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Modeling Human Resource Training Using Social Network Theory and Analytics

By

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Modeling Human Resource Training Using Social Network Theory and Analytics

Sarah Khalife

Abstract

Although employee training is vital for the human resource management and for improving the performance of firms, few research has been conducted on the role of employee networks in receiving effective human resource training. This study provides a deeper understanding on the impact of employees' social networks at the structure, actor and tie levels and human resource training. Data were collected from 130 employees who have undergone training at their workplace in the past. Results from social network analysis and partial least squares path modelling show that the social network variables of betweenness, efficiency and tie strength positively impact training, while density and degree have no significant impact. In addition, findings reveal that gender slightly moderates the relationship between social networks and training. The study recommends that in order to improve the effectiveness of human resource training, organizations should enhance networking environments at the workplace to support relationships between employees regardless of their position.

Keywords: Human Resource Management, Human Resource Training, Social Networks, Gender, Relationships

Table of Contents

List of Figures

List of Tables

Chapter One

Introduction

Human Resource Management aims to manage people and the work culture at a workplace and focuses on recruiting, managing, and providing guidelines to the manpower in a company (Dessler, 2013). With expanding technologies and globalization, environments have become more difficult and dynamic in recent years, forcing businesses to demonstrate that they are long-lasting, very efficient, highly productive, and profitable. As a result, businesses must devise and implement strategies that support effective human resource management and make the connection between personnel and the company's strategic goals (Dessler, 2013). Johnson and Gueutal (2011) stated that Human Resource Management (HRM) is a fundamental aspect of every business, playing an essential importance in the organization's performance throughout its life cycle. To achieve competitive advantage, businesses must develop their people's potential, the knowledge they contribute, and their devotion and excitement (Johnson & Gueutal, 2011). Training has a massive effect on an organization's productivity; all firms must train their employees in order to fulfill their objectives, prosper, and acquire a competitive edge (Noe, 2009). Employee satisfaction and the development of interpersonal skills require training. Not all businesses believe in the value of training; many see it as an expense rather than an investment (Edralin, 2004). Strong management, suitable competence, a belief in employee empowerment, and the opportunity for workers to use what they learned in the training at work are what ensure training effectiveness (Edralin, 2004). This generates a simulation environment in which employees encounter an issue and attempt to solve it or respond in accordance with what they learnt during training (Hamouche, 2021).

Hawe et al. (2004) declares that the interactions that exist between clusters of individuals or institutions, as well as the resources to which participation in such groups allow access ease, are referred to as social networks. These connections can be studied empirically as the study of social networks is quantitative. A simpler definition used by Hawe et al. (2004) is that the study of structure is known as social network analysis. Prell et al. (2009) states that players in social networks are linked to one another via socially important interactions. These linkages may then be used to study the structural patterns that emerge among these players. The literature on social

networks and resource management both address how networks influence individuals and groups (Prell et al., 2009).

Social network is viewed in many researched studies and used for different purposes within an organization. Chung et al. (2014) utilize the influence of network position and information and communication technology (ICT) use on the performance of rural Australian general practitioners using social network analysis. Fares (2019) explains social network role in organizations by testing how stakeholders can be analyzed and managed based on their relationship attributes. Fares (2019) declares that social network analysis has been demonstrated to be an important method for assessing service integration since it identifies which services are presently working together, which are not, and where relationship gaps may be bridged. Prell et al. (2009) integrated social network to analyze stakeholders functionality and this resulted in finding that investors who are similar to one another are better able to transmit unspoken, complicated knowledge because they have a higher level of mutual comprehension. Reinholt et al. (2011) examined how network properties influence information sharing at organizations through studying 705 employees at a consulting firm.

Soltis et al. (2018) tried to shift the focus of human resource management research and practice toward "Social Resource Management" by incorporating a social network perspective. The authors discuss that social network assists HRM in its HR practices to handle employee competence, behaviors and attitudes towards a strategic HRM and human capital. Soltis et al. (2018) state that individuals are involved in a web of interconnections that give both opportunities and limits for their actions and as individuals advance from job hunting to recruitment, selection, training, socialization, performance appraisal/compensation, and turnover, it is clear that interactions with people have an impact on both employers and employees.

Training transfer is a complex process that involves various variables at different analysis levels and different stages. Aside from training transfer factors, the moderating effect of social networks in enabling the training transfer process is a major contribution according to Norlina and Raja Munirah (2018). Despite the fact that social network analysis has been a staple of study in organizational behavior, organizational theory, and strategic management, its integration and use in the training field has been significantly slower. Despite the growing number of studies that highlighted the value of exploring the function of relationships in HRM training, little is still

known about the structures and patterns that impact training and development and the completion of objectives (Soltis et al., 2018).

Research Questions

The research questions that drive this study are:

1) What is the association between network variables, at the structure, actor and tie levels, and HRM training?
2) Does gender influence the relationship between social network variable and HRM Training?

Chapter Two

Literature Review

2.1Human Resource Management (HRM)

2.1.1 Definitions and Concepts

Human Resource Management (HRM) may be traced back to the late 1800s, when health officers, often known as "welfare secretaries," were first formed. The First World War accelerated the development of personnel management (Aslam et al., 2014).Women were enrolled in large numbers to cover the shortages left by males in the military, which necessitated reaching an agreement with trade unions on allowing inexperienced women to work in craftsmen's professions and adjusting staffing levels (Lloyd & Aho, 2021).

To remain competitive as the industrial revolution swept the globe in the early twentieth century, firms began illegally employing people. The workers did not always receive fair salaries which caused dissatisfaction. The notion HRM arose from this dissatisfaction at the workplace as stated by Yamamoto and Villegas (2020).

According to Armstrong and Mitchell (2008), throughout the 1920s, 'Labor Manager' and 'Employment Manager' jobs were introduced to the engineering industry and other enterprises with big factories; the job required handling absenteeism, hiring, and dismissing.

Obedgiu (2017) stresses that the economy was beginning to revive in the 1930s. The significance of increasing employee benefits as a strategy to recruit, retain, and encourage people was recognized by big corporations in these expanding industries. Traditional industries like textiles, mining, and shipbuilding, on the other hand, were heavily damaged by the global slump. These industries didn't embrace new methods because they couldn't find workers (Obedgiu, 2017).

During World War II, all companies that produced war supplies were required to hire full-time welfare and workers. The broad term "people management" had expanded to include both employment and welfare functions by the year 1945 (Conaty & Charan, 2010). Employment policy has been shown to have an influence on output and productivity throughout the conflict. According to Lloyd and Aho (2021), throughout the war, the personnel function was principally in charge of

upholding the standards expected by large-scale state-controlled industries. As a result, the image of a new profession began to be dominated by bureaucracy.

In the 1960s and 1970s, employment began to rise drastically. Concurrently, personnel techniques based on social science notions of motivation and organizational behavior were developed. According to Conaty & Charan (2010), in the 1970s, selection testing became more widespread, management training became more thorough, and specialties began to develop, with compensation and allocation, for example, being regarded as separate challenges.

According to Manroop et al. (2014), the term "Human Resource Management" was developed in the United States in the mid-1980s, when the term "Human Resources" was fascinating; it meant that employees were an asset or resource-like machines, but stressing human commitment and desire.

HRM has recently been described as the activity of recruiting, hiring, deploying, and managing workers in a corporation. It is the process of hiring, selecting, orienting, training, and developing employees, evaluating employee performance, providing compensation and benefits, motivating employees, maintaining relationships with employees and their trade unions, and ensuring employee safety, welfare, and health measures in accordance with labor laws (Thite and Kavanagh, 2009).

As a result of the global and competitive market climate, individuals and organizations are confronting new problems. Businesses that do not have a well-trained and equipped workforce lose their ability to compete with national and international competitors, resulting in lower economic performance (Radcliffe, 2005). Additionally, as a result of expanding technologies and globalization, environments have become more difficult and dynamic in recent years, forcing businesses to demonstrate that they are long-lasting, very efficient, highly productive, and profitable (Ren & Jackson, 2020).

In today's market, intangible assets such as brand recognition, knowledge, innovation, and, most crucially, human capital are used to gain a competitive advantage. As a result, business leaders must respond to the problem by integrating HR into the company's overall corporate strategy. Becker et al. (2001) describe how managers across the organization can understand exactly how individuals add value and how to quantify the value-creation process. People are at the center of

the contemporary economy's new sources of long-term competitive advantages: their creativity and talent, their inspirations and ambitions, their dreams and excitement.

There is no universal definition for HRM; the earliest definition dates back to the HRM school's founding fathers, Beer et al. (1984) and Fombrun et al. (1984). Beer at al. (1984) defined HRM as "any managerial actions and activities that influence the character of the organization-employee relationship".

HRM, according to Miller (1987), includes people management at all levels of the firm and not only the line managers and involves the implementation of strategies aimed at obtaining and maintaining competitive advantage. Sun et al. (2007) discussed the employment connection from a relational point of view, HRM is an effective element since it influences the organization's performance throughout its service life.

Human resource management (HRM) is defined as a distinct approach to employment management that seeks to achieve competitive advantage through the strategic deployment of a highly committed and capable workforce, employing an integrated array of cultural, structural, and personnel techniques, according to Storey (1995), whereas Byars and Rue (2004) define HRM as "activities designed to provide for and coordinate an organization's human resources." Furthermore, Boxall and Purcell (2003) define HRM as "anything linked to the management of employee relations in the company." The words anything and everything in the definition explain the broader range of issues that comprise policies such as employment contracts and ways for employees to be involved and participate in areas that are not directly covered by the employment contract, thereby ensuring a suitable work environment (Osibanjo & Adeniji, 2012). Human resource management is a proactive approach to managing workplace interactions that stresses the necessity of utilizing human resources to acquire a long-term competitive advantage, which is achieved via a unique range of connected hiring policies, programs, and strategies (Sun et al., 2007).

Albrecht et al. (2015) identified four fundamental HRM dimensions that improve employee engagement and are selection, socialization, performance management and training. The authors argue that these dimensions must be common for all organizations regardless of variances in human resource (HR) strategic focus. Besides the authors discussed that there are three types of human resource management framework: staff-centered, strategic, and results-oriented. It lays the

conceptual groundwork for the link between effective organizational performance and HRM role that is focused on the employees. Additionally, Boon et al. (2019) suggest that further research should be done on HR systems in terms of conceptual clarity and construct refinement, with an emphasis on how to define, quantify, and integrate practices in systems, as well as how to investigate such systems at various levels of analysis.

HRM aims to manage people and the work culture and focuses on recruiting, managing, and providing guidelines to the manpower in a company (Dessler, 2013). According to Ren and Jackson (2020), current academic and practical efforts are shifting away from an HRM philosophy that evaluates effectiveness based on financial indicators and toward an HRM philosophy that promotes a tripartite approach to sustainability, emphasizing economic, environmental, and social performance equally. As a result, businesses must devise and implement strategies that support effective HRM and make the connection between personnel and the company's strategic goals (Dessler, 2013). Johnson and Gueutal (2011) explore both the benefits and drawbacks of HR technology and state that HRM is an integral aspect of every business, playing an essential importance in the organization's performance throughout its life cycle. Many people consider HR to be an organization's most significant asset, yet according to Radcliffe (2005), only a small number of businesses are able to maximize their employees' potential.

According to Milhem et al. (2014), the importance of human capital in businesses is stressed in human resource management theories and literature. According to the writers, human capital is the most important type of capital in enterprises, and it may be strengthened via training. Human capital theory is concerned with the return on training investment, and a substantial body of research shows that more training improves performance (Milhem et al., 2014).

2.2 HRM Training

Employees are the backbone of every firm; the success or failure of a company is determined by the performance of its employees (Walters & Rodriguez, 2017). As a result, top management must acknowledge the importance of training and development in the evaluation and performance of employees. In today's global economy, improved capabilities, knowledge, and skills are the cornerstone of an organization's competitive advantage (Halawi & Haydar, 2018). Milhem et al. (2014) define training and development as the process of gaining or transferring the knowledge, skills, and abilities (KSA) needed to perform a certain activity or function. Training is defined as

an organized strategy using educational methods to improve personality, learning, talent, or conduct to produce quality outcome with the purpose of increasing employees' skills while fulfilling the organization's present and future expectations (Milhem et al., 2014). Beardwell and Holden (2001) define training as a deliberate process that leverages the educational opportunities to enhance mindsets, skills, talents, and conduct to attain effective results. Milhem et al. (2014) state that the goal of workplace training is to increase people's skills while simultaneously addressing the organization's present and future expectations. The latter principle links training and planning process, identifying training as a scheduled activity targeting to change employees' abilities by applying expertise and learning (Milhem et al., 2014). HR planning, according to Bratton and Gold (2007), is the practice of properly forecasting potential demand and supply for personnel and deploying their skills within the organization's long-term goals.

Strategic human resource management, according to Thomas (2000), emphasizes employees' future challenges and training plans. To guarantee interest and inclusion, SHRM should build appropriate support structures and spot personal motivation and behaviors inside enterprises.

Abou Jaoude (2015) claims that firms who provide elevated training may triple their revenues when opposed to rivals. Implementing similar high-impact activities and personnel, on the other hand, is not simple since it necessitates a combination of synchronization and forethought. This necessitates the development and structuring of training in conformity with the organization's key priorities where employee training must be influenced by job market needs. This is accomplished by identifying the skills that individuals possess as well as the ones that are required for the job (Aquilani et al., 2017). This method enables successful training that is focused on employee motivation, skill mastery, and the development of critical thinking abilities. Finally, training should emphasize both practical and classroom learning in order to generate efficient long-lasting abilities in the workplace (Urdinola, 2013). Businesses must develop their people's potential and the knowledge they contribute along with their devotion and excitement to earn competitive advantage in the market (Hamouche, 2021).

Training teaches employees to perform better in order to reach the company's plan successfully (Edralin, 2004). It is a deliberate effort made by the organization to guarantee that the skills and attributes required for job performance are satisfied. According to Johnson (2019), training programs should be provided to both current and newly recruited employees, not only new hires,

to increase performance and demonstrate a constant effort for improvement. Training is provided not only to employees, but also to managers and other workers in order to assist the business achieve its personal goals and deal better with the changing environment (Edralin, 2004). Brandsford and Schwartz (1999) declare that no amount of training can turn individuals into experts; it can only put them on the path toward expertise.

Milhem et al. (2014) investigate two training kinds which are on-the-job training and off-the-job training where o n-the-job training (OJT) takes place at work and off-the-job training (OFJT) takes place outside work and is by far the most common training type (Rothwell and Kazanas, 2004).

Milhem et al. (2014) describe many ways of training delivery, such as team training, mentorship, simulation, seminars, field excursions and tours, and e-learning. People are trained to solve problems more successfully in groups through team training, which requires observation and feedback throughout the training process (Forbush and Morgan, 2004). To train others, mentoring can be very useful since mentors have specific problem-solving, conflict-resolution, communication, goal-setting, and planning knowledge, skills, and abilities (Hartenian, 2003). Several models and digital settings may mimic topography, technical malfunction, mobility, acoustic and optical signals (Salas and Cannon-Bowers, 2001). Workshops gather trainees for regular meetings that emphasize a specific issue encouraging trainees to participate (Holladay and Quinones, 2003). Field visits and tours allow employees to learn practical information about their job tasks while experiencing conditions outside of the office (Kaushik, 1996). Using information technology to improve and assist educational and learning methods, as well as to provide a range of learning techniques and applications for exchanging knowledge and obtaining skills, is referred to as e-learning (Lwonga and Sanga, 2007).

Eventhough the range of tools offered has risen, the majority of training is still instructor-led and classroom-based, according to Milhem et al. (2014). Organizations want to enhance the quantity of training delivered through the use of online classes, self-paced e-learning, simulations, and unique collaborative training technologies.

Organizations aim to improve their performance by investing in employee professional development; training is one means of encouraging professional growth (Kozlowski and Salas, 2010). Hatala and Fleming (2007) state that employees involved in these trainings must, however, return to their employment and implement what they have learned in order for the training to be useful; this is known as training transfer. According to Van den Bossche and Segers (2013), using a social network approach in Human Resource Development (HRD) specifically in the training transfer, can assist to understand the influence of connections in the workplace on training transmission. Furthermore, Van den Bossche and Segers (2013) view social networks as more than just a fundamental mechanism for understanding training transmission; it may be claimed that the formation of a community is one of the most significant and long-term outcomes of training programs, implying that the development of supportive social structures has been identified as a significant training outcome. The concept of social networks, according to Van den Bossche and Segers (2013), focuses on the interpersonal mechanisms and social structures that exist among interacting components within an organization, such as individuals. One assumption of this viewpoint is that how a person is connected to the greater web of social relationships has a substantial impact on their actions and results. Social network research can give in-depth understanding of how social support impacts and aids in training transfer (Van den Bossche and Segers, 2013). Froehlich and Gegenfurtner (2019) discuss the importance of relationships between employees at organizations during training transition and explain how people' social network interactions impact the transfer from training to employment environments.

2.3 Social Network Theory

2.3.1 Overview

Borgatti et al. (2009) stated that humans are entangled in complex webs of social interactions and relationships where independent individuals in a social network interact to create long-term functioning societies. According to Cross et al. (2003), social network analysis (SNA) is a valuable technique for analyzing and promoting collaboration across strategically significant businesses. SNA is a collection of analytic methodologies for mapping networks of interactions. With relatively little effort, SNA allows highly powerful analysis of information sharing within a network, highlighting where collaboration is effective and where improvement is required. Froehlich and Gegenfurtner (2019) defined SNA as a method for studying connections and social support in companies. The structures and patterns of relationships can be numerically studied.

SNA is a quantitative technique for exploring and measuring social structure using network measures (Hawe et al., 2004). The core pieces of a network are actors and their relationships; nodes in a network might be individuals, organizations, or other social institutions (Coleman, 1990).

Hawe et al. (2004) explain that even though network data are collected distinctly, the analysis is applied at the structural level where data are entered into a database. The presence of a relationship between two actors is presented by “1” while the absence of a relationship is presented by a “0”. According to Hawe et al. (2004), the resulting data may be turned into graphs and analyzed using specific network analysis software systems, where graphs graphically portray networks with players as nodes and the relational links that connect actors as lines. The primary purpose of social network analysis is to generate visual graphs that show how links are distributed and define structures, locations, and dyadic properties such as structure cohesion and connectedness (Borgatti et al., 2009). Borgatti et al. (2009) assessed what social scientists attempted to explain using social network analysis and provided a brief review of the field's key assumptions, aims, and exploratory procedures. Hawe et al. (2004) introduced basic principles in social network analysis to assist researchers in becoming more selective in their thinking and technique selection.

According to Prell et al. (2009), players in social networks are linked to one another via socially important interactions. These linkages may then be used to study the structural patterns that emerge among these players. The literature on social networks and resource management both address how networks influence individuals and groups (Prell et al., 2009).

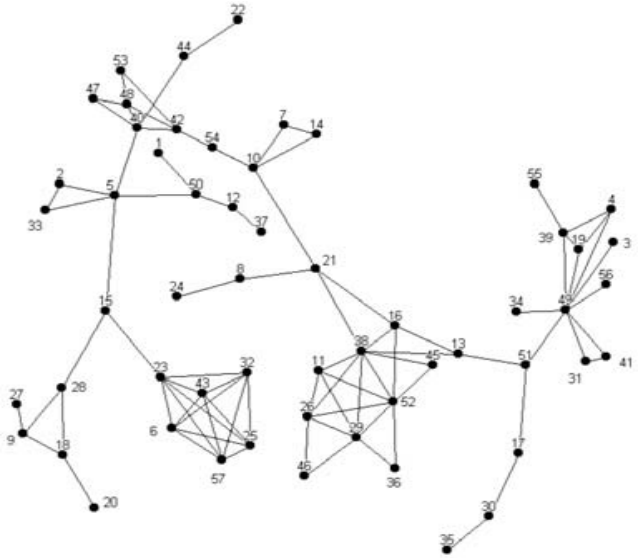


Figure 1: Social Network Example (Chung et al., 2014)

Hawe et al. (2004) explain that the two basic elements in network analysis are actors and relational ties. Actors can be distinct individuals, entities or organizations while ties are what link actors together. Ties can either be formal (one organization funds another) or informal (people in an organization know people in another one) and explain that multiplexity is a feature that allows actors to have many connections with other actors.

According to Borgatti et al. (2009), the four network structures investigated by Bavelas and colleagues at the Massachusetts Institute of Technology to study the impacts of different communication network structures on the speed and accuracy with which a group can solve issues. The best performing network structure had the shortest distance between all nodes and the integrator, and multiple trials demonstrated that as the problems became more complex, decentralized networks performed better (Borgatti et al., 2009). An example of how centralized and decentralized group networks appear is illustrated in figure 5.

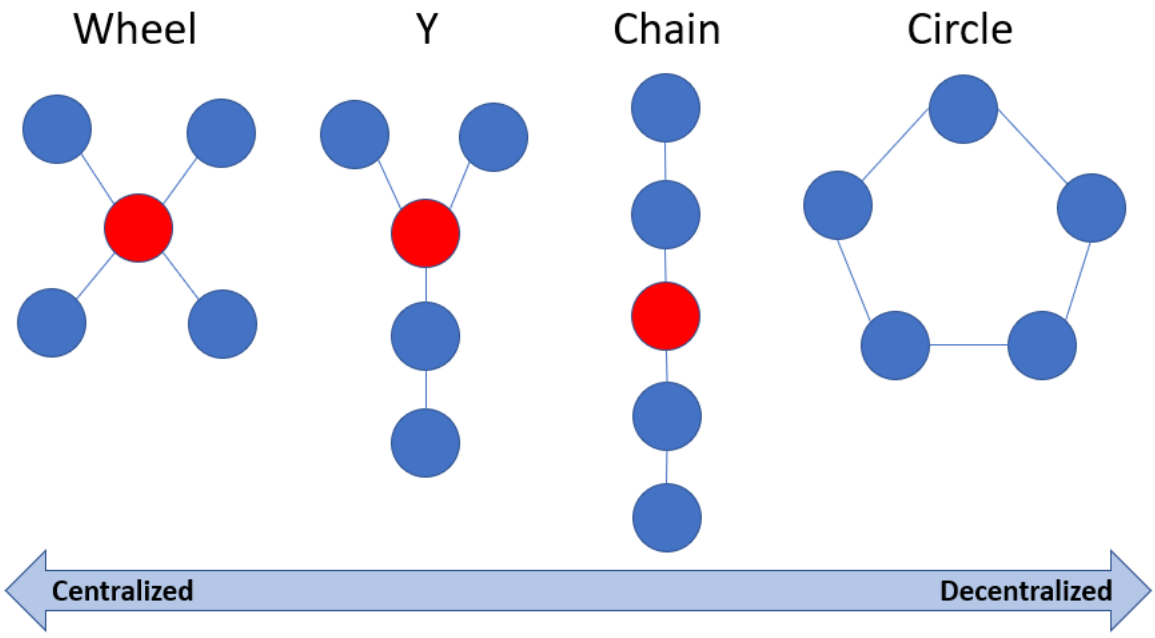


Figure 2: Four network structures are presented; red nodes represent the most central node in each network

2.3.2 Network Types

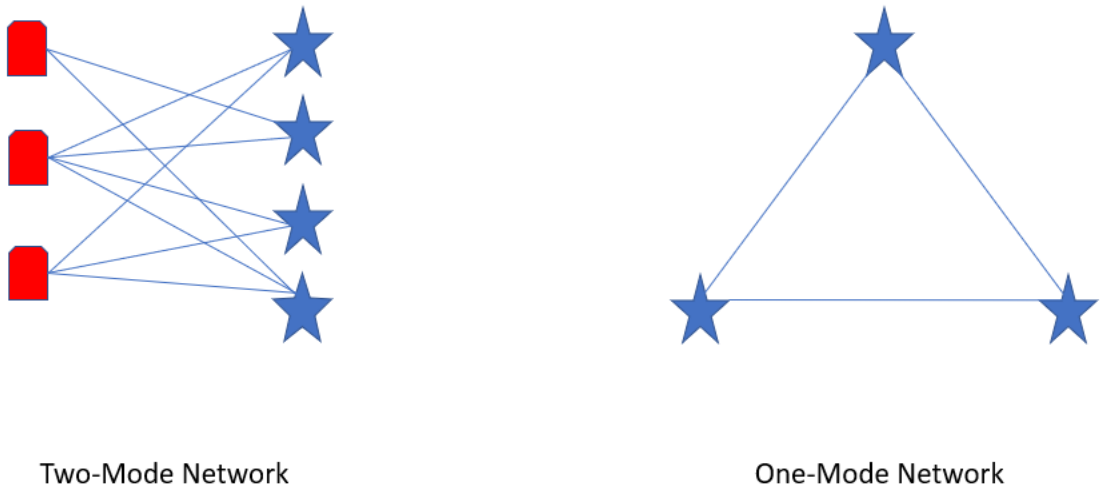


Figure 3: Network Types (stars and rectangles with snipped top corners represent different node sets)

Hawe et al. (2004) state that there are two major categories of networks that can be recognized based on the number of node sets included in social network analysis: one-mode networks and two-mode networks (shown in figure 2). These one-mode networks (also known as unimodal networks) depicts relations among one set of similar players. Two-mode networks (also known as bipartite or bimodal networks) have two separate node sets, with linkages between two distinct sets of players and are used to look at the connection between a group of people and a series of events (Hawe et al., 2004).

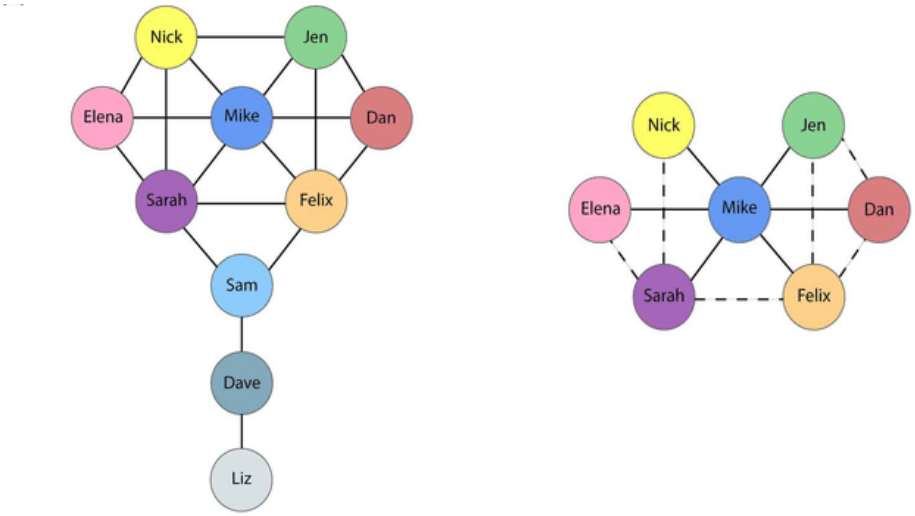


Figure 4: Example of a Socio-centric Network on the left and an Ego-centric Network on the right (Baek et al., 2020)

According to Hawe et al. (2004), socio-centric networks are made up of the relational interactions between members of a certain community while ego-centric networks are defined purely by the focal actor's perspective which focuses on the interactions between the network's core player (ego) and others (ego's alters).

2.4 Gap: Social Network Analysis and HRM Training

Despite the fact that social network analysis has long been a staple of research in organizational behavior, organizational theory, and strategic management, its integration and use in the field of human resource management has been much slower. Although the quantity of research combining social network analysis and HRM is smaller than anticipated, it does give a good platform for future study. Many studies, in particular, described social networks but did not analyze them. There has been little study on the influence of social networks on training and development.

2.5 Social Network Training Hypotheses

2.5.1 Social Network Variables: Network, Actor and Tie Level

2.5.1.1 Network Level and Training: Density and Centralization

Cohesion refers to the interconnection of network participants. Soltis et al. (2018) define cohesion as a highly interconnected set of ties while Hawe et al. (2004) describe it as the interconnection of players in a network and state its three main measures which include distance, reachability and density. Distance refers to the space between two actors within a network, reachability assesses whether actors within a network are directly or indirectly related to other actors, and density refers to the total relational ties number divided by the total number of possible relational ties (Hawe et al., 2004). Hawe et al. (2004) declare that density is considered one of the most basic measure in network analysis and is from the most commonly used concepts in social epidemiology. Density is the amount of connection links compared to the total number of possible relationship ties; a greater density indicates that there are more interactions between actors (Coleman, 1990). Network size and density are different; a network may be large in size yet low in density because the number of actors outweighs the number of links. Whereas, a small network may have a high density because its few participants are well-connected (Fares , 2019).

"Centralization" refers to the centrality of a socio-centric network structure; it is useful at the network level since it enables researchers to evaluate the most central point in a network to other central locations (Fares , 2019). Network cohesiveness may be used to divide them into subgroups or cliques. Within a clique, actors are more intimately related with one another than outside it. According to Borgatti et al. (2009), the most commonly investigated notion at the node analysis level is centrality.

Coleman (1990) associates social capital with a narrow, highly linked group of players, but some network models focus on the general pattern of numerous actors' connections (ratio of actual links to prospective ties). Linked communities with high density enable the creation of reciprocity norms and trust, as well as the monitoring and punishing of incorrect behavior.

Density shows a network's overall coherence, which has ramifications for the speed with which information and knowledge are exchanged (Wasserman and Faust, 1994). Although the impact of HR functions on environment, social standards, and strong contexts is acknowledged, this line of

inquiry would benefit from additional research into how individual interactions work, patterns of information exchange and sharing among actors, and how network structure facilitates or hinders positive interactions (Soltis et al., 2018). Coleman (1988) proposed that densely linked networks promote social capital by allowing for the monitoring and punishing of conduct, as well as the development of trust and reciprocity standards. The following hypothesis may be assumed based on the studied literature:

Hypothesis 1 (H1): A density prone social network is positively associated with HRM training.

2.5.1.2 Actor Level and Training: Centrality and Structural Holes

Several metrics assess a node's relevance inside a social network; centrality, density, and cohesion are the most significant (Freeman, 1979). Hawe et al. (2004) declare that centrality identifies key players and those mostly involved in relationships with others within a network. Hawe et al. (2004) explain the three centrality categories as follows:

- Degree centrality indicates which actor is the most active or popular in a network. In other words, degree centrality is the total of all other players directly related to the ego. The network name for the number of ties is called degree, if an actor had a lot of relationships flowing in and out, his or her degree centrality would grow (Hawe et al., 2004). The degree centrality forms of a network might either be in-degree or out-degree. The most fundamental metric of centrality is network size, with in-degree showing in-coming ties or being the recipient of whatever travels through the network and out-degree signifying the amount of out-going links (Williamson and Cable, 2003).
- Closeness centrality represents distance of actors within a network which determines their independency and efficiency.
- Betweenness centrality represents the frequency with which one actor connects pairs of other players who are unable to communicate. This shows a control potential in which a high in betweenness actor can direct the dissemination of information or resources between individuals that he or she links.

Borgatti et al. (2009) compare the binding mechanism in a social network to the traditional chemistry concept of covalent bonding and explain that nodes can be linked together by social links to form a new entity with properties that differ from those of its constituent pieces. Binding

mechanism in a network contains “structural holes” which are believed to improve performance in specific competitive situations (Borgatti et al., 2009). Burt's (1992) concept of structural holes examines the degree upon which one player has linkages to other network actors who are not linked to them. A structural hole is defined by Borgatti et al. (2009) as the lack of a relationship between two nodes in the ego network. A chasm between two persons who share information or resources is called a structural hole (Burt, 1995). Burt (1995) proposed a structural hole theory, highlighting the importance of network holes, or the lack of links among players, which might affect network performance. This concept is connected to betweenness centrality in that it capitalizes on players who can connect diverse portions of a network and disseminate resources and information (Burt, 1995). According to Burt (1992), network optimization is accomplished by the use of non-redundant links and the presence of structural gaps in the network. Efficiency and efficacy are the cornerstones of network optimization. The average number of individuals contacted by a main contact is known as efficiency, but the total number of people reached by all primary contacts is known as effectiveness. The first rule is concerned with the yield per initial contact, whereas the second is concerned with the total yield of the network. Because of the structural holes in the network, the ego in a network is likely to have access to fresh and diversified information. The effective size is divided by the network size to assess efficiency. A score of one represents maximum efficiency, whereas a score of 0 suggests excessive contact redundancy (Burt, 1992).
The below figure represents two examples of the presence of structural holes in a network.

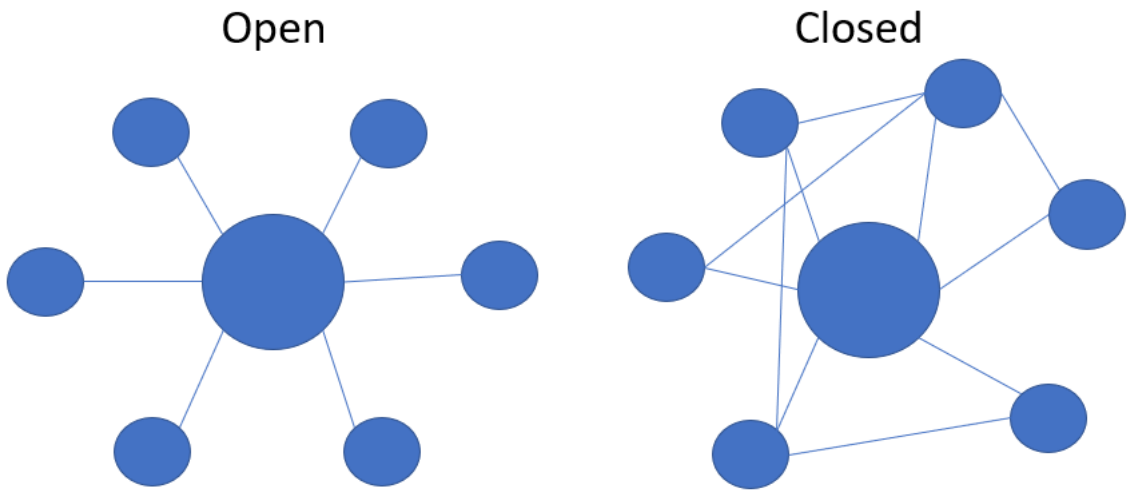


Figure 5: Illustrative ego networks that show the difference between the presence of many versus few structural holes

Reinholt et al. (2011) discovered that employees who are well linked to others may gain more information, which improves their training. Fang et al. (2010) investigate which network designs produce the best learning gains. Fang et al. (2010) developed a set of network simulations to investigate the combination of exploitation and discovery in the educational strategy where t he findings suggested that departmentally targeted training interventions will be more effective in firms with a modest global network structure since there are numerous links within groups with just a few relationships across groups.

According to Soltis et al. (2018), informal training is most likely a continual process that is enabled or hampered by network connections' structure. In decentralized networks, information can be shared equitably. Focal employees in an organization's informal networks or critical members of highly centralized organizations, on the other hand, may require supplementary training given the support queries that may occur from their connections following training.

A node's degree centrality relates to its connections to other nodes. It is the sum of other players tied directly to the ego. A more central performer is one who has many relationships flowing in and out of his life (Hawe et al., 2004). Because they are in communication with many other players, focal actors in degree centrality network ideas disseminate information quickly within the network (Prell et al., 2009). Fast dissemination of information within a network facilitates and enhances training content among employees within a company.

Individuals' access to opportunities provided by a network is not always evenly dispersed, actors in pivotal positions frequently experience less restraints and greater chances than others (Hanneman and Riddle, 2011). Centrality may signify different things depending on the situation, several social network ideas can be used to assess it but the two most relevant to the setting of training transfer are degree and betweenness centrality (Froehlich and Gegenfurtner, 2019). Degree centrality is described as the number of supportive social relationships in which one person participates where a high figure indicates a significant amount of assistance for a single individual and the knowledge gained that person intends to transmit to the workplace. Betweenness centrality considers the entire network rather than just the direct ties in which one individual is involved in (Froehlich and Gegenfurtner, 2019). Actors that work in brokerage jobs mediate between other workers so they have a high betweenness centrality score and these jobs are considered as a key source of social capital (Burt, 2001). This might imply support from multiple departments in the

context of training transfer which offers heterogeneity of the support source and empowers the support since assistance from a single group of individuals may be perceived as redundant (Froehlich and Gegenfurtner, 2019).

When paired with a high degree of centrality and an incentive to share, Reinholt et al. (2011) discovered that employee engagement in job rotation, training, and career progression resulted in knowledge sharing. According to Reinholt et al. (2011), participation in these HR programs leads to the creation of a diverse body of knowledge that accumulates and may be communicated to others in the business; this means that a pivotal presence in the network improves training knowledge sharing. Hence, the following hypotheses were speculated:

Hypothesis 2 (H2): HRM training has a favorable relationship with degree centrality.

Hypothesis 3 (H3): Betweenness centrality is positively associated with HRM training.

Hypothesis 4 (H4): Efficiency is positively associated with HRM training.

2.5.1.3 Tie Level and Training: Strong and Weak Ties

The strength of the connection between its players determines whether a relationship is weak or powerful. According to Prell et al. (2009), research on the strength of relationships indicate that strong and weak ties provide different implications to performance; the stronger a tie is, the higher it ranks on each of these qualities. The presence of strong ties between actors allow them to impact one another, share similar viewpoints, offer affective assistance in times of hardship, interact efficiently about challenging information, and trust each other, while less frequent communication is generally a sign of a weak ties (Prell et al., 2009).

One of the most noteworthy network notions that focuses on the interactions among players is Granovetter's (1973) thesis on the strength of weak ties by focusing on the connection outside the dyad. Granovetter (1973) differentiated between strong and weak connections, and described a weak tie as a bridge that connects people and permits information to flow between them based on the duration, emotional intensity, closeness, and reciprocal services of the relationship. According to his research, information moves faster through weak relationships than through strong ties. People with similar features are more likely to exchange knowledge inside their cliques than

passing it on to outsiders, resulting in content redundancy. In contrast, a person with 'weak ties' may be linked to a higher individuals' number while still accessing a range of knowledge sources. Strong links, such as those with close relatives and friends, are more inclined to be related and to share the same information, whereas weak ties, such as those with colleagues, are more likely to be connected to other friendship circle and to be sources of varied, non-redundant knowledge (Granovetter, 1973). Granovetter (1973) revealed that infrequently contacted acquaintances were recognized as sources of information and thus recruited. Weak linkages are significant because they give access to a variety of clusters and non-repeated information, whereas strong links are more likely to be members of closely connected network clusters that share information. Strong relationships are necessary to promote trust, manage organizational change, and quicken project completion schedules. Weak ties are significant because they offer access to different clusters and fresh information, whereas strong connections are more likely to be present among members of closely connected network clusters that exchange information (Granovetter, 1973).

Fares (2019) states that the findings revealed that strong ties are necessary for transmitting complicated information and reducing project duration. Project team members with strong linkages can interact at different times since they have a close relationship and can transmit complicated knowledge through regular interaction. Non-complex information, on the other hand, may be conveyed across weak ties, reducing project completion times. The findings also revealed that sending high-level, detailed data across poor ties causes project completion to be delayed.

According to literature, strong ties allows quick information sharing within a group, fosters trust, expediates project completion and so on; for that reason, in the case of training in an organization this allows the transmission to be quicker and easier. When addressing training, information redundancy isn't a drawback in strong ties since the same material should be shared to all required staff. Employees in a team with strong ties at an organization benefit from the strength of links between them in training transmission since they will share the learned information or resources with one another and help each other to implement what they learned. Hence, the following hypotheses was speculated:

Hypothesis 5 (H5): Weak ties are positively associated with HRM training.

2.5.1.4 Gender, HRM Training and Social Network Variables

Robinson and Stubberud (2009) discuss the importance of knowledge and guidance and the difference of its flow between men and women. The study finds that since men have generally held more formal networking jobs than women, they are more likely to name attorneys, accountants, and other professionals as their most significant supporters, with wives coming in second. Whereas, women tend to describe their husbands as their most significant backers, followed by close friends. Informal social networks are frequently separated by gender. As a result, in terms of social network knowledge and guidance, women entrepreneurs are typically at a disadvantaged. This study examines data from the European Union on company owners' stated sources of guidance. According to the findings, women are more inclined than males to seek guidance from friends and relatives. Men tend to seek guidance from their professional network. This distinction may have consequences for company success since information collected from informal sources is unlikely to be as beneficial as information obtained from more formal sources (Robinson and Stubberud, 2009).

Women are less well-integrated in the networks of the most influential people in an organization than men and the average job level in men's networks is much greater than in women's networks, according to McDonald (2011). Blommaert et al. (2020) state that previous research has indicated that women have less work power than men where human capital, family characteristics, and environmental variables are insufficient to explain the gender authority difference. There is a belief that women's job options are limited because their social networks contain less valuable contacts and resources than men's. However, the function of social networks in explaining the gender disparity in job authority has gotten little attention in empirical studies (Blommaert et al., 2020). This study investigates the extent to which gender inequalities in social networks exist and how they relate to the gender authority gap. The authors discuss the significance of network variety and network status based on two strands of social network theory. The findings show that women had less diversified occupational networks in terms of contacts' occupations and were less likely to know managers than males, both of which network characteristics are found to be strongly connected to job authority. Although there was a significant change, the gap observed was not major. Hence, based on the above literature, the following hypothesis was speculated:

Hypothesis 6 (H6): Gender moderates the relationship between social network variables and HRM training.

2.6 The Role of Social Networks in HRM

Many human capital manifestations and outcomes, including as recruiting and onboarding, collaboration and communication, knowledge management, and employee happiness, are dependent on social capital and the relational networks that exist among workers, according to Hollenbeck and Jamieson (2015). The definition of social is the notion that one's personal networks produce advantages that provide people and the groups they are related to with competitive promotion and development (Hollenbeck and Jamieson, 2015). The authors also declare that individuals are immersed in interconnected networks that give both possibilities and limits on behavior. According to Hollenbeck and Jamieson (2015), social network analysis has become important in researching management, with researchers beginning to study how network relationships are produced and how these connections influence other organizational results. However, according to Hollenbeck and Jamieson (2015), this strategy has had minimal influence on human capital management research or practice. Soltis et al.'s (2018) preliminary study of the HRM literature confirmed Hollenbeck and Jamieson's result about the limited studies found on HRM that employ the social network approach.

Soltis et al. (2018) investigated social network analysis in HRM functions such as recruitment and selection, training and development, performance management, turnover, and compensation, and discussed how to manage employee competencies, behaviors, and attitudes with social network direction in the future. The authors examined three major management journals focusing on ten topics in HR including training. After doing a search on the phrase "social network," the authors went through each result to see if social network analysis had been done or if social networks had been cited as a theoretical angle or potential future path. This search was restricted to studies released after Brass (1995) introduced social network analysis to human resource management. Last but not least, the authors found 80 distinct articles that do social network analysis or offer a social network viewpoint on a human resources issue; 38 more works that conducted or referenced social network viewpoints on these topics were found after a secondary search across all

publications. The growth of social network research over the preceding ten years (Brass, 2012) indicates that the HR literature has not yet experienced the networks boom (Soltis et al., 2018). However, it is evident that social connections have an impact on both employers and employees as they move through the stages of job searching, recruiting, selection, training, socialization, performance appraisal/compensation, and turnover. The absence of a social network perspective does not justify the need for research (Soltis et al., 2018). The authors believe that a perspective that considers not only the actors in companies, but also their relationships, may benefit the study of HRM and related industrial/organizational (I/O) psychology. Although human resource professionals have long examined relational interactions like leadership, the network technique has the particular benefit of examining the structure of the interactions between the actors by going well beyond the dyad (Soltis et al., 2018).

Prell et al. (2009) integrated social network to analyze stakeholders functionality and this resulted in finding that stakeholders who are similar to one another are better equipped to communicate tacit, complex knowledge because they have a higher level of mutual comprehension. The authors explain how this data allowed them to determine which individuals and stakeholder groups were more vital to the network and which were more outlying. The information derived from the data aided in the upcoming stakeholder selection process. The paper concludes with a discussion of the benefits and drawbacks of integrating stakeholder analysis with social network analysis. Prell et al. (2009) reveal that the position of individuals within a network can affect how information and resources flow and transfer in a network, much as the strength of linkages and network centralization can effect resource management techniques. Prell et al. (2009) declare that stakeholders with a high degree centrality can be considered as key participants in mobilizing the network and bringing other stakeholders together.

Chung et al. (2014) investigate the effects of network position and information and communication technology (ICT) use on the performance of regional Australian general practitioners by using social network analysis. The entire network and ego-centric network techniques, as well as their advantages and disadvantages, are the authors' main areas of interest when it comes to social network data collection strategies. Chung et al. (2014) state that the effect of social network on performance requires collection and linkage of relational and attribute data to facilitate analysis.

Fares (2019) explains social network role in organizations by testing how stakeholders can be analyzed and managed based on their relationship attributes. Fares (2019) states that all stakeholders involved in the project should think about relationship configurations as part of their integration efforts. According to Fares (2019), social network analysis has been shown to be an essential tool for analyzing service integration since it identifies which services are presently functioning together, which are not, and where gaps in relationships may be closed.

Reinholt et al. (2011) examined how network properties influence information sharing at organizations through studying 705 employees at a consulting firm. The findings demonstrated that when network centrality, autonomous motivation, and ability are all high, workers' knowledge acquisition and provision is at its peak, lending credence to the postulated three-way interaction.

According to Williamson and Cable (2003), organizational hiring trends are significantly influenced by two networks. First, if their boards of directors had comparable members, top executives were more inclined to switch businesses. Second, a business that has supplied many executives in the past and has a high out-degree centrality in the people mobility network is more likely to be sought after in the future.

Jokisaari (2013) investigated socialization via leader-member exchange and social network analysis. Newcomer task performance was improved by low density in a communication network, and newcomer group performance was substantially correlated with connection strength.

Fang et al. (2017) investigate immigrant learning and assimilation using a personal difference (core-self ratings) and social networks. The authors assert that dialogue between newcomers and those in positions of authority inside the organization improved political awareness. Relationships with people who were on the same level as the newcomer did not immediately aid in their learning or integration. Significant improvements in political awareness, organizational attachment, and social integration were observed when an employee had links to peers and good core self-evaluations but no ties with higher-level employees.

2.7 Social Networks and HRM Training

According to Evans and Davis (2005), the study of internal social structures is essential because high performance work practices have a significant impact on the internal social structure of

organizations, which in turn affects performance outcomes. According to the authors, hiring, training, and remuneration may have an effect on shared mental models, while flexible work arrangements and self-managed teams may have an effect on strengthening strained relationships.

Froehlich and Gegenfurtner's (2019) study sits at the crossroads of social network research and training transfer research. According to the authors, SNA might be a useful study technique for analyzing transitions between training and job contexts, as well as examining how social interactions can help or hinder these changes. Froehlich and Gegenfurtner's (2019) propose a variety of illustrative perspectives and study themes to motivate future studies that integrate SNA with training transfer, such as using SNA as a diagnostic instrument, emphasizing networks as training outcomes, and examining training needs.

Froehlich and Gegenfurtner's (2019) address how cohesiveness should be measured in terms of training transfer. Cohesiveness results in outcomes that either promote transfer efficiency, such as trust and psychological safety where learning is incorporated effortlessly throughout the organization (Edmondson, 2003) or jeopardize the transfer process's quality due to characteristics such as groupthink (Park, 1990). To chose the "proper" learnings for implementation, it's important to know the precise network structure and the flow of information that comprise it (Froehlich and Gegenfurtner, 2019).

Because social support is a significant predictor of training transfer, it is crucial to investigate how networks may be enabled to provide support (Reinhold et al, 2018). Before training, SNA can be used as a diagnostic instrument to discover structural holes, cohesive subgroups, or isolates and based on the results, steps may be made to enhance the chance of a successful transfer. For example, SNA can spot the most focal players in a network, who can then act as valuable partners in mentoring and applying newly acquired information or skills (Froehlich and Gegenfurtner, 2019). These partnerships can also be established, for example, through mentorship arrangements (Bozionelos, 2006). Additionally, the social network analytic approach informs the researcher of the potential existence of a pertinent group of supporters, such as peers, who may be useful social support providers throughout training. Although these sources can't alter the workplace to aid with the shift, they might be helpful accountability partners who provide knowledge and emotional support based on their experience (Froehlich and Gegenfurtner, 2019).

The evolution of networks over time may be viewed as a training outcome in and of itself, since SNA might help to refocus attention away from training outcomes focused on cognitive knowledge or motivational attitude (Froehlich and Gegenfurtner, 2019). The usage of SNA at a larger unit of study may produce valuable indications, such as network centralization for transfer climate analysis (Hatala and Fleming, 2007). To identify whether network form is more beneficial for training applications, it may be good to research training networks among trainees and transfer networks among coworkers (Froehlich and Gegenfurtner, 2019). Froehlich and Gegenfurtner (2019) state that SNA can assist in identifying the most central and important individuals in a company who are frequently opinion leaders and may be quite effective in identifying the training requirements of newcomers and thus improving the creation of new training programs.

Future studies may wish to explore the function of focal actors in analyzing training needs. A number of influencers might help create criteria for judging the quality of instruction based on the previously identified training needs (Lankes et al, 2013). While SNA can give a beneficial viewpoint for studying social support and training transfer, there are certain drawbacks to this method that must be noted like the limit of the support network during transfer (Laumann et al, 1983). Although an organization is a standalone entity but the transfer may be assisted by persons outside the organization where employees from different organizations may meet during training and stay in touch thereafter to encourage one another in implementing the learnings in their respective organizations. In terms of research, this means that any assumptions made during the sample technique must be properly evaluated (Froehlich and Gegenfurtner, 2019).

Soltis et al. (2018) argued that HRM focuses on measuring human capital that includes the individuals' knowledge, skills, abilities, and other attributes (known as KSAOs) and its correlation with key organizational outcomes and suggested that HRM can benefit not only from managing human capital in an organization but considering their relationships that they are embedded in as the central unit of analysis for maximizing the performance of HRM. Soltis et al. (2018) explained that once job seekers are hired, the focus turns from looking for and selecting capabilities to addressing inadequacies and building new KSAOs. Ployhart and Moliterno (2011) hypothesized that Intellectual capital emerges through a different method than individual KSAOs in the group. The solution may be determined by the group's network setup (Soltis et al., 2018). A decentralized network structure with all members linked may be the most effective when members' KSAOs are

similar; but, when KSAOs are significantly different, a centralized structure based on a high ability member (sometimes known as a "star") may be the most effective (Soltis et al., 2018). The authors declare that research shows that "star" employees disproportionately contribute to company productivity through excellent task performance, develop and transfer advantages to other employees, and increase the organization's visibility. While network scholars have long linked network structures inside and across groups to group performance (Borgatti et al., 2009), the recent emphasis on star performers implies that relating KSAOs to network position and overall network structure offers future promise (Soltis et al., 2018). According to Soltis et al. (2018), high-performing people will occupy important roles in friendship, communication, and advisory networks, and misalignments between these positions and KSAOs may indicate that management action is required. Studies have also investigated how the employment or departure of a celebrity affects their organization and employees.

According to Borgatti and Cross (2003), increasing access to information, which is the basis of learning, involves understanding what others know, finding others' knowledge attractive, and acquiring it quickly. Borgatti and Cross (2003) research provides a fundamental basis for learning how networks emerge in firms, and it may be utilized by practitioners aiming to employ the best tutors and increase learning transfer.

Reinholt et al. (2011) argued that employees occupying key central positions in networks of job rotation, training, and career advancement are able to faciliate information sharing. Fang et al. (2010) explored how different network simulations improve learning processes. According to the authors' results, departments that have a modest global network structure benefit more from training interventions that are department-focused.

Neeley and Dumas (2016) declare that when all employees of a Japanese company were compelled to start using English as their official business language, it was analyzed how much prestige native English speakers gained "unearnedly." Native English speakers were spared from the extensive training that many Japanese employees were required to do. Native English speakers gained increased access to organizational networks as a result of the English mandate, despite being prohibited from training with their coworkers, and the majority of Japanese employees actively studied English with the aim of improving their language skills through intensive training, individualized coaching, or online learning. This makes it easier to see why Sasidharan et al. (2012)

were accurate in arguing that we need to expand our attention beyond training to include social relationships.

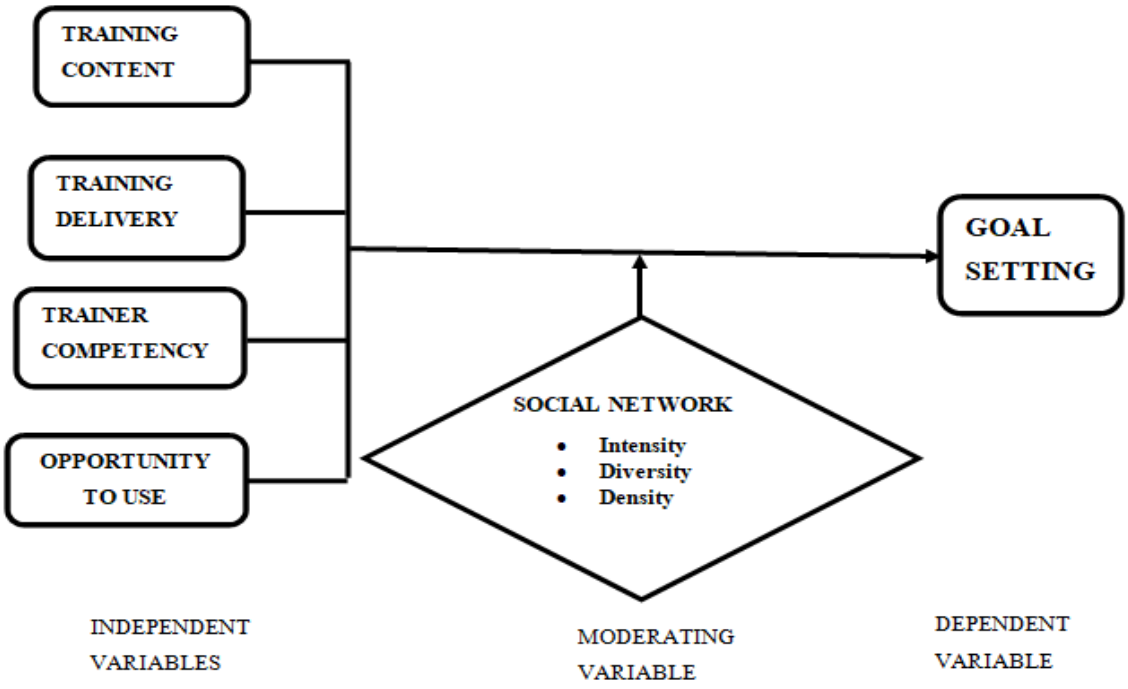


Figure 6: The Influence of Social Networks on Training Transfer Determinants and Goal Setting in Small Businesswomen: A Conceptual Framework (Norlina and Raja Munirah, 2018)

Norlina and Raja Munirah (2018) establish a paradigm in which social networks serve as a moderating variable in enhancing training transfer and goal setting among small businesswomen (shown in Figure 6). By studying the network structure and interactions between elements, the author's study incorporates a quantitative method to assessing training transfer factors such as training content, training delivery, and trainer competency while taking the work environment and social networks into consideration. This study was carried out by Norlina and Raja Munirah (2018) in order to identify the underlying relational barriers that block the training transfer process among small businesswomen in a transfer environment, allowing them to overcome them and fulfill their goal-setting objectives. This research will also contribute to the body of knowledge on entrepreneurship and human resource management, with a specific emphasis on training transfer issues.

2.8 Conceptual Framework

The following diagram depicts the research framework for this study, which represents the hypotheses developed from the literature review.

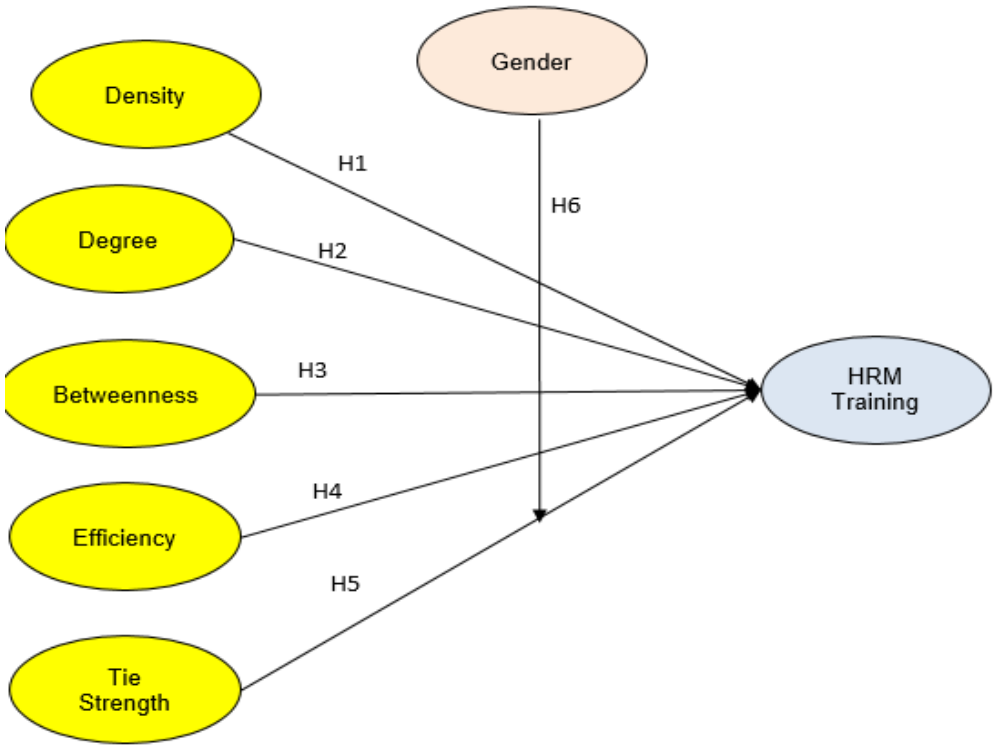


Figure 7: Conceptual Framework to understand the influence of Social Network Variables on HRM Training with Gender Acting as a Moderator

Chapter Three

Research Methodology

The researcher explores the methodology of the present study and outlines the approach used to conduct the analysis in this chapter. The questionnaire's design, the instruments utilized to measure each variable, and the data collecting technique and procedure are all covered.

3.1 Survey Method

For this study, the researcher employed a quantitative approach in the form of a well-structured survey, with the purpose of obtaining a quantitative description of the connection between the variables of interest. The survey employs closed-ended questions, which help in uniformity by removing the chance of inaccurate or broad replies. The survey was created in "Microsoft Office Word" and disseminated to participants in hard copy on LAU campus and sent by e-mail to LAU graduates.

3.2 Questionnaire Design and Measurement Instruments

This research was carried out throughout the months of March and April of 2022. The survey was administered using a word document; respondents were students and graduates; printed copies of the surveys were given on the LAU campus, and respondents were requested to consent to take part in this study. Some participants received the questionnaire as a word document through email and WhatsApp. The survey was supposed to be online on "Google Forms," with a link to be circulated via emails and social media platforms; but the researcher reached the social network part and couldn’t add fillable tables neither on Google Forms nor on Microsoft Forms or Survey Monkey so the surveys had to be distributed as hard copies.

The questionnaire is divided into four sections. Section one contains the consent form as well as the contact details of the researcher, advisor, and IRB office for further queries. Section two investigates the demographics of the respondents, including their age, gender, educational and occupational levels along with their total years of experience. Section three adopts a 5-item scale by Schmidt (2017) and entails 12 questions to assess the dependent variable being knowledge

and skills training followed by 4 questions that address the participant's influence and authority at the workplace. Section three used a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." In the second segment, a 5-point scale was used, with 1 being "Low" and 5 being "High," 1 being "Act on your own" and 5 being "Persuade others to act," and 1 being "I generally manipulate resource flow to impose pressure" and 5 being "I usually facilitate resource flow to avoid conflict."

Section Four addresses the independent variable being social networks adopting an egocentric network approach for data collection by Chung (2009) which constitutes two parts. In order to complete the network structure, one important inquiry in the egocentric method is to ask the ego about the link between elicited alters. In the egocentric approach, the free recall method yields more information about people's social networks. The concept of social networks is divided into three parts: network structure, position, and relations. The first part of the survey consists of 5 questions about the participant, and the second part consists of asking participants to evaluate how the members of their professional network correspond to each other on a five-point scale ranging from 'especially close' to 'distant.' Please see Appendix 1 for a copy of the questionnaire.

The Lebanese American University's (LAU) Institutional Review Board (IRB) examined and approved the questionnaire before it was sent to respondents to assure integrity and approval from an international level of research and ethical standards. Please see Appendix 2 for a copy of the IRB approval letter.

Moral Concerns

The researcher considered the following ethical concerns while developing and administering the survey:

- Respondents' right to anonymity and secrecy
- Respondents' right not to provide extensive personal information
- Respondents' entitlement to have their data presented anonymously in the thesis
- Respondents' right to informed and voluntary permission to participate in the survey

3.3 Sample and Data Collection

Respondents who met the following criteria completed the survey: undergraduates and graduates working at any organization in Lebanon and assumed to have received some sort of training at their workplace.

The survey was distributed to friends, colleagues, acquaintances, professional networks and relatives who match the criteria mentioned above. The Word document survey was sent via e-mails and WhatsApp and distributed on LAU campus as hard copies. Respondents were also encouraged to share the survey with their peers and acquaintances who met the requirements. Respondents were asked to read the permission form and agree to the terms of the questionnaire before taking part in the study. This was done in accordance with the criteria established by the LAU IRB office.

3.4 Analysis Methods

In order to examine the collected data, the researcher used descriptive statistics, regression analysis, correlation analysis, PLS-SEM, and social network analysis utilizing E-NET.

3.4.1 Descriptive Statistics

The researcher will emphasize the characteristics of the existing sample using descriptive statistics. Descriptive statistics may be used to quantify various demographic features (Bickel and Lehmann , 2012).

3.4.2 Regression Analysis

To verify the relationship between the independent and dependent variables, a regression analysis was conducted.

3.4.3 Correlation Analysis

To assess the strength of the linear relationship between the variables, quantify their association, and calculate the amount of change in one variable as a result of a change in the other, correlation analysis was utilized.

3.4.4 PLS-SEM

The PLS-SEM statistical strategy was utilized to examine the quantitative data in this work; it is a statistical tool that analyzes complicated models of multivariate connections between variables. The outer model in PLS-SEM has examined two fundamental criteria: reliability and validity (Hair et al., 2016). For example, single item reliabilities (internal consistency reliability and indicator reliability utilizing composite reliability (CR)) and average variance extracted convergent validity may be used to investigate reliability and validity (AVE). The researcher tested the validity of the measurement items using face validity. To ensure that the items measure the variable operationalized and defined to be evaluated in this study, construct validity was further examined. However, as stated by Hair et al. (2010), convergent validity and discriminant validity were both used to evaluate concept validity. A non-parametric statistical method called partial least squares structural modeling (PLS-SEM) calls for normally distributed data. However, in order to guarantee the data's resilience and make sure the information is not too far from being reasonable, a particular test for data normality is still necessary (Hair et al., 2016). Due to the inclusion of multidimensional constructs and higher order structured structures in the study, as well as the lack of normalities, PLS-SEM was applied.

3.4.5 Social Network Analysis (E-NET)

E-NET was used to display complicated networks and combine them with attribute data. Steve Borgatti created E-NET, a free software program for evaluating ego-network data (Borgatti, 2006).

3.5 Survey Administration

The sample includes all employees who experienced some sort of training at their organization. The survey was administered as a Word document through e-mails and WhatsApp and distributed as hard copies. The total number of collected responses was 130. Consequently, data was cleansed and organized manually in excel and imported on PLS-SEM statistical approach to analyze the quantitative data. PLS-SEM is a statistical tool for analyzing complicated multivariate models comprising hidden and observable variables. To develop an egocentric network, the social network was arranged in excel and loaded into the E-NET software program. To achieve an adequate Cronbach's alpha score, psychometric tests were employed to examine the data's reliability and validity.

Chapter Four

Data Analysis and Results

4.1Descriptive Statistics

4.1.1 Respondent's Demographic Data- Age

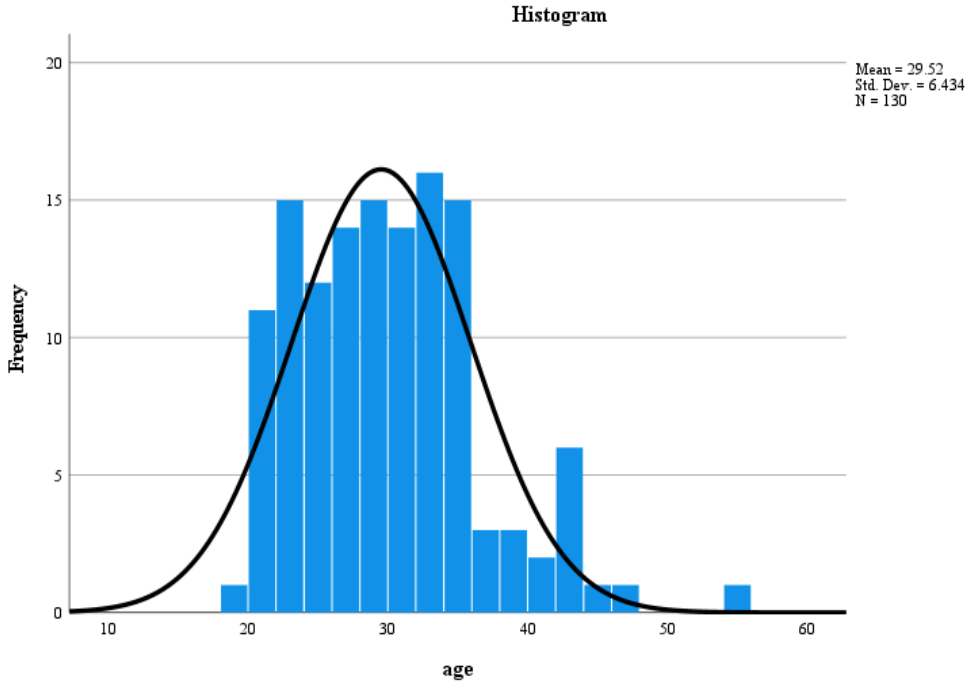


Figure 8: Respondents' Age Range

Section A tests respondents' demographics, a sample of 130 respondents were surveyed and belong under an average age range of around 30-year-olds as illustrated in figure 8. Almost 49% of respondents ranged between 27 and 34 years while 33% fell below the age of 27. In brief, the young generation exceeded the majority of the sample tested.

4.1.2 Respondent's Demographic Data- Gender

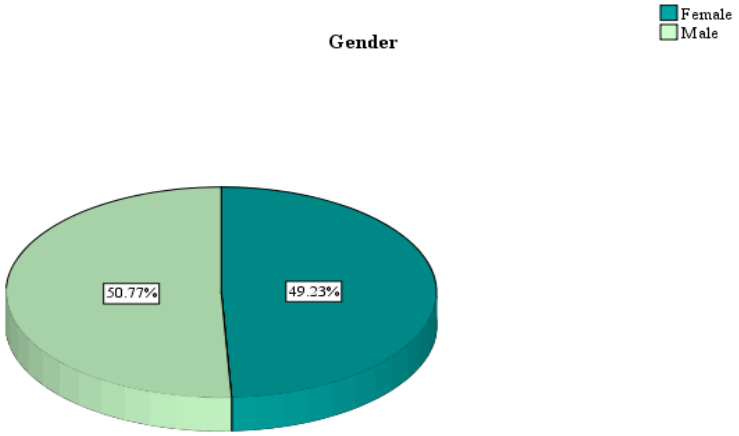


Figure 9: Respondents' Gender

As shown in figure 9, there are ~51% male respondents and 49% female respondents.

4.1.3 Respondent's Demographic Data- Educational Level

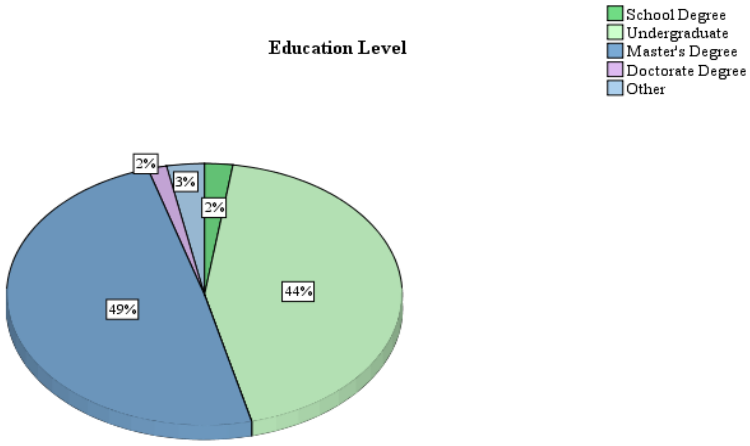


Figure 10: Respondents' Educational Level

93 percent of those polled hold a bachelor's or master's degree. The majority of responders are thought to be well schooled.

4.1.4 Respondent's Demographic Data- Occupational Level

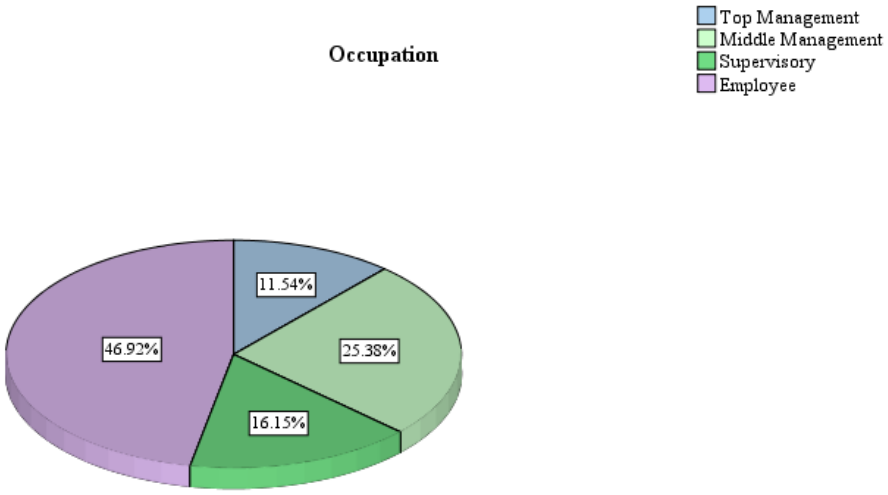


Figure 11: Respondents' Occupational Level

~47% of respondents are standard level employees, whereas ~25% occupy middle management positions.

4.1.5 Respondent's Demographic Data- Years of Experience

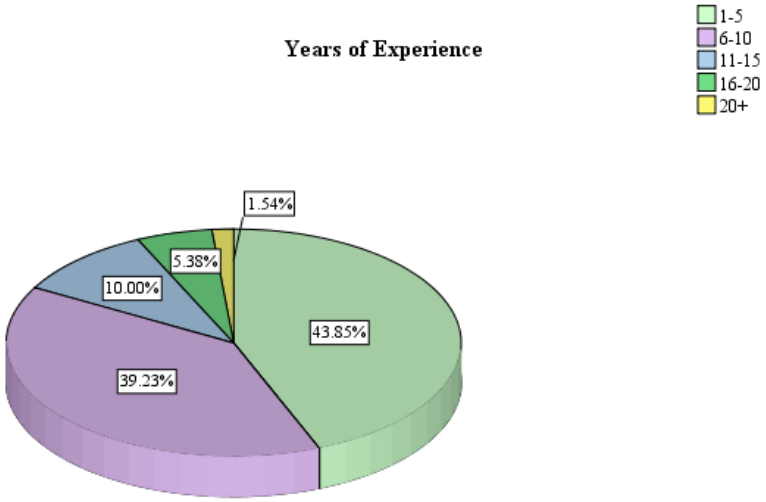


Figure 12: Respondents' Years of Experience

~44 percent of respondents had 1 to 5 years of experience, compared to 40 percent of employees with up to 10 years of experience. Only 17% of those polled have more than ten years of job experience.

4.1.6 Section B Data

Moving to section B, which tests knowledge and skills training, the questions are divided into parts each testing specific training target. The first ten questions aim to detect the presence of organization support for training, employee training received, and employee feelings and satisfaction about training received at work. The first 10 questions graphs are illustrated in appendix 3.

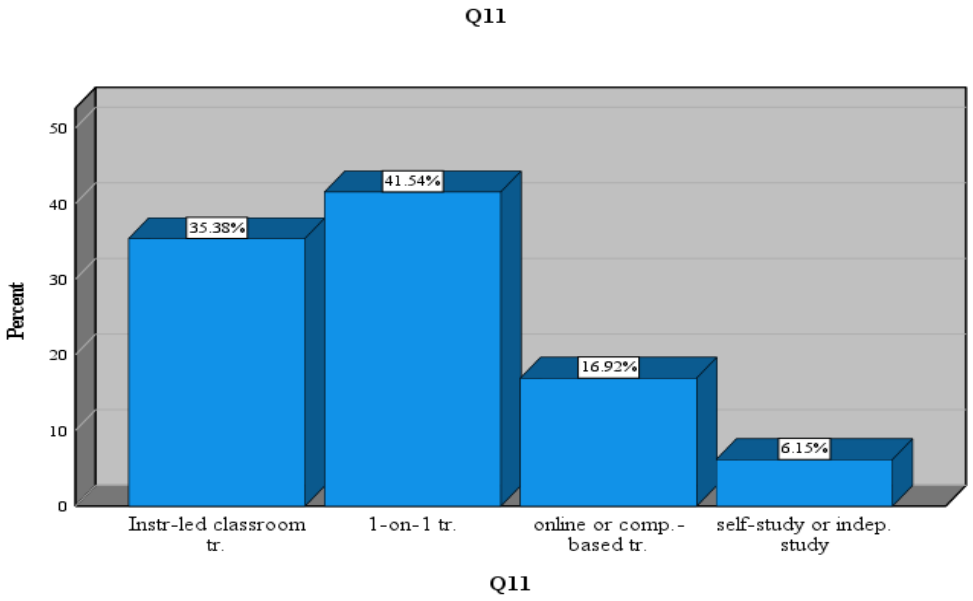


Figure 13: Respondents' Training Method Preference

Question 11 in Section B targets respondents' training method preference. It was observed that one-on-one training was the most effective training method in helping employees learn a specific task at the job (~42% supported this training method), compared to ~36% who believed that instructor-led classroom training comes next in line. Nevertheless, it is worth mentioning the fact that "self-study or independent study" was the least preferred option for learning at work (only ~6% supported this training method).

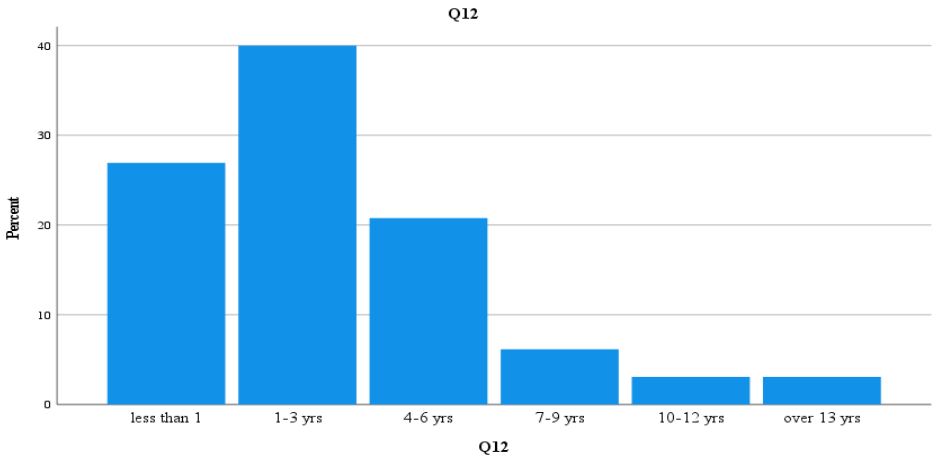


Figure 14: Respondents' Current Position Years of Experience

Question 12 in Section B targets the respondents' current position years of experience where the results show that 40% have spent 1 to 3 years in their current position whereas the majority (~88%) found to have stayed a maximum of 6 years in their current position.

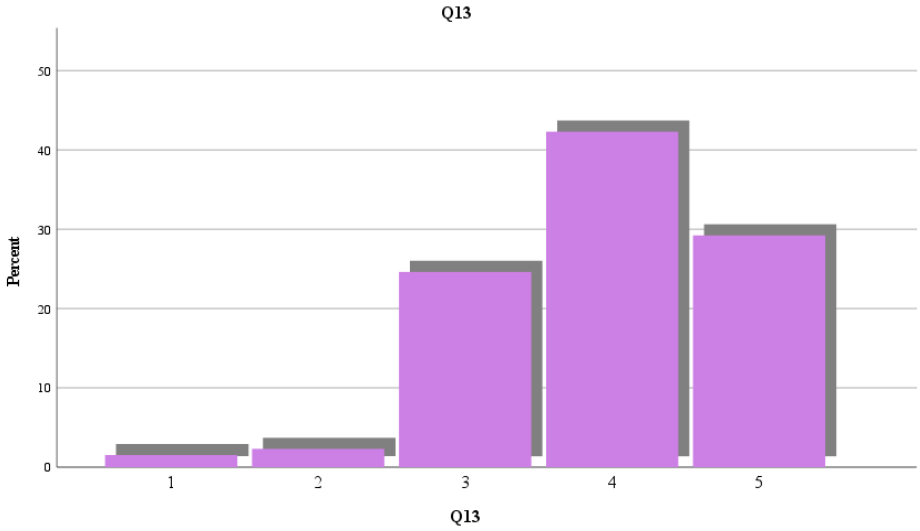


Figure 15: Respondents' Influence on Projects

The remaining four questions in Section B reflect the influence of the respondent on a project and on his/her team members. Figure 15 shows that on average, 71.5% of respondents have high influence on the most recent project they were involved in at their current job.

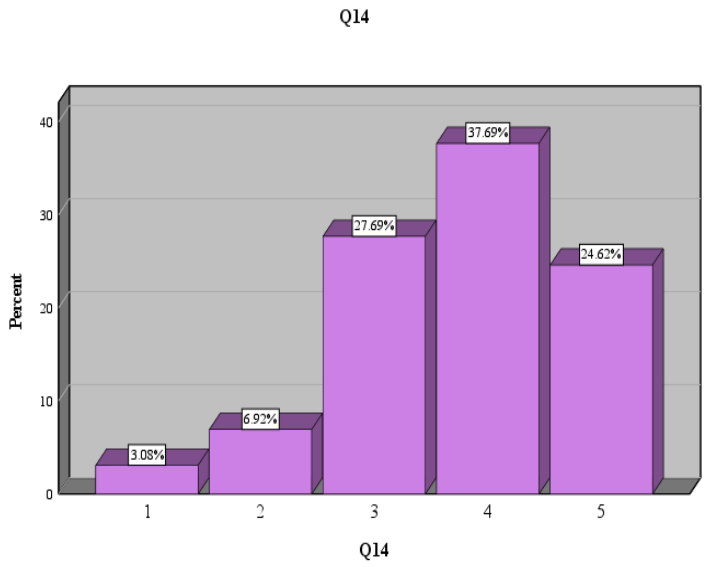


Figure 16: Respondents' Authority on Projects

Figure 16 shows that ~62% of respondents consider themselves having high authority on the most recent project they were involved in at work.

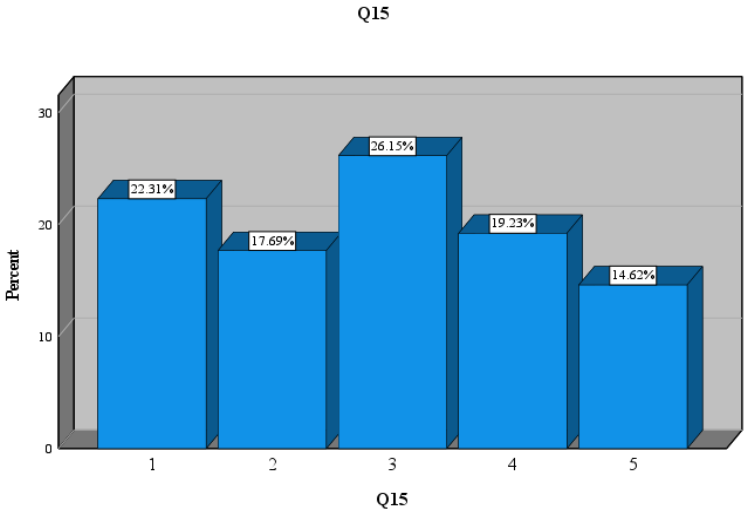


Figure 17: Respondents' Influence on Team Members

In general, and as shown in Figure 17, respondents believe that to influence a team member one should do a little bit of everything. To be more precise, 26.15% of respondent believe that there should be a balance between “Act by yourself” and “persuade others to act”. However, if one would have a closer look, a slight shift towards “Act by yourself” could be noticed with a total of 66.15% supporting this option.

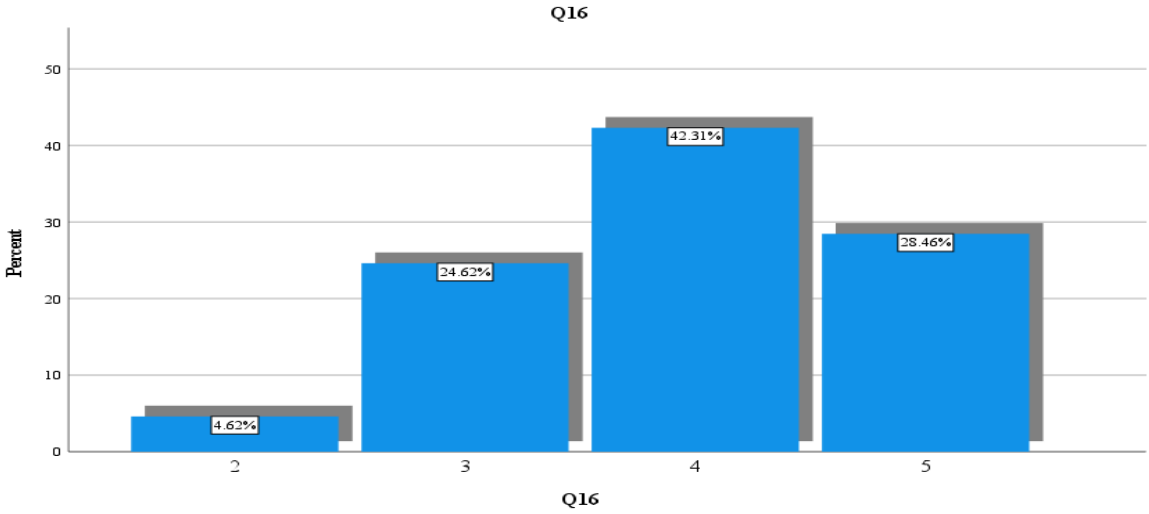


Figure 18: Respondents' Influence on Team Members Method

Figure 18 illustrates how respondents influence team members. The results show that ~71% of respondents agree that the best method to influence team members in their daily exchange of resources is to facilitate the resource flow to not cause conflict, better than manipulate the resource flow to exert pressure (29.24%).

4.2PLS-SEM Data Analysis

4.2.1 Model Measurement

PLS-SEM was used to analyze the survey data and was shown to be appropriate for identifying the association between the social network components on HRM training and its implications on Employee Feeling and Satisfaction, Organization Support, and Employee Training. Three key indications were used to determine if the model is unidimensional: Cronbach's alpha, Dillon-rho, Goldstein's and the initial eigenvalues of the covariance matrix. The Cronbach values for Employee Feeling and satisfaction and organization support were greater than 0.7 (0.931 and 0.733 respectively).

Dillon-Rho Goldstein's is a Cronbach's alpha generalization that reflects the variance of the selected variables' total. All of the variables have D.G.rho more than 0.7; nevertheless, to determine if a model is unidimensional, Dillon-rho Goldstein's must be greater than 0.7, and the

first and second eigenvalues must be bigger than one and smaller than one ((Sanchez, 2013); (Vinzi et al., 2010)).

The Eigenevalues range from 0.063 to 3.9. The Eigenvalues across all variables does not show similarities, and only some values are above 1, demonstrating that only some blocks are unidimensional. Thus, the outer model is not well determined and some blocks which have PCA higher than 0.7 and Eigenvalues >1 are unidimensional like in the first row of each variable.

Table 1: Composite Reliability (Monofactorial Manifest variables)

Latent variable	Dimensions	Cronbach's alpha	D.G. rho (PCA)	Condition number	Critical value	Eigenvalues
Employee Feeling and Satisfaction	5	0.931	0.948	7.894	1.000	3.930 0.442 0.341 0.225 0.063
Organization Support	3	0.733	0.849	2.009	1.000	1.956 0.559 0.485
Employee training	2	0.577	0.825	1.537	1.000	1.405 0.595

As the absolute GoF reflects on the quality of the outer and inner model, table 2 reflects the maximum values of the components. The absolute GoF is 0.582 which is similar to the estimated GoF (Boots trap). The relative, outer model and inner model GoF are high (0.762, 0.992 and 0.768 respectively).

Table 2: Goodness of Fit Index (Monofactorial Variables)

	GoF	GoF (Boots trap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)	Minimum	1st Quartile	Median	3rd Quartile	Maximum
Absolute	0.582	0.594	0.049	11.784	0.473	0.704	0.454	0.565	0.588	0.624	0.718
Relative	0.762	0.762	0.054	14.207	0.633	0.879	0.614	0.729	0.756	0.798	0.899

Outer model	0.992	0.983	0.049	20.367	0.845	1.000	0.829	0.959	0.984	1.017	1.079
Inner model	0.768	0.776	0.036	21.433	0.710	0.846	0.691	0.752	0.774	0.799	0.865

Cross loading analysis was done to have a better understanding of the outside and inner model quality. Table 3 demonstrates that several factors are associated to its latent variables to test the discriminant validity (highest in bold). For instance, density, degree and betweenness correlate with employee training.

Table 3: Cross- Loading (Monofactorial Manifest Variables)

	HRM Training	Employee Feeling and Satisfaction	Organisation Support	Employee training
Density	0.061	0.019	0.091	**0.138**
Degree	-0.086	-0.082	-0.107	**0.116**
Betweenness	-0.122	-0.219	-0.013	**0.199**
Efficiency	0.221	0.116	**0.397**	0.025
TieStrength	-0.213	**-0.050**	-0.430	-0.210

It is known that the loading should be 0.7 or above. All the latent variables have loading above 0.7 expect for B3, correlating with results from table 1, showing that there is no correlation between employee training and other variables.

Table 4: Correlations and Outer Weights

Latent variable	Manifest variables	Standardized loadings	Lower bound (95%)	Upper bound (95%)
Employee Feeling and Satisfaction	B5	0.881	0.812	0.925
	B7	0.942	0.913	0.963
	B8	0.797	0.646	0.878
	B9	0.939	0.915	0.958
	B10	0.865	0.780	0.914
Organization Support	B1	0.800	0.607	0.900
	B4	0.820	0.740	0.917
	B6	0.799	0.679	0.885
Employee training	B2	0.938	0.877	0.985
	B3	0.698	0.439	0.874

4.2.2 Structural Models

To test the predictive model capabilities and structural model, it is important to measure the level of the R^2 values and the f^2 effect size. The R^2 value of the individual components of the inner model ranges between 0.32 and 0.187 which is far less than 1. The R^2 value of the inner model is 0.1 which is considered weak accuracy of the data (Appendix 4, table 1).

Table 5: Adaptive Capacity Inner Model Assessment

Latent variable	Value	Standard error	T	Pr > |t|	f^2	Value (Bootstrap)	Standard error (Bootstrap)	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
Degree	0.075	0.032	2.392	0.018	0.047	0.077	0.029	2.608	0.019	0.135
Outdegree	-0.028	0.014	-2.011	0.047	0.033	-0.027	0.013	-2.165	-0.050	0.004
Betweenness	-0.253	0.151	-1.675	0.096	0.023	-0.184	0.146	-1.731	-0.476	0.155
Efficiency	3.011	1.021	2.950	0.004	0.072	3.443	1.868	1.612	-0.224	8.138
Tie Strength	-3.002	1.738	-1.728	0.087	0.025	-3.078	2.631	-1.141	-9.173	2.443

4.2.3 Structural Model Path Coefficients

To examine the linkages between the constructs and uncover any links between the latent variables, the structural model path coefficient was explored.

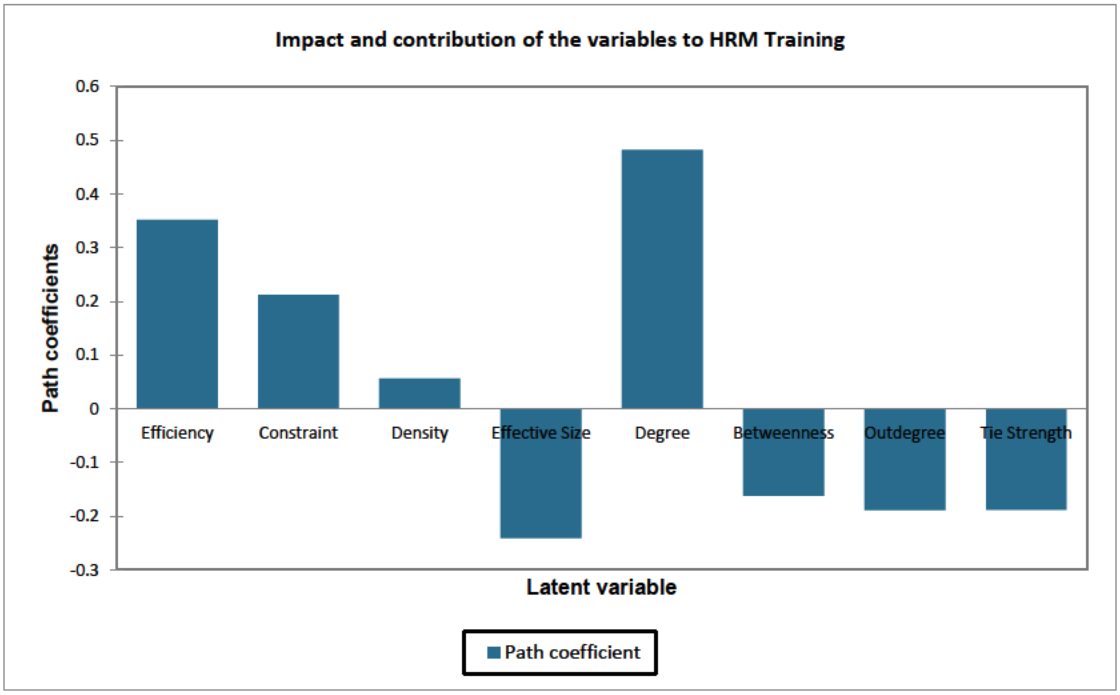


Figure 19: Adaptive Capacity Indicators Path Coefficient

Figure 19 shows that degree has up to 50 % effect on HRM training; while effective size, betweenness, outdegree and tie strength have negative impact on HRM training.

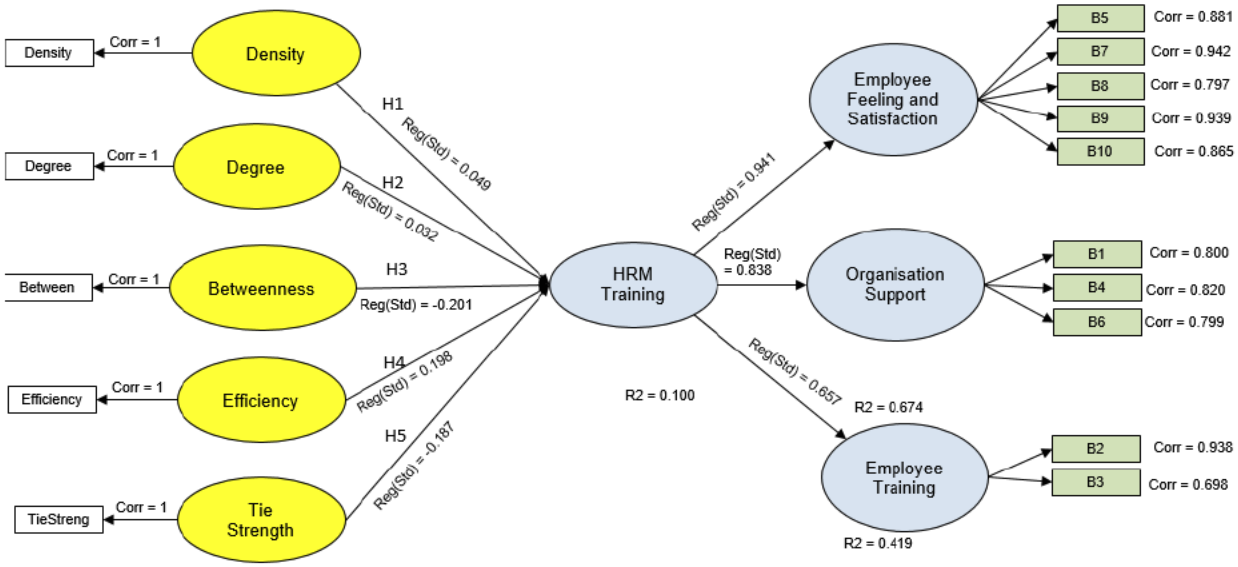


Figure 20: Structural Model Analysis

The convergent validity of all constructs was not all supported. As only efficiency with Reg (STD) around almost 0.2. Finally, the factors (employee feelings and satisfaction, organization support and employee training) affected by HRM training were robust and well above 0.8 (Figure 20), indicating high-scale reliability.

4.3 Gender Structural Model

For both genders, there is no significant change in the correlation for B5, B7, B8, B9 and B10 on employee feelings and satisfaction. However, there was a change in the correlation on organization support for training for B1, B4 and B6 for females.

A strong correlation change on employee training for B3 was seen in males (corr.= 0.217) compared to females (corr.= 0.898).

The reg. (std) of the HRM Training on employee feelings and satisfaction, organization support and employee training had similar patterns between both genders. These reg. std were above 0.2 meaning that the data supports the strong relationship between variables. However, the social network variables (density, degree, betweenness, efficiency and tie strength) have reg. std less than 0.2 for both genders reflecting no convergent correlation between these variables and HRM training, except for efficiency for gender 1 (Figure 21,22).

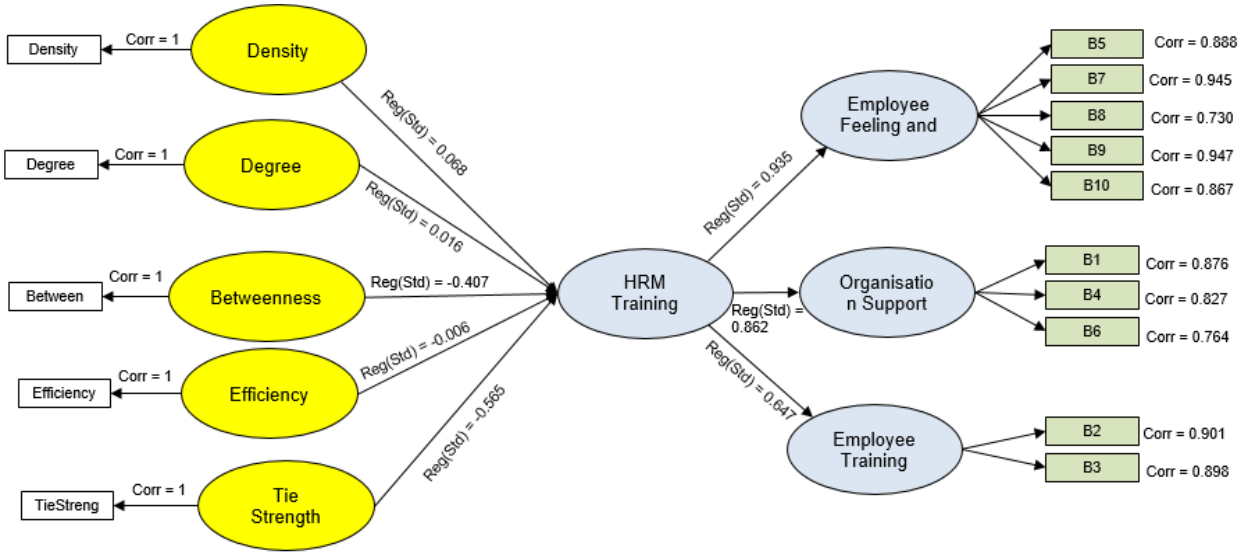


Figure 21: Structural Model for Gender 0 (Female)

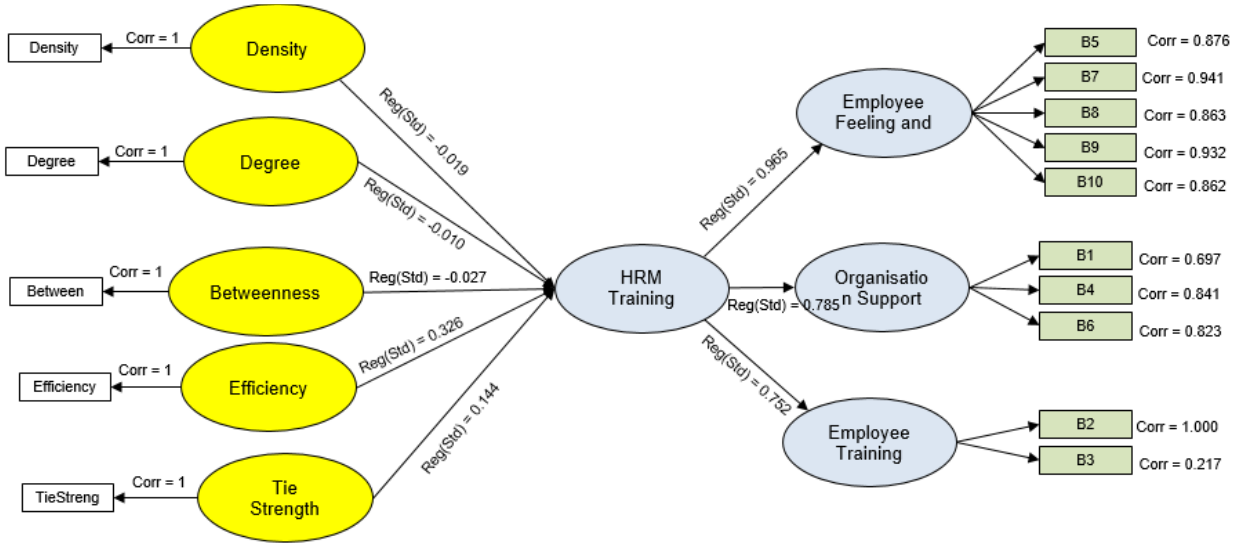


Figure 22: Structural Model for Gender 1 (Male)

4.4Social Network Analysis

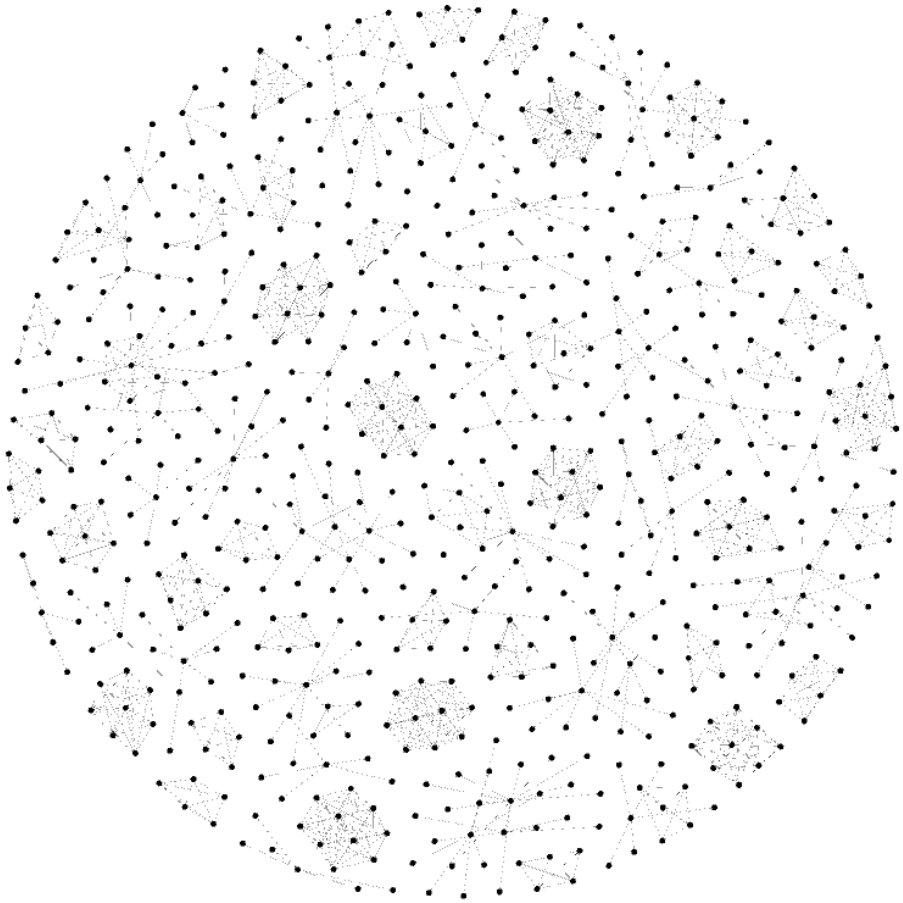


Figure 23: Social Network of the Respondents

The above figure depicts the social network of the respondents and shows that they are not related altogether but each respondent has his/her own web which represents his/her relationships with peers.

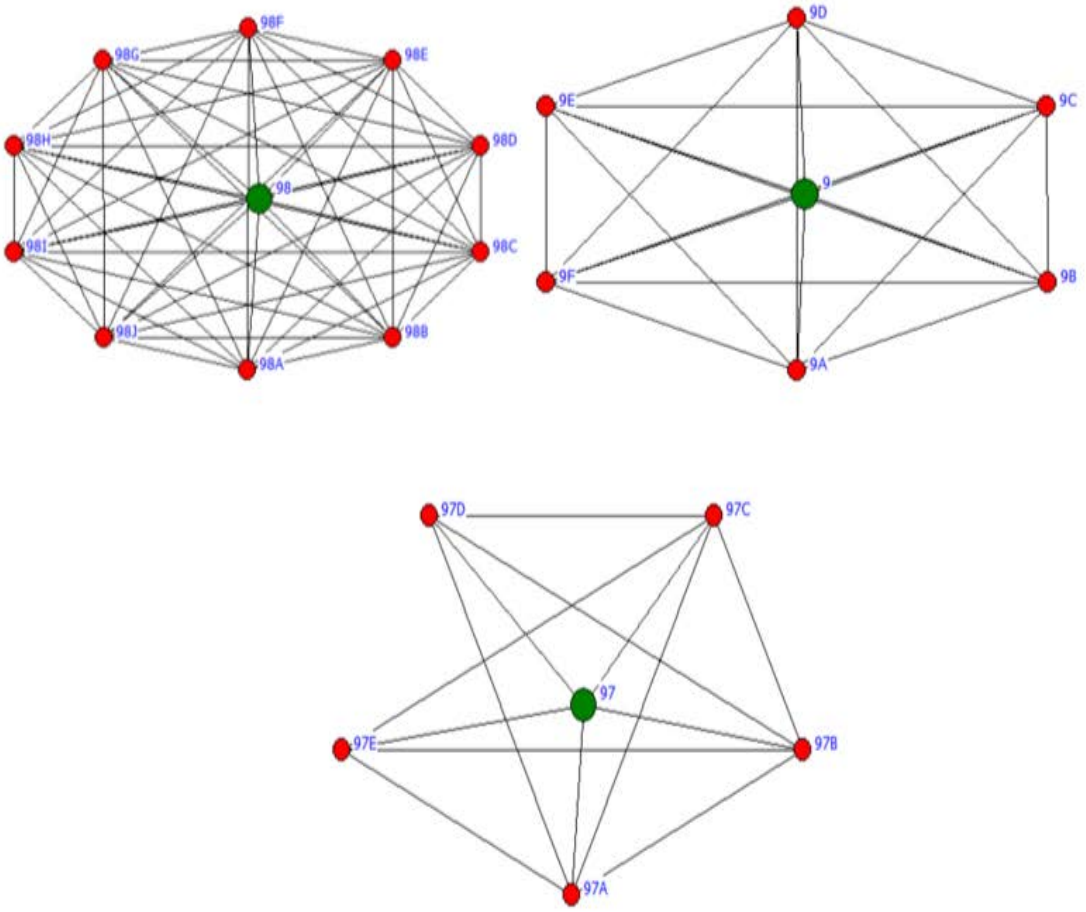


Figure 24: Social Network Samples 98, 9 and 97

Figure 24 depicts social network samples of the surveyed respondents. Network sample 98 shows a high score on density because the actors are highly connected and there are no structural holes. Network sample 9 has fewer ties thus fewer density while sample 97 is the least dense with the presence of structural hole between 97D and 97E.

Chapter Five

Discussion and Conclusions

5.1Discussion and Conclusion

This study applies the social network theory to examine the extent to which relationships at the workplace ease training transfer. The present study encompasses students and graduates who had some sort of training at their workplace. Social network properties that were examined in this study include density, degree, betweenness, efficiency and tie strength while HRM training model included employee feelings and satisfaction, organization support for training and employee training. Hawe et al. (2004) describe social networks as the connections that occur between groups of persons or agencies, as well as the resources to which membership in such groups allows access. The first hypothesis stating that a density prone social network is positively associated with HRM training emerged from the findings of previous literature of Norlina and Raja Munirah (2018) which included density in its model as a moderating variable, however, statistical data was absent, thus no results were stated. A rise in network scale or a shift toward greater centrality while density might refer to a transition from novice employees to experts (Van den Bossche and Segers, 2013). Density shows a network's overall coherence, which has ramifications for the speed with which information and knowledge are exchanged (Wasserman and Faust, 1994). Sasidharan et al. (2012) examined employees who supplemented official training by seeking "informal training" from their proximal friends. Compared to workers in centralized work groups with low density, individuals in decentralized work groups with high connection density were more positive about the system. Meaning that in centralized groups employees in main positions were happier with training than those in peripheral ones (Sasidharan et al., 2012). Literature from previous findings does not support H1 and contradicts it which indicates that a dense network does not necessarily impact training positively.

The researcher’s second hypothesis stating that HRM training has a favorable relationship with degree centrality emerged from the findings of previous literature of Reinholt et al. (2011) who discovered that knowledge sharing occurred as a result of employee involvement in job rotation, training, and career advancement combined with a high degree of centrality and a desire to share training. Meaning that a central position in the network enhances training knowledge sharing. A

more central performer is one who has many relationships flowing in and out of his life (Hawe et al., 2004). Because they are in communication with many other players, focal actors in degree centrality network ideas disseminate information quickly within the network (Prell et al., 2009). Fast dissemination of information within a network facilitates and enhances training content among employees within a company. A high degree centrality suggests a lot of support for a specific individual and the learnings that person wishes to transfer to the work (Froehlich and Gegenfurtner, 2019). According to Reinholt et al. (2011), participation in HR programs leads to the creation of a diverse body of knowledge that accumulates and may be communicated to others in the business; this means that a pivotal presence in the network improves training knowledge sharing. Prell et al. (2009) declare that stakeholders with a high degree centrality can be considered as key participants in mobilizing the network and bringing other stakeholders together. According to Williamson and Cable (2003), the likelihood of future executive searches for a business with a high out-degree centrality in the personnel mobility network increased. A rise in network scale or a shift toward greater centrality and density might show a transition from novice employees to experts (Van den Bossche and Segers, 2013). The study's results did not support H2 which indicates that degree centrality in a network does not necessarily impact training positively which contradicts previous findings.

The third hypothesis on the positive effect of betweenness on HRM training emerged from the findings of previous literature of Froehlich and Gegenfurtner (2019) stating that support from multiple departments in the context of training transfer offers heterogeneity of the support source and empowers the support since assistance from a single group of individuals may be perceived as redundant. Our results confirmed it as well (Refer to figure or table).

Moreover, our results confirm our hypothesis (H4) and show similar results obtained by Burt (1992) on the positive association of efficiency with HRM training since higher efficiency yields higher training transfer.

The researcher's fifth hypothesis stating that weak ties are positively associated with HRM training emerged from the findings of previous literature of Granovetter (1973) who contends that training information flows quicker through weak ties than through strong ties. The present study's results support H5 which indicates that weak ties allow better training transfer.

Blommaert et al.’s (2020) prior study findings informed the researcher's sixth hypothesis, which states that gender moderates the link between social network factors and HRM training. The current study's findings support H6. While comparing between genders, significance of social networks with HRM Training varies. In females, there is no significance in efficiency while betweenness is very important and weak ties allow for better training. However, in male participants, betweenness has no significance while efficiency is important and strong ties allow higher satisfaction with training. There is lack of research that combines gender with social networks and HRM training, the literature that supports the gender moderation effect is between gender and social networks.

Although the model does not show a unidimensional model, some blocks have a given value above 1 showing some unidimensional model. Some of the cross-loading test show some correlation between social networking and variables for example density, degree and betweenness have the highest impact on employee training. However, as shown in Table 3, efficiency impacted the most organization support and tie strength impacted employee feelings and satisfaction. Figure 19 depicts that the degree has a 50% effect on HRM Training. There is no significance between the two social network variables density and degree and HRM Training. However, there is significance between the other three social network variables which consist of betweenness, efficiency and tie strength and HRM Training.

It was observed that one-on-one training was the most effective and preferred training method in helping employees learn a specific task at the job followed by instructor-led classroom training; while self-study was the least preferred option for training at work. The majority of those polled say their departments offer training opportunities to match the changing demands of their job. Only a little over the average believe that people get ahead as fast at their current job as they do in other places. Most respondents believe that their efforts are appropriately rewarded at their individual employment. The majority of those polled also had learning objectives that are intended to improve their present job assignments and to prepare them for future roles. In brief, a high percentage of employees believe that their organization supports training initiatives.

Training transfer is a complicated process that incorporates several factors at various levels of analysis and phases. Aside from training factors, social networks aid the training transfer process.

Organizations should enhance social networking environments at workplace to support relationships between employees regardless of their position. In empirical research, social networks have received substantially less attention as a potential explanation for gender differences in job authority. Women's social networks are seen to have less beneficial relationships and resources in terms of knowledge, influence, and social credentials than men's networks. Several researchers have expressed worry about the dearth of evidence on whether and how networks impact gender inequalities in professional performance, and have requested further empirical research on the issue.

5.2Managerial Implications

This research adds to theory by combining two sets of knowledge which are HRM training and social networks, it provides a social network-based model for better employee training. HRM is distinct because it is closely tied to both professionals and HR policies and procedures. Challenges addressed in this study are geared at organizational procedures that guarantee employees obtain the necessary training and development opportunities to improve and contribute positively to organizational goals. Utilizing a social network viewpoint underlines the possibility for firms to rethink how they approach their employees in order to utilize their skills. This research recognizes the relevance of employee networks in HRM training and makes some ideas for the way professionals must think about training management. The social environment has a significant impact on the efficacy of managers, hence there is a clear necessity to be attentive to an organization's social structure which enables professionals to obtain a glance into their employees' connections and pinpoint unique training requirements. This evaluation results in the creation of an updated HR policies which to recognize, analyze, and use workplace connections. To obtain the greatest results for a business, social resources at the workplace must be recognized and maintained in conjunction with human capital. Social networking brings to light a slew of new concerns that are likely to have an influence on how practitioners handle employee abilities, mindsets and actions, as well as their ability to aid in competitiveness. Because there is a scarcity of early studies on the consequences and integration of social networks on HRM training, this research encourages companies to implement it and benefit from it to choose the right employees to train, the methods of training them and their position in the network. This allows companies to allocate focal employees who can transfer training and disseminate information the most due to

his/her relationship with others at workplace. This study also aids managers to differentiate between men and women when allocating training since findings show that both genders disseminate information differently in their network and have opposite network preferences when sharing training.

5.3Limitations and Future Research

Similar to any other research, this study has limitations. The first limitation is that the study's data gathered was restricted to LAU only. The second limitation is the sample size which only targeted 130 participants.

Another drawback is that the current study does not take into account changes in the respondents' organizational environments, as well as whether or not their businesses are well equipped to capitalize on the benefits of training. This might have a significant impact on how management interacts with employees and how they engage with one another, along with how the organization offers its staff all the resources they need for a successful training experience.

Time of research is also a limitation since the researcher was bounded by a certain time constraint. Few studies were found that discuss training to social networks while taking gender into consideration (lack of preliminary data).

All of the constraints highlighted can be used as a constructive source for future study. The study could be further improved by taking respondents across different industries. Since we noticed that all respondents were not familiar with social networks, a workshop could have been done prior to the survey to introduce the topic to participants. In addition, certain social network variables could be subcategorized into different levels for example degree could be split into indegree and outdegree for more accurate results. Further analysis should be done in table 1, first and second eigenvalues should have been considered in the statistics to ensure that the model is unidimensional.

This study examines only the moderating role of gender, future research could take into consideration other factors such as age, years of experience, education, occupation and training types. Social networks have many properties where the researcher can further emphasize on like cohesion, constraint, closeness centrality and effectiveness level. Network properties and analysis is a wide field to study and data could be extracted to find many linkages that can help improve organizational training. Future research could investigate why social network isn't incorporated in the training sector at organizations, discuss its benefits, explain how social network is applied in training and encourage organizations to implement it.

References

AbouJaoude, H. (2015). Labour market and employment policy in Lebanon.

Albrecht et al. (2015). Employee engagement, human resource management practices and competitive advantage: An integrated approach. Journal of Organizational Effectiveness: People and Performance, Vol.2 No.1, pp.7-35.

Aquilani et al. (2017). A systematic literature review on total quality management critical success factors and the identification of new avenues of research. The TQM Journal, Vol. 29 No.1,pp.184-213.

Armstrong, S., & Mitchell, B. (2008). The Essential HR Handbook: A Quick and Handy Resource for Any Manager or HR Professional. Career Press.

Aslam et al. (2014). A Historical View of Human Resource Management Practice: Literature Review. International Journal of Human Resource Studies.

Baek et al. (2020). Social Network Analysis for Social Neuroscientists. Social Cognitive and Affective Neuroscience, Vol. 16.

Beardwell and Holden. (2001). Human resource management. A contemporary approach. Essex: Pearson Education Limited.

Becker, B., Huselid, M., & Ulrich, D. (2001). The HR Scorecard: Linking People, Strategy, and Performance. Harvard Business School Press.

Beer, M., Mills, D. Q., Spector, B., Walton, R. E., Lawrence, P. R., & Beer, C. (1984). Managing Human Assets.

Bickel and Lehmann . (2012). Descriptive statistics for nonparametric models IV. Spread. In Selected Works of EL Lehmann. Boston, MA: (pp. 519-526). Springer.

Blommaert et al. (2020). The gender gap in job authority: Do social network resources matter? Acta Sociologica, 63(4), 381–399.

Boon, C., Hartog, D. N., & Lepak, D. (2019). A Systematic Review of Human Resource Management Systems and Their Measurement. Journal of Management .

Borgatti. (2006). E-NET Software for The Analysis of Ego-Network Data. Needham: MA; Analytic Technologies.

Borgatti and Cross . (2003). A relational view of information seeking and learning in social networks. Management Science, 49(4): 432–445.

Borgatti et al. (2009). Network Analysis in the Social Sciences. Science, Vol. 323, No. 5916, pp. 892-895.

Boxall, P., & Purcell, J. (2003). Strategic human resource management: where have we come from and where should we be going? International Journal of Management Reviews.

Bozionelos. (2006). Mentoring and expressive network resources: their relationship with career success and emotional exhaustion among Hellenes employees involved in emotion work. International Journal of Human Resource Management, 17(2), 362–378.

Brandsford and Schwartz. (1999). Rethinking transfer: A simple proposal with multiple implications . Review of Research in Education, 24, 61–100.

Brass. (1985). Men's and women's networks: A study of interaction patterns and influence in an organization. The Academy of Management Journal, 28(2): 327–343.

Brass. (1995). A social network perspective on human resources management. Greenwich, CT: JAI Press: In G. Ferris(Ed.), Research in Personnel and Human Resources Management, Vol. 13, 39-79.

Brass. (2012). A social network perspective on organizational psychology. New York: Oxford University Press: In S. W. J. Kozlowski (Ed.), The Oxford Handbook of Organizational Psychology, 667-695.

Bratton and Gold . (2007). Human resources management theory and practice (4th Edition ed.). Macmillan: Houndmills.

Burt. (1992). Structural holes: The social structure of competition. Cambridge, MA: Harvard University Press.

Burt. (1995). Structural Holes the Social Structure of competition. Harvard University Press.

Burt. (2001). Structural holes versus network closure as social capital. New York: de Gruyter, 31-56.

Byars, L., & Rue, L. (2004). Human resource management. Boston : McGraw-Hill.

Cardy, R., & Dobbins, G. (1996). Human resource management in a total quality organizational environment: Shifting from a traditional to a TQHRM approach. Journal of Quality Management, 1 (1): 5—20.

Chung. (2009). UNDERSTANDING ATTITUDES TOWARDS PERFORMANCE IN KNOWLEDGE-INTENSIVE WORK: THE INFLUENCE OF SOCIAL NETWORKS AND ICT USE. University of Sydney, 222-226.

Chung et al. (2014). Exploring Sociocentric and Egocentric Approaches for Social Network Analysis. ResearchGate.

Coleman. (1988). Social capital in the creation of human capital. American Journal of Sociology, 94: S95 S120.

Coleman. (1990). Foundations of Social Theory. Cambridge, MA: Harvard University Press.

Conaty, B., & Charan, R. (2010). The Talent Masters: Why Smart Leaders Put People Before Numbers. New York : Crown Business.

Cooney, R., Terziovski, M., & Samson, D. (2002). Employee Training, Quality Management and The performance of Australian and New Zealand Manufacturers. Monash University Faculty of Business and Economics.

Cronbach. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16(3), 297-334.

Cross et al. (2003). Networks in the Knowledge Economy. Oxford University Press.

Dessler, G. (2013). Human Resource Management: Global Edition, 13th Edition. Pearson Education.

Edmondson. (2003). Psychological Safety, Trust, and Learning in Organizations. A Group-level Lens. Trust and Distrust. Organizations: Dilemmas and Approaches, 239–282.

Edralin, D. (2004). Training: A strategic HRM function. 7.

Evans and Davis . (2005). High-performance work systems and organizational performance: The mediating role of internal social structure. Journal of Management, 31(5): 758-775.

Fang et al. (2017). Down but not out: Newcomers can compensate for low vertical access with strong horizontal ties and favorable core self-evaluations. Personnel Psychology, 70(3), 517-555.

Fang et al. (2010). Balancing exploration and exploitation through structural design: The isolation of subgroups and organizational learning. Organization Science, 21(3): 625–642.

Fares . (2019). Modelling Stakeholder Integration Using Social Networks: An Australian Integrated Health Care Project.

Fombrun, C. J., Tichy, N. M., & Devanna, M. A. (1984). Strategic Human Resource Management. New York: Wiley.

Forbush and Morgan. (2004). Instructional team training: Delivering live, internet courses to teachers and paraprofessionals in Utah, Idaho and Pennsylvania. Rural Special Education Quarterly, 23 (2), 9–17.

Freeman. (1979). Centrality in Social Networks: Conceptual Clarification. Social Networks, 215-239.

Froehlich and Brouwer. (2018). Social Network Analysis as Mixed Analysis. Oxford:Routledge.

Froehlich and Gegenfurtner. (2019). Social support in transitioning from training to the workplace: A social network perspective. Beziehungen in pädagogischen Arbeitsfeldern und ihren Transitionen über die Lebensalter, 208-222.

George and Mallery. (2016). IBM SPSS Statistics 23 Step by Step: A Simple Guide and Reference. (14th ed.). Routledge.

Granovetter. (1973). The strength of weak ties. American Journal of Sociology, 6, 1360-1380.

Hair et al. (2010). Multivariate data analysis with readings (3rd ed.). New York: Macmillan.

Hair et al. (2016). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage publications.

Halawi, A., & Haydar, N. (2018). Effects of Training on Employee Performance. ReserchGate.

Hamouche, S. (2021). Human resource management and the COVID-19 crisis: implications, challenges, opportunities, and future organizational directions. Journal of Management & Organization.

Hanneman and Riddle. (2011). Concepts and Measures for Basic Network Analysis. London: SAGE, 340-369.

Hansen. (1999). The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. Administrative science quarterly, 44, 82-111.

Hartenian. (2003). Team member acquisition of team knowledge, skills and abilities. Journal of Team Performance Management, 9 (1/2), 23-30.

Hatala and Fleming. (2007). Making Transfer Climate Visible: Utilizing Social Network Analysis to Facilitate the Transfer of Training . Human Resource Development Review, 6(1), 33–63.

Hawe et al. (2004). A glossary of terms for navigating the field of social network analysis. Journal of Epidemiology and Community Health, Vol. 58, pp. 971-975.

Holladay and Quinones. (2003). Practice variability and transfer of training: the role of self-efficacy generality. Journal Appl. Psychology, 88, 1094–103.

Hollenbeck and Jamieson. (2015). Human capital, social capital, and social network analysis: Implications for strategic human resource management. The Academy of Management Perspectives, 29(3), 370-385.

Indumathi. (2016). Total Quality Management Impact on HRM Functions. International Journal of Science Technology and Management, 5(10).

Jiménez-Jiménez and Martínez-Costa. (2009). The performance effect of HRM and TQM: a study in Spanish organizations. . International Journal of Operations & Production Management, Vol. 29 No. 12, pp. 1266-1289.

Johnson. (2019). Your Organization Needs a Learning Ecosystem. Harvard Business Review.

Johnson, R., & Gueutal, H. (2011). Transforming HR Through Technology: The Use of E-HR and HRIS in Organizations. SHRM.

Jokisaari. (2013). The role of leader–member and social network relations in newcomers' role performance. Journal of Vocational Behavior, 82(2), 96-104.

Kassicieh and Yourstone . (1998). Training, performance evaluation, rewards, and TQM implementation success. Journal of Quality Management, 3(1): 25-38.

Kaushik. (1996). Effectiveness of Indian science centers as learning environments. Unpublished PhD Thesis University of Leicester, United Kingdom.

Kozlowski and Salas. (2010). Learning, training, and development in organizations. New York: Routledge.

Lankes et al. (2013). Wie kommen Evaluationsteams zu ihrer Einschätzung der Unterrichtsqualität bei externen Evaluationen? . Unterrichtswissenschaft, 41. Jg., H.3, 197–215.

Laumann et al. (1983). The Boundary Specification Problem in Network Analysis. Beverly Hills, CA.: Sage, 18-87.

Lloyd, R., & Aho, W. (2021). The History of Human Resources in the United States: A Primer on Modern Practice. Management Open Educational Resources.

Lwonga and Sanga. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. International Journal of Education and Development using Information and Communication Technology, 3 (2), 30-40.

Manroop, L., Singh, P., & Ezzedeen, S. (2014). Human Resource Systems and Ethical Climates: A Resource-Based Perspective. Human Resource Management .

Marescaux, De Winne, & Sels . (2013). HR practices and HRM outcomes: The role of basic need satisfaction. Personnel Review, 42(1), 4-27.

McDonald. (2011). What’s in the old boys network? Accessing social capital in gendered and racialized networks. Social Networks, 33(4): 317–330.

Milhem et al. (2014). Training Strategies, Theories and Types. Journal of Accounting, Business & Management,, 21(1).

Miller, P. (1987). Strategic Industrial Relations And Human Resource Management - Distinction, Definition And Recognition. Journal of Management Studies.

Morrison. (2002). Newcomers' relationships: The role of social network ties during socialization. Academy of Management Journal, 45(6), 1149-1160.

Neeley and Dumas. (2016). Unearned status gain: Evidence from a global language mandate. Academy of Management Journal, 59(1): 14–43.

Noe, R. (2009). Employee Training & Development. NHRD Network Journal.

Norlina and Raja Munirah . (2018). THE INFLUENCE OF SOCIAL NETWORKS IN FACILITATING TRAINING TRANSFER AND GOAL SETTING AMONGST SMALL BUSINESSWOMEN: A CONCEPTUAL FRAMEWORK. Advances in Business Research International Journal.

Norlina and Raja Munirah. (2018). The Influence Of Social Networks In Facilitating Training Transfer And Goal Setting Amongst Small Businesswomen: A Conceptual Framework. ResearchGate.

Obedgiu, V. (2017). Human resource management, historical perspectives, evolution and professional development. Journal of Management Development.

Osibanjo, O., & Adeniji, A. (2012). Human Resource Management: Theory and Practice. ResearchGate.

Park. (1990). A Review of research on Groupthink. Journal of Behavioral Decision Making, 3(4), 229–245.

Ployhart and Moliterno. (2011). Emergence of the human capital resources: A multilevel model. Academy of Management Review, 36(1): 127-150.

Prell et al. (2009). Stakeholder Analysis and Social Network Analysis in Natural Resource Management. Society and Natural Resources, 22:6, 501-518.

Radcliffe, D. (2005). Critique of Human Resources Theory. Otago Management Graduate Review .

Reinhold et al. (2018). Social support and motivation to transfer as predictors of training transfer: testing full and partial mediation using meta-analytic structural equation modelling: Social support, motivation and transfer. International Journal of Training and Development, 22 (1), 1–14.

Reinholt et al. (2011). WHY A CENTRAL NETWORK POSITION ISN'T ENOUGH: THE ROLE OF MOTIVATION AND ABILITY FOR KNOWLEDGE SHARING IN EMPLOYEE NETWORKS. The Academy of Management Journal, Vol. 54, No. 6, pp. 1277-1297.

Ren, S., & Jackson, S. E. (2020). HRM institutional entrepreneurship for sustainable business organizations. Human Resource Management Review .

Robinson and Stubberud. (2009). SOURCES OF ADVICE IN ENTREPRENEURSHIP: GENDER DIFFERENCES IN BUSINESS OWNERS'SOCIAL NETWORKS. International journal of entrepreneurship, 13, 83.

Rothwell and Kazanas. (2004). Improving on-the-job training: How to establish and operate a comprehensive OJT program (2nd ed.). San Francisco: CA: John Wiley & Sons.

Sadikoglu and Olcay. (2014). The Effects of Total Quality Management Practices on Performance and the Reasons of and the Barriers to TQM Practices in Turkey. Advances in Decision Sciences, 1-17.

Salas and Cannon-Bowers. (2001). The science of training: A decade of progress. Annual Review of Psychology, 52, 471–499.

Sanchez. (2013). Pls path modeling with R. Online.

Sasidharan et al. (2012). The effects of social network structure on enterprise systems success: A longitudinal multilevel analysis. Information Systems Research, 23(3-part-1): 658-678.

Schmidt. (2017). The Job Training and Job Satisfaction Survey Technical Manual. ResearchGate.

Soltis et al. (2018). Social Resource Management: Integrating Social Network Theory and Human Resource Management. Academy of Management Annals, Vol. 12, No. 2, 537-573.

Storey, J. (1995). Human Resource Management: A Critical Text. New York : Routledge.

Sun et al. (2007). Human Resource Practices, Citizenship Behavior, and Organizational Performance: A Relational Perspective. Academy of Management.

Thite and Kavanagh. (2009). Evolution of human resource management & human resource information systems: The role of information technology. Research Gate.

Thomas. (2000). Intrinsic motivation at work: Building energy and commitment. San Francisco: Berrett: Koehler Publisher, Inc.

Tillema and Van der Steen. (2015). Co-existing concepts of management control: The containment of tensions due to the implementation of lean production. Management Accounting Research, pp. 67-83.

Urdinola, A. (2013). Building effective employments program for the unemployed youths in the Middle East. World Bank.

Van den Bossche and Segers. (2013). Transfer of training: Adding insight through social network analysis. Educational Research Review, 8(1), 37–47.

Vinzi et al. (2010). Pls path modeling: from foundations to recent developments and open issues for model assessment and improvement. Springer.

Walters, K., & Rodriguez, J. (2017). The Importance of Training and Development in Employee Performance and Evaluation. ResearchGate.

Wasserman and Faust. (1994). Social Network Analysis: Methods and Applications. Cambridge University Press, Vol 8.

Werner and DeSimone. (2006). Human resource development. Ohio: Thomson.

Williamson and Cable. (2003). Organizational hiring patterns, interfirm network ties, and interorganizational imitation. Academy of Management Journal, 46(3), 349-358.

Yamamoto, K., & Villegas, S. G. (2020). The evolution of Human Resource Development: Strategic HRD to transform organizations into high performance organizations. Advancing Business Education.

Appendices

Appendix 1 Survey Study

Consent to participate in a Survey/Questionnaire

Modeling Human Resource Training Using Social Network Theory and Analytics

I would like to invite you to participate in a research project by completing the following questionnaire/ survey. I am a graduate student at the Lebanese American University and I am completing this thesis as part of my Masters in Human Resource Management Program. The purpose of this study is to understand how your relationships with your colleagues at work impact training and learning.

There are no known risks, harms or discomforts associated with this study beyond those encountered in normal daily life. The information you provide will be used to examine the impact of incorporating training with social networks. *I will not directly benefit from participation in this study and the participant's data will only be used for the research project purpose. The study will involve 100 participants. Completing the survey will take 10-15 minutes of your time.*

By continuing with the questionnaire / survey, I agree with the following statements:

1. *I have been given sufficient information about this research project.*
2. *I understand that my answers will not be released to anyone and my identity will remain anonymous. My name will not be written on the questionnaire nor be kept in any other records.*
3. *When the results of the study are reported, I will not be identified by name or any other information that could be used to infer my identity. Only researchers will have access to view any data collected during this research however data cannot be linked to me.*
4. *I understand that I may withdraw from this research any time.*
5. *I understand that my refusal to participate will not result in any penalty or loss of benefits to which I am otherwise entitled to.*
6. *I have been informed that the research abides by all commonly acknowledged ethical codes and that the research project has been reviewed and approved by the Institutional Review Board at the Lebanese American University.*
7. *I understand that if I have any additional questions, I can ask the research team listed below.*
8. *I have read and understood all statements on this form.*
9. *I voluntarily agree to take part in this research project by completing the following survey/Questionnaire.*

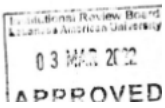
If you have any questions, you may contact:

Name (PI)	*Phone number*	*Email address*
Sarah Khalife	*+9613024501*	*Sarah.khalife@lau.edu*
Dr. Julian Fares	*+96176120470*	*Julian.fares@lau.edu.lb*

If you have any questions about your rights as a participant in this study, or you want to talk to someone outside the research, please contact the:

Institutional Review Board Office,
Lebanese American University
3rd Floor, Dorm A, Byblos Campus
Tel: 00 961 1 786456 ext. (2546)
irb@lau.edu.lb

This study has been reviewed and approved by the LAU IRB: (to be added later)



Section A: Demographics

First, we are going to collect demographic data.

Age _____

Gender

- Female
- Male
- Other

Educational level

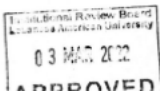
- School degree
- Undergraduate
- Master's degree
- Doctorate degree
- Other

Occupation

- Top Management
- Middle Management
- Supervisory
- Employee

Years of Experience

- 1-5
- 6-10
- 11-15
- 16-20
- 20+

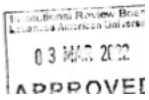


Section B: Knowledge and Skills Training

This section aims to detect the presence of knowledge and skills training in your organization.

Please select the appropriate answer.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Part 1: *This section aims to detect the presence of organization support for training.*					
1- My department provides learning/training opportunities to meet the changing needs of my workplace.					
2- People get ahead as fast here as they do in other places.					
3- I don't feel my efforts are rewarded the way they should be.					
4- I have learning goals designed to enhance my current work assignment and to prepare me for future positions.					
Part 2: *This section aims to detect employee feelings about training.*					
5- The benefits we receive are as good as most other organizations offer.					
6- I like the people I work with.					
7- Overall, I am satisfied with the amount of training I receive on the job.					
8- I feel satisfied with my chances for salary increases.					
Part 3: *This section aims to detect employee satisfaction with training.*					
9- Overall, the training I receive on the job meets my needs.					
10- In my department, people are interested in both personal and professional development.					



11- From the training methods listed below, choose the one that you believe is most effective in helping you learn.

- o Instructor-led classroom training
- o One-on-one training
- o Online or computer-based training
- o Self-study or independent study (including video-based training)

12- How many years have you been in your current position?

- o Less than one
- o 1-3 years
- o 4-6 years
- o 7-9 years
- o 10-12 years
- o Over 13 years

Please answer the following questions.

A) Considering the most recent project you were involved in; how would you rate your influence on the project?

Low				High
1	2	3	4	5

B) Considering the most recent project you were involved in; how would you rate your authority in the project?

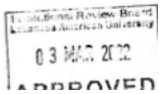
Low				High
1	2	3	4	5

C) If you wanted to influence a team member, what would you most likely do?

Act by yourself				Persuade others to act
1	2	3	4	5

D) Your team members exchange resources every day, what would you do if you wanted to influence them?

I usually manipulate resource flow to exert pressure				I usually facilitate resource flow to not cause conflict
1	2	3	4	5



Section C: Social Network Survey

This section explores your relationships with your team members at your organization.

Please provide the names of up to 10 people that you interact with at your company who are important in terms of providing you with information related to work or helping you solve complex problems caused by your work. Use the codes provided to fill Table sections of C, D, E, F.

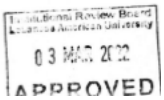
A. First Name	B. What is his/her occupation? *(ex: manager, team member, etc)*	C. How often do you interact with each person?	D. How 'close' are you with each person?	E. How often do you receive training information/resources from this person?	F. What type of training do you receive from this person?
1		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
2		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
3		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
4		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
5		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
6		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
7		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
8		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
9		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
10		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

Code	C. Frequency of Interaction
1	Less often
2	Monthly
3	Weekly
4	Daily

Code	D. Degree of Closeness
1	**Distant** - I don't enjoy working
2	**Less than close** - I don't mind working
3	**Close** - I enjoy working
4	**Especially close** - I am a very close person

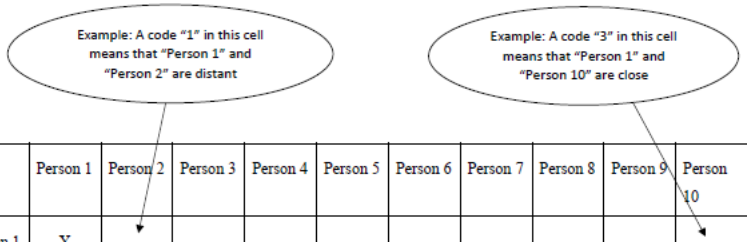
Code	E. How often do you receive training information from this person?
1	Never
2	Rarely
3	Often
4	Regularly

Code	F. What type of training do you receive from this person?
1	Instructor-led classroom
2	One-on-one training
3	Online or computer-based learning
4	Observation Self-study

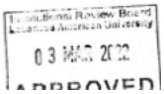


Start with person 1 (in row), ask how much person 1 (in row) interacts with person 2 (in column) and enter the corresponding code (1, 2, 3, 4) available in the above "degree of closeness" table.

Then ask how close is person 1 (in row) with person 3 (in column) and so on. Then start with person 2 (in row) and see how close is he/she to person 1 (in column) and so on.



	Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Person 7	Person 8	Person 9	Person 10
Person 1	X									
Person 2	X	X								
Person 3	X	X	X							
Person 4	X	X	X	X						
Person 5	X	X	X	X	X					
Person 6	X	X	X	X	X	X				
Person 7	X	X	X	X	X	X	X			
Person 8	X	X	X	X	X	X	X	X		
Person 9	X	X	X	X	X	X	X	X	X	
Person 10	X	X	X	X	X	X	X	X	X	X



Appendix 2 IRB Approval of Research

LAU
اللبنانية الأميركية
Lebanese American University
Institutional Review Board (IRB)
لجنة الأخلاقيات

NOTICE OF IRB EXEMPTION DETERMINATION

To: Ms. Sarah Khalife
Dr. Julian Fares
Assistant Professor
School of Business

APPROVAL ISSUED: 3 March 2022
EXPIRATION DATE: 3 March 2024
REVIEW TYPE: EXEMPT CATEGORY B

Date: March 3, 2022
RE: ***IRB #:*** *LAU.SOB.JF1.3/Mar/2022*
Protocol Title: *Modeling Human Resource Training Using Social Network Theory and Analytics*

Your application for the above referenced research project has been reviewed by the Lebanese American University, Institutional Review Board (LAU IRB). This research project qualifies as exempt under the category noted in the Review Type.

This notice is limited to the activities described in the Protocol Exempt Application and all submitted documents listed on page 2 of this letter. **Final reviewed consent documents or recruitment materials and data collection tools released with this notice are part of this determination and must be used in this research project.**

CONDITIONS FOR ALL LAU NOTICE OF IRB EXEMPTION DETERMINATION

LAU RESEARCH POLICIES: *All individuals engaged in the research project must adhere to the approved protocol and all applicable LAU IRB Research Policies. PARTICIPANTS must NOT be involved in any research related activity prior to IRB notice date or after the expiration date.*

EXEMPT CATEGORIES: *Activities that are exempt from IRB review are not exempt from IRB ethical review and the necessity for ethical conduct.*

PROTOCOL EXPIRATION: PROTOCOL EXPIRATION: *The LAU IRB notice expiry date for studies that fall under Exemption is 2 years after this notice, as noted above. If the study will continue beyond this date, a request for an extension must be submitted at least 2 weeks prior to the Expiry date.*

MODIFICATIONS AND AMENDMENTS: *Certain changes may change the review criteria and disqualify the research from exemption status; therefore, any proposed changes to the previously IRB reviewed exempt study must be reviewed and cleared by the IRB before implementation.*

RETENTION: *Study files must be retained for a period of 3 years from the date of project completion.*

IN THE EVENT OF NON-COMPLIANCE WITH ABOVE CONDITIONS, THE PRINCIPAL INVESTIGATOR SHOULD MEET WITH THE REPRESENTATIVES OF THE IRB OFFICE IN ORDER TO RESOLVE SUCH CONDITIONS. IRB CLEARANCE CANNOT BE GRANTED UNTIL NON-COMPLIANT ISSUES HAVE BEEN RESOLVED.

If you have any questions concerning this information, please contact the IRB office by email at irb@lau.edu.lb

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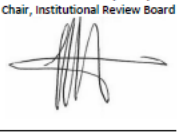
The IRB operates in compliance with the national regulations pertaining to research under the Lebanese Minister of Public Health's Decision No.141 dated 27/1/2016 under LAU IRB Authorization reference 2016/3708, the international guidelines for Good Clinical Practice, the US Office of Human Research Protection (45CFR46) and the Food and Drug Administration (21CFR56). LAU IRB U.S. Identifier as an international institution: FWA00014723 and IRB Registration # IRB00006954 LAUIRB#1

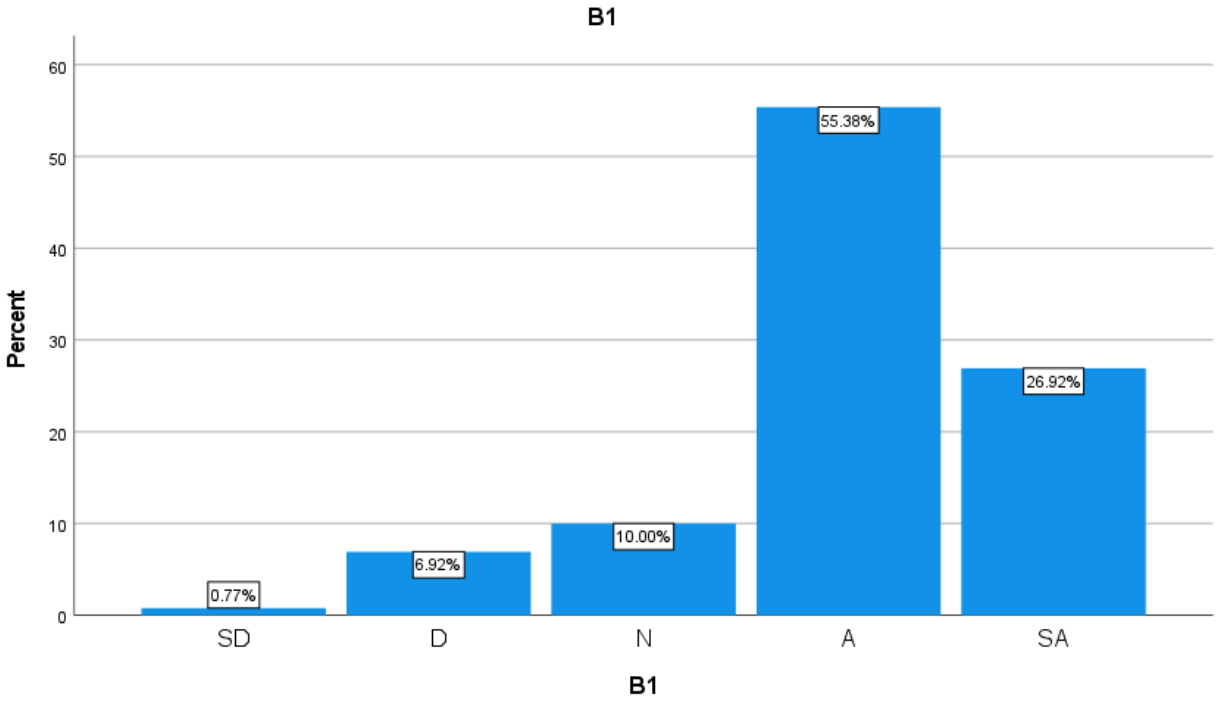
Dr. Joseph Stephan
Chair, Institutional Review Board

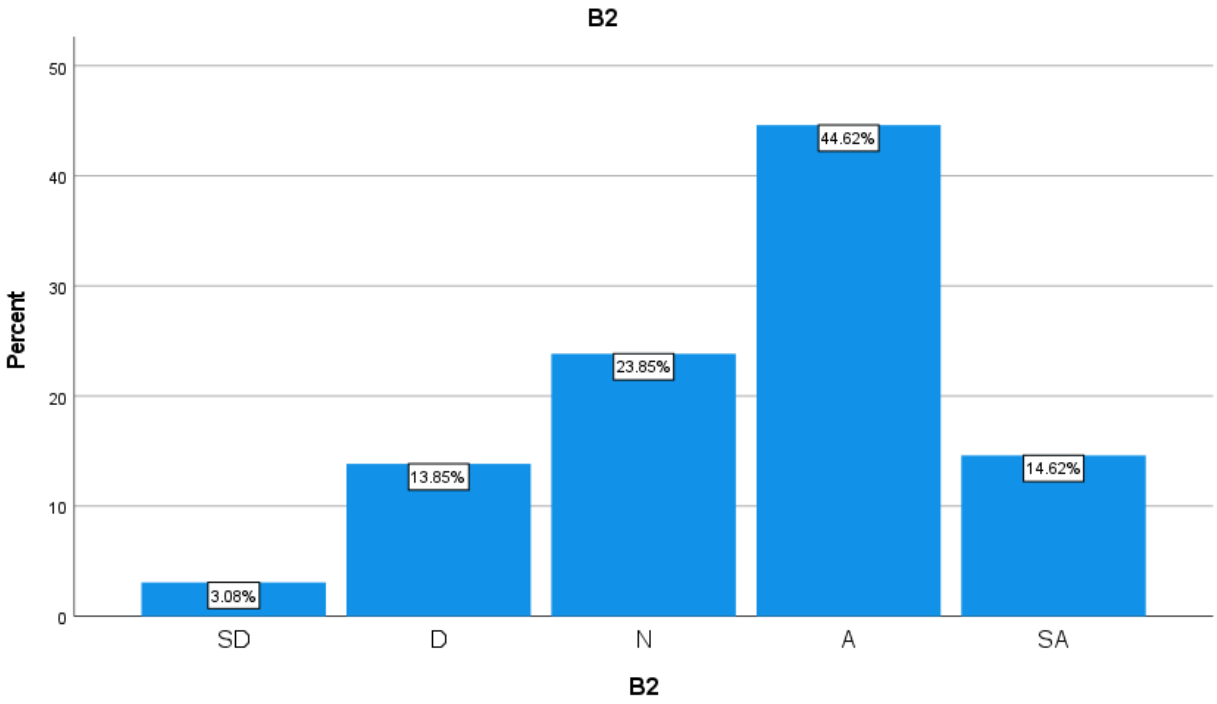


DOCUMENTS SUBMITTED:

LAU IRB Exempt Protocol Application	Received 15 February 2022, amended 17 February 2022
Research Proposal	Received 15 February 2022, amended 17 February 2022
Informed consent	Received 15 February 2022
Questionnaire	Received 15 February 2022, amended 28 February 2022
IRB Comments sent: 16 February 2022 28 February 2022	**PI response to IRB's comments dated:** 17 February 2022 28 February 2022
CITI Training – Julian Fares	Pending
CITI Training – Sarah Khalife	Cert.# 39635302 Dated (14 November 2020)

Appendix 3

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Percent
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30
20
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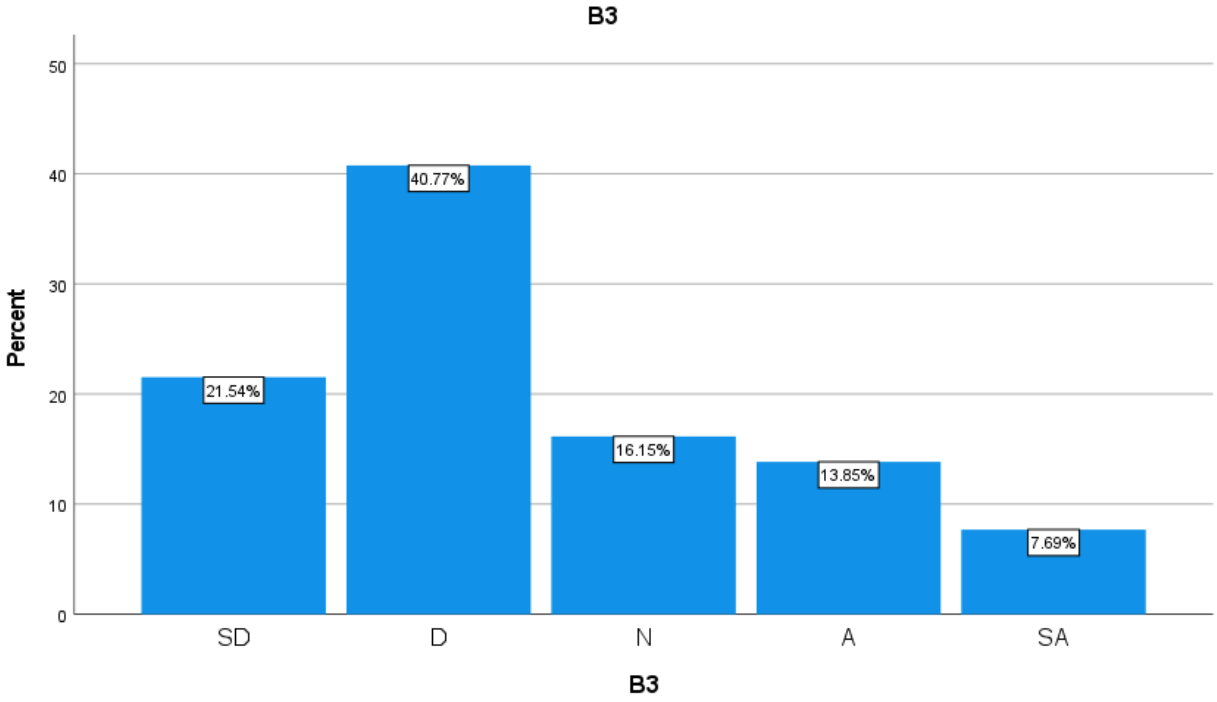
23.85%
13.85%
14.62%
3.08%
SD
D
N
A
SA
B2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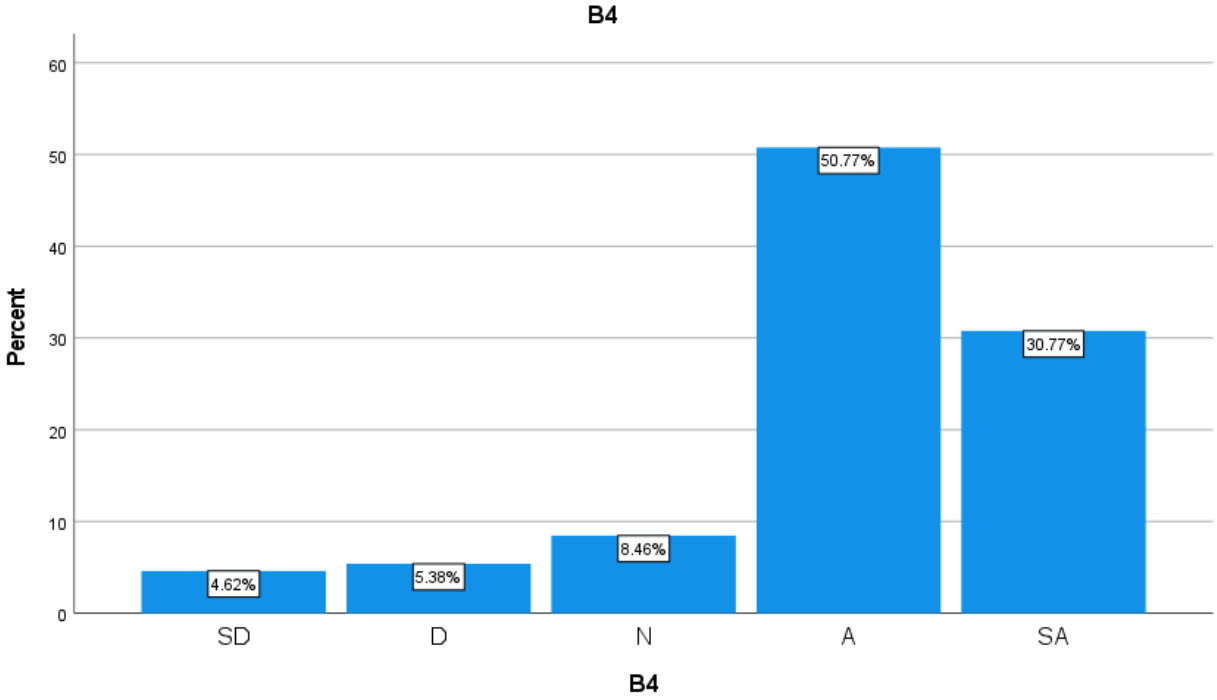
7.69%
SD
D
N
A
SA
B3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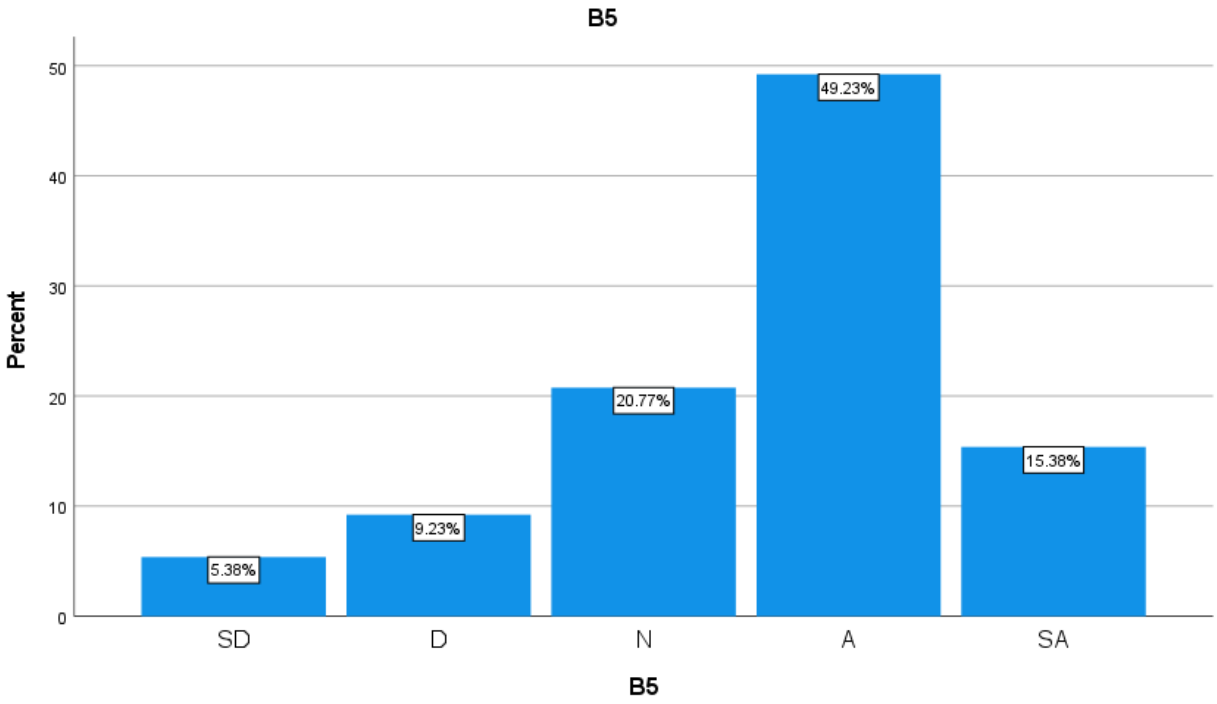
SD
D
N
A
SA
B4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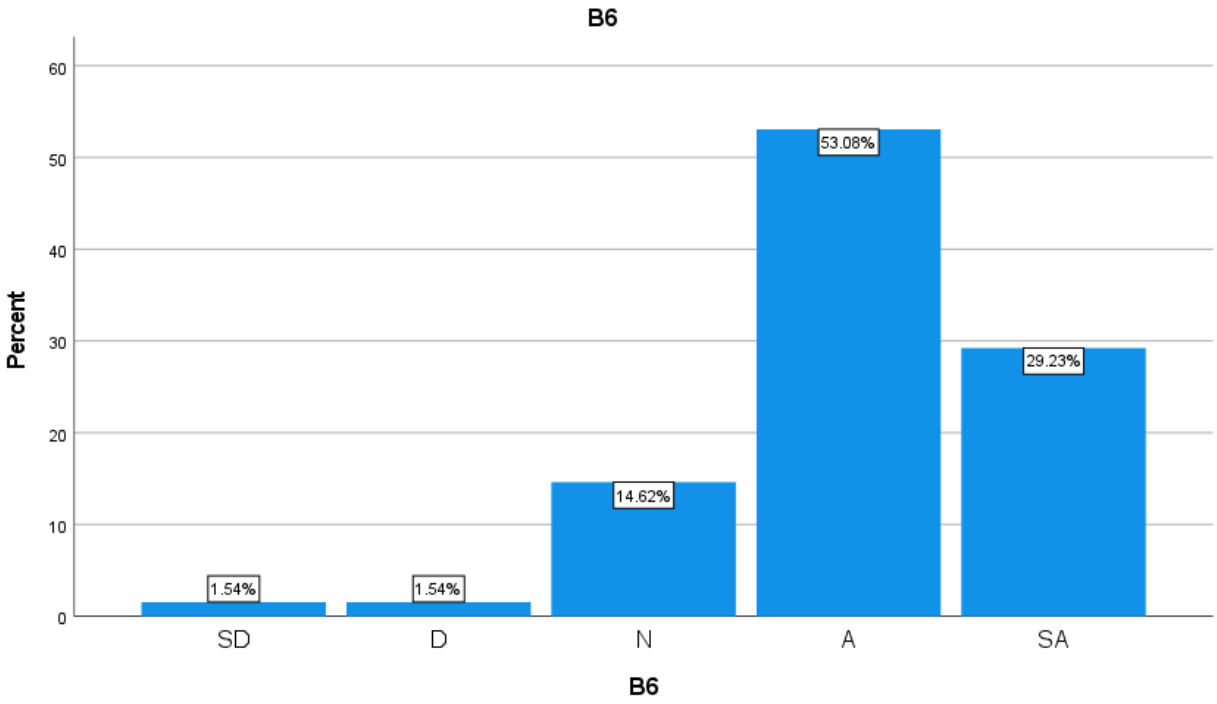
D
N
A
SA
B5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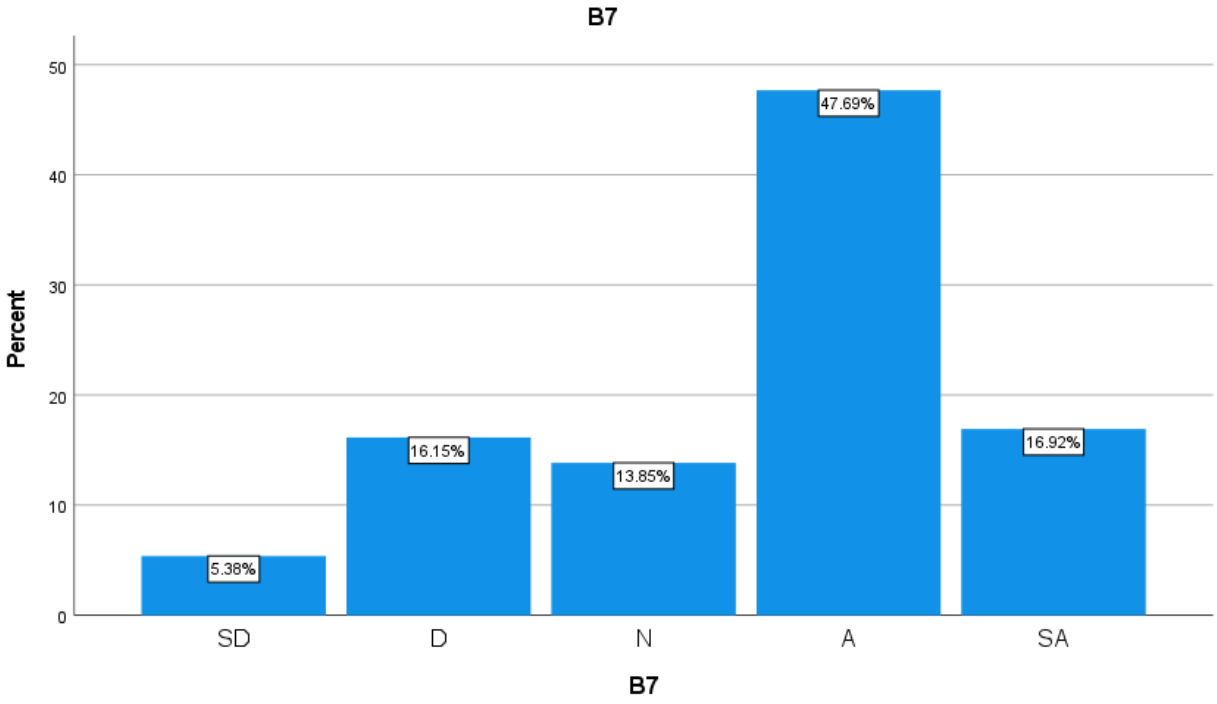
1.54%
SD
D
N
A
SA
B6


B7
Percent
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16.92%
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D
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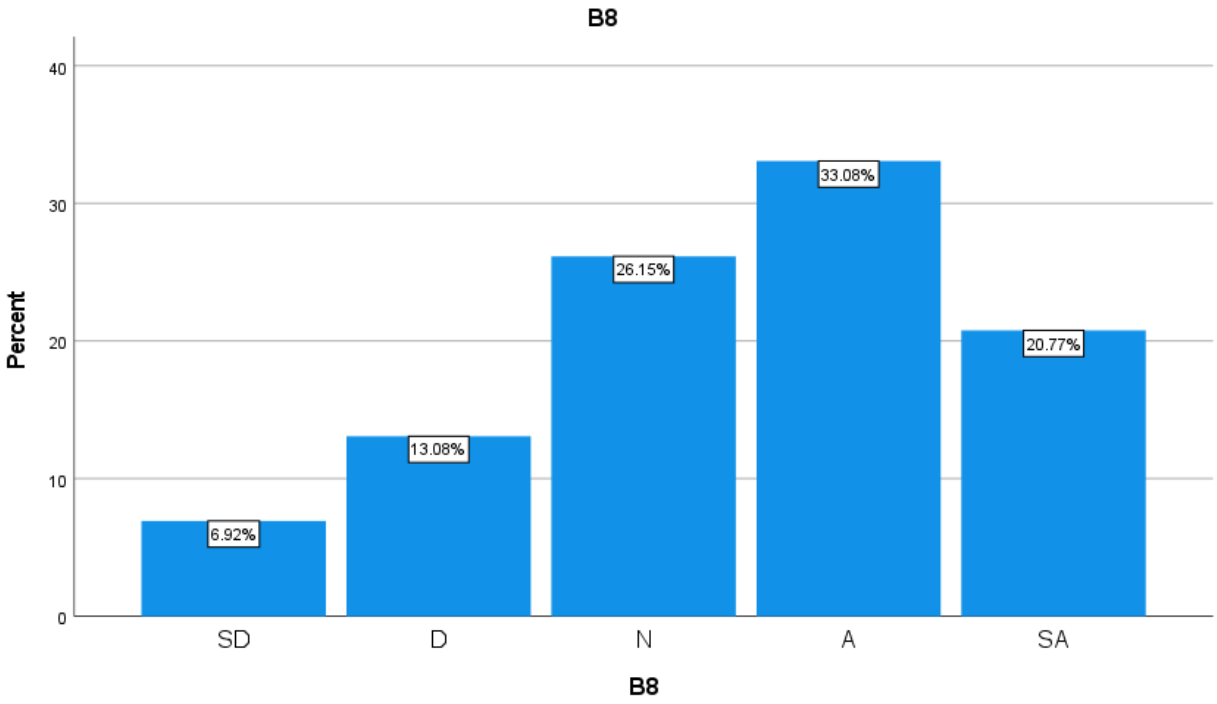
A
SA
B7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Percent
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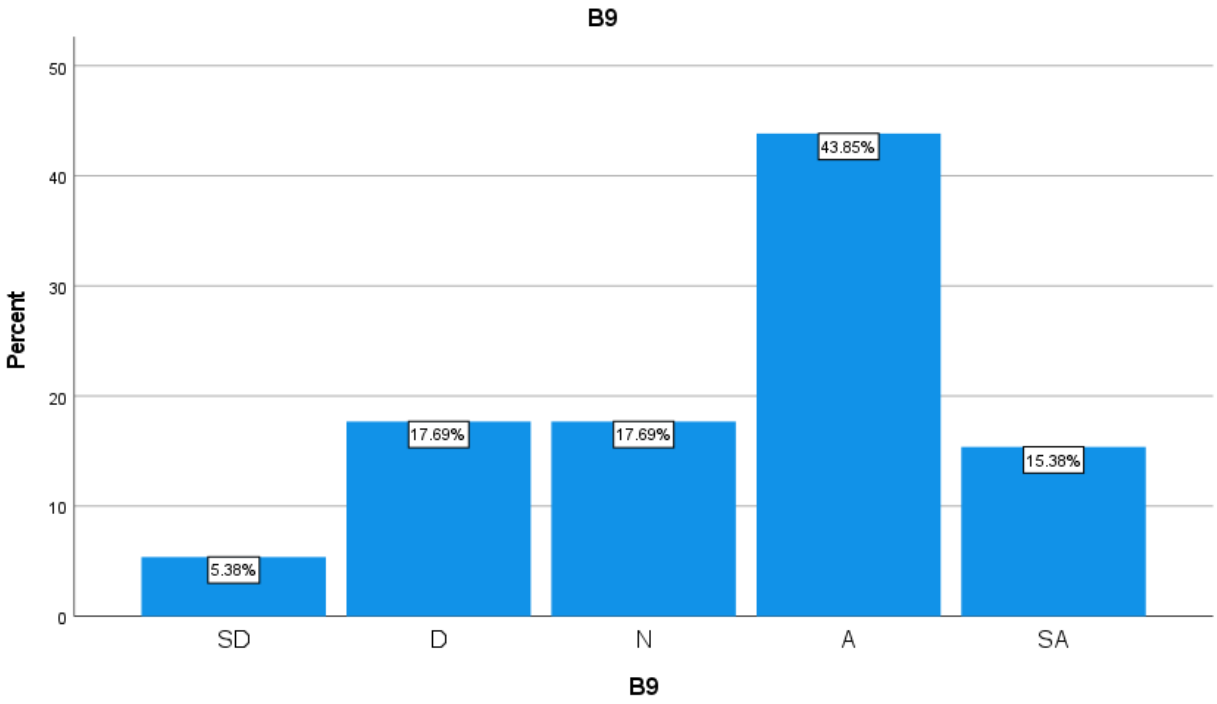
26.15%
33.08%
20.77%
SD
D
N
A
SA
B8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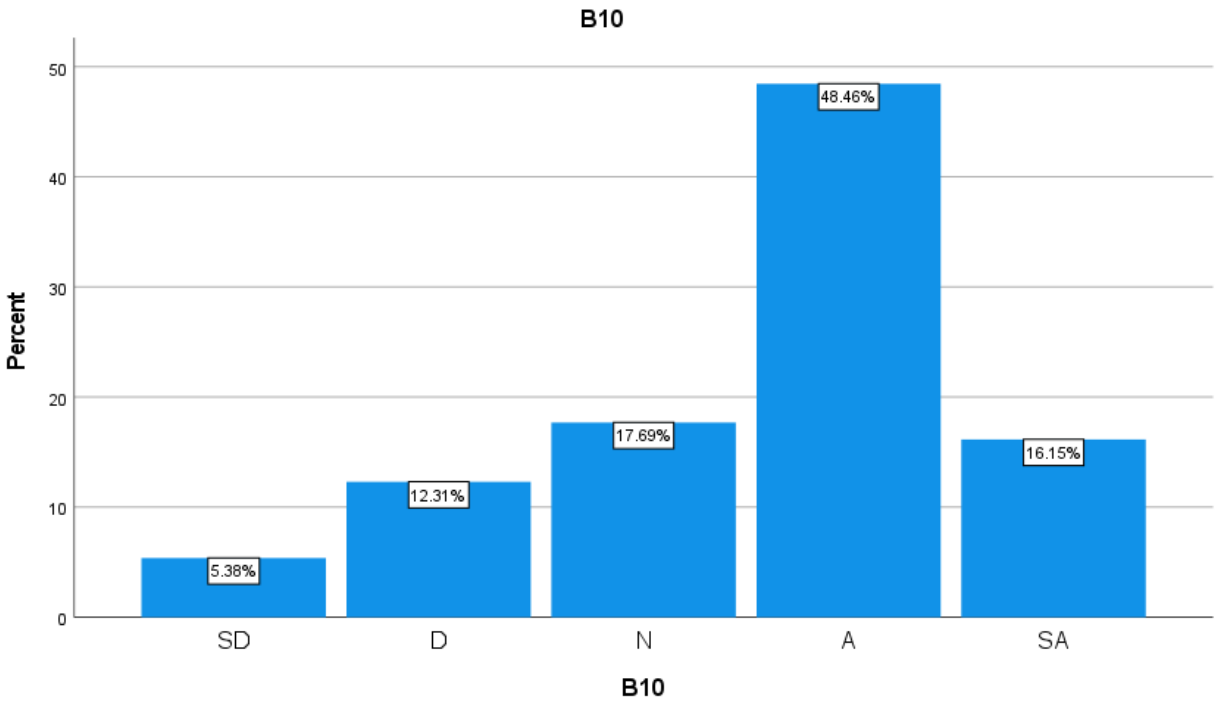
17.69%
15.38%
5.38%
SD
D
N
A
SA
B9


B10
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16.15%
12.31%
5.38%
SD
D
N
A
SA
B10

Appendix 4

Inner model:

R^2	F	Pr > F	R^2(Bootstrap)	Standard error	Critical ratio (CR)	Lower bound (95%)	Upper bound (95%)
0.100	2.748	0.022	0.149	0.060	1.652	0.040	0.375

Table 1: Adaptive Capacity Model Assessment

Summary statistics:

Variable	Categories	Frequencies	%
Gender	0	64	49.231
	1	66	50.769

Path coefficient (Density -> HRM Training):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	0.264	1.552	1.979	128	0.123	No

Path coefficient (Degree -> HRM Training):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	0.013	0.082	1.979	128	0.935	No

Path coefficient (Betweenness -> HRM Training):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	0.514	3.006	1.979	128	0.003	Yes

Path coefficient (Efficiency -> HRM Training):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	0.595	2.708	1.979	128	0.008	Yes

Path coefficient (Tie Strength -> HRM Training):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	9.788	36.509	1.979	128	0.000	Yes

Path coefficient (HRM Training -> Employee Feeling and Satisfaction):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	0.234	4.864	1.979	128	0.000	Yes

Path coefficient (HRM Training -> Organisation Support):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	0.005	0.051	1.979	128	0.959	No

Path coefficient (HRM Training -> Employee training):

Groups	Difference	t (Observed value)	t (Critical value)	DF	p-value	Significant
1 vs 0	0.092	0.660	1.979	128	0.510	No

Table 2: Statistics on The Path Coefficient