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Strategies Information Technology Managers Use to Retain Qualified Information Technology Employees

Wayne Arnold Reu
Walden University

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Walden University

College of Management and Human Potential

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Walden University
2023

Abstract

Strategies Information Technology Managers Use to Retain Qualified Information
Technology Employees

by

Wayne Reu

MS, American Public University, 2017

BS, National University, 2008

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Information Technology

Walden University

May 2023

Abstract

Retaining qualified information technology (IT) personnel can take time and effort, given the high demand for skilled positions. Business leaders are concerned with the high turnover of IT employees because of the cost of recruiting and training personnel and the disruption to organizational processes and performance. Grounded in job characteristics theory, the purpose of this qualitative pragmatic inquiry was to explore IT managers' strategies to retain qualified IT employees in organizations across the southwestern United States. Eight IT leaders participated because of their years of experience implementing strategies to retain qualified IT professionals. Data were collected using semistructured interviews and a review of 10 industry documents. Thematic analysis revealed the following themes: engagement, performance management, talent management, and organizational culture. A key recommendation to business leaders is to commit actively to each employee and learn their strengths and goals to set them up for success. The implications for positive social change include the potential for increased community economic development, job creation, and job sustainability.

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Table of Contents

List of Tables	iv
List of Figures	v
Section 1: Foundation of the Study.....	1
Background of the Problem	1
Problem Statement	2
Purpose Statement.....	3
Nature of the Study	3
Research Question	6
Interview Questions	6
Conceptual Framework.....	7
Definition of Terms.....	8
Assumptions, Limitations, and Delimitations.....	9
Assumptions.....	9
Limitations	10
Delimitations.....	10
Significance of the Study	11
Contribution to Effective IT Practice.....	11
Implications for Social Change.....	12
A Review of the Professional and Academic Literature.....	12
Conceptual Framework.....	14
Previous Research Using Hackman and Oldham’s JCT.....	19

Compare and Contrast Competing Theories	25
IT Workforce Turnover Intentions.....	31
IT Workforce Retention	34
IT Workforce Engagement	39
IT Talent Management.....	41
Transition and Summary	44
Section 2: The Project.....	45
Purpose Statement.....	45
Role of the Researcher	45
Participants.....	48
Research Method and Design	49
Method	49
Research Design.....	50
Population and Sampling	53
Ethical Research.....	55
Data Collection	57
Instruments.....	57
Data Collection Technique	58
Data Organization Techniques.....	61
Data Analysis Technique	62
Reliability and Validity.....	63
Reliability.....	63

Validity	64
Transition and Summary	66
Section 3: Application to Professional Practice and Implications for Change	68
Presentation of Findings	68
Theme 1: Engagement	70
Theme 2: Performance Management	77
Theme 3: Talent Management	87
Theme 4: Organizational Culture.....	97
Application to Professional Practice.....	106
Implications for Social Change.....	108
Recommendations for Action	109
Recommendations for Further Research.....	111
Reflections	113
Conclusion	114
References.....	115
Appendix A: Interview Protocol Guide	148
Appendix B: Email Invitation.....	149
Appendix C: CITI Program Certification	150

List of Tables

Table 1. Research References Breakdown.....	13
Table 2. Interview Parameters	69
Table 3. Industry Documents	69
Table 4. References of Major Theme 1: Engagement	70
Table 5. References of Major Theme 2: Performance Management	77
Table 6. References of Major Theme 3: Talent Management	87
Table 7. References of Major Theme 4: Organizational Culture.....	98

List of Figures

Figure 1. Job Characteristics Theory Framework.....	15
Figure 2. Moderators of the Job Characteristics Theory.....	16
Figure 3. Herzberg’s Two-Factor Theory.....	28
Figure 4. Maslow’s Hierarchy of Needs.....	30

Section 1: Foundation of the Study

Retaining information technology (IT) personnel is a significant challenge for most organizations due to the turnover rate of highly qualified and skilled employees (G. Wang et al., 2019). A high rate of IT turnover can harm organizational performance and have social implications to economic growth (Ramaprasad et al., 2018). Researchers have estimated that the cost of recruiting, training, and the disruption of organizational processes and performance ranges from 90% to 700% of the annual salary of the replacement employee (Pflügler et al., 2018). For these reasons, IT managers need to have strategies to retain qualified employees to support their organization's goals and objectives. In the current qualitative study, I explored strategies used by successful IT managers to retain qualified IT personnel to support their business operations. A background of the problem, problem statement, objective of the investigation, conceptual framework, nature of the study, assumptions, constraints, delimitations, significance of the study, and a literature review are included in this section.

Background of the Problem

The IT field has evolved over the years due to the explosive growth of the internet, which has led to a chronic shortage of qualified IT professionals (Hoanca & Craig, 2019). Skilled IT employees play an essential role for any organization to achieve its goals, and when the IT employees leave the organization, the loss creates an expense as much as 6 times that of other professionals (Harden et al., 2018). In addition, the expense of recruitment, selection, and training of new personnel makes the retention of qualified IT employees a high priority.

Qualified IT employees are essential because many people and organizations rely on IT for information collection, processing, business operations, maintaining critical infrastructures, storage, research, and everyday routines. IT employees perform the technical duties and assume managerial support necessary to maintain operational efficiency in everything they do (J. J. Jiang et al., 2020). Therefore, retaining qualified IT professionals benefit organizations in maintaining operational efficiency, performance, and a competitive edge. A recent survey indicated that IT professionals rated job satisfaction, career progression, and challenging work as the major factors for employee retention, and that longevity with any organization was a concern because IT professionals chose personal necessities over stability (Morton et al., 2018). The reasons for dissatisfaction among IT employees were listed as salary, career progression, culture, management, ethics, and job characteristics. The current qualitative study was needed to identify the reasons why IT personnel leave and the strategies that enable retention.

Problem Statement

Approximately 85 million jobs will go unfilled globally by 2030 due to the lack of skilled IT professionals (Cooney et al., 2022). The IT industry has evolved to the point where organizations risk losing valuable IT employees due to better opportunities, career advancement offers, better salaries, and changes of position leading to disruption of business operations (J. J. Jiang et al., 2020). The general IT problem was that losing valuable IT personnel harms business operations. The specific IT problem was that some managers lack the plan of action to identify the strategies used by successful IT managers to retain qualified IT personnel to support their business operations.

Purpose Statement

The purpose of this qualitative study was to identify the strategies used by successful IT managers to retain qualified IT personnel to support their business operations. The target population was IT managers, IT leaders, and chief information officers (CIOs) in organizations across the Southwest United States. The study results may contribute to social change by increasing job satisfaction for IT employees, thereby causing less disruption in their lives at work, home, and in their community.

Nature of the Study

The qualitative method was selected for this study to acquire data from the literature review and interview participants who had experienced retaining qualified IT employees in their organizational environment. Montargot and Lahouel (2018) asserted that a qualitative study addresses qualities or characteristics and allows for an open-ended approach to collect data and analyze the participants' perceptions as the focus of the research. Qualitative research is also seen as an aesthetic practice in which data analysis highlights the extraction, order, and theory generation (Grodal et al., 2021). The qualitative method allows the researcher to begin with data and strive toward theory generation through recursive and inductive processes (Howard-Grenville et al., 2021).

In contrast, the quantitative method can include a dedicated survey or an experimental design. A quantitative researcher will conduct an evaluation of a theory through processes that involve statistical software, measures, data, and results (Zyphur & Pierides, 2020). Quantitative research with surveys helps to establish data transparency. However, Batt and Kahn (2021) argued that some quantitative researchers use sensitive

data in their studies, and in some cases sharing these data can be problematic due to nondisclosure agreements. Hooper and Blunt (2020) asserted that quantitative methods usually involve large quantities of respondents using a Likert scale survey with varying levels of agreeability, and the processing of survey data proves costly in both time and expense. This method was not chosen because it would have involved statistical inferences instead of the insights from IT managers regarding retaining qualified IT professionals.

The mixed-methods approach was considered because I could have combined the interview data from IT managers who had experienced the phenomenon and the statistical inferences accumulated from an extensive survey, thereby strengthening the results. According to Schoonenboom and Johnson (2017), the mixed-methods approach offers a broader and more in-depth understanding of the phenomenon when combining qualitative and quantitative data. However, Cheung et al. (2018) identified four problems that must be addressed: Observations must be observed in a controlled way, deductions must be carried out in a controlled way, scores of surveys must be compiled and analyzed, and interviews must be performed and transcribed. Furthermore, Cameron (2011) emphasized the need for advanced research skills and capabilities in integrated data analysis to facilitate this type of study. For these reasons, the mixed-methods approach was not chosen because it would have been too restrictive and time-consuming to complete the study without the proper expertise and skill set.

A pragmatic inquiry approach was used in the current qualitative study because it was an inductive approach to identify how or why certain IT employee retention

strategies work. Taguchi (2018) understood that the pragmatic inquiry approach enables researchers to identify and understand the reasons for a phenomenon through interviews, observations, and field notes that are rich with information from interview participants' views and thoughts while they are in their natural environment. Similarly, House (2018) identified pragmatic inquiries as an introspective approach that elicits data from semistructured interviews and thinking-aloud protocols that enable researchers to learn what the participants think about their actions. The pragmatic inquiry design was suitable for the current study because the focus was strategies used by successful IT managers to retain qualified IT employees.

The phenomenological design did not apply to this study because this design focuses on the lived experiences of individuals, which are often reported in a narrative format and in a structure that did not align with the purpose of the current study. Song (2017) emphasized that the phenomenological design is potentially more scientific than a positivist approach. Bush et al. (2019) addressed phenomenological research as seeking to understand and interpret a phenomenon through the lived experiences of the individuals. Bush et al. further pointed out that this form of research is used to derive information from individuals' inner experience in everyday life; however, a researcher's bias and background could impact the interpretation of the data they are studying.

The narrative design was also inappropriate for the current study because this method is based on the reinterpretation of the experiences of the participants' life stories (see Patterson, 2018). Andrews (2021) understood that narrative research does not always clarify what constitutes actual data due to the nature of storytelling. Therefore, the

researcher is left to decipher what part of the storytelling is factual and what part is subjective data. I sought to collect data from documentation and interviews with participants who had experienced the phenomenon of IT employee retention.

The ethnographic design enables researchers to observe the patterns and behaviors of a group of individuals in their natural environment, which would have been time-consuming for the current study. Perrier et al. (2018) indicated that ethnographic research is conducted to capture a cultural group's experiences related to a specific matter and synthesize what has been observed over time, while Zilber (2020) portrayed the ethnographer as an active participant observing people's behavior and interactions in their natural environment. Given that the intent of the current study was not to research any specific group, ethnicity, or geographic location, the ethnographic design was not chosen.

Research Question

What are the strategies IT managers use to retain qualified IT personnel to support their business operations?

Interview Questions

1. What are the strategies you use to support employee retention?
2. What are the practices you use to sustain employee engagement?
3. What are some reasons that caused your employees to leave?
4. What changes to job characteristics (skill variety, task identity, task significance, job feedback, job autonomy) best supported your retention strategies?

5. What job characteristics changes were not as effective in your retention strategies?
6. What impact does person–job fit have with your retention strategies when technology changes?
7. Do you have any other information you can share about IT retention strategies?

Conceptual Framework

The conceptual framework for this study is the job characteristic theory (JCT) (Hackman & Oldham, 1980). JCT was based on Maslow's need hierarchy and expectancy theory (Hackman & Lawler, 1971). The JCT theory was further expanded to include three psychological states of employees (Hackman & Oldham, 1976, 1980). JCT identified five objective job characteristics that create internal motivation to perform well: (a) skill variety, (b) task identity, (c) task significance, (d) autonomy, and (e) feedback from the job itself. Along with the five objective job characteristics, the JCT identified three psychological states that affect internal work motivation: (a) experienced meaningfulness of work, (b) experienced responsibilities for outcomes of work, and (c) knowledge of the results of the work (Hackman & Oldham, 1980).

The JCT model supports identifying strategies used by IT managers to retain qualified employees by using the five objective job characteristics and the three psychological states as the guiding principles for redesigning jobs (see Hackman & Oldham, 1980). The expected results of job redesign are motivational improvement and enriched work. The key to identifying strategies to retain IT employees are the practices

organizations use that support enriched work. These include job characteristics, training, career development, compensation, and supervisory practices. When these practices are shown to support enriched work, the job redesign should have a tangible and lasting impact on both the organization and its IT employees (Hackman & Oldham, 1980). A more thorough explanation and analysis of the conceptual framework is provided in Section 2.

Definition of Terms

Agile: In software development, agile practices are those in which solutions evolve through collaboration and improving processes (Setor & Joseph, 2020).

Burnout: A state of emotion related to stress on the job in which the employee experiences exhaustion (Sonnentag, 2017).

Hybrid role: A job description in which an IT professional is expected to execute both technical and leadership responsibilities (Smith et al., 2020).

IT turnover: A situation in which an IT professional leaves an organization initiated by voluntary, involuntary, functional, or dysfunctional means (Zylka & Fischbach, 2017).

Job perception: A characterization of a specific occupation related to an employee's interests (Carpenter et al., 2018).

Technostress: Employees coping with rapid changes in their work environment and keeping pace with new technologies (Suh & Lee, 2017).

Work redesign: Work characteristics that include task complexity, task variety, and boundary spanning development that provoke intended behavior (Hackman & Oldham, 1980).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are a necessary element in framing a study. Burton-Jones et al. (2021) maintained that assumptions affect researchers' priorities and actions and shape their perspectives and thought processes. De Boeck et al. (2018) explained that theoretical assumptions enabled researchers to use instinctive logic to identify employee reactions to talent management. De Boeck et al.'s assumption was that talent management led to positive outcomes in employees who were identified as having talent in terms of engagement, development, and retention. An assumption is a belief that a researcher finds to be true without validation.

I assumed that all interviewees would answer all questions honestly and with integrity. However, validating each of their responses would have been time-consuming. Participants were instructed that their identities would not be exposed with their specific responses and the responses would be kept confidential and secure. The confidentiality made it more likely that their responses would be genuine. The second assumption was that the interview questions would provoke the necessary responses from the participants relevant to the problem under study. The third assumption was that the IT professionals selected for the study would be suitable for responding to the interview questions.

Limitations

Limitations of qualitative research are potential constraints beyond a researcher's control but could impact the research outcome. Chang et al. (2020) noted that qualitative researchers strive to be objective and rigorous but can be seen as being biased and lack strict consistency within predefined parameters. Chang et al. argued that inviting additional experts to a study limits bias and the results are seen as valid and reliable. Ishmael and Halawi (2022) asserted limitations while conducting telephone interviews include the inability to see body language and other nonverbal cues that were not seen that could have impacted their responses. To overcome these limitations, a follow up with the participants was necessary to ensure the accuracy of interpretations and understanding of their responses during the interview process.

One limitation of the current study was that the participants consisted of only IT professionals in leadership positions. A second limitation was that the research quality was dependent on my skills as a researcher, which may have been influenced by personal bias. A third limitation was that the telephone interviews may have restricted additional information from participants' responses during the interviews.

Delimitations

Delimitations indicate the parameters and objectives of the study by establishing the boundaries with a definitive focus on the problem (Burkette, 2022). The scope of the current study included three delimitations. The first delimitation was the small sample size of the participant population. The second delimitation was that the IT managers interviewed were from the Southwest United States. The third delimitation was

interviewing CIO executives and IT leaders who supervise IT employees in most subcategories of IT.

Significance of the Study

This study may provide organizations with the awareness of the strategies successful IT managers use to retain qualified IT personnel. Organizations know that IT employee losses can be costly, with the time it takes to find new employees and train them if the new appointments are not what they are looking for. Through this research, organizations may be able to recognize how changing job characteristics or conducting a job redesign may influence an employee's motivation and desire to stay. Additionally, my exploration of IT retention strategies may support further studies into innovative IT employee retention strategies.

Contribution to Effective IT Practice

Harnessing the power of IT can transform an organization's business operations to achieve a competitive advantage. One of the most critical investments any organization can make is retaining qualified IT professionals as they contribute significantly to organizational performance and effectiveness (S. Han et al., 2021). Today's IT environment takes more than operational equipment. It requires qualified IT professionals who are trained to maintain the IT governance, hardware infrastructure, software applications, and data management. The current study may contribute to improving IT and IT practice by providing organizations with strategies that support the retention of qualified IT personnel.

Implications for Social Change

This investigation may contribute to social change by identifying the causes of employee losses and using the best practices to retain qualified employees as a form of job sustainability. When job characteristics and satisfaction enable employees to thrive, it can promote an increased sense of well-being and positively impact the societal structures employees are exposed to in their local community. Effective retention strategies may contribute to job security, lower the local unemployment rates, stimulate economic growth, and increase the overall quality of life.

The purpose of this qualitative pragmatic inquiry was to explore strategies used by successful IT managers to retain qualified IT personnel to support their business operations. The study was based on the JCT developed by Hackman and Oldham (1980). JCT supported identifying the strategies used by successful IT managers by addressing the five job characteristics and the three psychological states as moderators to redesign jobs that improve motivation and enrich work meaningfulness. The current study may contribute to effective IT practices and contribute to social change. A review of the academic literature showed how several researchers used JCT to identify ways to improve employee retention through job redesign that promotes high work motivation and satisfaction.

A Review of the Professional and Academic Literature

The literature review was conducted using 97 peer-reviewed articles based on the strategies IT managers use to retain qualified IT personnel to support their business operations. The literature search strategy used for locating peer-reviewed articles

included resources from the Walden University Library databases. These databases include EBSCOhost, Elsevier, Emerald Insight, Google Scholar, IEEE, ProQuest, Science Direct, and Taylor & Francis Online. Key search terms included *job recognition*, *IT personnel*, *IT employee*, *IT turnover*, *job satisfaction*, *career satisfaction*, *job characteristics theory*, *job characteristics model*, *task identity*, *job autonomy*, *IT retention*, *IT retention strategies*, and *retaining IT employees*. All peer-reviewed articles went through the validation process using Ulrich Periodicals Directory. Ninety-seven articles met the peer-review criteria, and 85 articles were published within the past 5 years. Table 1 provides the article count for the literature review and the entire study.

Table 1

Research References Breakdown

Section	Peer-reviewed	Past 5 years	Total	Percentage peer-reviewed	Percentage past 5 years
Literature review	97	85	99	97%	86%
Entire study	205	191	216	95%	88%

The organization of the literature review consists of the following hierarchy: (a) conceptual framework JCT discussed in detail, (b) previous research using JCT, (c) compare and contrast competing theories, (d) IT workforce turnover intentions, (e) IT workforce retention, (h) IT workforce engagement, and (i) IT talent management. The specific IT problem was that some managers lack the plan of action to identify the strategies used by successful IT managers to retain qualified IT personnel to support their business operations. The purpose of this qualitative pragmatic inquiry was to explore the

strategies successful IT managers use to retain qualified IT personnel to support their business operations. This research design addressed vital factors that lead to IT employees remaining with or leaving their organization. IT managers looking to retain their top talent may be able to use the findings to increase employee retention within their organization. The literature review focused on the job characteristics that cause an IT employee to remain or leave, the impact turnover has on an organization, and the strategies successful IT leaders may use to retain qualified employees.

Conceptual Framework

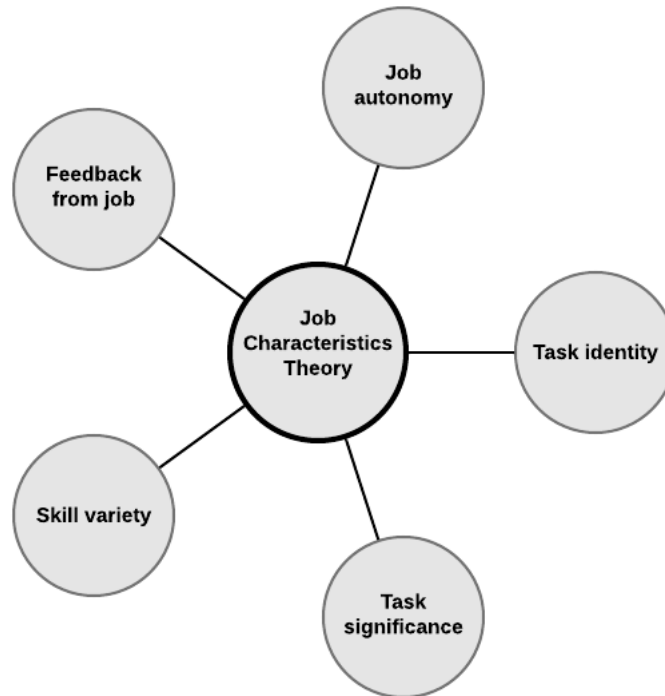
The framework used for this study was the JCT by Hackman and Oldham (1980). Work redesign has become an essential strategy for organizations to improve the productivity and quality of the work experience for their employees. Work redesign adheres to the following JCT properties: job autonomy, skill variety, task identity, task relevance, and job feedback (Hackman & Oldham, 1980). When the properties of the work redesign are improved, employees can usually count on increased work effectiveness, motivation, and general satisfaction.

Hackman and Oldham (1980) understood that improvements in motivation, satisfaction, and performance are predicted when a job is redesigned on specific job characteristics. Hackman and Oldham further discussed the moderators and the relationship of the JCT and conveyed how three psychological states will impact how well an employee will perform: (a) experienced meaningfulness, (b) responsibility, and (c) knowledge of results. Experienced meaningfulness is what the employee feels their job of having a useful outcome, responsibility gives the employee a feeling of

accountability, and knowledge of results gives the employee a sense of self-confidence in how well they performed (see Figure 1).

Figure 1

Job Characteristics Theory Framework



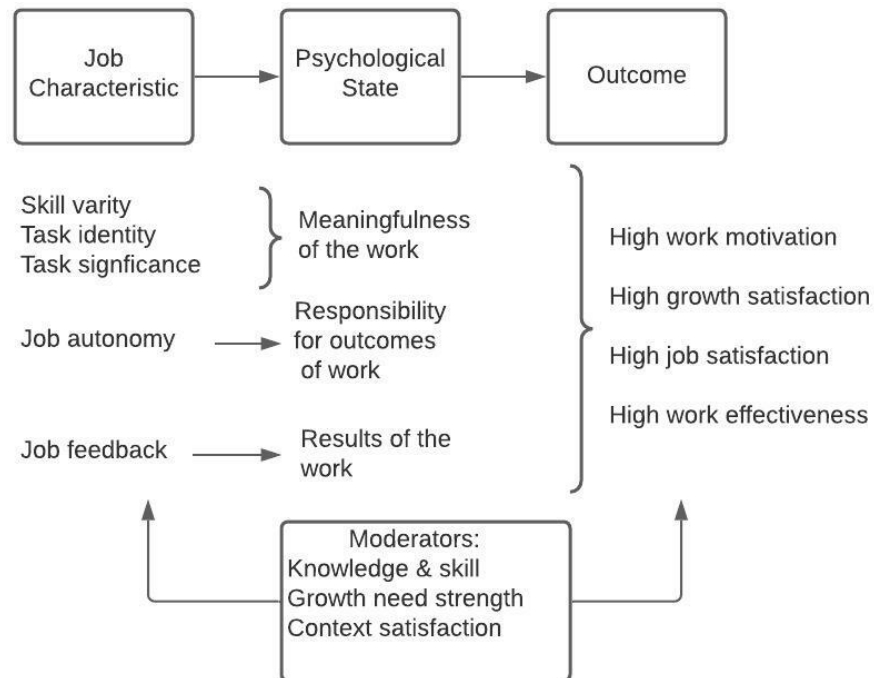
Note. A conceptual view Hackman and Oldham's (1980) job characteristics theory model. Adapted from *Work Redesign* by Hackman and Oldham (1980). Addison Wesley.

Similarly, Fried and Ferris (1987) indicated that job characteristics were linked to psychological and behavioral outcomes. Fried and Ferris reviewed more than 200 studies using Hackman and Oldham's JCT, with results supporting the relationship between job characteristics and employee responses advocated by the JCT model. Fried and Ferris confirmed that improving an employee's psychological and behavioral outcomes requires

organizations to further develop the five identified core job characteristics from the JCT model (see Figure 2).

Figure 2

Moderators of the Job Characteristics Theory



Note. Moderators of the relationship between job characteristics, psychological state, and the resulting outcomes. Adapted from *Work Redesign* by Hackman and Oldham (1980). Addison Wesley.

Skill variation, task identity, and task significance all have an impact on perceived meaningfulness. Skill variety is the number of skills required to carry out a work activity. Hackman and Oldham (1980) noted that work stretching or challenging a person's skills enables an employee to feel the experience more meaningfully than work that is routine. Moreover, Carpenter et al. (2018) observed that personal accomplishments for IT

professionals included skill variety, task identity, and task autonomy to support a positive job outlook. A task is a body of work to be completed, with a beginning and an end.

Completing a task is generally more meaningful than carrying out a portion of a task. The significance of the task is how it will impact others around the employee conducting the task. The results usually have more meaning to the employee than the work itself (Hackman & Oldham, 1980).

Experience responsibility is shaped by the amount of autonomy the employee is allowed to have and exercise control over (Hackman & Oldham, 1980). The higher the autonomy, the greater the personal responsibility and satisfaction. Knowledge of results stems from feedback. When an employee receives direct and immediate feedback, it contributes to their job accomplishment (Hackman & Oldham, 1980). Some employees will accelerate in job assignments high in motivational potential, while others will not. Hackman and Oldham (1980) broke down these responses into three moderators: context satisfaction, knowledge and skill, and growth need strength (GNS). If the job has high motivational potential, the employee who has sufficient knowledge and skill to perform the job will experience positive feelings about their work. If the employee is not confident enough to perform the job, they probably do not have sufficient knowledge and will likely experience unhappiness in their performance (Hackman & Oldham, 1980). Employees tend to withdraw from the job when the skills do not match. The result is that they do not care about the job or task at hand.

Hackman and Oldham (1980) addressed GNS as the motivating potential a job has that will generate opportunities for self-direction. Likewise, Mumtaz and Parahoo

(2020) saw an individual's ambition as an intrinsic motivating factor to GNS. Mumtaz and Parahoo agreed that some employees have psychological needs that determine how they respond to a job with high motivational potential. Saavedra and Kwun (2000) studied the JCT model and acknowledged that GNS affects the magnitude of the association between job characteristics and desired outcomes. Saavedra and Kwun found that an employee's mood state significantly impacted task motivation, decision making, and creativity. Jobs that are enriched with motivating potential tend to fulfill employees' growth needs.

Similarly, Sun and Teng (2017) observed that some employees require leadership to create work context that motivates their needs and generates job-related benefits. For example, some employees desire personal development that moves them beyond where they are now. Other employees may have solid needs for personal accomplishments. Y. Wang et al. (2018) maintained that a leader's positive behavior and creativity in a work context could amplify their employees' desire for GNS. Both studies confirmed that employees with solid needs for growth and strength will experience a higher psychological state and respond when leaders provide a stimulating work context.

How satisfied employees are with the work context of their job may impact their ability to take advantage of personal growth and accomplishment. Personnel satisfied with their pay, supervisors, and coworkers are more likely to respond favorably to an enriched and challenging job design (Hackman & Oldham, 1980). The higher the motivating potential of a job, the stronger the work motivation and on-the-job performance. However, Simonet and Castille (2020) indicated a limited consensus on

which traits, actions, or job features sustained meaningful work and work behavior. Employees dissatisfied with the work context found a challenging job unbearable to perform well. These findings indicated that some personnel may react differently to the structural job characteristics of the work context. Leaders may consider tailoring the work context individually to promote growth opportunities and personal development.

Previous Research Using Hackman and Oldham's JCT

Job performance is a significant reason why it is challenging to attract qualified IT professionals. Carpenter et al. (2018) used the JCT to determine job perceptions and work motivations. Carpenter et al. hypothesized that career counseling practices do not always accurately describe job characteristics to prospective employees and the results confirmed that employees were not adequately informed of the types of tasks they would be responsible for in the performance of their duties. Conversely, Z. Jiang et al. (2020) used the JCT to investigate an employee's effectiveness at work and revealed that a clearly defined task identity and autonomy positively influenced an employee's job satisfaction and performance. Together, these studies exhibited how a clearly defined task identity, task variety, and job autonomy may resonate better with employees.

Employees in IT play a critical role in an organization's ability to innovate and stay competitive. S. Han et al. (2020) used the JCT to conduct a study on job meaningfulness, examined relationships among transformational leadership, job characteristics, and task-related performance, and found that job characteristics moderated a positive relationship between meaningfulness, work engagement, and performance. Park (2017) noted that IT managers play a central role in the employee

appraisal process and tested the JCT model as a performance appraisal method to motivate managers. The results influenced organizations to conduct rater training to internally motivate managers by providing data on how individual performance can affect organizational performance with an emphasis on the task significance of the appraisal (Park, 2017). Steger et al. (2019) found that meaningful work provided an essential psychological state for employees that mediated skill variety, task identity, and task significance with high work motivation and job satisfaction outcomes. These findings provided valuable insights for managers to assess their employees and adopt strategies that enhance the employees' work–role fit, thereby increasing job meaningfulness and employee motivation and performance.

Software development organizations have shown a tendency to adopt new technical processes with little regard for IT professionals' ability to adapt to new methods. Setor and Joseph (2020) used the JCT to examine the intentions of IT professionals to stay with their current organization. Setor and Joseph revealed agile development influenced IT professionals to stay when job satisfaction was derived from the characteristics of their work. Likewise, Hemon-Hildgen et al. (2020) used the JCT to investigate the working environment of Agile and DevOps employees, and the results indicated that feedback and skill variety were familiar sources of job satisfaction among DevOps when working in group dynamics more than individually. Because of these findings, creating software jobs according to job characteristics and position dynamics was considered key in job satisfaction and retention.

Recent advancements in technology have enabled IT employees' greater flexibility and control through teleworking. Suh and Lee (2017) leveraged the JCT to understand job stress and its influence on job satisfaction in a survey and found a twofold effect: task interdependence increased work overload and job-related stress while teleworking increased job autonomy and reduced job-related stress. Clausen et al. (2021) agreed that an increased level of job autonomy positively affected an employee's well-being and the ability to deal with job stressors, while those with less job autonomy incurred negative psychological well-being. Redesigning jobs with higher levels of job autonomy may reduce job-related stress and increase job satisfaction.

Work engagement and burnout are two areas linked to task-related processes. Sonnentag (2017) used the JCT to research work engagement and burnout from a task-level perspective and discovered that specific tasks contribute to work meaningfulness while other tasks lead to work exhaustion, cynicism, and lack of achievement leading to burnout. In the same way, Livne and Rashkovits (2018) used the JCT to better understand the psychological states of empowerment and burnout in terms of job (workload) demands, emotional (stress) demands, and mental (cognitive) demands. Livne and Rashkovits observed that job and emotional demands were positively connected to burnout while mental demands were positively connected to empowerment. These studies corroborate the challenges in the work environment and encourage managers to consider job designs that enhance work engagement and empowerment.

Management personnel contributes to an organization's goals with their sought-after skills and knowledge. Agarwal and Gupta (2018) used JCT to examine the

relationships between motivating job characteristics, work engagement, and managers turnover intention, and the outcome showed that motivating job characteristics and work engagement had significant relevance during employee and employer exchanges. Comparably, Rai, et al. (2017) used JCT to understand the influence job characteristics have on work engagement, and encountered employees were more engaged with their jobs when their supervisors were supportive. These conclusions proved that a positive outcome and job enrichment may be achieved through collaborative efforts between employees and their supervisors.

Shared leadership allows two or more team members to engage in a project to maximize team effectiveness. JCT was used by Hans and Gupta (2018) to investigate the effects of job characteristics on shared leadership, as well as the moderating effects of psychological safety and self-efficacy on the link between job qualities and shared leadership. Hans & Gupta discovered that skill variety, task significance, autonomy, and feedback were essential determinants of team effectiveness and shared leadership. On the other hand, Muntz, et al. (2019) used JCT on the relationship between the supervisor and employee regarding task assignments and found that unreasonable tasks led to job dissatisfaction when supervisor transparency was low. These findings highlight the importance of leadership behavior and identifying job characteristics that promote satisfaction.

Retention strategies are necessary to mitigate the high turnover rate of IT professionals. Uruthirapathy and Grant (2015) used JCT to examine how IT and non-IT personnel from the same institution relate to motivational and social job characteristics

and their impact on job performance, satisfaction, and turnover intentions. Uruthirapathy and Grant concluded that IT and non-IT professionals reacted to motivational and social job characteristics similarly. Likewise, Oerlemans and Bakker (2018) used JCT to predict how variations in motivating job characteristics are connected to employee happiness during their work activities and proclaimed the perceived availability of motivating job characteristics during an employee's work actions related an employee's happiness of those same work actions. Leaders may need to consider job characteristics that support all professionals under their supervision as a retention plan of action.

Organizations are often challenged when depending on human resources to enhance a company's performance. Kim (2017) used JCT to study job resources, job autonomy, performance feedback, and skill variety and concluded that job resources positively impacted an employee's work engagement. Cerne et al. (2017) evaluated JCT in stimulating employees' work behavior and found that those with high levels of autonomy offered a noteworthy level of innovative performance. IT organizations should consider multiple job designs that enable their employees to obtain job characteristics such as job autonomy, feedback, and skill variety to help improve their performance levels.

Many organizations understand the need for more significant interaction between organizational research and enterprise-wide information technologies implementation. Morris and Venkatesh (2010) used JCT to research the impact of enterprise resource planning (ERP) implementation and job satisfaction. Morris and Venkatesh proclaimed the ERP execution moderated the relationship between skill variety, autonomy, and

feedback on job satisfaction, while task identity and task significance had a direct, positive impact on job satisfaction. Similarly, Kang et al. (2017) used JCT to examine how a successful implementation of a knowledge management system (KMS) can be elusive to some organizations due to the resistance of users' willingness to impart their knowledge of KMS to other users. Kang et al. researched how job significance, job autonomy, and task feedback can influence an employee's motivation and revealed that user empowerment established an association with knowledge sharing, while job autonomy and job significance complemented user empowerment. The implication of these findings urges organizational management to perform a more detailed analysis of job characteristics when conducting a large-scale information system implementation and operation.

The computer industry is often plagued by employee problems, including job-hopping, shortage of qualified personnel, and work dissatisfaction (Cougar & Zawacki, 1980). Cougar and Zawacki used JCT and job diagnostic survey (JDS) to establish and develop a database on all jobs within the computer industry, and the outcome gave managers an understanding of how job redesign could promote greater satisfaction, productivity, and employee retention. Pila-Ngarm and Siengthai (2017) also used JCT and JDS to examine the relationship between job design and employee performance and established a positive effect between job satisfaction and job performance created preferred organizational outcomes. Both studies valued employee involvement and engagement in the job redesign and provided leadership with constructive measures to implement in their organizations.

The constant advancement in technology is making the work environment for IT professionals considerably more complex and dynamic. Sameer et al. (2019) believed organizations need to focus more on their employees' psychological capacities in terms of self-efficacy, hope, optimism, resilience, and ability to adapt to technological changes. Sameer et al. used JCT to examine the relationship between job characteristics, measuring the effect of psychological capacities on task performance, and encountered an employee's perception of job characteristics significantly impacted their psychological capabilities and could serve to predict their performance. Additionally, Blanz (2017) used JCT and the three psychological states to assess job satisfaction in the non-profit sector, and the results remained consistent with the findings of the for-profit sector in that job satisfaction is tied to job characteristics. There was a higher correlation between job satisfaction and the psychological states that affected the employees' satisfaction with their work. Organizations should consider the importance of an employee's psychological capabilities and focus on improving or enhancing their performance through specific job characteristics.

Compare and Contrast Competing Theories

Theory of Reasoned Action

The theory of reasoned action (TRA) created by Martin Fishbein and Icek Ajzen (2010) evolved from their research that studied the relationship between attitudes and behaviors. TRA is a model of predicting the willingness to perform a behavior by an individual's normative beliefs (Paquin, & Keating, 2017). Fishbein and Ajzen (2010) identified three constructs to intention: the individual's thought of performing the

behavior, the role of social influence governing one's motivation to act, and whether the behavior is under one's control. If the person's attitude is favorable and situated in an appropriate environment, the individual may execute the behavior. The theory of reasoned action was refined by developing the theory of planned action, which further justified behaviors that require opportunity and support from others (Orbell, 2007). The will to act arises when an individual has a cheerful demeanor towards the behavior and believes that others will support such behavior. The individual then believes they have control over performing the behavior and therefore executes it (Orbell, 2007).

While TRA is a widely accepted framework, it is not without misconceptions. Ajzen and Albarracin (2007) implied that one misconception is that it is assumed that people will behave rationally. Another misconception is that the repeated intention to perform is assumed to happen automatically without deliberation. The theory is also limited because attitudes and behaviors are not always tied together with intentions.

Herzberg's two-factor theory shares one concept with TRA in that hygiene factors contribute to a person's behavior and willingness to do a job (see Alshmemri et al., 2017). If the aspects of the job do not meet the individual's expectations, then the willingness to act is reduced. Poor hygiene factors will often lead to job dissatisfaction.

Unlike TRA, the JCT framework utilizes five job characteristics and three psychological states that better align attitudes and behaviors. The JCT focused on the objective qualities of the job and designed the job with attributes that create high work motivation, performance, and personal satisfaction (Hackman & Oldham, 1980). The JCT attributes include the amount of variety to perform the job, the amount of autonomy the

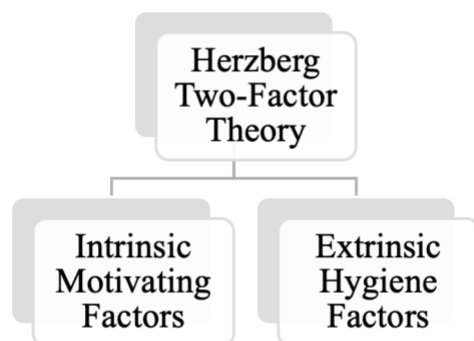
individual will have to perform the job, the opportunities for interaction with other employees, the knowledge and skill required to do the job, and the level of trust put into the employee assigned to the job. Hackman and Oldham (1980) predicted that employees could achieve greater satisfaction with jobs with a higher standing of attributes.

Herzberg's Two-Factor Theory

Frederick Herzberg's two-factor theory of job satisfaction and motivation is another theory shaped by Maslow's Hierarchy of Needs (see Alshmemri, et al., 2017). In his book *The Motivation to Work*, Herzberg established the two-factor theory (Alfayad & Arif, 2017). Herzberg believed employee satisfaction stems from intrinsic motivating factors and extrinsic hygiene factors. Recognition, achievement, advancement, responsibility, and personal improvement are intrinsic motivators for completing a job (Wall & Stephenson, 1970). Extrinsic hygiene factors are those elements that are outside an employee's control. These include company policies, supervisory practices, working conditions, salary, benefits, and job security (Wall & Stephenson, 1970; see Figure 3).

Figure 3

Herzberg's Two-Factor Theory



Note. Adapted from “*Herzberg’s two-factor theory of job attitudes: A critical evaluation and some fresh evidence.*” T. Wall and G Stephenson, 1970, *Industrial Relations Journal* 1(3), p41-65. (<https://doi.org/10.1111/j.1468-2338.1970.tb00262.x>). Wiley Blackwell.

Hackman and Oldham’s (1980) JCT share several of the same principles for job satisfaction from Herzberg’s two-factor theory and intrinsic motivators. Both theories are concerned with advancement, opportunities for growth, responsibility, recognition, and the job itself. The downside to the Herzberg two-theory approach is that it does not draw out differences among people and how likely they are to respond to an enriched work redesign. Wall and Stephenson (1970) understood that Herzberg’s two-theory approach assumed motivating factors could increase work motivation among all employees. Only some employees respond positively to an enriched position while others do not.

Maslow’s Hierarchy of Needs

Abraham Maslow (1958) created a five-step hierarchy of needs based on his theory of human motivation: (a) physiological, (b) safety & security, (c) love and

belonging, (d) self-esteem, (e) self-actualization. Maslow believed human needs are arranged in a hierarchy where the baseline physiological need must be satisfied before focusing their motivation on the following emerging need. Maslow also labeled physiological, safety & security, love, and belonging as deficiency needs, while esteem and self-actualization were labeled growth needs (Noltemeyer et al., 2021). Maslow believed that deficiency needs are the focus of every human. Once the deficiencies have been met, a higher level emerges and motivates the individual (Noltemeyer et al., 2021).

Corporate entities began using Maslow's hierarchy of needs as a resource to redesign their work structures and cultivate employee motivation. Lussier (2019) argued that Maslow's hierarchy resonated well with corporate management. As a result, job redesign and motivational training came to the forefront where experts could learn from an employee's motives and psychological fulfillment needs. Bridgman et al. (2019) perceived Maslow's hierarchy of needs as a fundamental approach to how people are motivated at work and recognized the pyramid as an effective tool from which management experts can base their motivation theories (see Figure 4).

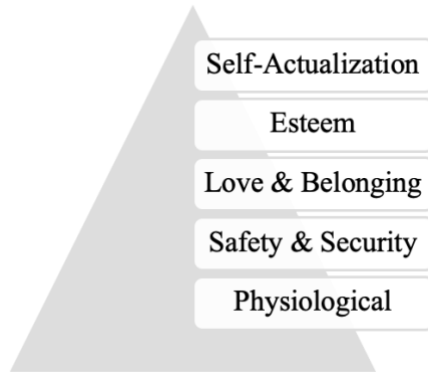
Figure 4*Maslow's Hierarchy of Needs*

Figure 4. Adapted from “A Dynamic Theory of Human Motivation” by A. Maslow, 1958. In C. L. Stacey & M. DeMartino (Eds), *Understanding human motivation* (p. 26-47). (<https://doi.org/10.1037/11305-004>). Howard Allen Publishers.

Maslow's theory, however, is not without flaws. A recent study discovered that some IT employees focused on their physiological needs while others focused on their safety first (Nwagwu, 2020). Nwagwu noted that those who have reached esteem were able to achieve job satisfaction, but their rise to the esteem level was not linear or conventional due to the poor economic conditions while living and working in Nigeria. In addition, Berl et al. (1984) analyzed Maslow's theory to study reward structures and motivation for industrial sales personnel and found sales representatives did not follow Maslow's hierarchy of needs as the research was only concerned with one aspect of motivation in sales. These studies contradicted Maslow's beliefs that individuals will fulfill higher needs when their previous needs are met. As a result, Maslow's theory did

not account for social or cultural imbalances of individuals and the environment in which they live and work.

In comparing Maslow's hierarchy of needs with Herzberg's two-factor, and Hackman and Oldham's JCT, all three theories share similar job intrinsic values or job characteristics that motivate employees to include respect and trust from leadership, job responsibilities, and the challenging aspects of the job (Berl et al., 1984). Maslow's theory does have some commonalities with extrinsic hygiene factors or dissatisfiers, as noted by Herzberg's theory to include financial compensation and job security (Alshmemri et al., 2017). However, Maslow's theory is not concerned with the three psychological moderators identified in JCT that generate the expected outcome of task completion: growth needs strength, knowledge and skill, and context satisfaction (Hackman & Oldham, 1980). Hackman and Oldham's JCT and three internal moderators were designed to delineate differences among employees and their assigned tasks. Hackman and Oldham's JCT conceptual approach was found more appropriate to address this study's information technology research question.

IT Workforce Turnover Intentions

The demands for organizations to remain competitive in a global market puts extraordinary burden on its employees to perform well. Langrove and Isha (2017) recognized that IT professional turnover, voluntary and involuntary, posed numerous issues to enterprises, and cited lengthy work hours and job stress as key causes of high turnover rates. Langrove and Isha considered many job characteristics principles and identified feedback, rewards, and recognition as necessary motivational tools to support

an employee's well-being. Organizational factors and individual traits, according to Kashyap and Verma (2018), can influence IT turnover intentions. Kashyap and Verma reviewed employer branding and established that employer branding did not correlate with turnover intentions. Psychological advantages, feedback, recognition, and self-worth, on the other hand, were all found to be predictive of turnover intentions. These findings exhibited psychological factors and job characteristics for IT leaders to consider that influenced an employee's well-being and motivation.

Recruiting and retaining employees are two major concerns for businesses. The costs of losing a highly trained IT employee might be up to six times higher than the costs of losing other experts (Harden et al., 2018). Harden et al. investigated the relationships between turnover intentions and organizational commitment and discovered skills, feedback, recognition, and other benefits enabled employees to remain committed to their organization. Rajalakshmi and Subhashchandra (2020) estimated that the cost of replacing an employee might be as much as two and a half times the individual's income. Rajalakshmi and Subhashchandra reviewed employee retention strategies and determined that employees have a strong bond with organizations committed to offering competitive salaries, learning new skills, and providing a favorable work climate. These observations indicated the significance of the JCT moderators in generating the employee's desired end state of work motivation, growth, and job satisfaction.

When job responsibilities do not fulfill IT employees' expectations, unreasonable job tasks may lead to greater turnover. Apostel et al. (2018) researched turnover intentions due to tasking issues and established inappropriate tasking as a leading cause

of turnover intentions while those who assigned tasks appropriately experienced decreased turnover intentions. Thuan (2020) understood the negative impact unreasonable job tasks had on an organization's performance and determined task effectiveness and an employer's feedback improved employees' performance and creativity. Chaudhary and Akhouri (2019) believed that task effectiveness can influence an organization's performance and that organizations engaged in corporate social responsibility should empower people to tackle problems creatively. These examinations confirmed that task identity, task effectiveness, task assignment, job feedback, and organizational commitment could reduce turnover intentions.

Employees that engage in innovative work behavior (IWB) are better equipped to find a fulfilling job. Cai et al. (2018) researched IWB and meaningful work as the moderator of job autonomy and found that IWB and meaningful work exist when job autonomy is high. Pathak and Srivastava (2017) recognized that some employees need empowerment to support commitment to an organization and learned that greater empowerment lowered turnover intentions. Gribanova and Abeltina (2020) found that when managers influence an employee's job satisfaction, their motivation to work increases proportionately. These discoveries suggested empowerment, job satisfaction, and job autonomy as necessary elements that enabled meaningful work and lower turnover intentions.

Work complexities can have a significant impact on team performance. Software development companies often have challenging work difficulties, and it is the main reason why 60% of IT software development projects fail (Storm, & Scheepers, 2019).

Storm and Scheepers investigated the relationship between job complexity and team performance and discovered that a higher level of task complexity led to lower levels of efficiency and effectiveness, but a higher level of leadership participation led to lower levels of job complexity. Zylka and Fischbach (2017) believed turnover intentions could stem from the negative consequences that include low performance and cost overruns of software development projects while positive consequences lead to higher salaries and increased job status. These studies show software development teams require comprehensive technical skills and employers conducting a better assessment of job requirements and task assignments may mitigate turnover intentions.

The use of social media is becoming more prevalent in the workplace and some of the use is for non-work intentions. Organizations are concerned about the impact of social media on employee stress, often known as technostress (Brooks, & Califf, 2017). Brooks & Califf looked at the interaction between employees and social media, and observed that when job characteristics were low, there was a higher degree of technostress.

Balasubramanian and Chokalingam (2009) probed how occupational stress can be problematic and found that some IT employees are working longer hours, being overtasked, and shown to be unable to adapt to technological changes. These inquiries revealed the importance of understanding job characteristics and the need for better communication and interaction between leaders and their employees.

IT Workforce Retention

The information technology sector often must overcome competitive oppositions to sustain business operations. Balancing work and life can be a considerable challenge

for many IT employees faced with increased workload and long hours impacting job satisfaction and retention (Mudra, 2017). Mudra reviewed practices adopted to balance work-life conflicts and discovered that more fun at work and better organizational support eased work-life conflicts. Commuting experiences, according to Zhou et al. (2017), can affect a person's work-life conflicts, task performance, and job satisfaction. Zhou et al. determined task significance and adopting an effective work schedule may mitigate employees' commuting stressors. These techniques have shown to work well and may assist other organizations to mitigate work-life challenges, increase job satisfaction, and retention.

IT employees' desire to stay with a company is influenced by their work values. Vivek and Raveendran (2017) explored the preferred work values among employees and learned that employees preferred task significance that required expertise and experience in pursuit of job satisfaction. Cic et al. (2018) believed that job satisfaction among IT professionals was a factor in turnover intentions and confirmed that IT employees are more engaged and more committed to their work when they have the autonomy to make decisions and have varying task complexities. Bellini et al. (2019) noted the more confident IT professionals felt about doing their job-related tasks, the less insecure they felt about doing the task. Managers should consider job characteristics that offer work values and job satisfaction as a retention strategy.

Successful IT companies know the importance of managing human resources, fulfilling the IT employee's expectations, providing motivation, and mitigating turnover. Moro et al. (2021) noted the IT sector has a high turnover rate due to the dynamic skills

requirements and the high demand for skilled professionals. Moro et al. reviewed factors that spurred employees from major US IT companies and confirmed that an employee's overall satisfaction is vital to their commitment and dedication. Sharma et al. (2017) substantiated job satisfaction is heavily researched in many industries but limited among IT employees. Sharma et al. investigated job satisfaction among IT employees and considered pay, training, promotion, feedback, and recognition as vital intrinsic factors for motivating people to excel. IT managers may need to consider feedback, recognition, and overall job satisfaction as critical elements to retain quality employees.

A high turnover rate among IT professionals is a significant challenge to organizations for psychological well-being. Naidoo (2018) argued that task ambiguity, task conflict, stress, and exhaustion were critical factors in IT turnover. Naidoo further pointed out that task ambiguity had a more significant impact on task conflict concerning job performance and satisfaction. Some IT professionals may feel emotional tension that precedes burnout or exhaustion. Vennila and Vivekanandan (2017) considered emotional performance an essential aspect of IT professionals' well-being and expressed that an employee's workload, task ambiguity, task conflict, and fairness of recognition contributed to work exhaustion and increased turnover. Prasad and Mishra (2021) saw both teleworking and workplace isolation as significant contributors to psychological well-being and believed these features influenced an employee's job engagement and job satisfaction. IT managers should shape retention strategies that address task identities, task assignments, and a work environment that supports job satisfaction.

CIOs of Fortune 500 organizations identified IT employees as the main factor influencing IT systems' successful implementation and operations. G. Wang et al. (2019) believed that effective management of IT employees is a daunting challenge due to highly qualified and skilled employees' turnover rate. G. Wang et al. discovered that when employees are engaged in routine-related tasks, there is a tendency for decreased job satisfaction; however, when the employees are engaged in non-routine tasks, they can acquire knowledge and increase job satisfaction. Bezdrob and Sunje (2021) acknowledged that IT companies must have a capable workforce to handle the latest technologies and determined that employees achieve job satisfaction when the work is challenging, offered empowerment, professional improvement, and career advancement. Ahmed et al. (2017) assessed what motivated IT professionals and considered that the nature of the task involved appeared to impact job satisfaction and professional growth opportunities. Managers should find ways to reduce high employee turnover rates by taking employees out of their comfort zone, putting them in a learning environment, and assigning tasks that offer increased knowledge and skill.

Two of the more common reasons for leaving an organization are the lack of job satisfaction and organizational commitment. Luz et al. (2018) reviewed how organizational commitment and job satisfaction influenced voluntary turnover intentions and showed commitment and satisfaction with pay, recognition, and nature of the work as the leading causes of turnover intention. Tripathi et al. (2020) analyzed factors influencing the turnover and retention of IT employees and exposed job dissatisfaction, lack of autonomy, the amount of work, and lack of recognition as critical characteristics

that enhance turnover intentions. Developing a culture where job satisfaction, task assignments, feedback, recognition, and favorable workload patterns that support retention efforts should be considered.

The career orientation of the IT professional usually placed job competencies over managerial skills. Due to changes in project architecture, some firms have integrated managerial and technical competencies as a necessity for IT workers (J. Jiang et al., 2020). J. Jiang et al. researched job satisfaction with the organizational demands of combining managerial and technical skills and divulged those personnel with pure managerial skills led to the highest career satisfaction while adding technical demands lowered career satisfaction. Smith et al. (2020) defined a hybrid job as a blend of technical and managerial methods and found that some participants had emotional issues in the dual components of the hybrid role, while others felt successful in fulfilling organizational goals. For these reasons, managers must clearly understand employees' capabilities and preferences that promote job satisfaction and retention.

Given the increased demand for skilled roles, another problem for firms dealing with IT expert attrition is finding a successor. Pflügler et al. (2018) investigated how to keep qualified IT professionals and found that financial or non-financial pay, work arrangements, career prospects, change, and changing work assignments are all important factors in keeping people with a company. Nair and Salleh (2017) believed that companies could incur up to 200% of the parting employee's salary through the selection, recruiting, and required training of the replacement employee. Nair and Salleh recognized that employees who believe their organization has prioritized their well-being are likely

to have trust and no intentions to leave. Managers should ascertain why IT professionals leave and consider compensation, working arrangements, career development, work tasks, or positional change in the department.

IT Workforce Engagement

Employee engagement is a strong emotional and intellectual attachment to one's job, management, and coworkers. Shahidan et al. (2016) investigated the key drivers of employee engagement and uncovered growth opportunities, working environment, job characteristics, rewards, and recognition as key drivers of employee engagement. Employees might be engaged, passionate, or disengaged with their work, according to Dash and Muthyala (2016). Dash and Muthyala discovered that older and more experienced employees were more disengaged than their younger, less experienced counterparts. Sharma (2021) identified meaningfulness and autonomy as key factors that increased an employee's work engagement, and leaders who provided feedback saw a considerable reduction in turnover. These conclusions emphasize the importance of conducting employee performance evaluations and specific job characteristics that support positive engagement and retention.

Along with maintaining employee trust, employee engagement and involvement are primary drivers towards achieving organizational goals. Mohideen et al. (2019) observed companies that had changed their retention strategies from lucrative incentives to non-monetary practices and saw a positive relationship between employee retention, employer branding, employee engagement, training, and career development. S. Kim et al. (2017) found a positive relationship exists between employees and supervisors when

there is a good culture within the organization, while an authoritarian culture increased turnover intention. These analyses conveyed practices IT managers should consider that foster good relations with their employees as a retention strategy.

IT employees' work engagement has a favorable impact on an organization's ability to innovate and compete in their respective industries. Employees' perceptions of task meaningfulness and work engagement were explored by S. H. Han et al. (2021), who discovered that task meaningfulness was influenced by work engagement and performance, which were regulated by job characteristics. Similarly, Vui-Yee and Paggy (2020) found that task meaningfulness and work fulfillment provided intrinsic motivation for productive employee behavior and where job enrichment led to reduced turnover. Ramaprasad et al. (2018) believed an employee's work engagement could harm an organization's performance and force the organization to incur high costs in employee replacement and training. Ramaprasad et al. identified a lack of training and development skills with emerging technologies as factors for leaving. These discoveries together corroborate that job characteristics and continuing education are necessary elements that support employee work engagement, performance, and career advancement.

To be competitive in the information technology industry, firms need strong IT leaders, project managers, and subject matter experts. Employees are the essential drivers in any IT organization; therefore, companies gain an advantage when they use their human resources effectively (Bose, 2019). To foster happiness among IT employees, Bose argued that specific team dynamics and managerial styles were required. Ugargol and Patrick (2018) recognized that work-life balance had increasingly become a crucial

way of guaranteeing employee engagement, and that firms are provided flexible work arrangements (FWAs) to help employees balance work and home. Ugargol and Patrick discovered a link between FWA and employee engagement, stating that employees who have the flexibility they require are more engaged with their work. Tomer and Mishra (2019) found work-life balance and career growth as a key element that fostered career satisfaction. For these reasons, IT leaders should consider the importance of matching personnel with assignments that supports engagement, empowerment, and a work-life balance.

To achieve an organization's objectives, knowledge management strategies are required. Ravikumar and Sriram (2019) discovered that organizational knowledge management must be developed to recruit and retain chosen IT workers and found a link between how a firm handles knowledge management and employee engagement. To enable organizational innovation, Pham et al. (2020) saw a growing need for IT professionals to learn and exchange information among coworkers. Pham et al. analyzed factors of knowledge management affecting innovative working behavior and realized that knowledge sharing had a positive impact on employee work behavior. As a result, leaders must encourage knowledge sharing among employees and implement effective knowledge management practices to improve employee engagement and performance.

IT Talent Management

IT Talent management is vital to the success of any organization. Talent management is viewed as attracting, selecting, developing, and retaining employees (Naim & Lenka, 2017). Naim and Lenka conducted interviews with 21 human resource

executives at a software services company that employed 172,000 people worldwide and identified recruitment, development, feedback, and recognition as essential practices to manage an organization's workforce. Gope et al. (2018) asserted that employees and knowledge are two fundamental factors that can negatively impact performance when an employee decides to leave. Gope et al. studied four IT companies and found employee recruitment, selection, development, compensation, feedback, and recognition as required talent management tools organizations must have to pursue their goals. Hickman and Akdere (2018) believed leadership is the most critical soft skill for IT employees and the second most challenging skill to find among them. Hickman and Akdere examined IT leadership development to identify best practices and believed that mentoring and robust feedback should be treated as core processes to achieve long-term success. Talented personnel with leadership capabilities and upward potential are highly sought after and often hold key positions within an organization and contribute exceptional performance.

Employee development presented several challenges for IT professionals who are expected to have a complex set of skills. IT employees must keep pace with technological innovation and be on a constant journey of intentional technological change (Dawber, 2019). Dawber analyzed managerial coaching to facilitate employee development within an IT department and confirmed that employees saw coaching by senior managers in a positive light who could facilitate strategic thinking and enhance the employee's development. Thuan and Thanh (2019) emphasized the importance of a leader's feedback in nurturing employees' creativity. Thuan and Thanh assessed feedback and intrinsic motivation mechanisms used to enhance employee skills in creativity through a survey

with 326 IT participants and proved that feedback had a positive impact on employee creativity and motivation. These discoveries confirmed that effective feedback drives employee development and promoted growth in a favorable environment.

Developing close working relationships between human resource (HR) professionals and managers helps generate an environment that enhances employee performance. Leaders show a growing interest in human resource systems that target specific organizational goals (S. Kim et al., 2018). S. Kim et al. supported collaboration efforts between HR professionals and managers in building a solid HR climate and believed that strategic HR practices and communications between HR professionals and managers could significantly improve the effectiveness of talent management. Natarajan and Babu (2018) evaluated an organization's talent management succession planning of IT organizations and identified a correlation between job characteristics and talent retention. Organizations should pursue talent management techniques that enhance employee performance and retention as a strategic objective.

Abusive supervision behavior on subordinates can substantially impact talent management. Pradhan and Jena (2017) saw a steady rise in research on counterproductive work behaviors and evaluated the neutralizing role of meaningful work in mitigating abusive supervision and turnover intention with IT participants. Pradhan and Jena proved that abusive leadership is related to turnover intentions; however, those who find their work meaningful may tolerate their supervisor's abusiveness. Lee et al. (2018) noted that as abusive supervision increases, employees suffer greater emotional exhaustion and an increased unwillingness to share knowledge. As a result, leadership behavior can

significantly influence employee behavior, and IT managers must consider ways to foster improved relationships and working environments.

Transition and Summary

The inability to retain qualified IT professionals can profoundly impact an organization. Competition, talent shortage, cost of recruiting, training, and disruption of business operations are vital concerns affecting organizations today. The specific IT problem is that some managers lack the plan of action to identify the strategies used by successful IT managers to retain qualified IT personnel to support their business operations. The purpose of this qualitative pragmatic inquiry is to explore strategies used by successful IT managers to retain qualified IT personnel. The job characteristic theory (Hackman & Oldham, 1980) is the conceptual framework that provides a comprehensive understanding of the IT retention phenomenon and forms the basis to identify the emerging concepts from the literature review. The literature review identified causal factors related to IT workforce turnover intentions, IT workforce retention, IT workforce engagement, and IT talent management. While fitting job characteristics to people were prevalent in this literature review, one of the gaps exposed is the person to job fit. As technology changes, having the qualifications necessary to fulfill the job makes it more likely for employees to like their job and their work environment. This area was further explored during the interview process.

Section 2: The Project

This qualitative pragmatic inquiry was concerned with identifying effective strategies used by successful IT managers that support the retention of qualified IT personnel within their organization. Data collection methods included semistructured interviews, organizational policies, and procedures conducted by IT professionals from across the United States. Understanding why employees leave and the strategies that successful IT managers use to retain qualified IT professionals may benefit the IT industry.

Purpose Statement

The purpose of this qualitative study was to identify the strategies used by successful IT managers to retain qualified IT personnel to support their business operations. The qualitative pragmatic inquiry population was IT managers, IT leaders, and CIO-level executives in organizations across the Southwest United States. The study results may contribute to social change by increasing job satisfaction for IT employees, thereby causing less disruption in their lives at work and home. Work-related physical and mental stress may negatively impact individuals at home or in the community.

Role of the Researcher

The role of the qualitative researcher is to provide an in-depth understanding of a specific issue, ask good questions, be a good listener, be adaptive, and be aware how the researcher's role may impact the conversation with the participant (McGrath, et al., 2019). Mason-Bish (2019) noted that by allowing the interviewees to have some control of the interviewing processes, they are apt to be willing participants. Stenfors et al.

(2020) understood that the number of respondents or the length of the interviews do not necessarily make for quality research, but the emphasis should be placed on the depth, richness, and appropriateness of the data and whether the data provide the necessary information to answer the research question. Stenfors et al. argued that the key to an interview's success is the amount of useful information obtained from each participant. Responses to good questions may enable the researcher to probe for additional data. The researcher must collect data with a keen sense of what might be going on without bias, and being adaptive to the interview processes could lead to an unexpected line of thinking that could benefit the study. I incorporated these practices.

This study was significant to me, having been in the IT industry since 1992. I have filled various positions, and I have been exposed to and experienced employee turnover on several occasions. My experiences taught me the importance of having genuinely engaged employees in their work and environment. Galdas (2017) understood the need for researchers with a similar background to their study because it adds credibility if the researcher is transparent about data collection, analysis, and presentation processes. In addition, Galdas recommended executing strategies that establish reliability and validity to mitigate bias. Another way to mitigate bias is to avoid the common method bias whereby interview questions may elicit using the same answer to a previous question (Laaksonen & Peltoniemi, 2018). While I examined my research role for potential biases, I followed these techniques by being as transparent as possible in data management, drafting interview questions that would not elicit the same responses, and using techniques that would enhance the study's reliability and validity.

The participants selected for the current study held positions of authority in the hiring, training, and supervision of IT professionals. J. L. Johnson et al. (2020) asserted that purposive sampling reflects the selection of participants with certain expertise who are willing to provide information on the study topic being addressed. Data for this survey were collected from participants who had experience developing and implementing strategies to retain qualified IT personnel. I had no personal relationships with any of the interviewees.

Appropriate ethical considerations were addressed for the selection of participants. Pritchard (2021) noted three principles from the Belmont protocol for researchers to follow in the ethical evaluation of their research: respect for people, beneficence, and justice. In the current study, each participant was advised of the ethical considerations, including informed consent, voluntary participation, and confidentiality. These protocols provided assurances to the participants and aided in the collection of data.

Researchers can be vulnerable to bias and thereby impact the credibility of a study. Cognitive biases are a systemic departure from optimal reasoning in which the researcher pays more attention to information supporting preconceptions (Mohanani et al., 2020). I used methodical procedures to limit biases as much as possible. Participants were selected based on the purpose of the study. Interview questions were constructed to prevent leading the participants to the desired response. The reporting of all evidence was done fairly and without prejudice.

Participants

The most salient source of data is usually interviews (D. R. Johnson et al., 2021). Interviews can be used to understand how and why things happen in the phenomenon under study. A qualitative study requires a selection of participants who can best assist the researcher in understanding the problem through semistructured interviews (Tavory, 2020). The eligibility criteria for the current study were IT professionals serving in IT management positions, including C-level executives, directors, managers, and supervisors involved in developing and implementing strategies used to retain qualified IT personnel. Careful consideration was given to mitigate sampling bias to ensure participants did not over- or underrepresent any of the subgroups of the IT industry.

Recruiting qualitative participants can be challenging and time-consuming. Cassell et al. (2020) noted that researchers should seek participants who desire to be reflexive about the phenomenon being studied. Using effective recruiting methods will provide data collection with minimal impact to research timelines (Marks et al., 2017). The internet offered a means of recruiting eligible participants from organizations across the United States. LinkedIn and the Google search engine were used to recruit participants who were aligned with the study criteria and who may have considered the study's findings beneficial.

One of the ways to build a good working relationship with the participants is to establish trust. Attia and Edge (2017) reasoned that building trust with participants strengthens the validity of the study. A genuine trusting relationship develops when the researcher invites trust from the participant through benevolence and good character

(Guillemin et al., 2018). In the current study, a trust relationship was established with participant candidates through the reassurance of informed consent, voluntary participation, and confidentiality. Research candidates received an informed consent form ahead of scheduling an interview session.

Research Method and Design

Method

For this investigation, the qualitative method was used. The purpose of qualitative research is to investigate a phenomenon in-depth through semistructured interviews to gain insights into participants' experiences and identify the contextual conditions that are important to the study (Busetto et al., 2020). Mohajan (2018) noted that qualitative research addressing strategic management factors allows the researcher to ask open-ended questions and develop a level of understanding from a participant's high involvement in their experiences. The qualitative method allows the researcher to gain valuable insight from people who have firsthand experience of the phenomenon when their responses cannot be quantified in a numerical representation.

Quantitative research provides for the investigation of a phenomenon through statistics and the processing of numerical data. Quantitative researchers examine a phenomenon through theories, hypotheses, samples, numerical data, and parameter requirements (Edwards, 2020). Cortina (2020) defined quantitative research as an examination of relationships between two variables. The advantage of using this method of research is that the data are not impacted by personal feelings or opinions. Data are obtained through experiments, statistics, and questionnaires with closed-ended questions.

This method is ideal when there are no uncertainties about the concepts of the study and the data from questionnaires can be quantified. The disadvantage to quantitative research is the inability to understand the complexity of a phenomenon in its natural environment.

Mixed-methods research refers to integrating qualitative and quantitative data in a study. Mixed methods are appropriate when conducting social science inquiry because they can assist in bridging the gap by combining structured research with everyday practice found in a particular setting (Headley & Plano-Clark, 2020). Headley and Plano-Clark (2020) noted that the advantage of using a mixed-methods approach is that it can offer more sophisticated and robust findings that can reveal both structure and processes. Mixing quantitative and qualitative approaches could also compensate for each other's weaknesses (Stoecker & Avila, 2021). For example, quantitative researchers could identify inferences using a mixed method that is both confirmatory and exploratory within a population whereas qualitative researchers could not. Qualitative researchers could identify causal relationships impacting job characteristics whereas quantitative researchers could only provide statistical inferences. The reason for not selecting mixed-methods research was the amount of time and effort required to conduct, assess, and process data from two different types of research designs.

Research Design

For the current study, a pragmatic inquiry approach was employed. A pragmatic inquiry is an empirical inquiry investigating a contemporary phenomenon with a focus on actionable knowledge and the recognition of the connection between participants' experiences (Kelly & Cordeiro, 2020). The pragmatic inquiry design relies on the

production of actionable knowledge because it ensures that qualitative research is relevant contextually and informed by theory. Clarke and Visser (2019) noted pragmatic inquiry enabled researchers to identify truths from experiences. Pragmatic inquiry allowed the researcher to conduct semistructured interviews that focus on actions in real-world practice. In the current study, the data obtained from the interviews were analyzed to identify emerging themes that may be of significance to organizations that employ IT professionals.

The pragmatic inquiry researcher seeks to engage directly with workplace management (Simpson & Den Hond, 2022). Simpson and Den Hond identified three distinct threads within pragmatism: the interaction with workplace management, the disposition to act, and rehumanizing management. Makin (2021) noted that pragmatic boundaries are possible because knowledge is localized around specific problems, embedded in the methods and techniques used in the workplace, and invested in achieving success in the ways of doing things in the workplace. The pragmatic inquiry was the appropriate design in the current study because it allowed me to explore strategies used by IT managers to retain qualified IT personnel by interacting with interview participants within their work environment. I was able to identify themes from analysis of responses to interview questions.

A narrative design is a comprehensive, chronological, and descriptive analysis of published information on a specific topic that includes the lived experiences of the research participants (Minichiello & Caldwell, 2021). Thurgill (2017) understood that the researcher becomes an interpreter of the experiences and presents the lived analysis of an

individual through the collection of critical elements of the individual's experience and rewrites the story in the chronological order of events. Although the presentation can be contentious, a narrative design can be a powerful way of presenting data through storytelling. The narrative design was not selected in the current study because an individual's lived experiences would not have provided for an in-depth analysis of the research problem.

An ethnographic design is used to analyze a set of practices, people, things, and ideas (Neubert & Trischler, 2021). The researcher looked for patterns in the cultural group's activities and develops a description of their ideas and beliefs. Nichols and Guay (2022) noted that ethnographic research can be used to explain how people produced patterns of everyday life and to make sense of those patterns. Nichols and Guay also observed that ethnographers produced findings that are appealing to nonacademic audiences.

The main advantage of the ethnographic design is that it allows the researcher to have direct access to the group and view their practices firsthand. The disadvantage to this design is that it is a time-consuming process that could span several months and runs the risk of researcher bias because of the amount of interpretation involved. The ethnographic design was not selected for the current study because the participants were not considered part of a cultural group.

The phenomenological approach is used to understand the structure of individuals' lived experiences of a phenomenon. The approach provides a first-person point of view focusing on the individuals' experiences and interpretations of the

phenomenon (Urcia, 2021). Williams (2021) characterized phenomenology as a design that allows the participants to tell what it is like to live in their personal world.

The advantage of using the phenomenological design is that it allows the researcher to understand several individuals' shared experiences. The disadvantage of using phenomenology is that using the characterization of a phenomenon as what-it's-like is insufficient on its own and requires further argumentative analysis (Williams, 2021). The phenomenological design was not selected for the current study due to the subjective nature of the research and the amount of researcher-induced bias could have affected the study.

Data saturation is achieved when new information is no longer attainable. Guest et al. (2020) argued that determining data saturation is challenging, and the researcher's judgment typically determines the stopping point. Saunders et al. (2018) recognized when a researcher begins to see similar instances repeatedly, the researcher becomes confident the data are saturated. In the current study, data were collected until the participants provided no new answers.

Population and Sampling

The participants chosen for this study consisted of CIO executives, IT managers, and supervisors from organizations across the Southwest United States with experience developing and implementing successful strategies to retain qualified IT personnel to support their business operations. The sampling method selected was purposeful. Campbell et al. (2020) recognized matching of the sample to the objective of the research adds to the rigor and trustworthiness of the data and the results. Purposeful sampling

allowed me to intentionally sample a specific group that is exceptionally knowledgeable about the problem. Suri (2011) believed homogenous purposeful sampling is well suited for conducting participatory synthesis with practitioners on a given phenomenon that implicated their chosen field of practice. The participants for this study met the criteria as being in the requisite field of practice, knowledgeable, and experienced with developing and implementing successful strategies to retain qualified IT personnel to support their business operations.

The number of participants is dependent on achieving data saturation, a point where observing more data will not lead to a new discovery (Lowe et al. (2018). Lowe et al. believed it is difficult to estimate the number of participants required as the identification of themes is not confined to any participant or observation. Guest et al. (2006) determined there are no actual guidelines for identifying purposeful sample size and relies on the concept of data saturation. Malterud et al. (2016) believed data saturation is tied to a specific methodology and suggested a sample size between six and 10 participants. Malterud introduced a concept of information power and understood the more information the sample has relevant to the phenomenon, the lower the number of participants necessary. The concept of information power is dependent on the following criteria: the aim of the study, sample specificity, established theory, quality of the participant discussion, and the analysis strategy that produces meaningful insights (Malterud et al., 2016). For these reasons, data saturation will be achieved when no new information is acquired and with the aim of the study kept to a narrow population of

participants with specific attributes that can best inform the research. For this study, I have interviewed eight participants.

Ethical Research

When the research of a phenomenon is conducted in a real-world context, ethical considerations are dependent on the justification of the study and the commitment to ethical principles (Reid, et al., (2018). All participants who participated and provided data to inform the research were provided with an informed consent form through electronic means which outlined their protections and ethical standards. The informed consent form provided assurances to all participants they will be protected from any harm, their privacy and confidentiality will be intact, and not be put in an awkward position.

Particular attention was given to the selection of the volunteers to ensure equitable participation. The informed consent form briefed the participants on the purpose of the study and the procedures that will take place during the interview process, along with some sample questions. Hilbig et al. (2022) pointed out the most fundamental principle of ethics is honesty, and deception could occur when the participants are not fully clear on the purpose of the study. All participants were briefed on the general purpose of the study with an understanding their responses to the semi-structured questions may lead the researcher to probe deeper into new data.

The informed consent form addressed the voluntary nature of the study, the risks, and benefits of participating in the study, and the privacy requirements that is afforded to all participants. As an incentive to participants, each participant was offered a copy of the

final report in hopes the findings will benefit them to further improve on their retention strategies.

Some participants may feel uneasy about the interview process. Ngozwana (2018) postulated it is vital to build rapport and credibility with participants, so they become more comfortable with the research and interview process. All participants were reassured the research will maintain their complete privacy and confidentiality. Participants were also given assurances during the informed consent process they can withdraw from participating at any time. Any information participants previously shared during the interview will not be applied to the study when the decision to withdraw has been made. The withdrawal from the study was outlined in the informed consent form, and the form also provided the participants with the identification of the sponsoring institution and applicable contact information should any question arise. The form included the sponsor institution's Institutional Review Board (IRB) approval number 10-04-22-1006018, and its expiration date of October 3, 2023.

All identifiable information that could expose who the participants are, their organization, and their role were kept out of the study. Reference to any participant in the study were identified by a code sequence. All data collected from participants for this research is kept on a flash drive in a locked compartment for a period no less than five years. After five years, all data will be permanently deleted, and the flash drive memory chip removed.

Data Collection

Instruments

As the researcher, I am the data collection instrument who collected and analyzed data for this qualitative pragmatic inquiry. Moser and Korstjens, (2018) listed participant observations, interviews, and focus group discussions as the most frequently used data collection methods in qualitative research. Lobe et al. (2020) suggested using online video-based platforms for interviews due to concerns with the ongoing pandemic and supporting reaching a broader selection of participants. The primary source of data collection for this research was the semi-structured interview using voice communications that best supported the study and all participants. The semi-structured interviews elicited responses to seven open ended questions. Each interview was conducted by voice using iMac Facetime application.

The use of an interview protocol (see Appendix A) is necessary to obtain good qualitative data and facilitate the interview process through a consistent and comprehensive manner (Yeong, et al., 2018). Fusch et al. (2018) pointed out implementing an interview protocol guide assists in mitigating biases and miscommunication between the researcher and the participants. I used an interview protocol guide which consisted of the following: Time of interview, date, place, interviewer, interviewee pseudonym, brief description of the research project, a review of the informed consent form, semi-structured questions, and ending with thanking the participant for their valued contributions. The interview protocol covered six semi-structured questions related to successful strategies to retain qualified IT personnel to

support their business operations and one question related to the gap identified in the literature review. The format of semi-structured questions allowed participants to provide detailed responses, which enabled me to probe further into the phenomenon.

There are multiple ways to enhance reliability and validity. Spiers et al. (2018) understood reliability to show consistent support for an analysis across all participants while validity required the checking and adjustment of research processes to ensure an accurate account of the participants' experiences. Hayashi, et al. (2019) believed researchers who use interpretive validity must capture the participants conscious processes, hidden intentions, beliefs, and values. The use of a review of the interpretation of participant's transcript for member checking of the findings was an effective way to increase the accuracy of the data interpretations and the participant data and experiences were correctly represented. Therefore, the reliability and validity of this study was further enhanced by having the participants review my summary of their transcripts for member checking of findings.

Data Collection Technique

There are multiple ways to collect data related to information technology studies, including surveys, interviews, observations, digital materials, videotapes, site visits, and telephone. The semi-structured interview and industry documents are the data collection instruments chosen for this research. Iyamu (2018) believed semi-structured interviews provide a way to discuss the complexities of a phenomenon with participants, leading to emerging themes. The interaction between the researcher and participants ensures the relevance and richness of the textual data. Xerri (2018) considered the semi-structured

interview a method that enriches the interaction between the researcher and the participant due to the personalized nature of the responses. The benefit of this interview technique enables the researcher to cross-check two forms of data: the observations of the participant and the textual data. These two studies confirmed the adoption of the semi-structured interview as the preferred method for this study.

The semi-structured interviews was conducted remotely via voice using iMac Facetime application. The advantage of conducting remote interviews is it enabled me to reach participants and explore a particular phenomenon from a given geographical region. Cachia and Millward (2011) believed using the telephone to conduct semi-structured interviews is a complementary fit due to its methodological strengths and the textual transcripts for qualitative analysis. Johnson, Adkins, et al. (2020) assessed face-to-face with remote interviews such as the telephone and videoconference technologies and found the conversation and text transcripts do not differ much from the telephone or videoconferencing. These findings confirmed remote interviews allowed researchers to explore a specific problem beyond their location and with similar textual data results.

The disadvantage of conducting telephone interviews is the researcher will not have the ability to witness specific social cues. For example, Opendakker (2006) argued researchers would not see the participant's body language and use it as an additional source of information. Another disadvantage is the researcher does not view where the participant is located within their environment and fears the interview could be compromised when the participant is visible to other employees (Gill & Baillie, 2018). While these studies identified valid concerns, I ensured the quality of the interview with

attention given to the preparation of the environment where there was no disruption to the participant.

Qualitative researchers have become dependent on using the internet to locate desired participants and conduct interviews for several years (Mirick & Wladkowski, 2019). Archibald et al. (2019) seen the advancement in online platforms as a cost-effective advantage for researchers. Access to desired participants was achieved through LinkedIn and Google search engine. First, prospective participants were contacted who have listed CIO or IT management-related roles in their profile. An email invitation (See appendix B) was sent in coordination to prospective participants, briefly informing them of a research study being conducted that may be significant to them. I further explained how the study's findings could improve the retention strategies of IT employees in the industry and offer a copy of the final report as an incentive for their participation.

When the prospective participant chose to participate, I asked them to submit an email with the words "I consent" in the subject line. Once the consent is received, I then work to identify and secure a suitable time for the interview without impacting the participant's schedule. Before conducting the interview, I took 20 minutes to go over the process of starting and stopping the audio taping application to ensure everything was fully functional. Each interview adhered to the interview protocol guide for structural consistency. Each participant was reminded they can opt-out of the interview at any time. I kept most interviews within a 30-minute time limit.

The transcripts of all audio-recorded interviews were made available. The transcriptions supported the accuracy of the information and enable me to understand the

participant's information further. One of the ways to maintain the validity of research is to incorporate member review of transcripts (Candela, 2019). I contacted the participants to perform a transcript review and confirm it accurately reflected their responses and opinions, ensuring credibility and validity.

Data Organization Techniques

For new researchers, data collection, analysis, and management can be challenging. First, data collection required encountering and embracing the participant's lived experiences (Ellingson & Sotirin, 2020). The researcher then must conduct a thematic analysis of the data and break down the analysis into specific phases. These phases include preparing and organizing the data, transcribing the data, identifying the limitations and gaps in the collected data, memo the data, coding the data, moving codes to themes, and making the analytic process transparent (Lester et al., 2020). Lester considered the first step of qualitative analysis is preparing and organizing data into themes. This required gathering all collected data to include audio, video-recorded interviews, transcripts, organizational documents into one location. I gathered all documents, transcripts, audio recorded files and put them into their directory, and used a structured pseudonym for each file to maintain participant's privacy and confidentiality (participant 1, participant 2, etc.).

I created the main data catalog and registered each data source, the storage location, and collection date. The intent of the main data catalog is to make it easier to import the data into a qualitative analysis software application (Lester et al., 2020). I used NVivo as the recording software for the desktop when making calls by iMac FaceTime

application, and NVivo software application for audio transcribing. Once all material was transcribed and member-checked, I maintained all data and audio files a working directory in iCloud and kept a backup copy of all files on a flash drive. Upon completion the study, I deleted the iCloud working directory and stored the flash drive for five years in a locked storage case.

Data Analysis Technique

Researchers who use multiple sources of evidence will need to triangulate the collected data. Triangulation provides for the richness and complexity of a phenomenon with the added goal of reducing systemic bias (Belotto, 2018). Belotto believed triangulation supports reinforcing the credibility and dependability of a study. Natow (2020) noted methodological triangulation provides corroboration of initial findings through documents, literature reviews, and interviews. Therefore, I used methodological triangulation to analyze data collected from 11 industry documents, which I have obtained from public facing sources, such as the Web and library databases, and from interviews with eight participants.

I examined retention strategies using the JCT conceptual framework and compared all collected data once the transcript data was validated through member checking. The data analysis was consistent with responding to the research question: What are the strategies IT managers use to retain qualified IT personnel to support their business operations? I identified key themes and concepts that emerged from the interview transcripts, and I organized all data into the categories identified during the

literature review: (a) IT workforce turnover intention, (b) IT workforce retention, (c) IT workforce engagement, and (d) IT talent management.

One of the essential processes of turning collected data into a thematic story is coding (Linneberg & Korsgaard, 2019). Linneberg and Korsgaard addressed coding as a way of reducing large amounts of data and segmenting the data with a specific code, making the data readily available for analysis and findings later on. Clark and Veale (2018) further defined coding by capturing the main ideas of the data and using a particular word or code that generally addresses the main idea. Azungah (2018) identified this type of coding as an inductive approach, where a line-by-line analysis is conducted to derive concepts and themes. Guo (2019) suggested researchers use a robust software application that can automate data organization and analysis process of all data. While researchers can perform coding manually, which can be a time-consuming process considering the number of transcripts, I imported collected data into NVivo qualitative analysis software to compliment the manual coding process and match critical themes identified from the semi-structured interviews.

Reliability and Validity

Reliability

Researchers have an obligation to achieve and safeguard accurate findings through the steps and procedures they take. Quintao et al. (2020) believed reliability is a foundational element where the findings of the data collected can be credible, confirmable, transferable, and dependable. Spiers et al. (2018) further defined reliability as data adequacy that shows consistent support for one's analysis across multiple

participants. Korstjens and Moser (2018) argued dependability is the stability of findings over time which is supported by transcript review member checking. To ensure dependability and reliability during the data collection process, I followed the interview protocol guide explicitly for each interview. Upon completion of the main study, the audio recordings from the interviews were transcribed, summarized, and reviewed for accuracy and free from errors.

Validity

There must be an acceptance between the researcher and the participants over the confidence of the study's findings as derived from the participants' responses to establish credibility. Daniel (2019) believed credibility could be attained by using the data, tools, and processes used in the study, such as verifying data sources acquired from the participants and an accurate description of the data analysis. Korstjens and Moser (2018) asserted strategies to achieve credibility should include data triangulation of multiple data collection methods and member checking. I conducted methodological triangulation through conducted interviews and industry documents to achieve a more thorough investigation and increase the validity of the study. I ensured the participants of the interviews were from varied backgrounds, including CIO executives, IT managers, and IT supervisors who have experienced the phenomenon. I compared the audio recordings with the transcripts to further validate the responses. I summarized each interview into a bulleted list of key points. I then contacted each participant to perform member checking to confirm my summary accurately reflects their responses and opinions, ensuring credibility and validity.

Member checking is a means for the researcher to allow participants to corroborate the interpretation of the data analysis. Stahl and King (2020) consider member checking an effective research practice that supports credibility and validity. Motulsky (2021) sees member checking more about the collaborative and emancipatory interpretations of the findings rather than just verification. Member checks are necessary for participants to verify the researcher's interpretation of the data is accurate. As a result, member checking of the findings was conducted with all participants until the validation processes produced no new information.

Another component of validity is transferability. Transferability is considered associated with replicability where researchers repeat the steps of the original study in a different setting or environment (Tuval-Mashiach, 2021). Tuval-Mashiach asserted this method adds validity to the study and reasoned it can be trusted by other researchers. Daniel (2019) understood qualitative research to be transferable if the readers not involved with the study can associate with the results with their own experiences. Daniel also suggested researchers clearly communicate the delimitation of the research and its context as another way of attaining transferability. To support transferability, I provided a clear description of the research problem, the data collection methods, the approach to data collection, and the context of the findings that are applicable and transferable.

Confirmability is another component of validity. Korstjens and Moser (2018) defined *confirmability* as research findings confirmed by other researchers as trustworthy. Confirmability provides a neutral view of the data where the interpretation of the data is not based on a researcher's personal preference or bias. Ellis (2019) acknowledged the

best qualitative studies maintained an audit trail of how data was collected and the interpretations so the readers could confirm whether they would arrive at the same conclusion as the researcher when given the data. Therefore, I incorporated an audit trail and all aspects identified in reliability and validity to include dependability, creditability, and transferability to ensure confirmability.

Data saturation impacts both reliability and validity. Guest et al. (2020) sees data saturation as a vital component of qualitative research that establishes trust and confidence in the study's findings. Guest et al. suggested conducting between four to six interviews before assessing thematic saturation. Saunders et al. (2018) acknowledged the failure to reach data saturation will invariably impact the quality of the research and that saturation is the only guarantee of qualitative rigor. Saunders et al. also believed data saturation determines the sample size. For this study, I did not see data saturation as a fixed number of interviews but as a matter of achieving a sufficient depth of understanding and where further data collection became impractical when new data does not add to the overall study.

Transition and Summary

The purpose of this qualitative, multi-case doctoral study is to identify the strategies used by successful IT managers to retain qualified IT personnel to support their business operations. The parameters for data collection, handling, and analysis have been identified and communicated. The population and sampling of the study consisted of CIO executives, IT managers, and supervisors from organizations across the Southwestern region of the United States who have experienced firsthand the development and

implementation of successful retention strategies. Ethical considerations were addressed to support the protection of all study participants. The researcher was the data collection instrument, and the data collection technique was the collection and analysis of data from semi-structured interviews, and industry documents. Data organization techniques were employed to arrange, organize, and store the data securely for further review and processing. The data analysis technique employed methodological triangulation to strengthen the validity of the results and minimized bias. The corroboration of initial findings through semi-structured interviews and industry documents was used to identify emerging themes and ideas. Key concepts related to reliability and validity was implemented to ensure the criteria of dependability, credibility, transferability, and confirmability were met.

In Section 3, the presentation and interpretation of findings was analyzed and discussed how they are tied to the JCT conceptual framework. A detailed deliberation was provided on the applicability of the findings to professional practice, implication for social change, recommendations for useful action, and future research. Lastly, a reflection of the researcher's experience with the IT Doctoral Study was captured and presented.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this pragmatic qualitative inquiry was to identify the strategies used by successful IT managers to retain qualified IT personnel to support their business operations. Data collected from eight participants and 10 industry documents were analyzed using thematic analysis. The data analysis phase identified four major themes: (a) workforce engagement, (b) performance management, (c) talent management, and (d) organizational culture.

Presentation of Findings

The research question for this study was the following: What are the strategies IT managers use to retain qualified IT personnel to support their business operations? The sources of data included semistructured interviews with eight participants from the southwestern region of the United States and 10 industry documents from the International Organization for Standardization (ISO). Each participant was assigned a unique pseudonym to maintain confidentiality, and data collected during the interviews were transcribed and named with the associated pseudonym. Tables 2 and 3 show the data collection references used in the study findings. NVivo 1.7.1 was used to conduct the data analysis.

Table 2*Interview Parameters*

Interview	Pseudonym	Transcript ID
Participant 1	P1	P1
Participant 2	P2	P2
Participant 3	P3	P3
Participant 4	P4	P4
Participant 5	P5	P5
Participant 6	P6	P6
Participant 7	P7	P7
Participant 8	P8	P8

Table 3*Industry Documents*

Document ID	Author	Title
9000	ISO	Quality Management Systems- Fundamentals
9001	ISO	Quality Management Systems- Requirements
9004	ISO	Quality Management- Quality of an organization; Guidance to Achieve sustained success
10015	ISO	Quality Management- Guidelines for competence Management and people development
10018	ISO	Quality Management- Guidance for people engagement
100080	ISO	Quality Management Principles
23326	ISO	Human Resource Management- Employee engagement guidance
TR30406	ISO	Human Resource Management- Sustainable employability management
TS24178	ISO	Human Resource Management- Organizational culture
TS30421	ISO	Human Resource Management- Turnover and retention metrics

Theme 1: Engagement

The first theme identified that has an impact on IT employee retention was the importance of an employee's engagement in the workforce. Table 4 indicates the number of participants and industry documents that commented on workforce engagement and the number of times the theme was mentioned.

Table 4

References of Major Theme 1: Engagement

Major theme	Participants	References	Industry documents	References
Engagement	8	31	10	129

Participant Findings

Eight participant interviews indicated leaders, managers, and supervisors focused on workforce engagement. P1 and P7 reported it is essential to establish one-on-one engagement from the first day forward. P1 stated "it is that active engagement at the one-on-one employee level." P1 used this as the number one strategy because it is vital to know the employees, their strengths, and their goals so that, as a manager, the employees can be set up for success from the start of their working relationship. P7 expressed "I think it is just that personal interaction that makes them feel valued as a person and certainly as an employee." P7 noted a manager must also start having this engagement from Day 1 to establish the right tone that enables employees to feel valuable and essential to the organization. The engagement is done on a personal and professional level by sending employees an invitation to communicate with their manager regarding any concerns they may have.

P2 and P8 make the time to listen and speak to every employee on the team and value their concerns as individuals and as a team. P2 revealed “I deliberately make time to speak, listen to everybody on the team, and provide support and counsel when asked.” P2 establishes this communication to employees personally and professionally by being a trusted agent to them. P8 divulged “we try to develop this whole team approach right to individual progress and individual engagement, which means we foster, or we try to adhere to the philosophy that the people work better in effective teams.” P8 keeps the organizational structure as flat as possible so any individual can come in and talk about their goals and challenges. P2 and P8 also created an environment that promotes professional development, show that the employees are valued, and fosters opportunities for individual engagement.

P3 and P4 establish a mentorship with employees and believe it is imperative to know what employees think and feel. P4 is always looking for feedback on how employees are doing with their tasks and will ask “are there any areas you would like to improve on that I can help you with?” P4 will then offer ways for employees to improve and excel at work. P3 asserted “employee engagement is critical, and you have to know what your employees are thinking, see how they are feeling, see how they are doing on the job.” P3 often encourages self-reflection to gain feedback on how employees are doing, always keeps an open-door policy with them at any time, and is available to employees after hours. P3 encourages “a team building activity that promotes employee engagement.” P3 will often utilize team-building activities both at work and away from work to support engagement. P3 stated anonymous services allow your employees to

engage in surveys where there is no punishment for their answers so they can complete the survey and voice their opinion on many things that you may not get in regular communication or face-to-face communication or any kind of communication.

P5 and P6 actively participate with employees and take the time to get to know each employee and their skill set to best set them up for success and to establish personal initiatives. P5 believes “listening to employees is most important to understanding where they are not only on task but with their lives and families, as well.” P5 will often ask questions on how any project is going and offers support and the tools required to complete the project at hand. P5 believes an essential aspect of being a manager is listening to employees and positively addressing their concerns. P5 also noted “the more positive one can be with their employees, the more the employee feels the company and boss care about them and their well-being, which will only result in a positive outlook for the company.”

P6 continually monitors and engages with employees when there appear to be mental blocks to the task. P6 will communicate solutions to stimulate their thinking processes to overcome obstacles. P6 also promotes engagement with employees away from work to relax and build camaraderie and encourages managers and employees “to get out of the work environment just a little bit and, you know, get to know each other a little more and get to know something about someone else a little more than you did not know.” P6 believes this has fostered better communication and has helped employees feel comfortable reaching out to their supervisor.

Industry Document Findings

All 10 industry documents indicated the importance of employee engagement in the workplace. The ISO (2015a) quality management principles and ISO (2019) quality management guidelines for competence management and people development are based on quality management principles and guidelines for organizations to create unity of purpose and an environment where people are engaged. The ISO (2015a) stated “creation of unity of purpose, direction, and engagement of people enable an organization to align its strategies, policies, processes, and resources to achieve its objectives” (p. 4).

The achievement of goals with greater efficacy, improved process coordination, and enhanced internal communication are the main advantages. The ISO (2019) emphasized “enabling people to achieve personal development goals as well as meeting the competence needs of the organization will contribute to the engagement of people and an effective quality culture” (p. 4). The ISO (2019) encourages individuals, teams, and groups to actively engage in competence management to promote professional development activities and further increase engagement and ownership. The effectiveness of competence management should also be evaluated regularly at the individual, team, and organizational levels to establish benchmarking and facilitate monitoring, appraisals, and performance reviews.

The ISO (2020, 2022) delivered guidance on people engagement and how effective changes can be made to the level of engagement of personnel within an organization and the impact it has on quality. “The organization should ensure the continual improvement of its strategies, policies, and activities relevant to people

engagement” (ISO, 2020p. 9). Additionally, “improvement of people engagement enhances an organization’s agility and resilience in responding to changes in internal and external issues” (ISO, 2020, p. 9).

Quality is often linked to compliance, and engaged people with an emotional commitment to their work are more concerned about the organization achieving its goals. The ISO (2020) noted organizations should create standards to encourage a culture with the actions, processes, and behaviors that provide this value. Organizations with a positive culture can better motivate their people, improve performance, and achieve their desired goals (ISO, 2020, p.2). Similarly, the ISO (2022) supported “the continued professionalization of people management by linking process and practices to an outcome of increased employee engagement correlated with sustainable organizational success” (p. 3). Maintaining consistency in processes and procedures will maximize employee engagement, improve performance, create more significant innovation, and increase employee satisfaction.

The ISO (2015b) called on leaders of organizations to create and establish conditions whereby employees are engaged with purpose and direction by aligning the organization’s strategies and processes to achieve their objectives. “People are essential resources within the organization. The organization’s performance depends on how people behave within the system in which they work” (ISO, 2015b, p. 3). Engagement involves the workforce at all company levels and is facilitated by recognition and empowerment. “Engagement of people enhances the organization’s ability to create and deliver value to interested parties” (ISO, 2018, p. 12). These documents also support

organizations in creating internal environment processes that enable sharing knowledge, making better use of a person's competence, and establishing skills training to further professional and personal development.

The capacity to find or keep quality employment over the course of a person's career is referred to as sustainable employability. "Organizations recognized sustainable employability culture promotes employee engagement, loyalty, productivity, initiative, creativity, and overall physical and mental health" (ISO, 2017, p. 5). "Factors influencing an effective culture include the organization's vision, values, norms, behaviors, beliefs, habits, rewards, recognition and feedback, and employee engagement" (ISO, 2021a, p. 1). Organizations should establish platforms that support active engagement with performance benchmarking and action items viewed by management regularly.

Some employee turnovers can have a consequential effect on an organization's performance. The ISO (2021b) noted organizations that delay hiring replacements due to related costs may incur more costs that could negatively impact workforce engagement. "The organization may face intangibles such as lost productivity impact or team engagement when a valued colleague leaves" (ISO, 2021b, p. 6). Organizations need to leverage proactive and future planning of human resources to maintain employee engagement levels and production.

Comparison to Literature Review and New Studies

The literature review confirmed the theme of employee engagement from participant interviews and industry documents. As Mohideen et al. (2019) noted, establishing trust along with employee engagement and involvement enables

organizations to achieve their goals. Kim et al. (2017) believed supervisors could establish a positive relationship with employees by maintaining an excellent organizational culture. All participants were actively engaged with their employees and believed their consistent involvement enabled them to understand their employee's skills and goals better and further matched their abilities with job characteristics.

In new literature, Pai et al. (2022) studied IT industry employees' service innovation performance and identified establishing a workplace that facilitates sharing and collaboration among IT employees stimulated positive engagement and further empowered employees to achieve common goals. Sihag (2021) researched employee engagement in the IT industry and revealed engaged employees are more energetic and passionate about their work when they perceive organizational support, resulting in higher talent retention. Both studies showed the importance of organizations' commitment to promoting a workplace that fosters positive engagement of their employees, who in turn show a higher commitment to their organization.

Ties to Conceptual Framework

Based on the results of the participant interviews, industry documents, and a literature review, there is a significant and positive relationship between job characteristics theory and employee engagement in the workforce. "Middle managers have a significant role to play in the design of changed jobs" (Hackman & Oldham, 1980, p. 157) when matching employees with specific job characteristics. Hackman and Oldham noted "when people are well matched with their jobs, it rarely is necessary to force, coerce, bribe, or trick them into working hard and trying to perform the job well"

(p. 71). Employees who are engaged can express themselves emotionally and cognitively when carrying out their assigned tasks. They will show dedication and work harder to achieve the organization's goals.

Theme 2: Performance Management

The second theme identified impacting IT employee retention was performance management. Successful managers utilized several methods to improve employee performance in the workforce. Table 5 indicated the number of participants and industry documents that commented on workforce performance sub-themes and the number of times that were mentioned.

Table 5

References of Major Theme 2: Performance Management

Major theme	Participants	References	Industry documents	References
Feedback	7	50	8	44
Recognition	5	21	7	29
Job autonomy	8	13	3	9
Compensation	8	52	6	31

Participant Findings

Eight participant interviews focused on feedback, recognition, job autonomy, and compensation that contributed to raising their employee's performance. Five participants viewed recognition as a contributing factor to improved performance. P1 believed "active feedback is critical" to an employee's performance. Equally important is getting feedback from the employee. "You need active feedback in both directions for a learning and growing organization." P2 indicated "without feedback, the employee may not feel like they are in a good environment." Employees should receive positive feedback that ties

directly to how their actions support the organization's mission and make their contributions feel valued.

P3 encouraged employees to do self-reflection. "When they start self-reflection, you will get a lot of feedback and intuition as to what the employee thinks." P3 further stipulated, "that is important in retention because you may find that the employee is okay on the outside, but inside they are not happy, which can significantly impact their performance." P4 recognized job feedback best supported their retention strategies. "Letting employees know that they are doing well, and you are engaged is supporting that retention strategy." P4 further believed "if there is less feedback, then they are more inclined not to stay." P5 recognized "if employees are not getting feedback or support from management, do not stay as engaged." The results usually create a more robust, favorable work environment when feedback is provided and done correctly.

P7 conducted a 10-question survey of the things that were important to the performance of employees and acknowledged, "out of 10 things was valuable feedback." P7 believed in "asking your teammates, your employees for input, even where it may not be warranted." When personal job feedback is coming from next-level management and not just the first-line manager, it plays a crucial role in their retention strategies. Critical factors in retention strategies, P8 asserted, "developing that team approach has been extremely effective, you have mention job feedback and job autonomy, I think those two things have the greatest significance." An ongoing communication process between the manager and employee optimizes their performance that best supports their organization in achieving their goals.

Recognition is a foundational cornerstone of performance management. Showing an appreciation for an employee's contributions to an organization can be achieved in several ways. P1 had success using recognition as a retention strategy. "I think that the number of times you recognize an employee's contribution is more important than you know." Additionally, "they should hear every month or every week that you appreciated a specific action rather than wait until the end of the year to give some large cash award." P3 also believed recognition as an essential strategy. "What I think is important is a word of recognition, that you have smaller awards or just recognition regularly instead of just using an end of the year to hand out performance awards."

P5 added "I think employee recognition and support go a long way in retaining employees." Moreover, "I found employee recognition is useful in keeping employees on track to accomplish even more." P6 surmised "recognition does not have to be monetary. It can be a call out during a meeting or a call out at an event, just basic recognizing their work efforts when completing a project." P7 agreed with recognition as a retention strategy. "Our company has almost always been available to us because formal recognition usually comes in bonuses." All participants believe recognition encouraged strong performance, increased engagement, and supported the retention of top talent.

Job autonomy inspires an employee to achieve and is more likely to result in higher performance and more engagement in their work. P1 acknowledged "I think having a clearly identified task, the understanding of task significance, and the autonomy to do the work were contributing factors to successful retention." P2 also saw job autonomy as a retention tool. "I have been fortunate most people who work for me have

been self-motivators; they think they understand what needs to be done.” P2 further stated “you give them a direction and a goal and purpose and let them run with it.” In general, job autonomy enables employees to feel more valued and are willing to perform at their best.

P3 saw job autonomy as a way to make employees feel entrusted. “Let them know they are trusted to do this task. It is an important task, and I trust you can do it alone.” P4 believed in using job autonomy as an effective tool, “I always think it is important to be left alone to do your work.” P5 agreed “with job autonomy, employees appreciate ownership of tasks and projects.” P6 supported job autonomy and liked giving more authority to employees with less supervision “I feel like when you give them a task they are in charge of, they gain some trust in you.” However, not all employees feel confident to job autonomy. P7 implied “job autonomy one to me is very dependent on the person and the job at hand.” P8 gave credence to both job feedback and job autonomy as two of their better retention strategies “I think those two things have the greatest significance and have been the major drivers for our success.” Job autonomy provides greater engagement and productivity, the feeling of being accountable, and a desire for employees to perform their best.

A good compensation package is another cornerstone of performance management. It can motivate employees to excel and push them to work hard to achieve their organization’s goals. P1, p2, and P6 provided a very structured environment in terms of compensation. P1 noted “when employees are looking for a change to their compensation package, they are looking at, if they stay in this organization, they have to

seek a promotion.” P2 added “even if I lose a good employee to another department, I will promote and go ahead and let them go so they could grow.” P6 surmised “opportunities for growth helps with retention. Promotion means raises and additional income.” As a result, promotions provide employees with an incentive to work harder to achieve the success they are looking for.

Qualified IT personnel are always in high demand. P3 is a believer in having compensation as a retention strategy “My company is offering this, for example, a \$2500 referral bonus for employees I can recruit.” P4 added “there is a high demand for the people in this industry of qualified IT employees, and money is a huge factor for our retention strategy.” P5 executed a relatively simple retention strategy “provide a positive experience and safe workplace with good pay and benefits.” Good compensation packages will incentivize employees to remain and lower the turnover rate.

In contrast, some organizations only sometimes have promotion opportunities or adequate pay raises. P7 iterated “so employees need an incentive, and they want to take a promotion and have that opportunity with another company.” However, P8 added “the employees did say we were slow to give pay increases. We were slow to counter their other job offers.” In these circumstances, managers may offer other benefits to counter the inability to offer promotions or timely pay raises.

Industry Document Findings

All ten industry documents guided performance management. ISO (2022) gives guidance on organizational leadership, clear communication strategies, capabilities, and accountabilities. “The organization should use formal and informal mechanisms for

employee feedback and deal within a cyclical process” (ISO 2022, p. 9). ISO (2015b) laid out a path for organizations to achieve sustained success and optimize their impact on performance. Organizations should “measure performance and provide feedback to interested parties, as appropriate, to enhance improvement initiatives” (ISO 2015b, p. 9). ISO (2018) advised effective communications of policy and strategy for its employees to support sustained success. “Such communication should include a feedback mechanism and incorporate provisions to proactively address any necessary changes in the organization’s context” (ISO 2018, p. 8).

ISO (2017) encouraged leadership to develop key performance indicators to improve the workforce. “The organization should regularly assess the knowledge, skills, and abilities of its workforce and provide feedback so they know how improvements can be made” (ISO 2017, p. 5). ISO (2021a) cited engagement, satisfaction, and commitment for assessing human capital and identifying optimal potential. Thriving organizations “have a developed culture embedded in hiring programs, orientation, leadership development, policies and procedures, performance feedback, compensation, and all other aspects of how we do business” (ISO 2021a, p. 2). Effective feedback is a necessary component of performance management that enables employees to improve and achieve their goals.

One of the goals of employee recognition is to strengthen specific behaviors and practices to provide better business results and individual performance. ISO (2015a) understands “recognition, empowerment, and enhancement of competence facilitate the engagement of people in achieving the organization’s quality objectives” (p. 6). ISO

(2019) believed by increasing the teams, groups, and individuals' competence best supported the organization's goals, organizational competence requirements. "When considering competence needs, organizations should determine the competence required to achieve intended results, at the organizational, team, group, and individual level, taking into account recognition of individual levels of competence concerning the ability to perform specific roles" (p.2). ISO (2022) encouraged a clear framework of financial and non-financial awards that are clear to employees. "Managers should understand the importance of recognizing the work and efforts of employees" (p. 8).

ISO (2015b) gave credence to organizations that have sustained success to attract and retain their people. "Recognition, empowerment, and enhancement of competence facilitated people's engagement in achieving the organization's quality objectives" (p. 5). ISO (2018) maintained empowered and motivated people are essential to an organization's value creation. "To enhance the empowerment and motivation of people, managers at all levels should introduce an appropriate recognition system based on the evaluation of people's accomplishments" (p. 12). Organizations that implement recognition programs for top performers as a retention strategy may experience solid employee engagement and performance.

Job autonomy is instrumental in increased job performance. ISO (2022) described an appropriate job context and design where employees are provided with best-fit roles. "Organizational leaders should provide employees with autonomy and trust to complete their work" (ISO 2022, p. 10). ISO (2018) further recommended "to enhance the empowerment and motivation of people, managers at all levels should define clear

objectives, delegate authority and responsibility, and create a work environment in which people control their work and decision-making” (p. 12). The lack of autonomy indicated a lack of trust in the work environment. Managers who trust their workforce with autonomy are likely to experience a more engaged workplace, and experience increased performance.

A good compensation package supports employees to perform at their best and should be awarded or given incentives to achieve organizational goals and objectives. One of the overarching principles to empower and engage people, ISO (2018) believed “organizations should provide incentives for people to act with initiative” (p. 12). To better understand employees, ISO (2021a) suggested an employee survey with questions that are known drivers of employee behavior resulting in motivation and engagement. “A series of questions should be asked to determine satisfaction with areas such as compensation, incentives, bonus schemes, and employee benefits” (ISO 2021a, p. 4). At the same time, organizations should understand the costs of turnover and establish an acceptable level of turnover by monitoring the success of retention. ISO (2021b) suggested establishing a benchmark to follow trends in turnover better and provide incentives to offset turnover. “Open position unpaid salary, benefits, and bonus can often be considered a new benefit that partially offsets direct and indirect turnover costs” (ISO 2021b, p. 6).

Organizations can overcome turnover costs by maximizing employee engagement with an effective rewards program. ISO (2022) suggested “organizations should define their reward system so they are linked to the employee’s contribution to the

organization's goals and objectives" (p. 8). Working conditions can also have an impact on retention. ISO (2017) recommended "organizations to allow for flexible working arrangements in terms of working hours, location, salary, performance, and learning and development when this is reasonable and practical" (p. 7). An ineffective compensation package will incur low job satisfaction, productivity, and high turnover, while an adequate compensation package may ensure retention and motivation to keep employees engaged and performing at their best.

Comparison to Literature Review and New Studies

The literature review corroborated the theme of performance management from participant interviews and industry documents. Sharma et al. (2017) research study finding regarding job satisfaction and indicated pay, training, feedback, promotion, and recognition as critical factors for motivating personnel to perform their duties. A job satisfaction study conducted by Cic et al. (2018) confirmed IT personnel are more committed and engaged in their work when given autonomy to do their jobs. Thuan (2020) researched the negative impact of unreasonable jobs on employees and determined a manager's communication and feedback improved employees' performance and creativity. As shown above, compensation, salary, promotion, feedback, recognition, and job autonomy are practical ways managers can support retaining qualified employees.

In new research, Loan (2020) studied the relationship between an employee's job performance and job satisfaction and revealed a positive relationship exists when an organization's commitment to the employee enhanced an employee's performance by

ensuring job satisfaction. Conversely, Ismail et al. (2019) researched job performance and job satisfaction in the IT industry and identified person-job fit issues when job characteristics did not match the employee's personal values, with organizations placing high achievers in jobs that did not fill their aspirations, leading to negative attitudes. These findings show organizational leaders the importance of supporting their employees by assigning jobs with characteristics that support best fit to achieve optimum performance and organizational objectives.

Ties to Conceptual Framework

Based on the participant interviews, industry documents, and a literature review, there was a significant and positive relationship between job characteristics theory and employee performance. Hackman and Oldham (1980) found "the use of performance-contingent rewards would seem to have a great deal of potential for shaping employee behavior" (p. 36). Hackman and Oldham further acknowledged "the result, in many cases, will be an increase in the motivation of members to work hard and work together to attempt to obtain recognition and rewards" (p. 37). Hackman and Oldham also identified three factors that increase the motivation of the employees who do the work. "These factors are a person's job-relevant knowledge and skill, growth need strength, and the level of satisfaction with aspects of the work context, particularly satisfaction with job security, compensation, co-workers, and supervision" (p. 82). Employees who desire growth need strength seek opportunities with high motivational potential and the autonomy to complete the work.

Theme 3: Talent Management

The third theme identified impacting IT employee retention was talent management. When talent management was implemented in an organization, developing and motivating employees to grow improved their performance and supported retention. Table 6 indicated the number of participants and industry documents commented on talent management sub-themes, and the number of times it was mentioned.

Table 6

References of Major Theme 3: Talent Management

Major theme	Participants	References	Industry documents	References
Knowledge	4	6	8	43
Learning	5	18	8	53
Training	8	81	10	98
Value	6	12	9	79

Participant Findings

Eight participants interviewed believed knowledge, learning, training, and value contributed to raising their employee's performance and enhancing their retention. Four participants viewed knowledge as a contributing factor to improved performance and retention. P4 thinks obtaining knowledge is dependent on the person "some people will want to be more, you know, a mile wide and an inch deep in their knowledge, and they want to touch everything and do a little bit of everything, and some people want to get really into the weeds on a specific skill set." P1 believed certain employees seek knowledge so they can become subject matter experts "the employee is knowledgeable and knows their strengths, and you help them build their brand as the subject matter expert on x, y, or z or multiples of them." P5 used bonuses to support employees in

broadening their knowledge “bonuses for new certifications, including security+ or network+, supported employees to better themselves and deepen their knowledge and education.” Different factors drive certain employees to acquire knowledge, and successful managers seek ways to identify what motivates employees to seek knowledge and supported them in their goals to achieve it.

However, some managers are concerned about how certain employees will react to obtaining knowledge. P8 stated “supervisors are afraid to invest in professional development for their employees because they may, you know, people may take knowledge and probably move elsewhere in the future.” P2 added “I promote cross-training to expand knowledge, but with very few exceptions, it seems to be a short-term thing, and we should be grooming people for the long run.” An often-overlooked point, organizations should create opportunities for professional development and communicate clear paths to advancement.

Good learning experiences can be an effective tool that promotes job satisfaction and retention. P2 believed one must allow mistakes to happen “failures can be used as learning experiences and treat them that way and talk to them that way. Do not say you screwed up.” P5 believed in sending employees interested in learning to various activities or events “send employees to tech conferences to learn the latest technologies and network with other folks in the field. It gives the employees a feeling of worth and helps in retention.” P3 agreed “I think it helps retain employees by providing professional learning.”

P6 indicated some employees look forward to working with new technology “I feel like it is an opportunity to learn, and it helps with retention because you have individuals who see this new technology, and they take advantage and learn it.” P7 concurred “most personnel are inclined to stay within their specialty and want to learn what is new coming down that specialty.” Altogether, learning experiences help organizations to increase retention when employees feel managers are interested in them and help them develop their careers.

An effective training program assists employees in understanding their worth better while building their confidence simultaneously. P2 supported professional training when funding is available “I love and encourage people to go out and learn stuff on their own, and when there are opportunities, we give them that professional training.” P4 saw training as a way to broaden an employee’s skills “if a new technology drives their career goals or interests, if that is somewhere they want to go, then it is easier to retain them by providing the necessary training.” P5 found training helps employees stay engaged “we are tackling with technology when technology changes just to encourage and fund training for any new systems the company sees, especially if the employee shows interest or asks for training.”

P6 recognized training as a valuable benefit “employees take that opportunity, you know, to further their continuing education and training on certifications that eventually allows them to move to another role within the organization.” P7 believed training supported their retention “it helped employees gain certifications or new experiences and skills they otherwise would have never achieved.” P8 acknowledged “if

there is an opportunity to positively change the trajectory of their career, we support that training.”

On the other hand, some employees may not want to broaden their knowledge or skills with additional training. P1 noted “you know, you try to introduce a new skill or a skill variety to them, and it would not be well received and probably would not excel in that area.” P3 agreed “some people do not like mandatory certifications. You need to be certified in six months. I have seen people leave for that reason alone.” In general, employees are receptive to training as managers see them as an asset to the organization and feel supported.

Another way to improve retention is to show employees they are appreciated and valued. One of the best ways to make employees feel valued is to schedule one-on-one sessions with them. P3 believed “that provides values for your employees and also promotes engagement with other team members.” P7 agreed “I think it is just that personal interaction makes them feel valued as a person and certainly as an employee.” P2 added “I try to ensure their views and opinions are at least listened to and valued. Many managers do not want to listen to subordinates on how to do things or look at things differently.”

P5 confirmed “job and project ownership show the employee he or she has value and is important to the overall success of the team and mission.” P6 felt “enabling the employee instead of micromanaging their tasks helps the employee feel valued and helps to build trust relationships.” P8 iterated “I cannot stress enough how important we show that employee value, but that we show the employees that we value their commitment,

work, skill set, and value their families.” These findings show listening to and engaging with employees and practicing job empowerment enabled employees to feel valued and make meaningful contributions.

Industry Document Findings

Ten industry documents provided guidance and support to talent management. ISO (2020) made known to organizations to establish and leverage the outcomes of knowledge management and training. “The benefit of training and development is the increase competence, which leads to an increase in a person’s ability to create value for the organization and its customers” (ISO 2020, p. 7). ISO (2015a) supported communicating with people to promote the importance of their contributions. “To effectively manage an organization, it is important to involve all people at all levels and to respect them as individuals. Facilitate open discussion of knowledge and experience” (ISO 2015a, p. 7).

ISO (2019) correlated the following action “competence management and people development activities at the team and group level should address providing support structures to share knowledge and skills” (p. 5). ISO (2015c) addressed the urgency to manage organizational knowledge. “Organizational knowledge requirements were introduced to safeguard the organization from the loss of knowledge through staff turnover, and the failure to capture and share information” (ISO 2015c, p. 23). ISO (2018) noted “to enhance the engagement of its people, the organization should consider activities as developing a process to share knowledge and make use of its people’s competence” (p. 12). Implementing and maintaining a knowledge management system

allow managers to successfully support personnel engagement, improve their performance, and enable retention efforts.

One of the critical tenets of talent management is the learning and development of employees. ISO (2015a) outlined guidance for managers to take to facilitate an employee's professional growth. "Recognize and acknowledge people's contribution, learning, and improvement" (ISO 2015a, p. 7). ISO (2019) reinforces organizations to enable people to achieve personal development goals. "Developing activities at the individual level can include individual learning programs (ISO 2019, p. 5)." These learning programs should also support competence management and people development at the team level.

ISO (2020) stated "an organization should recognize people learn differently" (p. 7). For example, some personnel may prefer a classroom environment, while others may consider web-based courses or having a mentor assigned to them. ISO (2022) articulated "organizations should focus upon and develop the learning potential within the organization in order to strengthen both leaders and employees" (p. 7). One way to achieve its employees' learning potential is through engagement and empowerment. However, "one of the potential barriers to employee engagement is insufficient infrastructure to identify learning and development needs (ISO 2022, p. 9)."

Organizations are encouraged to foster employee engagement and learning activities to overcome such barriers. ISO (2015b) corroborated "recognizing and acknowledging people's contributions, learning, and improvements" (p. 5) and further encouraged people's engagement throughout the organization and assist in achieving its objectives.

ISO (2018) suggested analyzing an organization's performance regularly. "Based on the results, the organization should use the information to update its understanding of its context, policies, strategy, and objectives as needed while also promoting improvement, learning, and innovation activities" (ISO 2018, p. 16).

An engaged organization is one that is operating at its optimum potential. "It defines engagement as a level of satisfaction people have in activities such as communication, learning, and management" (ISO 2021a, p. 2). ISO (2017) also supported the level of engagement in learning "Organizations recognize that a practical and stimulating learning and development environment is essential for its workforce's sustainable employability" (p. 5). Managers should find learning and development of their workforce as an effective means that aids in their retention strategy.

Training programs are a requirement for people engagement and competence. Managers should consider all processes, functions, and levels of competence when evaluating personnel. "Documented information should be maintained or retained as appropriate to support and demonstrate training achievements, qualifications, performance/appraisal outcomes" (ISO 2019, p. 2). ISO (2020) maintained "ongoing training, education, and diversified experience are prime means to achieve necessary competence so that performance and effectiveness of the quality management system can be achieved" (p. 8). ISO (2015a) suggested "provide people with the required resources, training and authority to act with accountability" (p. 5).

Leaders should create a condition where people are engaged to execute the organization's objectives. "Provide people with the required resources, training, and

authority to act with accountability” (ISO 2015b, p. 5). The necessary competence to support performance effectiveness should also be determined. “Ensure that these persons are competent based on appropriate education, training, or experience” (ISO 2015c, p. 8). Managing sustained success is achieved by meeting the expectations and needs of the organization. “Consideration is given to learning, training, motivation, and prevention of human error” (ISO 2018, p. 11).

Managers should understand the workforce’s capabilities and should seek “to fully understand and implement the training and development for maintaining or upgrading the workforce’s existing knowledge, skill, and abilities to meet organizational goals” (ISO 2017, p. 6). One of the key objectives for any leader is to monitor turnover and assess whether employee retention may be of concern. “Retention rate is best used as a prediction tool for future workforce planning in estimating required hires, training, and skill set to replace what is anticipated to be lost in future years” (ISO 2021b, p. 10). Overall, employee training, and development efforts are necessary to achieve organizational success. Successful leaders understand there is a connection between employee training, retention, and retention rates.

The personal qualities most employees try to represent are their work values, and the core values of a workplace may not always align with the workforce from one organization to another. “Leadership and management need to establish a unity of purpose and shared values” (ISO 2020, p.1). By establishing a unity of purpose, an organization will create a condition where employees are engaged in their work. To maintain this unity of purpose, leaders should “create and sustain shared values, fairness,

and ethical models for behavior at all levels of the organization” (ISO 2015a, p. 5). ISO (2015b) also supported the unity of purpose and shared values. “Competent, empowered, and engaged people at all levels throughout the organization are essential to enhance the organization’s capability to create and deliver value” (ISO 2015b, p. 5). When an employee’s work values align with an organization, there is a sense of purpose where employees feel they are doing something beneficial to themselves and the organization.

People development and future competence needs are a requirement. “These needs are based on the organizational mission, vision, values, and culture” (ISO 2019, p. 6). What the organization stands for should foster workforce engagement. “Engaged employees are committed to their organization’s goals and values and motivated to contribute to organizational success, with an enhanced sense of their well-being (ISO 2022, p. 10).” Fundamental values are crucial for the business and its employees and successful managers know thriving and engaged personnel are less likely to leave.

A key consideration for any valued employee is the actual identity of a given organization. “The identity of an organization is determined by its characteristics, based on mission, vision, values, and culture” (ISO 2018, p. 4). This identity should provide the impetus for employees to become engaged. Additionally, as an organization matures, it should establish metrics in its approach to human resource management. “Mature organizations assess satisfaction against expectations of values and behaviors defined and stated as organizational values” (ISO 2021a, p. 2). These metrics may show valuable information about the level of employee engagement and possibly provide ways to increase the level of engagement.

Comparison to Literature Review and New Studies

The literature review validated the theme of talent management from participant interviews and industry documents. Work values are essential in an employee's desire to stay with an organization. Vivek and Raveendran (2017) research findings showed preferred work values increased job satisfaction when employees preferred task significance that challenged them. Sharma et al. (2017) revealed IT employees believed pay, training, feedback, and recognition supported their motivation to excel. Rajalakshmi and Subhashchandra (2020) identified employees showing a solid bond with organizations that supported learning new skills.

A new study by Reis et al. (2021) recognized organizations are forced to reinvent themselves with human resource practices that improve employee creativity. Reis et al. findings showed investing in employees with skills, experience, and values that match the organization contributed to organizational success. Ott et al. (2018) noted certain workers feel confident they can look for work elsewhere because of their skills and the value of those skills. Ott et al. identified four ways to improve retention: develop a solid culture with strong values, provide appropriate training, support a dynamic work environment, and offer career progression opportunities. As can be seen in these studies, employees prefer an engaged work environment and opportunities for training and professional development. They will stay longer where they align with the organization's mission, vision, and values.

Ties to Conceptual Framework

Based on the participant interviews, industry documents, and a literature review, there was a positive relationship between talent management and the job characteristics theory. Hackman and Oldham believed “for jobs high in motivating potential, then, people who have sufficient knowledge and skill to perform well will experience substantially positive feelings as a result of their work activities” (1980, p. 85). Hackman and Oldham further noted “jobs high in motivating potential create opportunities for considerable self-direction, learning, and personal accomplishment” (p. 85). When employees are competent in doing the work, they usually have a strong desire for personal growth and satisfaction.

Selection of personnel and training supports a person-job relationship. “The basic idea is if people are in jobs they are suited for and well-trained, they will be personally satisfied and perform effectively” (Hackman & Oldham, 1980, p. 24). Just as important are the psychological needs of employees. Hackman and Oldham understood “some people have strong needs for personal accomplishment, for learning, and for developing themselves beyond where they are now” (1980, p. 85). For these reasons, managers should look for ways to match employees with enriched opportunities that offer learning, growth, and satisfaction.

Theme 4: Organizational Culture

Organizational culture was the fourth theme identified impacting IT employee retention. A workplace culture includes an organization’s philosophy, expectations, and experiences that guide the workforce’s behavior in how things get done. Organizations

that focused on the support and achievements of their workforce showed a positive effect on retention. Table 7 indicated the number of participants, industry documents that commented on organizational culture and sub-themes, and the number of times mentioned.

Table 7

References of Major Theme 4: Organizational Culture

Major theme	Participants	References	Industry documents	References
Culture	8	110	8	388
Work environment	6	16	7	22
Team	6	43	5	17

Participant Findings

According to eight participant interviews, organizational culture was found to be an essential consideration for an employee's job satisfaction. One of the ways of establishing a desirable culture is through company branding. P1 stated "the real goal is when people leave, they are still fans of this organization because their word of mouth continues to feed this organization with quality candidates." P3 agreed "give your employee a polo shirt with your company brand on there, it makes them feel they are a part of the team." An organization's branding may provide increased brand recognition, positive word of mouth, and more engaged employees because they value the culture there.

An influential culture promotes success and achievements. P2 noted "I try and make the culture amenable as I can, I try and give them an environment where they can succeed." P3 acknowledged "we like to find out about our employees and get to know

them, not just their skills, but their culture as well as who they are.” P5 added “the more positive and helpful you can be with the employee, the more the employee feels the boss cares about them and their well-being.” P7 believed in a supportive culture from the very beginning “It starts on day one, making sure, you know, things are prepared for them. Whatever you can do that makes them feel you have gone the extra steps with them to welcome them.”

P8 assessed “the best type of culture is when we show people we value them as individuals, and we are concerned about their professional development.” P6 commented the organization was implementing ways to change the culture “we have amenities now like daycare and ergonomic furniture.” P4 admitted “if you are treating your employees well and they feel like they are being treated like a human versus a number or just a job or process, then there is a better chance for them to be able to engage and also apply themselves.” These examples identified some methods organizations may use to make employees feel there are being supported.

Many employees feel motivated when they are in a positive working environment. P2 confirmed “I try to maintain a work environment that provides an opportunity for their success and limits their failures.” P3 agreed “we are ensuring the employees have a great working environment with a positive area that promotes morale and good aesthetics.” P8 believed in identifying and incorporating what people want “we try to find those things the employees are most interested in doing and then try to work that into what they are already doing. So, it gives them, you know, more control over their environment.” P1 brought up another key point “we have to talk about what they need to do inside our

structured environment to make them competitive for promotions.” Maintaining awareness and being engaged with the employees fosters a positive environment.

At the same time, not all employees feel the same about the work environment. For example, P4 admitted “an employee that left just moved to a job where they had fewer responsibilities and pressure. It was not fast-paced, and they were not doing as much as we were in the current environment.” P6 added “I have noticed as well because when you know, showing up and not feeling like you are part of the organization sometimes makes people start to look elsewhere.” These instances show leaders what happens when a healthy work environment is not maintained, leading to contributing factors that cause employees to move elsewhere.

Working in a team environment where personnel can support one another may support job satisfaction and increase productivity. P2 stated “I deliberately speak to and listen to everybody on the team and provide support and counsel when asked.” P5 pointed out “job and project ownership also showed the employee he or she has value and is important to the overall success of the team and mission.” P6 acknowledged “For the mission to be successful, you need a team effort.” Employees recognized leadership is respecting their experience and values with ongoing communication and support in a team environment.

P7 felt it is important to make every member feel like they are a part of the team and maintained that camaraderie through consistent communication “despite uncertain times, we stand together as a team, and individual members remain loyal to their immediate team.” P8 added “those effective teams can take many forms, however, if the

team is always communicating well, people feel valued and like to have control over this product, to a certain degree.”

In contrast, not everyone will flourish in a team environment. For example, P5 indicated “if an employee thinks the company, your boss, or other team members do not care about him or her, then they will certainly start looking for a company that does.” P3 agreed “sometimes you are on a team, and you just might not get along with somebody else, and it is hard to put aside your differences sometimes when you are with the person 40 hours a week.” For the most part, when teams are selectively put together by leaders and managed correctly, employees who work well together understand the significance of team unity and are usually happier about it.

Industry Document Findings

One of the necessary elements of organizational culture is competence. “When determining the types of competence needed, the organization should consider internal factors to include mission, vision, strategic objectives, values, and the culture of the organization” (ISO 2019, p. 2). An organization will need different competencies at the individual, team, and group level according to desired results. Additionally “the organization should develop and implement processes to attract and retain people who have the current or potential competences and availability to contribute to the organization” (ISO 2018, p. 12). These processes should become a part of the organization’s culture.

Culture can impact how employees feel about their organization. “A strong, positive quality culture, where people agree upon and care deeply about organizational

values, can improve the organization's performance, motivate people, and coordinate their behavior towards a vision and specific performance goals" (ISO 2020, p. 2). An organization's culture defines how people will behave. "Establish a culture of trust and integrity" (ISO 2015a, p. 5) is an action all organizations should execute.

Management must strive to reinforce values and set the tone for organizational culture. "Leaders should support employees to understand and connect with the organization's purpose, context, culture, and values" (ISO 2022, p. 6). "Increased attention to shared values and culture throughout the organization involves all people at all levels" (ISO 2015b, p. 5). ISO.TS 24718 believed "the organizational culture should motivate employee engagement" (ISO 2021a, p. 2). By articulating the organization's culture, competent and engaged employees can elevate an organization to deliver value.

Another way to enhance the performance of an organization is through continuous improvement. "The organization should ensure improvement becomes a part of the organization's culture by empowering people to participate in and contribute to the achievement of improvement initiatives" (ISO 2018, p. 21). Performance improvement supports an organization in achieving and sustaining success. ISO (2017) stated "organizations recognize a sustainable employability culture promotes trust, workforce engagement, loyalty, productivity, initiative, creativity, and overall physical and mental health" (p. 5). Through effective leadership, an organization's culture may provide a positive place for employees to embrace and experience meaningful work.

When employees find themselves in a positive work environment, they are generally motivated and achieve job satisfaction. Leaders "should create and maintain the

internal environment in which people can become fully involved in achieving the organization's objectives" (ISO 2020, p. 2). As necessary "the organization should provide employees with the right level of support and technology to get the job done and operate in an agile work environment" (ISO 2022, p. 10). When employees have the necessary tools in a relaxed and productive environment, they are more inclined to be committed to achieving success.

Sometimes empowerment of personnel can create and deliver value for an organization. "To enhance the empowerment and motivation of people, managers at all levels should define clear objectives, delegate authority and responsibility, and create a work environment in which people control their work and decision-making" (ISO 2018, p. 12). Organizations should also regularly use retention rate metrics that reflect the workforce's job satisfaction. "Adopting a metric for retention rates indicates how effective the work environment or culture is in retaining the desired workforce" (ISO 2021a, p. 5). Ultimately, an organization's leadership should implement and maintain the right work environment that best supports its objectives and workforce.

While not necessarily a work environment, a team environment utilizes several of the same principles, including engagement of people, culture, and goals. Through team building "collaborative managers see that we all achieve more when we work together; working across roles and functions brings energy, ideas, and new solutions to any task" (ISO 2020, p. 5). One of the advantages of using the team concept is it offers creative thinking and brainstorming of ideas when the right mix of people is brought together. "Within the organization, different teams will need different competencies according to

the activities they perform and the intended results” (ISO 2019, p. 3). Given these points, how effectively a team performs requires understanding the team’s strengths, determining what is to be accomplished, and aligning roles and responsibilities to achieve the end goal.

To be effective “leaders should be able to clearly articulate the purpose and impact of each role within their team and be able to inspire a role incumbent to be their very best in that role and achieve good results for stakeholders” (ISO 2022, p. 10). Each team member should be able to trust and respect others with the common goal of accomplishing the assigned task with open communication and collaboration. “To enhance the collaboration and engagement of team members, organizations should consider promoting team improvement activities to include collaborative problem-solving, creative thinking, and trust-building exercises” (ISO 2018, p. 12). When working together as a team, these activities will enable employees to work well together, understand their roles, establish their priorities, and reach their goals.

Comparison to Literature Review and New Studies

The literature review confirmed the theme of organizational culture from participant interviews and industry documents. Kim et al. (2017) examined the effects of work engagement on job performance and turnover intentions and learned a positive relationship exists between employees and the organization when a good culture is established and maintained. Kim et al. further found authoritarian culture experiences increased turnover intentions. Shahidan et al. (2016) explored connecting the work environment, employee relationship, and organizational well-being in increasing

employee engagement and revealed the work environment, growth opportunities, job characteristics, and recognition positively impacted employee engagement. Finally, Bose (2019) studied team effectiveness, work culture, and employee engagement and found specific team dynamics and managerial styles were necessary to foster happiness among IT employees when assigned to teams.

In new studies, Parent and Lovelace (2018) investigated the impact on employee engagement and positive organizational culture with the ability to adapt to change management. Parent and Lovelace findings revealed an individual's adaptability to change is strengthened through a positive organizational culture that fosters employee engagement. When an organization maintains a positive working environment, employees are more engaged and can better adapt to changing work environments. Gameda and Lee (2020) researched the relationships between work engagement and leadership styles among IT professionals and identified transformational leadership positively influenced work behavior, employee engagement, and work innovation within a work environment. Pitafi et al. (2018) studied IT competency and work cooperation on employee work performance in a team environment using enterprise social media (ESM). The outcome revealed when an organization supported and implemented ESM as a part of its work environment, there was a significant improvement in work performance through task interdependence and work cooperation among team members. In essence, these findings exhibit the importance of organizational culture and how leadership can continue to improve their work environment.

Ties to Conceptual Framework

There was a significant relationship between organizational culture and the job characteristics theory. The organizational culture defines the employee and organization relationship and how the work is accomplished. Hackman and Oldham's (1980) job characteristics theory focused on the context of work and how it is consummated. Hackman and Oldham believed "if the work environment is sufficiently congenial, attractive, and convenient, then people will be both productive in their work and satisfied with their organizational experiences" (p. 33). This work environment also required a culture that promoted motivation, performance, and job satisfaction. Making changes to the work culture required three things: Getting behavior to change, getting behavior to stay changed, and getting the changes to spread throughout the organization (Hackman & Oldham, 1980, p. 246). "If organizational change is desired, then eventually the initial changes must spread to and affect other structures, systems, and practices" (Hackman & Oldham, 1980, p. 247). Organizational leaders should work to create a work culture that promotes a productive and rewarding experience for their personnel and increases their motivation and job satisfaction.

Application to Professional Practice

This study explored strategies used by successful IT managers to retain qualified IT personnel to support their business operations. The findings identified four major themes from the participant interviews and ten industry documents that supported the conceptual framework of job characteristics theory and the literature review. These

findings gave credence to the importance of engagement, performance management, talent management, and organizational culture on employees in IT organizations.

Successful IT organizations are dependent on their people, their processes, and the services they provide. “Employees are key to business success in thriving organizations as they contribute significantly to organizational innovation, performance, and effectiveness” (Han et al., 2021). Factors that may influence IT employee retention include strong leadership, engagement of its people, and job satisfaction. Hackman and Oldham (1980) believed “when the motivating properties of work are improved, one can usually count on increases in internal work motivation, general satisfaction, and growth satisfaction” (p. 94). Cougar and Zawacki (1980) believed it is just as important to consider work redesign to support best fit for IT employees. “Typically, some jobs need restructuring to improve their motivating potential” (Cougar & Zawacki, 1980, p. 125). Cougar and Zawacki further noted “work redesign can help individuals regain that kick that comes from doing a job well and encourage them to care enough about their work to develop the competence to do it even better” (p. 45). Organizations may consider reviewing their current job design and look for ways that will increase job enrichment and job satisfaction for employees with the reallocation of tasks that better matches their skills and abilities.

Agarwal and Gupta (2018) studied job characteristics and work engagement and found “to unleash the motivational effects of task characteristics as well as engagement, organizations should provide more job clarity, autonomy, feedback, support, and guidance.” Bose (2019) researched team effectiveness, innovative work culture, and

engagement, and saw empowerment to be an effective strategy to promote workforce engagement. “Empowerment in decision making, team reward schemes, has shown a positive influence on team effectiveness” (Bose, 2019). As can be seen, autonomy, feedback, and empowerment are key components of job characteristics. Along with an influential culture, these characteristics support the engagement of IT personnel.

IT organizations also require effective leadership and management of their employees. Implementing a transformational leadership style can positively impact employee engagement through job characteristics, meaningfulness, and performance. Han et al. (2020) believed “organizations providing substantial leadership development programs with managers in promoting individual employee contributions are more likely to derive the most value in work environments involving collaboration in job tasks.” Pathak and Srivastava (2017) agreed “organizations should provide their employees with a competitive work environment, meaningful jobs, autonomy, recognition, and challenges to enhance their psychological empowerment.” For these reasons, organizational leadership should strive to foster a positive work environment where employees feel support, cooperation, and empowerment to do their work and to further their careers.

Implications for Social Change

While IT staff retention may impact local residents’ lives directly and indirectly, the findings of this study may help bring about social change. IT managers who use measures that raise staff morale, increase work satisfaction, and boost productivity may contribute to positive societal change. Organizations with high morale usually have a work environment where employees engage with positive attitudes. Positive attitudes can

be achieved through job designs that best serves employees' skills and abilities, leading to greater job satisfaction and increased productivity. Employees with a positive attitude and outlook may be more socially involved and supportive of their organization and community.

The implications for social transformation include increased community economic development, job creation, and job sustainability. When employees achieve job satisfaction and organizations benefit from a boost in the productivity of their employees, their buying habits may impact positive social change through local spending and increased use of community resources. There is a connection with a thriving community where the people become involved and take pride in where they live by spending and investing in their economic infrastructure. This connection may lead to increased use of community facilities in an environment that is safe and attractive.

Increased use of local community services and facilities may lead to job creation and sustainability. When job creation is high, people are apt to increase spending to further economic growth within the community. Job creation helps to reduce unemployment and provide economic stability. As can be seen, what the impact a positive work environment can have on employees, the employees can significantly influence social change in their community.

Recommendations for Action

IT leaders and managers should use the results of this study to review their current strategies and identify areas that can be improved within the construct of their organization. The findings from the study showed all participants and industry documents

valued the engagement of personnel as one of the main factors that impact employee job satisfaction and retention. Through effective engagement with employees, IT managers should seek to influence job satisfaction, performance, organizational culture, work environment, and career development opportunities, all of which aid in retaining qualified IT personnel.

The second area all participants and industry documents believed affected employee retention is performance management. Employees valued feedback, recognition, and job autonomy as critical factors. Feedback and job autonomy improve performance. Through bi-directional engagement, IT leaders should regularly assess an employee's skills and abilities and use a feedback mechanism to provide an awareness of how improvements can be made and where job autonomy can increase performance. IT managers should also take the time to recognize an employee's accomplishments. Publicly letting employees know their efforts and accomplishments are appreciated can make the work environment more appealing.

Another area managers should look at to improve performance and retention is talent management. The study findings showed knowledge, learning, and training contributed to performance and retention. Through engagement, IT leaders should seek to understand their employees' skills, abilities, and desires and consider ways to promote an IT staff's professional growth. Managers should identify learning and training programs that can support employee development and competence to achieve sustained success.

The fourth area IT leaders should review and address ways to improve retention is their organizational culture. The development and retention of employees can be

significantly influenced by a positive workplace atmosphere. On the other hand, unhealthy or toxic work environments can lead to disgruntled or disengaged workers, subpar work and performance, disgruntled customers, and high staff attrition. The most extraordinary employees in any company will likely leave if the workplace culture is poor. Therefore, managers should strive to improve their work environment by continually engaging with the workforce personnel and seeking recommendations for improving staff development, job satisfaction, and promote a good work/life balance. Managers should also look at the organization's core values, establish trust in employees by representing those values, and most importantly, ensure every member of the IT staff feels valued.

Recommendations for Further Research

The results of this study presented strategies IT managers use to retain qualified IT personnel to support their business operations. The participants for this study included IT leaders and managers working in Southwest United States along with documents on industry standards. The limitations of the of this research study included participants from only IT professionals in leadership positions, research quality dependent on the researcher's skills which personal biases may influence, and telephone interviews may have restricted additional information from participants' responses. One recommendation is to include many more IT leaders to better understand their experiences by targeting a more diverse study population with a vast range of managerial exposure.

One of the gaps identified in this study is the first limitation outlined in the study: the participants were only personnel in IT leadership and management positions. A

recommendation for further research is to include the perspective of IT employees. The IT personnel may have a different picture or experiences to share that could add further insights on improving retention practices.

Another gap identified is the use of only industry standards documents. A recommendation to use a different qualitative design that allows the use of organizational documentation along with industry standards could be considered. A multiple case study in which gatekeepers within the organization would be asked to provide those documents.

Another consideration would be to expand the research to different regions. Some regions may experience divergent economic growth as compared to others due to their proclivities for hi-tech industries which would employ more IT professionals. Other regions may have a different political and economic climate where there is a different tax structure for corporate entities and for individuals. Some regions may not be as populated as others. All of these conditions may have an impact on the results of the study.

The second limitation, where the researcher's skills with personal biases may influence participant response, was minimized by using an interview protocol guide. Future research could include quantitative studies using survey research like paper questionnaires, online questionnaires, and polls. It is possible this type of research could also reach a broader audience.

The third limitation, where telephone interviews may have restricted additional information from participants' response could be mitigated through using Microsoft Teams, provided all participants are provided the same method of communication through both video and audio for continuity purposes.

Reflections

The Doctor of Information Technology capstone process proved challenging and rewarding. I devoted 30 plus-year career to the IT industry and watched certain qualified IT employees come and go. This experience influenced my decision to pursue my research study in identifying strategies successful IT managers use to retain qualified IT personnel to support their business operations.

The conceptual framework selection was critical to support an approach that best illustrated the research problem and objectives in a way the reading audience could understand and relate to. The Job Characteristics Theory (JCT) by Hackman and Oldham (1980) was well suited for this study due to the robustness of the core job characteristics and the three psychological states employees experience when assigned specific job characteristics. The literature review, the participant interviews, and the industry documents all supported the various aspects of the JCT and how it impacted the employees' turnover intentions.

I am appreciative of the steps necessary and taken to mitigate or minimize most biases from the study, considering my background within the IT industry. Population and sampling, ethical research, data collection instruments and techniques, the IRB process, data analysis, reliability, and validity were all necessary quality indicators that supported minimizing such biases. During the interview process with each participant, I stayed within the confines of the interview protocol guide. I accepted all responses to the questions presented, even when some of the responses did not readily answer the

question. I learned a valuable lesson while some participants saw clarity in the questions presented, others may not find the questions as clear as one would expect.

Interviewing the participants provided an invaluable experience. Each participant spoke of the importance of engaging and interacting with their employees and finding out what works or what motivates each employee is not always an easy task to accomplish. All participants expressed a level of success in the practices that were implemented in their organization to retain qualified IT employees.

Conclusion

IT workforce engagement is the most critical key to retaining employees. Successful leaders' and managers' interaction with their employees, knowing their strengths and ambitions, and acknowledging the organization values their contributions fosters job satisfaction and retention. This engagement also establishes the corporate personality with an organizational culture based on shared values, experiences, behaviors, and expectations.

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Appendix A: Interview Protocol Guide

Thank you for taking the time out of your day to participate in this interview. Your participation is completely voluntary, and you have the option to withdraw from participation at any point during the process. As an incentive, I can provide a copy of the final report that may be of benefit to you as you review your own retention strategies and processes. The interview is being taped to guarantee that the information is accurate. We will proceed with the interview if you have no questions or reservations.

Turn on recording session

- 1) Introduction of myself to participant(s)
- 2) Go over each area of the consent form and address any questions the participant may have
- 3) Introduce the participant(s) with their assigned pseudonym identifier; mark the interview date, time, and place
- 4) Proceed with the list of approved questions #s 1-8
- 5) When necessary, probe further with follow up questions
- 6) Complete interview session and stop the recording session
- 7) Inform participant of member checking of the transcript to ensure accurate interpretation of the data provided during the interview to support reliability and validity of the data
- 8) Thank the participant for taking the time to offer their experiences in retaining qualified IT employees and advise of contact information in case participant has any follow up questions or concerns

Appendix B: Email Invitation

Subject: Invitation to Take Part in a Research Study

Dear (Recipient name):

Greetings. I am Wayne Reu, a Doctor of Information Technology student at Walden University. I am inviting IT leaders to participate in my doctoral study on retaining qualified IT employees.

The interview will be approximately 30 minutes. Participants will receive a \$20 Amazon gift card.

If you decide to participate, your participation would be voluntary. You will have the opportunity to withdraw from the study at any time without explanation, at which time your input will be completely removed.



Please review the attached informed consent form that addresses your rights and the protection of your privacy afforded to you. If you are interested in participating in this study, please reply to this email: wayne.reu@waldenu.edu with the words "I consent."

Thank you for your time.

V/r,

Wayne Reu
DIT Student
Walden University

Appendix C: CITI Program Certification



Completion Date 14-Mar-2020
Expiration Date N/A
Record ID 35943130

This is to certify that:

Wayne Reu


Has completed the following CITI Program course:

Student's
(Curriculum Group)
Doctoral Student Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Walden University

Not valid for renewal of certification through CME.



Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wd3d73c42-ea55-4fee-b4b8-e6ea326310bb-35943130