and low quality will interact.

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