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# WHO YOU ARE AND WHO YOU KNOW: THE INFLUENCE OF PERSONENVIRONMENT FIT AND SOCIAL NETWORK CENTRALITY ON INDIVIDUAL PERFORMANCE

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WHO YOU ARE *AND* WHO YOU KNOW: THE INFLUENCE OF PERSON-  
ENVIRONMENT FIT AND SOCIAL NETWORK CENTRALITY ON INDIVIDUAL  
PERFORMANCE

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DISSERTATION

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A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy in the  
College of Business and Economics  
at the University of Kentucky

By

Scott Matthew Soltis

Lexington, Kentucky

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## ABSTRACT OF DISSERTATION

### WHO YOU ARE *AND* WHO YOU KNOW: THE INFLUENCE OF PERSON-ENVIRONMENT FIT AND SOCIAL NETWORK CENTRALITY ON INDIVIDUAL PERFORMANCE

Job seekers and employers frequently make application and selection decisions based on how well they believe there is a 'fit' with the organization and job. The person-environment fit literature has strongly supported this practice demonstrating that fit is an antecedent to attraction, selection, and attrition. What has been lacking, however, is evidence that once individuals enter the organization their fit relates to performance. Using a social network analytical lens, I develop a framework that integrates PE fit and social networks to explore antecedents to employee performance. Using this framework, I explore how informal workplace relationships may act as catalysts through which fit either enhances or detracts from individual performance, how fit might directly influence performance once the social context is taken into account, and how fit might make an individual an attractive exchange partner benefiting performance. Results suggest that PE fit is related to individual performance (both in- and extra-role) but that this relationship differs depending on how well embedded the employee is in the informal social networks of the organization. It is only when accounting for the 'who you know' element of organizational life that we can see how 'who you are' relates to performance.

**KEYWORDS:** Person-Environment Fit, Social Network Analysis, Task Performance, Organizational Citizenship Behavior, Embeddedness

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For Gordon, Hazel, Steve and Isabelle

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## CHAPTER ONE INTRODUCTION

“Organizational culture defines the way employees complete tasks and interact with each other in an organization...Organizational cultures can have varying impacts on employee performance and motivation levels. Oftentimes, employees work harder to achieve organizational goals if they consider themselves to be part of the corporate culture.”  
Davoren, 2012

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“Managers generally presume that someone who fits well will also be a good performer, and those who are misfits will be poor performers. One of the most intriguing findings in the fit research, however, is that this perception is at best, weakly supported.” Kristof-Brown and Guay, 2010: 63

The assurance that a set of human resource policies or practices is related to business outcomes is the keystone for research in human resource management (HRM). One of the most prevalent (explicit or implicit) assumptions held by human resource professionals and departmental managers is that it is crucial for employees to ‘fit’ the job and/or organization. Person-environment (P-E) fit can be determined by assessing how well the knowledge, skills, and abilities of an individual match those required by the job that he/she is trying to fill or how well one’s personal values match those values which best represent the culture of the organization that they are going to be entering. Fit has been shown to be a strong predictor of important employee attitudes such as job satisfaction, organizational commitment, and intent to turnover (Kristof-Brown, Zimmerman, & Johnson, 2005).

Schneider (1987) laid the groundwork for modern theorizing about the importance of P-E fit in organizations. Through the attraction-selection-attrition model, Scheinder (1987) explained that fit is a mechanism through which potential employees decide to apply to an organization, organizations select certain applicants, and why some leave the organization. Fit is therefore of significant throughout an employee’s progression into, through, and out of an organization touching all angles of his/her organizational life. The

widespread applicability of fit has led to a position of prominence in both HRM research and practice and an underlying assumption that those who fit an organization's culture will be strong performers (as is underscored in the above quote from Davoren, 2012). It should be the case that when an employee holds values that are in line with the values that comprise the organization's culture, this fit should have a variety of benefits, including better performance. However, research has demonstrated that the relationship between fit and individual performance is unclear (seen in the contrasting quote from Kristof-Brown and Guay, 2010). Based on three meta-analyses of the fit literature (Hoffman & Woehr, 2005; Kristof-Brown et al., 2005; Arthur, Bell, Villado, & Doverspike, 2006), the influence of fit to culture on performance is weak to moderate ( $\rho$ 's ranging from .03-.32) and is largely inconsistent between organizations (several confidence intervals included zero).

Beyond studying how well employees fit the culture of an organization, fit researchers have also explored the congruence between the knowledge, skills, and abilities of an individual in comparison to what is needed to perform the tasks, duties, and responsibilities of a particular job. If an employee has the knowledge, skills, and abilities to perform the requirements of his/her specific job, this should translate into strong performance. While only one meta-analysis has been conducted on KSA fit to job requirements (Kristof-Brown et al., 2005) results are equally if not more puzzling than those found for fit to culture. The effect sizes reported in this study of various types of fit to job range from .10-.27 and typically again lacked in terms of generalizability (all of the 95% confidence intervals and two-thirds of the 80% confidence intervals contained zero).

To ascertain why these puzzling results have continuously been found between fit and performance, two methodological and one practical reason can be discussed. The first methodological reason why the fit-performance relationship has been underwhelming is that while performance has been measured in many fit studies it is infrequently the focal variable being explored. This lack of specific attention paid to the fit-performance relationship according to Arthur and colleagues (2006: 794) has led to an “absence of a strong theoretical or conceptual basis for a direct relation between P-O fit and job performance.” Therefore, a crucial step in attempting to understand the relationship between fit and performance would be to explore why fit should be related to performance in the first place. The second methodological issue which might help in understanding of if and how fit may translate into individual performance is the percentage of variance explained by statistical artifacts found in the meta-analyses discussed above. In general, correcting for statistical artifacts between studies should explain a great deal of variation of results between studies as it is an attempt to isolate the effects of the variable one is studying (Hoffman & Woehr, 2006). In the meta-analyses discussed above, the amount of variance explained by these artifacts is very frequently near 30%. This, coupled with the lack of generalizability often found when exploring confidence intervals, has led to the repeated assertion that researchers are missing a key variable (or several variables) which may alter the relationship between fit and performance. A practical reason why the fit-performance relationship has remained elusive to researchers is the general complexity of organizational life. While fitting to an organization’s culture or fitting the demands of the job are important aspects of how employees are embedded in an organization or job, only exploring these types of

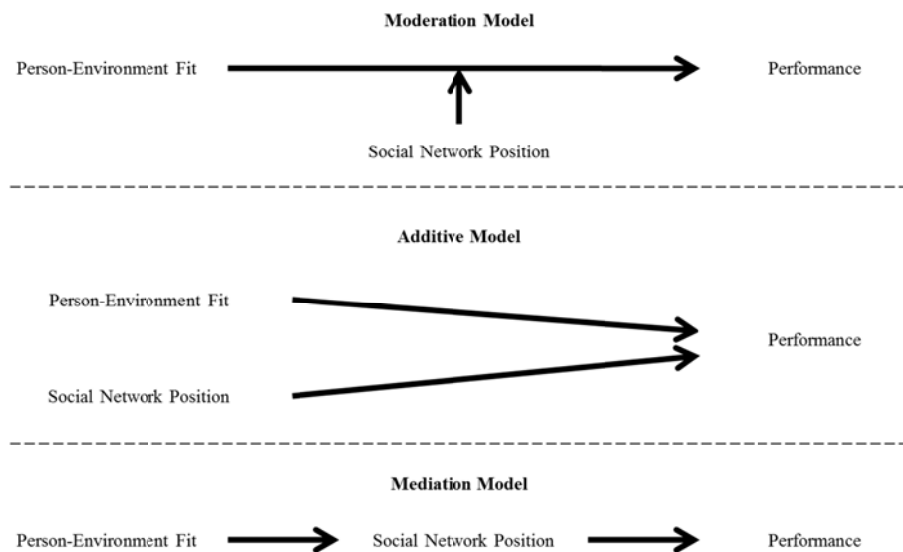
relationships in the organizational environment compartmentalizes the richness of interactions within the workplace.

In this dissertation, I attempt to address the three concerns outlined above by explicitly studying and theorizing about the relationship between fit and performance, and I suggest a missing element of organizational life that should be accounted for in order to better specify the role of fit in understanding employee performance. What has potentially been missing in decades of studying fit are the formal and informal relationships an employee possesses with coworkers. The patterns of formal and informal relationships largely dictate how work gets done and influence the employee in a multitude of ways. Social network analysis measures the patterns of relationships between employees in an organization. These relationships may be important for understanding fit for several reasons. First, having certain patterns of workplace relationships might alter the relationship between fit and performance. Occupying certain positions in the social environment of the organization might amplify or inhibit the effects of fit (or misfit) when it comes to performance. Additionally, informal network position might be something that should be accounted for before exploring the effects of fit on performance as certain positions might be inherently beneficial for performance. Failing to account for informal network position before quantifying the relationship between fit and performance might lead to the suppression of significant findings if any covariation exists between network position and fit when explaining performance. Finally, it may be the case that fit has an indirect effect on performance by helping individuals to occupy advantageous network positions. This dissertation explores three primary ways in which P-E fit and social network position could be related to each other



and (ultimately) to performance. These general models of the influence of P-E fit and social networks on employee performance are provided below as Figure 1. Combining the relational approaches of informal social networks *and* P-E fit might illuminate the relationship between fit and performance. The primary focus of this dissertation is the merging of these two burgeoning, but previously disconnected, literatures to this important end.

Figure 1.1: General models of the relationship between person-environment fit, social network position, and individual performance.



First, one's level of fit may only impact performance when one has certain informal relationships. For instance, when an employee has the knowledge, skills, and abilities (KSAs) considered necessary to be a good performer (known as person-job [P-J] fit) his/her ability to leverage this fit could be dependent on advice giving or seeking relationships. The ability to access the knowledge, skills, and abilities of others may be crucial in ensuring that one not only has a KSA set that is matched the most frequent needs of the job but the ability to adapt to an environment where various KSAs may depending on specific tasks. A baseline set of KSAs could be necessary, but not

sufficient in order to be a strong performer. Studying P-J fit without accounting for the advice networks in an organization could be missing a major part of the job performance puzzle. There is also a reputational component to performance that suggests an influence of advice relationships on how P-J fit influences performance. For instance, a lack of P-J fit might be more detrimental for those who are sought out for advice (having their deficiencies 'exposed') than those who are not sought out for advice (flying under the radar). It is therefore plausible that social networks might moderate the relationship between fit and individual performance in a variety of ways.

Second, instead of strengthening or weakening relationships between fit and performance, social networks might be explaining a different element of performance. Although the relationship has been weaker than expected, being higher in fit means that an individual has either a values profile which may motivate performance or that he/she possesses the KSAs to be able to best perform their job. From the network perspective, an employee's patterns of informal relationships in the workplace can convey benefits such as information access (Burt, 1992) or social support (Coleman, 1988) which could influence individual performance. The additive perspective suggests any performance benefits of fit or social networks exist independently of one another so that being high or low in one dimension would not affect the performance benefits of the other. This perspective has the potential to provide new insights the relationship between P-E fit and performance since social network position has not been used as a control in previous studies. It may well be the case that controlling for social network position reveals a significant relationship between fit and performance, especially if the two areas have some underlying relationship which was previously unaccounted for.

The final way in which P-E fit may be related to performance is through a more indirect route. It may be the case that one's level of fit helps them to gain informal relationships which may be beneficial for performance. This model goes beyond the covariance assertions that might reveal significant fit-performance relationships in the additive model, to suggest that fit might be an antecedent to the occupation of certain social network positions. The person-organization (P-O) fit of an individual is a measure of how well the values of an employee match those of the organization. Prior research has shown that employees are more likely to form informal relationships with others who are more similar to themselves in a variety of dimensions (McPherson, Smith-Lovin, & Cook, 2001). The core principle of the attraction-selection-attrition model is that people are attracted to organizations which have values similar to their own (Schneider, 1987). Those who are low in P-O fit would therefore have very little 'common ground' on which relationships could be built with coworkers. This also suggests that those who are high in P-O fit will have at least a subset of values which are similar to many other coworkers and should therefore be able to cultivate relationships with a diverse set of coworkers. The ability to connect diverse groups of employees has been shown to be beneficial for promotions (Burt, 1992) and performance (Mehra, Kilduff, & Brass, 2001). Person-organization fit could be a driving force to informal network positions which relate to performance. This could either be either a complimentary mediation (if there are direct effects of fit on performance) or may more likely be manifest as indirect-only mediation where there is no significant effect of fit on performance only effects of fit on network position and network position on performance (Zhao, Lynch, & Chen, 2010).

In this dissertation, I explore the relationship between P-E fit and social networks on performance by testing three overarching models described above and displayed previously in Figure 1. The completion of this research begins to answer calls from both the P-E fit and social networks communities for greater integration of social network analysis and theory into traditional HRM areas in a way that provides benefits to both areas. Specifically, I advance P-E fit theory by attempting to explain why fit has had mixed success in predicting performance. The lack of a relationship to this key outcome has been a major point of frustration for those who conduct P-E fit research, given prevalent practitioner assumptions that fit does matter for employee performance. It may be that fit does in fact relate to performance when one accounts for the social structures within which fit exists or that fit relates to the occupation of advantageous network positions. An important contribution to the social networks literature would be variables which explain why individuals are differentially able to leverage certain network positions. By taking the fundamental assertion of social networks that it is the context within which individuals exist that matters, I add two additional contexts to better explore the richness of organizational life. Exploring the degree to which one's values or KSAs are embedded in the organization or job could help to explain either how certain individuals tend to occupy certain network positions or why some individuals exploit their network positions better than others.

An employee's values, knowledge, skills, abilities, and relationships tie them to their jobs, coworkers, and organizations. Jointly exploring several ways in which employees are embedded in the workplace (through values, abilities, and relationships) may help explain why some utilize or gain those opportunities and why other potential

does not materialize into performance. Suggesting that it is who you are *or* who you know in the workplace that makes a difference misses out on key elements of organizational life. A combinatorial approach that it is who you are *and* who you know should more accurately capture reality and explain how one succeeds in a complex workplace.

In Chapter 2 of this proposal, relevant areas of the performance, fit and social networks literatures are reviewed with a focus on how each has been studied in terms of individual performance. Chapter 3 presents a theoretical base and three conceptual models (moderation, additive, mediation) for P-J and P-O fit and outlines the rationale for each general type of model specifying several testable manifestations of these relationships. Chapter 4 is a discussion of the setting for the research, the protocol that was used to collect the data, and the construction of measures that are included in the analyses. Chapter 5 will present the results of the research. Finally, Chapter 6 will include a discussion of the practical and research implications of the results, concluding with future studies which will come out of this dataset.

## CHAPTER TWO LITERATURE REVIEW

The primary contribution of this dissertation is to better understand the role that social networks might play in explaining the lack of a strong relationship between fit and individual performance. Before I present the proposed relationships between fit, social networks and individual performance, it is important to review why this need has emerged and how a social network perspective can contribute to the fit-performance puzzle. In this chapter, I first focus on clarifying the concept of individual performance by reviewing research on multiple types of performance and selecting those most relevant for this research. Next, I review the P-E fit literature to discuss the origins of the field, conceptualizations of fit, and the relationship between these conceptualizations of fit and multiple types of individual performance. In this process, I will also limit discussion to several types of fit most relevant for exploring the joint role of P-E fit and social networks. Next, I turn attention to the social networks literature with a focus on some of the more common measurements of social network position that will be used in this study and discuss their implications for individual performance. Finally, I conclude the chapter by discussing work that either directly or indirectly links the two fields such as research in fit and socialization, networks and culture, and networks in job design.

### **Individual Performance in the Workplace**

As will be a recurring theme throughout this literature review, the first consideration when discussing a variable is to define it and set its boundary conditions. For instance, workplace performance can be studied in terms of the organization, departments, teams, individual employees, or specific behaviors. Individual performance has been one of the most studied topics in research into human resource management and

organizational behavior (Staw, 1984). Part of this popularity is due to the fact that individual performance sits at the crossroads of macro (team or organizational) and micro (competency in specific tasks, duties or behavior) measures of performance and is able to contribute to both conversations. For example, on the macro side individual outcomes (such as performance and attitudes) have been shown to contribute to organizational performance (Ostroff, 1992; Podsakoff and MacKenzie, 1997; Koys, 2001). Incorporating the micro side are studies which specify elements of performance as will be done in this study. A general typology of the types of performance explored in this study is provided below as Table 2.1.

Table 2.1: Performance dimensions.

Performance Name	Description
Task Performance	How well an individual performs the required tasks of their job. Can include preparation, execution, and post-execution activities.
Organizational Citizenship Behavior (OCBo)	How well an individual goes beyond the formal requirements of their job to help the organization. Can include behaviors such as staying late to finish work or cleaning common areas.
Interpersonal Organizational Citizenship Behaviors (OCBi)	How well an individual goes beyond the formal requirements of their job to help their coworkers. Can include behaviors such as helping others with tasks, providing social support.

Individual performance can be measured either in sub-components or holistically. The primary two sub-components of individual performance have been labeled: task and contextual (Borman & Motowildo, 1993; Motowildo and Van Scotter, 1994). Task performance (also known as in-role performance) includes all of the dimensions of performance built into the formal requirements of the job. Motowildo and VanScotter (1994) discuss two sets of behaviors that can be classified as task performance. First is the transformation of raw materials into goods and services. The second type of task performance casts a wider net by including the planning, coordination, and supervision

necessary to ensure efficient production of goods or services. As a result of their contribution to the final product or service, task performance is designed to be easily observable.

The contextual (extra-role) performance area includes all of the behaviors that are helpful to coworkers or the organization but are not formal requirements of a position. The concept of contextual performance is closely related to the idea of organizational citizenship behaviors (OCBs; Organ, 1988). Settoon and Mossholder (2002) describe interpersonal citizenship behaviors (OCBi's) as a sub-category of OCBs that includes person- and task-based behaviors that exist beyond the formal requirements of the job. Examples of task-based OCBs include providing assistance to coworkers in the completion of their tasks, taking on the tasks of others, and supplying factual and direct assistance in the completion of tasks. An example of person-based behaviors include being available to provide social support to coworkers. Another type of contextual performance is directed toward the organization as a whole (OCBo's) such as staying late, volunteering for extra-job activities, and following workplace rules (Organ & Ryan, 1995).

Research has treated performance in one of three ways by breaking down multiple segments of task (planning vs. execution) and contextual performance (OCBo and OCBi), measuring general in-role and extra-role performance, or taking a more holistic approach including elements of both task and contextual performance into a single measure of performance. I take the middle ground in terms of measuring performance by examining task, OCBo, and OCBi performance. I take this approach in order to maintain some of the benefits of aggregating performance such as allowing individual employees



to weigh what all is important for task performance or what constitutes OCBo performance without aggregating too far. Also, this level of specification should be appropriate for exploring for effects of social networks or fit. For instance, one can use social networks to gain information useful for planning tasks or to gain assistance in executing tasks and so social networks can be beneficial for overall task performance. As such, delineating further into elements of task performance would likely not yield and additional explanatory power. Contextual performance is broken out into two dimensions (OCBo and OCBi) because these elements are distinctive enough that collapsing them may have made implications unclear. As an example, an employee who has strong P-O fit may be more likely to help the organization than to help coworkers, especially if we measure fit as how congruent values are to organizational culture. If these elements were collapsed into contextual performance, it may have been more difficult to find significant results since some measures of fit or network centrality might hold more influence on one type of contextual performance.

In terms of what should influence employee performance, I follow previous work of Maier (1958) who suggested that performance is largely a function of the ability and motivation of an employee. Organ and Ryan (1995) extended this general formula by forwarding the idea that ability will be most important for task performance while motivation (or attitudes) will hold greatest influence on contextual performance. I adopt this perspective with a two slight modifications. First, reverting back to Maier's (1958) original formula, I adopt the perspective that motivation is an equally important contributor to an individual's task performance, since ability without motivation (or vice versa) will have only weak effects on task performance. For contextual performance,

motivation is the key element since simply having certain KSAs would likely not drive someone to perform actions beyond the formal requirements of the job. Ability may contribute to the quality of a subset of contextual performance (helping others complete tasks), but most behaviors such as providing social support, staying late, or taking actions to boost general morale do not require much formal ability.

The second modification that extends both Organ and Ryan (1995) and Maier's (1958) models of performance, is the addition of a third antecedent condition for individual performance. I argue that awareness of the work environment is also going to play an important role in task or contextual performance. This idea is in line with Chen, Su, and Tsai's (2007) awareness-motivation-capability model of organizational action. While discussing organizations, Chen and colleagues suggest that action will be dictated by the extent to which a firm is aware of its (competitive) environment, is motivated to act, and is capable of action. While the motivation and capability facets of this model map directly onto the aforementioned motivation and ability needed for individuals to be strong performers, the idea of awareness of the (workplace) environment is not typically thought of as a primary factor influencing employee performance.

Awareness could play a key direct role in performance and also could have influences on motivation and ability. For instance, if one does not know of opportunities to help coworkers or the organization it will be more difficult to be a strong contextual performer. For task performance, awareness of what actions to perform in order to best facilitate performance should also be key, above and beyond being motivated to act and having the ability to act. Additionally, awareness (or even perceived awareness) of the social environment can also motivate an employee to perform. If an employee thinks

he/she knows the organizational environment, then they might be motivated to act or might not see the need for action in that environment. Relevant to the idea of awareness influencing one's abilities is the fact that the awareness-motivation-capability model is drawn from work on competitor analysis. Beyond awareness of the competitive landscape, awareness of the actions and capabilities of individual competitors is an important antecedent to organizational action (Chen, 1996). An awareness of the capabilities of others might be important not only for collaboration but also to know to whom to talk in order to acquire new knowledge, skills, and abilities. Each of the anticipated effects of fit or centrality will be discussed in terms of their influence on ability, motivation, or awareness in the next chapter.

### **Research in Person-Environment Fit**

Fit has been one of the most heavily studied topics in HRM due to its importance for a broad variety of human resource practices such as recruitment, selection, and turnover. Support for the idea that fit is well entrenched not only in human resource practice (Rynes, Brown, & Colbert, 2002) but also in research can be found in the four meta-analyses that took place between 2003 and 2006 (Verquer, Beehr, & Wagner, 2003; Hoffman & Woehr, 2005; Kristof-Brown et al., 2005; Arthur et al., 2006). In general, fit has been studied as “the compatibility between an individual and a work environment that occurs when their characteristics are well matched” (Kristof-Brown et al., 2005: 281). Before one can delve too deeply into the P-E fit literature, the origins of fit and its measurement must be discussed.

*History.* The influence of the interaction between a person and his/her environment has its origins in the foundational works of fields such as vocational

psychology (Parsons, 1909) and social psychology (Lewin, 1935, 1951). Parsons was trying to provide guidance to individuals as they decided to choose a vocation. At the root of Parsons' model was the idea that an individual needs to know him/herself, know the vocation they are considering, and understand the relationship between the two entities (Parsons, 1909: p.5). Lewin's contribution to P-E fit is equally broad and clear with his development of field theory. At the root of field theory is the idea that behavior is a function of the person and the environment (Lewin, 1951). While it has been noted that Lewin is suggesting the person and environment as independently influencing behavior (Schneider, 2001; Edwards, 2008), Lewin's assertion that behavior is best defined as a function of the total situation suggests that P and E should be examined together to best understand individual behavior.

While there were many theories of P-E fit after Parsons and Lewin's contributions, the modern era of fit research began with Schneider's (1987) attraction-selection-attrition (ASA) model. Schneider was suggesting that it was the people who make the organization, and that instead of behavior being a function of the person and the environment, the environment was a function of people and their behaviors. Specifically, the ASA model was an attempt at describing the way by which organizations become homogeneous.

The first tenant of the ASA is that individuals will be attracted to organizations which they feel are similar to them. This similarity can be derived from a wide variety of sources such as value similarity to the organization, value similarity with potential coworkers, or a similarity between one's knowledge, skills and abilities (KSAs) and the needs of a particular job. Schneider posited that not only will individuals be attracted to

these situations, but organizations will select those whom they think are the best match for the organization and job on these same dimensions. One of two outcomes is expected if in reality there is not a strong match between the individual and organization, and both end with the employee leaving the organization. First, if the employee notices the lack of fit, he/she will exit the organization voluntarily by quitting to seek out a better fit. Conversely, if the organization recognizes the lack of fit, they might decide to let the employee go if they see this misfit as a potential workplace detriment.

The application of Schneider's ASA model is seen in both academic and practitioner literature. Numerous books, magazine articles, and web sites have touted the importance of organizations seeking out employees who are a best fit for the job and organization (see Pellett, 2010 for a recent example). In accordance with the assertions of the ASA, some of the most commonly studied outcomes of P-E fit are job satisfaction, organizational commitment, and turnover intentions (Kristof-Brown et al., 2005). While the ASA model is not without its criticisms (Edwards, 2008), it remains one of the most useful frameworks for understanding why fit is so important in the workplace.

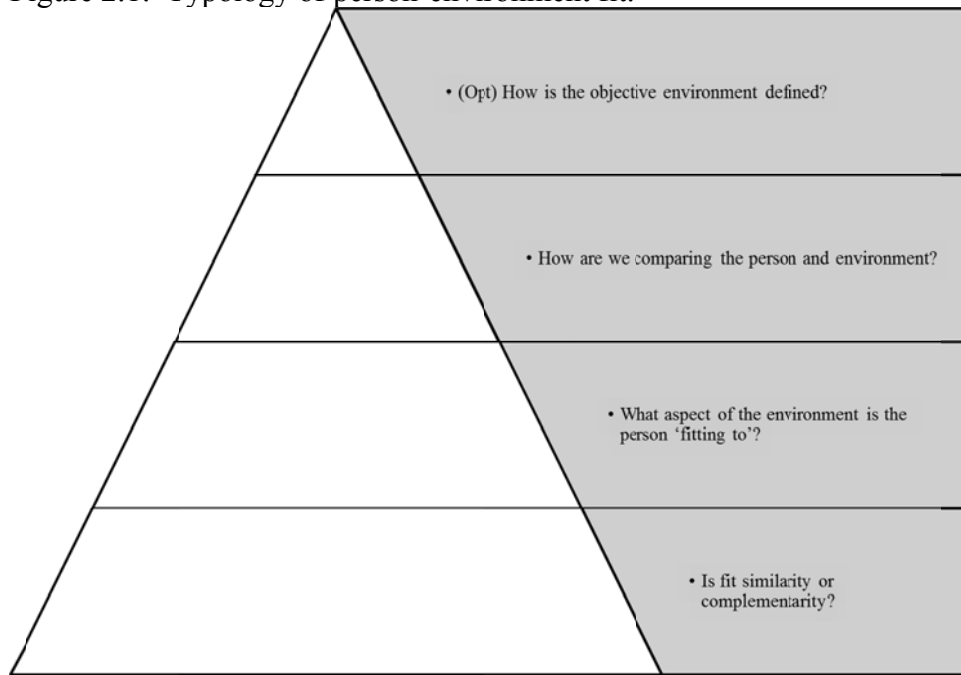
P-E fit research has a rich history, but has been plagued by methodological issues in terms of both conceptualization (Kristof, 1996; Edwards & Shipp, 2007; Judge, 2008) and measurement (Edwards & Parry, 1993; Edwards, 1994; Edwards, 2002; Edwards, 2008). Next, I will briefly describe some of these issues as I begin to set the boundary conditions for how fit will be conceptualized and later measured in this dissertation.

*Measurement.* One needs only to look the attempts at review (Krisof-Brown & Guay, 2010) or theoretical integration of (Edwards and Shipp, 2007) to see the level of complexity that is involved in delineations between types of fit, ways in which fit is

measured, and analytic techniques used to determine levels of congruence. When Edwards and Shipp integrated conceptualizations of fit, the result was a three-dimensional figure which contained 45 different types of fit that could be assessed. Kristof-Brown and Guay were more parsimonious in their review, enumerating roughly 30 different types of P-E fit.

The first issue addressed in Judge's 2008 keynote address at the Global e-Conference on Fit was the idea of terminology confusion. Judge (2008: 1) stated that "Fifteen years ago Jerry Ferris and I complained that the literature on fit was confusing and plagued by conceptual ambiguities (Judge & Ferris, 1992). I am not sure the situation has improved." While conceptualization has been an issue, it has also been categorized as a strength which allows scholars to select forms of fit that are most theoretically relevant to their individual research question (Kristof-Brown & Guay, 2010). In this review of fit measurement, I focus on the dimensions of fit that will be most relevant for the study of P-E fit, social networks, and performance, while acknowledging some areas of fit which will not be utilized in this dissertation. Figure 3 presents a framework of the ways in which P-E fit will be conceptualized for the purposes of this dissertation utilizing the previous work of Kristof (1996), Kristof-Brown et al. (2005) and Kristof-Brown and Guay (2010). Building up from the base of the pyramid, each level adds an additional layer of specification that can be used to construct a measure of fit.

Figure 2.1: Typology of person-environment fit.



Beginning at the bottom level of the pyramid, there is a basic question which must be addressed in any study of fit: is fit between P and E based in similarity or complementarity? Fit as defined above includes the match between the person and the environment. What is not clear in the definition is whether the match exists because one is similar to the environment (known as supplementary fit) or if one is bringing something new that has been previously lacking in the environment (known as complementary fit). The first step in defining fit in a study is therefore to determine whether fit exists when there is a match or when one is filling a gap. The focus of this dissertation is fit as similarity to the environment for several reasons. First, this is the way fit is more typically studied and so if a goal is to explain a lack of prior findings it is important to follow some previous conventions (Kristof-Brown and Guay, 2010). Secondly, the mechanisms proposed in the next chapter and elsewhere (Edwards & Shipp, 2007) for a relationship between fit and performance assume a similarity function

that may benefit performance, these proposed benefits are no longer applicable when discussing complementarity. Finally, supplementary fit should have a cleaner, more consistent relationship to performance. For instance, the more an employee has KSAs that match the requirements of the job, they should be a stronger performer. If an employee has KSAs which are different from the requirements of a job this may also help, but only to a certain extent at which point core competencies will be lacking and performance will diminish. Future research should consider some of the mechanisms and the nature of the relationship between complimentary fit and employee performance, but in order to begin answering questions of if and how fit may be related to performance supplementary fit will be used throughout this dissertation.

Moving to the second level of Figure 2.1, the next important element of fit is defining whether one is concerned with the environment as a whole or with specific dimensions of the environment (what Edwards & Shipp [2007] call level of the environment). Kristof-Brown and colleagues (2005) report that the elements of the environment that are most frequently captured are the values of the organization, followed by the knowledge, skills, and abilities in a job, the values within a workgroup and the values of a supervisor. Fit with the organization (P-O fit) is frequently captured by comparing the values of a person with the values of the organization. Person-job (P-J) fit is captured by comparing the knowledge, skills, and abilities (KSA) profile of an individual with the KSAs required to perform a given job. Person-workgroup (P-G) and person-supervisor (P-S) fit are similar to P-O fit in that they use value profiles except for smaller subsets of the organization.



In this dissertation, I focus on the effects of P-O and P-J fit (by far the two most heavily studied types of fit). The need to include P-J is apparent, since performance is the outcome of interest and P-J fit is an assessment of one's knowledge, skills and abilities needed for perform a job. P-O fit was also chosen to maximize both theoretical and practical implications as the ASA model was designed to predict outcomes based on organizational culture, not departmental subcultures (P-G) or similarity in the manager-subordinate relationship (P-S). Furthermore, P-G fit can be altered with a small amount of turnover and P-S fit changes anytime an individual changes supervisors, whereas an organization's culture and the requirements of a job change through more evolutionary processes over large periods of time. This relative stability of P-O and P-J fit should yield more consistent results than the more fluid P-G or P-S fit. P-G and P-S fit have also been far less studied; therefore, the conclusions about how these types of fit relate to performance are more inconclusive than the much more heavily studied fit to organization or job. A much greater impact would be made on the fit literature if either of the two main types of fit studied are in fact related to performance after including a social network perspective. Other types of fit do warrant some discussion as the research in this dissertation carries implications across fit categories and so I will discuss implications and future research that can be conducted using P-G and interpersonal types of fit in the discussion chapter.

After the questions of what constitutes fit and what makes up the environment are answered, the next step is to determine who will decide the match between the person and organization and the person and job as seen in the third level of Figure 2.1. Kristof (1996) identifies three ways in which fit comparisons can be made: perceptually,

subjectively, or objectively. To obtain a perceived measure of P-O or P-J fit, the respondent is asked directly how well they feel they fit the organization (how well their values match those of the organization) or job (how well their KSAs match the needs of the job). This leaves the calculus of what determines fit up to the individual. Another measure which relies solely on self-reports is subjective fit. For subjective fit, individuals rate themselves and the environment on a commensurate set of dimensions (such as a set of values or KSAs). Finally, in objective fit the respondent rates him/herself on a set of dimensions, and comparisons are made with what others have said about the organization or job. Subjective fit falls somewhere in-between perceived and objective fit and as such, the theoretical implications for performance are not evident. Perceived fit was chosen to be the measure of self-reported fit, as it is clear that this is a type of fit that the individual recognizes. To the extent that an employee recognizes (or even simply believes) that they fit will likely have a more proximal effect on attitudes and behaviors including performance. Objective fit also has direct implications for individual performance as there is congruence between the person and the environment that, even if not recognized, should be able to facilitate performance. Finally, as was the case above with supplementary fit, objective and perceived fit are the two most commonly studied fit types and so explaining why they have not been more strongly or consistently related to fit would carry a larger impact on how we understand fit in organizations.

An understudied part of conceptualizing fit is noted at the tip of the pyramid in Figure 2.1: what set of others is used to construct the O or J in objective P-O and P-J fit. A notable exception to this oversight is Ostroff and Schulte (2007) who use the labels

“social” and “structural” fit. When measuring structural P-O fit the organizational culture is an aggregation of what individual employees report as representative of the organization. Structural P-J fit is a representation of how well an employee’s KSAs match those reported as crucial for the job. This structural objective fit, either to the organization or job, is the more commonly studied type of objective fit and warrants study in this dissertation. Since it measures an objective match to the organization or job it should lead to motivation to act in certain ways to benefit the organization or demonstrate the possession of needed capabilities to perform on the job. As such, structural objective fit (hereafter referred to as structural fit) will be included in several models presented below.

In contrast, social objective fit (social fit) is obtained by constructing the referent set as an aggregation of employees self-descriptions. For instance, if many employees report holding a certain value, then social P-O fit would be obtained from holding this same value (regardless of if this value is considered characteristic of the organizational culture). Social P-J fit would represent the degree to which an employee holds similar KSAs to their fellow coworkers (regardless of if these are the KSAs needed for the job). These types of fit should be particularly important for the mediation models described in the next chapter. Having a similarity of values (social P-O fit) may help an employee to form friendships with others which may help performance. Social fit involving KSAs (social P-J fit) would allow the researcher to explore whose KSAs are similar to one another which may facilitate work-related advice sharing. While all of the other types of fit in this dissertation are among the most heavily studied conceptualizations, social fit has yet to be studied in terms of performance. The inclusion of these measures will help

to contribute to the fit literature regardless of if a significant relationship is found to performance as it would rule out an alternative explanation for the previous lack of results (i.e. a measurement issue).

To summarize the implications of the preceding review of fit measurement, the following discussion of the fit performance relationship will focus only on similarity-based fit, person-organization or person-job fit, perceived or objective fit, and (in the case of objective) social or structural fit. Again, the decisions to include these types of fit stem from the prevalence (or absolute dearth) of use in prior research and the clarity of theoretical implications for how these measures *should* related to performance. Table 2.2 serves as a quick reference guide to all of the types of fit examined in this dissertation.

Table 2.2: Person-environment fit definitions.

Fit Name	Description
Perceived P-O Fit	How well a person feels their values match those of the organization. No specific values defined.
Social P-O Fit	How well a persons set of specific values match those of other employees in the organization.
Structural P-O Fit	How well a persons set of specific values match those reported as characteristic of the organization by other employees.
Perceived P-J Fit	How well a person feels their knowledge, skills, and abilities (KSAs) match those of the organization. No specific KSAs defined.
Social P-J Fit	How well a persons set of specific KSAs match those of other employees across the organization.
Structural P-J Fit	How well a persons set of specific KSAs match those reported as needed to perform the persons job.

### **The Person-Environment Fit-Performance Relationship**

One of the benefits of the rich history of the study of P-E fit is that studies have been subjected to several meta-analyses in the past decade (Verquer et al., 2003; Hoffman & Woehr, 2005; Kristof-Brown et al., 2005; Arthur et al., 2006). In these meta-analyses, the power and limits of the fit construct were clearly identified. Each type of fit

has been related to attitudinal outcomes such as P-O fit and organizational commitment ( $\rho$ 's = .59-.77 for perceived, .37-.44 for subjective, and .23-.27 for objective) and a strong to moderate relationships between P-J fit and job satisfaction ( $\rho$ 's = .56-.62 for perceived, .34-.46 for subjective, .22-.29 for objective). In terms of relationships to performance, evidence has not been as compelling.

Even when delineating between task and contextual performance, fit has struggled to explain much about performance. In terms of P-O fit, results have been generally underwhelming across all major measurements of fit (perceived, subjective, objective) for task ( $\rho$ 's = .05-.28), contextual ( $\rho$ 's = .20-.32), and overall performance ( $\rho$ 's = .07-.21). Despite the clear parallels between task performance and P-J fit, very few studies have delineated multiple facets of performance instead focusing on overall performance and have only had limited success ( $\rho$ 's = .12-.22). It is also important to note that a majority of the 80% confidence intervals of these relationships included zero, suggesting limited generalizability of the meta-analytic results and the potential importance of moderators (Hoffman & Woehr, 2005; Kristof-Brown et al., 2005). While there have been repeated assertions that the fit-performance relationship may be moderated by other factors, little work has sought to explain what may moderate this relationship. The notable exceptions to this are found in the meta-analyses conducted by Hoffman and Woehr (2005) and Kristof-Brown and colleagues (2005) which both found that the relationship was somewhat moderated by the type of fit being measured. Clarification of the ambiguity surrounding the role of fit in performance (beyond measurement issues) has the potential to start answering one of the remaining puzzles in the field: why is fit not more strongly or consistently related to performance?

Exploring specific studies to determine which ones explore fit and performance is difficult because as Arthur et al. (2006: 794) state, “although P-O fit as a predictor of job performance has received some attention, the vast majority of the job performance relations were not the focal criterion of interest in the primary studies and were presented in a tangential and supplementary manner.” Another issue that complicates exploring fit and performance is that when P-O fit is studied in terms of an antecedent to organizational attraction, individual values are frequently not directly assessed. Rather, respondents are asked what values they would like to see in an ideal organizational culture. For instance, Goodman and Svyantek (1999) were one study which set out to predict contextual performance based on an individual’s level of P-O fit (they also explored task performance in post-hoc analyses). Rather than looking at overall fit to culture, the authors explored the impact of perceptions and attributions made about various elements of the organizational culture. At no point were the actual values of employees measured, nor were any set of values compared to an overall organizational culture profile. In this dissertation fit follows the descriptions found in measures of perceived fit in that I ask respondents how well values describe themselves and the organization rather than an ideal organization and their current firm. I also compare these self and organizational profiles rather than simply looking at the direct effects of holding certain values or perceiving certain elements of the organization’s culture.

The person-environment fit literature has a complex history and mixed track record in predicting individual performance. Understanding the theoretical origins, conceptualizations, and mechanisms relating fit to various types of performance are crucial before one can begin to build upon previous work. Next, I turn attention to the

social network tradition to discuss key measurements and relationships to individual performance.

### **Research in Social Networks**

The idea of using social network analysis to better understand human resource phenomena is not a novel idea. Despite both explicit (Brass, 1995, in press; Dess & Shaw, 2001) and implicit (Judge & Ferris, 1993; Rynes & Cable, 2003) calls for a greater focus on employee embeddedness in social structures to various areas of HRM research, scarce work has applied social network analysis in the human resource literature. In their meta-analysis of the fit literature, Kristof-Brown et al (2005: 322) lamented the lack of research on situational characteristics which may moderate fit-outcome relationships, particularly the influence of relationships with managers and coworkers. Social network scholars have identified HRM as a potential key area for new exploration as underscored by a recent Academy of Management symposium and forthcoming special issue in *Human Resource Management*.

A possible explanation for a general lack of integration of social network analysis into HRM is a criticism that social networks provide an over-socialized view of employees. Studies which use social network analysis elicit responses from participants regarding who they consider to be a personal friend, to whom they would go for work-related help or advice, or any other relationship that can exist between two individuals. From these responses an overall network of relations can be formed, and each employee's position in this network can be evaluated. The idea that this research can be considered over-socialized stems from assertions that that individual personality or other differences may correlate to social network positions, but it is only the network positions that matter

when predicting outcomes (Burt, Janotta & Mahoney, 1998). While there are still social network scholars who view structure as the primary determinant of many outcomes, others have successfully attempted to include concepts such as individual perceptions of the network (see Kilduff & Krackhardt, 1994) or the influence of personality on social networks (see Mehra et al., 2001). Whether accounting for characteristics of the individual or simply looking at structural elements, social network analysis has studied many similar phenomena (with varying degrees of success) as those explored using P-E fit or other research traditions in the HRM domain. Social network positions have been shown to be antecedents to many behaviors such as task performance, organizational citizenship behaviors, and creativity (see Brass, in press). Key avenues for future research in social networks include the exploration of antecedents to advantageous network positions and moderators which explain how some are better equipped to leverage network positions than others.

From a social network perspective, many areas of HRM have been studied from an under-socialized perspective, exploring relationships between individual differences and some outcome of interest without taking the greater social structure into account. The concept of P-E fit should provide fertile ground for the integration of the two fields, since it diverges slightly from the traditional HRM research by constructing an individual difference based upon a comparison of an individual to their environment. Fit measures how well individual attributes are a match with the greater organization, while social networks measure how individual relationships can be combined to understand a place in the greater organization. Successful use of social network analysis in fit should therefore contribute to both areas by taking a more well-rounded view of the multiplex ways in



which one relates to his/her environment. A potential route by which social network analysis can become more integrated with research into HRM is to answer a question which has troubled human resource scholars for decades: why is P-E fit not more strongly (or consistently) related to performance? To begin to answer this question, I will now discuss some of the basic features of social network analysis.

A distinguishing characteristic of research in social networks is the use of the dyad as the primary level of analysis rather than individual attributes. In an organizational setting, an individual is involved in a series of relationships with coworkers, ranging from instrumental ties (such as giving and receiving work-related advice) to more affective relationships (such as friendships). Examining relationship patterns allows us to learn about the immediate support structures that surround the individual as well as his/her place in the overall organizational network. In the intra-organizational networks, literature reviews are typically either about networks in general (i.e. Borgatti & Foster, 2003) or tend to focus on implications of networks in another research stream such as those by Brass (1995, in press) on social networks and human resource management. Before exploring the specifics of networks and individual performance, it is important to step back and view the greater research landscape of social networks in organizations.

A social network can be defined simply as “a set of actors connected by a set of ties” (Borgatti & Foster, 2003: 992). When studying networks within organizations, the set of actors being studied is most frequently the employees of the organization. The type of tie being examined between two actors (employees) is the second defining characteristic of a network. The variety of ties that can be studied between two

individuals is as limitless as the number of relationships that can occur in the workplace (i.e. friendship, advice giving and seeking, communication, required work flows, gossip, like, dislike, to name a few). Once the sets of actors and ties have been defined, one must determine the level of analysis to use in order to understand the network.

There are at least three levels of analysis that can be used to explore a social network. Taking the widest lens, one can look at a group of employees ranging from a workgroup (i.e. Reagans, Zuckerman, & McEvily, 2004; Oh, Chung, & Labianca, 2004) to the overall pattern of ties within the organization (i.e. Burkhardt & Brass, 1990; Reagans & McEvily, 2003). Zooming in to the next level social network researchers have explored the specific structural positions of individuals in the network. This can be accomplished either by examining ego or by looking at whole networks. Ego networks explore the direct relationships an actor has and whether those direct relationships are themselves related. Whole networks can also be used to examine an employee's position in the greater structure. As the name 'whole network' implies, these measures explore the position of an individual in relation to all coworkers (even those to whom one is not directly tied). The majority of social network research explores individual positions using ego or whole networks. The final level of analysis exists within the mind of each actor in the network. These cognitive networks examine what an individual actor perceives as his/her individual position in the network (Kumbasar, Romney, & Batchelder, 1994), what an actor thinks about other relationships in their ego network (Krackhardt & Kilduff, 1999), or what an actor thinks is the overall structure of relationships (Krackhardt, 1990; Kilduff, Crossland, Tsai, & Krackhardt, 2008).

A final issue that must be addressed after defining a set of actors and ties and setting a level of analysis is to begin to explain why specific social network positions should matter in organizations. A great deal of research in social networks suggests that one gains social capital from informal relationships which convey a variety of benefits. Social capital has many definitions (Adler & Kwon, 2002); however, for the purposes of this research, social capital can be defined following Nahapiet & Ghoshal (1998: 243) as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network." Some of the actual and potential resources in an employee's networks include such benefits as access to information, the ability to control information or resource flows, the building of trust, and the establishment of norms of reciprocity (Burt, 1992; Coleman, 1990). While the above benefits are provided to the actor with social capital, there are also benefits in terms of how the actor is seen. Podolny (2001) coined the idea that networks not only act as 'pipes' which carry benefits but provide the 'prisms' by which people develop status and reputations. Given all of the ways in which network positions can carry or convey social capital, it is clear that one's position in a social structure can facilitate actions.

I focus on the effects of friendship and advice ties within organizations and use a mixture of ego and whole network measures to explore the influence of individual positions in the networks. Friendship and advice networks are among the most studied relationships in social network analysis and have some of the more established influences on outcomes in the field. Better understanding of what leads individuals to occupy

positions in these networks or how network positions can enhance or inhibit the effects of individual characteristics would therefore have far reaching implications for this literature.

In the conceptual models chapter I will also discuss some important linkages between friendship networks and P-O fit and advice networks and P-J fit. Friendships within organizations carry a mixture of affective and instrumental information and this breadth might be important in relating to the culture of an organization which includes both work-related and general values. Advice networks typically carry instrumental information that will frequently be related to the knowledge, skills, and abilities one possesses or is trying to gain access to. Each of these types of networks may be important across moderated, additive, and mediated models of individual performance in ways that will be discussed in more detail in the next chapter.

I also select network measures which will help to begin to explore both effects of positions that are strictly self-report, completely reported by 3<sup>rd</sup> parties, and a mixture of both. Measures are also included which explore both local influences and positions which have greater network-wide implications. Both local and global measures of network centrality are included as they represent mixtures of self-reports, other-reports, local influences, and network-wide influences which all carry different mechanisms for effecting individual performance. The connotations for these positions also vary depending on which type of network is being examined (i.e. friendships or advice). The versatility of these few measures is beneficial considering the variety of models that will be explored.

As was the case with types of fit that are not included in this dissertation, I will discuss the implications of this research inquiry for other types of ties, network measures and levels of analysis in the discussion chapter. The influence of friendship and advice ties in ego and whole networks are among the most studied areas of social networks in organizations. Because of this, I will not be reviewing the entirety of measures which signify the potential for an employee to have a great deal of social capital. Instead, I identify specific network positions that will be most relevant for informing the theoretical models presented in the following chapter and discuss each of their implications for performance.

### **The Social Network Position-Performance Relationship**

In a discussion of social network position, it is natural to look for the effects of centrality. Being ‘central’ in a network can mean a variety of things, but in general it signifies that someone occupies a position in the informal network which provides some social capital. Not all central positions convey the same types of social capital. The potential benefits of social capital are conditioned by the extent to which one has various direct relationships in his/her ego networks as well as where one lies in the whole networks. There are three primary ways centrality will be discussed in this dissertation in relation to the friendship and advice networks within the organization: in-degree centrality, out-degree centrality, and betweenness centrality. As a quick reference, the types of network position discussed in this section are shown in Table 2.3.

Table 2.3: Social network centrality definitions.

Network Centrality Name	Description
Advice In-Degree	The number of others who go to an actor for advice.
Advice Out-Degree	The number of others who an actor goes to for advice.
Advice Betweenness	The extent to which an actor provides (or seeks) advice from disconnected parts of the network.
Friendship In-Degree	The number of others who consider an actor to be their friend.
Friendship Out-Degree	The number of others who an actor considers a friend.
Friendship Betweenness	The extent to which an actor bridges sets of friends in the organization.

In-degree centrality is simply the number of times others nominate an actor for a relationship. In the context of the two networks discussed in this dissertation, friendship in-degree centrality is the number of people who say they are friends with a given actor, while advice in-degree centrality is the number of people who seek an actor out for advice. In-degree centrality has been found to be a predictor of both task and contextual performance within advice networks. Sparrowe, Liden, Wayne, and Kraimer (2001) found that advice in-degree centrality was positively related to both task and contextual performance. The authors suggest that the reason behind this effect is that advice giving is essentially a form of contextual performance and that these exchanges allow individuals to gain knowledge that can be used to complete their own tasks. Settoon and Mossholder (2002) used a variation of advice in-degree centrality that merged advice and communication ties to find that in-degree centrality was positively related to both person- and task-based citizenship behaviors. The relationship between in-degree centrality and person-based citizenships was unexpected, and it was explained that “employees in positions of higher centrality may be prone to supply more than merely advisory

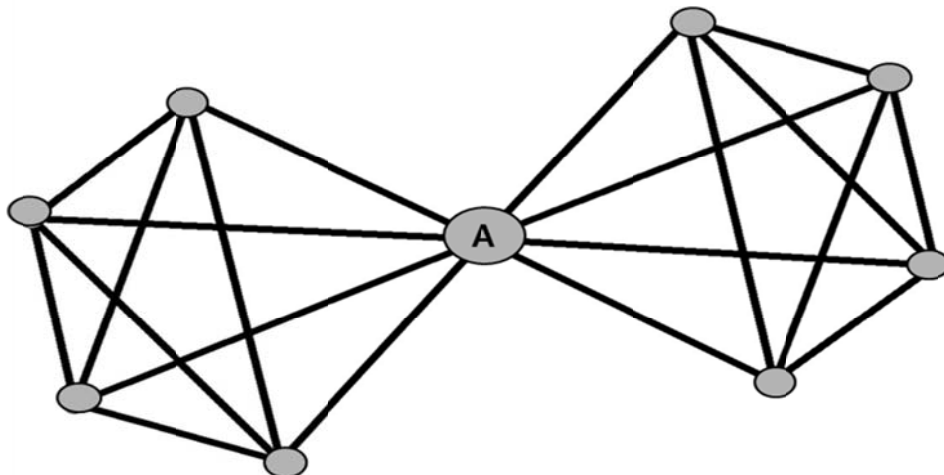
assistance if they perceive that those in need would also benefit from person-focused interpersonal citizenship behaviors” (Settoon & Mossholder, 2002).

Less research has explored the role of friendship in-degree centrality on performance. Theoretical arguments for why I expect a relationship between friendship in-degree and task or contextual performance will be presented next chapter. In terms of the effects of out-degree centrality in either the friendship or advice network on performance, direct research has also been largely non-existent. Whereas in-degree measured the extent to which others reported a relationship to an actor, out-degree is a measure of how many others an actor names for a given relationship. For the friendship network, out-degree centrality is simply the number of friends one says he/she has. Advice network out-degree centrality is the number of coworkers an actor reports that they seek out for advice. Part of the reason for a lack of interest in exploring the relationship between out-degree centrality and performance is the self-reported biases expected (Sparrowe et al., 2001) and found (Kumbasar et al, 1994). In the friendship network, the bias is that people will likely name more friends than they actually have; whereas in the advice network there may be a tendency to under-report the number of individuals to whom they actually go for advice. Despite the fact that individuals might over- or under-report out-degree centrality, these measures are still relevant for performance as they begin to tap into the perceived awareness that an employee has of the social environment.

Much more heavily studied, with clearer implications for performance, is the concept of betweenness centrality. Whereas in- and out-degree centralities focus on the ties immediately surrounding an actor, betweenness centrality captures the position in the

overall structure. Betweenness centrality is a measure of how frequently a person falls on the shortest path between two others in the network (Freeman, 1977). Generally speaking, advice network betweenness centrality means that an actor is getting (or giving) advice from others who are not connected or connecting others to distinct parts of the network. Similarly, in the friendship network, high betweenness centrality signifies that an actor is friends with others who occupy different social circles or is friends with others who are not well tied into the rest of the organization. An example of betweenness centrality taken from Soltis, Angnessens, Sasovova and Labianca (working paper) is provided as Figure 2.2.

Figure 2.2: Example of betweenness centrality.



In this figure, circles represent fictional employees and lines represent friendship or advice giving/seeking. Employee A in this example is very high in betweenness since in order for any information, resources, etc to flow from the left side of the network to the right side, it must go through “A”.

The reason betweenness centrality might be related to performance (particularly task performance) is largely related to the concept of structural holes, as the two have been found to be highly related (Everett & Borgatti, 2005). A structural hole is said to exist when an actor is tied to two others who themselves are not tied. One of the primary advantages of being high in betweenness (and therefore having many structural holes) is



that information gained through these networks should be novel and non-redundant. Burt (1992: 17) explains that “contacts are redundant to the extent that they lead to the same people, and so provide the same information benefits.” Additional benefits of betweenness centrality are the ability to control the flow of information and the ability to learn of opportunities before others do. Since advice ties are more instrumental in nature since they are used to accomplish tasks, it is not surprising that betweenness centrality in instrumental networks similar to advice has been a strong predictor of general performance (Cross & Cummings, 2004: information networks; Burt, 2007: discussion networks). Although less instrumental in nature, betweenness in the friendship network is expected to convey some of the same information access, control, and timing benefits seen in the advice network. Betweenness centrality in informal communication networks has been shown to be related to power and promotions (Brass, 1984), while betweenness centrality in the friendship network has been shown to be a predictor of general performance (Mehra et al., 2001). Unfortunately, little research has been conducted on specific task or contextual performance using betweenness in either advice or friendship networks.

Social networks have been used fruitfully to explore the inner workings of organizations and to better understand relational drivers of performance. In-degree, out-degree, and betweenness centrality are just three of a wide family of measures of social network position. As I alluded to above, I chose these measures to represent the potential for both local and global influences of informal ties on the person-environment fit and performance relationship. Also, some of these measures are self-reported (out-degree) and may be more proximal determinants of behavior; whereas others are determined by

the responses of others (in-degree) or a mixture of self- and other-reports (betweenness) and may influence performance via different routes. Not all of these measures have been related to task performance, but they all have relevance either for direct effects (as suggested in the additive or mediated models) or having indirect influence on performance by assisting those with certain types of fit to be strong performers (as will be suggested in the moderation models).

### **Research Combining Person-Environment Fit and Social Networks**

While there has been an abundance of research on social networks or person-environment fit, the work combining the two fields has been fragmented. The two studies that come closest to integrating social structure into person-organization fit are the work of Moynihan and Pandey (2008) and Erdogan, Kraimer, and Liden (2004). Moynihan and Pandey (2008) find independent effects of social support and P-O fit on intent to turnover. Erdogan and colleagues (2004) found that the support of a manager was important in translating work value congruence into career satisfaction. Despite these findings, it is important to note that neither study used any social network measures, with the former relying on self-reports of perceived coworker support and felt obligations towards coworkers, while the latter uses a leader-member exchange measure assessing affect, loyalty, contribution to the relationship, and mutual respect. There are also two research areas that use elements of fit and social networks which will briefly be reviewed: research exploring fit and organizational socialization and work on social networks and organizational culture.

*Fit and Network Perspectives on Socialization.* Socialization in an organization can be defined as the process by which individuals come to learn the attitudes, behaviors,

and knowledge needed to function in the organization. This is usually accomplished through the learning of multiple aspects of the organization such as its people, history, values and goals (Van Maanen & Schein, 1979; Chao, O'Leary-Kelly, Wolf, Klein, & Gardner, 1994). . It should be noted as well that socialization would also encapsulate training. Note the focus in the definition on factors such as values, knowledge, and people within the organization as key elements of the socialization process. As such, socialization spans a boundary and has been researched as both an antecedent to P-O and P-J fit (Kristof-Brown and Guay, 2010) and an antecedent (Brass, in press) or consequence (Fang, Shaw, & Duffy, 2011) of various social network characteristics. Socialization is a process which begins before a hire is even made via interactions with organizational members. However, my focus is on post-hire socialization and training, as they will be most relevant for understanding the potential relationship between fit and social network position.

While few studies explicitly examine fit and socialization, the role of socialization on the development of fit is inherent (Kristof, 1996). Participation in socialization activities such as company-organized social events should expose an individual to more of the culture and values of the organization, allowing him/her to be able to properly adjust to organizational life (or exit the organization if the needed adjustment is too large). Participation in formal training associated with the socialization process should allow one to acquire (or build upon) knowledge, skills, and abilities needed to perform the job. Although there is limited work in this area, one notable exception is the work of Chatman (1991). Chatman measured fit at multiple time points as well several of the socialization tactics the organization deployed (formal training, participation in social

events and mentoring programs). The author found that participation in social events or mentoring programs were related to increases in a measure of structural P-O fit, while formal training was unrelated to changes in either P-O or P-J fit. Kristof-Brown and Guay (2010) explain that the lack of a significant relationship between training and fit is likely caused by a lack of variance in the amount of training new employees receive. Therefore, this finding should be interpreted with caution. Furthermore, the Chatman (1991) study focused on individual cultural preferences as the “P” in the P-O equation rather than how well the values described the individual. Preferences are more malleable and susceptible to attributions than are actual values and so it is unlikely that these socialization processes actually changed the values held by employees.

Similarly few studies explore the role of social networks in socialization (Brass, in press; Fang et al., 2011). Since part of socialization includes getting to know others in the organization, a clear parallel between social ties and socialization exists. The social networks of individuals have been related to the facilitation of socialization (Jablin & Krone, 1987; Sherman, Smith, & Mansfield, 1986, Morrison, 2002). Recently, Fang and colleagues (2011) shifted the focus of socialization as being facilitated by social networks to a model of socialization as a driver of the creation of social capital. Specifically, they suggest that the socialization process can facilitate the creation of social capital. The findings of Krackhardt and Hanson (1993) support this idea. In their study, they found that the structured interactions that can be built into training programs can lead to the creation of informal relationships. Socialization, therefore, can either be considered an antecedent or a consequence of the social networks in an organization.

*Networks and Organizational Culture.* As described above, the organization side of person-organization fit is determined by various aggregations of individual values to create what can be considered the organization's culture (O'Reilly, Chatman, & Caldwell, 1991). How this culture affects (or is affected by) the networks within the organization has been the subject of limited empirical inquiry (Krackhardt & Kilduff, 1990) and theoretical review (Kilduff & Corley, 2010). Kilduff and Corley (2010) suggest ways in which various network characteristics can be classified as indicative of organizational culture. Drawing from Martin's (1992) framework of the overarching cultures in organizations (integrative, differentiated, and fragmented), the authors suggest that social network characteristics can be indicative of the cohesiveness of an organization's culture. Using social networks to explore particular elements of an organization's culture (in a way much more akin to how culture is studied in the fit literature) is the work of Krackhardt and Kilduff (1990). The primary finding of this research indicates that across several cultural dimensions, similar interpretations of the organization's culture lead to friendship formation. Implications of this finding have direct relevance on how P-O fit may be an antecedent to certain social network positions and will be discussed in the mediation model presented in the next chapter.

## CHAPTER THREE THEORY AND CONCEPTUAL MODELS

It should be clear from the above discussion that multiple models are possible which relate P-E fit to performance while including social network position. Armed with multiple conceptualizations of fit, social network position, and performance, I begin to explore the various types of relationships which may exist between them. I will build theoretical support for testing moderation, additive, or mediated relationships between P-E fit, social network position, and performance. Exploring the mechanisms which should relate fit to performance is an important first step before moderated or additive models can be developed. Additionally, a sound argument as to why certain social network positions should be beneficial for performance is crucial before any mediated models can be explored. In this first section, I discuss the reasons why certain types of fit and network positions should have direct influence on individual performance by relating each to various dimensions of performance: ability, motivation, and awareness.

### **Mechanisms for a Relationship between P-E Fit and Performance**

*Influences of P-O and P-J Fit on Ability.* Some types of fit can be strong signals that an employee has the abilities needed to be a strong performer. Some measures such as perceived P-O or P-J fit are likely unrelated to the abilities of an employee. An employee thinking that they have similar values to those of the organization may not demonstrate any particular competency which relates to his/her abilities to perform. Similarly, just believing that one has the knowledge, skills, and abilities needed to be a good performer may not necessarily signify the possession of any actual ability directly related to the job. While these types of perceived fit might be important in their impacts

on other mechanisms through which one becomes a good performer, they likely do not have any direct relation to employee ability.

Edwards and Shipp (2007) suggest that structural P-O fit can either facilitate or hinder task performance. Structural P-O fit can facilitate task performance by easing communication and coordination barriers which should increase one's knowledge acquisition. However, if tasks are complex or non-routine, P-O fit can lead to a lack of alternative ideas for completing tasks, similar to the phenomenon of groupthink (Janis, 1972). These assertions suggest that there may be some work-related ability to be gained from having structural P-O fit (the ability to more easily coordinate), but the number of abilities gained from this type of fit are limited and may actually hinder performance in some settings. Structural P-J fit is a measure which tries to approximate the degree to which the employee has the knowledge, skills, and abilities that are generally considered needed on the job. As such, those high in structural P-J fit should have the ability set which could enable them to be strong performers. Structural P-J fit is essentially a proxy for (and thus highly related to) the ability component of performance.

Employing the same mechanisms as were used above for structural fit, I suggest that social fit should be more strongly related to ability for P-O fit and less strongly for P-J fit. For structural P-O fit the primary ability gained from fit is the ability to coordinate more effectively (Edwards & Shipp, 2007), due to the possession of a common organizational language and through alignment to the organizational culture. Turning to social P-O, the ability to coordinate should be even stronger since one is now sharing a common language and value set with the people with whom they are coordinating rather than the organization within which they are embedded. This suggests that social P-O fit

is more strongly related to the ability to coordinate with coworkers which may assist in performance. On the other hand, social P-J fit might be less related to ability than structural P-J fit. Since structural P-J fit is the alignment between KSAs possessed and those needed on the job it is a better measure of what abilities to the demands of the job. Social P-J fit also directly assesses the KSAs that an employee holds, but instead compares them to the KSAs of others. Being high in social P-J fit suggests that an employee has more of a baseline skillset that others have, rather than the exact KSAs needed for the job and thus only moderately relates to the ability to have good job performance.

*Influences of P-O and P-J Fit on Motivation.* The theoretical underpinnings for how fit may be related to motivation to perform are drawn primarily from three concepts: cognitive dissonance, social identity and self-efficacy. The idea that all types of P-O fit studied in this dissertation will lead individuals to act in the best interest of the organization and coworkers (even when they are less aware that fit exists), can be drawn from the concept of cognitive dissonance (Festinger, 1956). Cognitive dissonance can be described as the stressful position which may arise when one holds conflicting views or when actions conflict with views. An example of this in terms of P-O fit would be when one holds values that are similar to that of the organization, but withholds effort. The withholding of effort runs in direct opposition to the obligations of organizational support created by P-O fit; therefore, the individual will either be unable to rectify this dissonance and become unmotivated or be motivated to increasing effort in the workplace in order to return to a consonant mental state.



Social identity theory (Tajfel & Turner, 1986) is another theoretical perspective which would suggest a more direct influence of P-O fit on the motivation to perform tasks or helping behaviors. Social identity theory posits the idea that people classify themselves into a variety of social categories, including organizational affiliation. Those who are high in P-O fit possess (or feel they possess) values which match the organization. This congruence should lead to the organization's playing a greater role in one's social identity. Asforth and Mael (1989) lay out three consequences of how much an individual's identity is linked to the organization: choice of activities which support the organization, cooperation with group members, and reinforcement of the values and practices of the organization. Those consequences suggest that those who are high in P-O fit should be motivated to perform tasks to the best of their abilities, help others in the workplace, and attempt to avoid actions which may be to the detriment of the organization.

Since all types of P-O fit should influence motivation either to affirm one's identity or to avoid incongruence with the environment, positive relationships should exist between P-O fit and both task and contextual performance. These effects drawn from motivation should be strongest for those high in perceived P-O fit as the individual is indicating the congruence, but it also suggests ways in which positive relationships should exist between structural and social objective P-O fit and task and contextual performance. For structural P-O fit, objectively holding values that align with the organization should be a potential source of consonance and be able to foster social identity attachments which influence motivation to take actions which benefit the organization. Social P-O fit, or the similarity of values to those of one's coworkers, can

create similar attachments which motivate the employee to act for the good of their coworkers and the work environment. The influence of structural and social P-O fit would be weaker than for perceived fit since the individual may not be aware of his/her objective congruence. Even if the employee is unaware of fit, there are likely benefits to motivation through more subconscious processes as is the case in previous studies where objective fit has been positively related to individual attitudes such as job satisfaction or organizational commitment found in meta-analytic research (Kristof-Brown et al., 2005).

For P-J fit, the primary type which may have an influence on employee motivation is perceived P-J fit. Perceived P-J fit should also be related to task performance as it can be used as a proxy for self-efficacy. The logic of why perceived P-J fit can be related to self-efficacy and in turn performance can be seen in the following excerpt from Bandura (1982: 122):

“Knowledge, transformational operations, and component skills are necessary but insufficient for accomplished performances...this is because self-referent thought also mediates the relationship between knowledge and action. The issues addressed in this line of inquiry are concerned with how people judge their capabilities and how, through their self-efficacy, they affect their motivation and behavior.”

The above perspective suggests that motivation is an important determinant of performance; therefore, those who are aware of (or believe) that they have the capabilities needed to perform a job well will attempt to be high performers. Belief that one has the ability to perform on the job can be one part of motivation to actually perform well on the job; therefore perceived P-J fit is, at least partially, a proxy for motivation. Objectively holding skills needed to perform job requirements or having a skillset that aligns with one's coworkers will not likely hold any influence on employee motivation, as they are more objective facts than individually held beliefs that would create direct or indirect

internal pressures toward motivation. If others believe one has needed or similar KSAs, they may hold performance expectations which could create some motivation to perform. However, fit attributions are not studied here, and so it is unlikely that structural or social P-J fit will influence employee motivation.

*Influences of P-O and P-J Fit on Awareness.* In terms of awareness, it is difficult to find arguments for the influences of most types of fit. The only types of fit that speaks to perceived awareness are perceived P-O and P-J fit. In order for an individual to report that he/she has the same values as the organization, that individual must believe that he/she knows the values which comprise the organizational culture. Similarly, if one feels that he/she has KSAs which match the needs of the job, that individual must have some idea of what the needs of the job entail. Either of these perceptions could be wrong, but the belief that they have some awareness is likely to influence their actions in terms of performance. For instance, if I believe I know what the values of the organization are, I have a perception about what actions would be appropriate and which would be inappropriate in the workplace. This belief may shape what actions I perform while on the job. Structural P-O or P-J fit means that one has the values or KSAs that objectively match the needs of the environment, but gives no sense of how aware employees are of the organizational culture or job requirements to which they fit. Similarly, social P-O or P-J fit gives no sense of how aware an individual is (or thinks he/she is) of the values or KSAs of their coworkers.

A summary of all of the ways in which various types of fit are related to the three facets of individual performance are provided below at Table 3.1. Given the elevated importance of motivation in contextual performance, it is expected that P-O fit will be

more strongly related to OCBo and OCBi than task performance. This idea is supported in previously discussed meta-analyses where some of the stronger or more consistent relationships between fit and performance were seen when exploring P-O fit and contextual performance (Kristof-Brown et al., 2005). For task performance, ability is the more crucial prerequisite condition; therefore, measures of P-J fit should be more predictive than for contextual performance.

Table 3.1: The underlying mechanisms of the relationship between P-E fit and performance.

Measure	Ability	Motivation	Awareness
Perceived P-O Fit	None	Strong	Weak
Structural P-O Fit	Weak	Moderate	None
Social P-O Fit	Moderate	Moderate	None
Perceived P-J Fit	None	Strong	Weak
Structural P-J Fit	Strong	None	None
Social P-J Fit	Moderate	None	None

### **Mechanisms for a Relationship between Network Centrality and Performance**

*Influences of Friendship and Advice Network Centrality on Ability.* Most measures of social network centrality used in this dissertation represent access to information that can be utilized in the development of abilities useful for performing on the job. For the friendship network, the strongest information benefits that will influence ability can be derived from occupying a position high in betweenness centrality. The primary benefit of betweenness is the ability to access and control information, as discussed in the previous chapter (Freeman, 1977; Burt, 1982). Those high in betweenness centrality can utilize this access and control over a mixture of affective and instrumental information which may help them to gain some new knowledge from a diverse set of sources from throughout the organization. Since both affective and

instrumental information is exchanged in these friendships, it is unlikely that any friendship network centrality would be strongly linked to the acquisition of new KSAs. However, since betweenness centrality signifies access to a variety of others, it should be moderately related to the acquisition of job-related abilities.

Reduced benefits for the development of abilities can be derived from a high friendship in-degree. Those high in friendship in-degree have many others in the organization who claim them as a personal friend. The information benefits that can be extracted from these relationships should be present even if one does not reciprocate the friendship. For example, if I consider one of my coworkers to be a personal friend of mine, I am more likely to provide them with information than I may not otherwise. Even if they do not consider me to be a friend, the fact that I consider them to be a friend means that I will treat them in certain ways, including providing them with information that they might be able to utilize in their on the job performance. Since there is often a great deal of non-work related information exchanged in friendships, in-degree centrality should only be weakly related to ability development.

Finally, friendship out-degree centrality (the number of friends one claims to have) might yield minimal, if any informational benefits which could influence the development of performance ability. Perceiving that a coworker is a friend might lead someone to share information with the perceived friend. Norms of reciprocity would suggest a pressure for the perceived friend to reciprocate in kind and provide some information back to the perceiver of the friendship. However, this is contingent on the alter recognizing the treatment as 'friendly' in order to create this norm which may not always be the case. Therefore, while there might occasionally be some informational

benefits derived from thinking you have many friends, it is unlikely that this will translate into the acquisition of new KSAs which one could use to perform on the job.

In terms of the advice network, similar logics are employed, but they yield different results in terms of influence on ability. For the same reasons outlined above, betweenness centrality in the advice network should be most beneficial for performance. Those high in betweenness centrality in the advice network have access to others who likely have a more diverse variety of skills that can be used to help develop one's own KSAs. Advice in- and out-degree have different connotations than were seen for comparable positions in the friendship network. For the advice network, being high in advice out-degree centrality should be more beneficial for the acquisition of information to improve individual ability. Employees high in advice out-degree centrality might be able to gain access to resources and new knowledge by asking others for advice (Sparrowe et al., 2001). As such, advice out-degree should be at least moderately related to ability acquisition<sup>1</sup>. Advice in-degree centrality (advice giving) should be weakly related to the ability possessed by an employee. To give advice, one likely already possesses at least some desired ability that makes them sought out. Furthermore, those high in in-degree centrality are being approached by others who likely must describe the problem with which they need help or advice. Access to this information can be beneficial in gaining some new knowledge from the description.

*Influences of Friendship and Advice Network Centrality on Motivation.* While a case can be made for slight motivational features of all of the previously discussed network centrality measures, only two stand out as having anything beyond weak

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<sup>1</sup> The only factor preventing this from being a strong relationship is the fact that those one is accessing could be highly redundant and restrict the diversity of information needed to more greatly improve ability.

predicted effects. Friendship out-degree centrality might be a strong motivator for job performance. Drawing from the cognitive dissonance and social identity arguments described above when discussing P-O fit, I suggest that the number of friends one claims to have within an organization can facilitate a social identity linkage and be a potential source of consonance or dissonance. Believing that one has many workplace friends should lead to greater motivation to support the organization. If an employee thinks he/she has many friends but withholds effort, this potentially creates extra work for others and puts the employee at risk of losing friends. Therefore, friendship out-degree will be strongly related to workplace motivation.

The only other expected influence of network centrality on employee motivation is for advice out-degree centrality. Again, this is a self-reported measure of centrality that assesses how many others one goes to for work-related help or advice. The mechanism linking advice out-degree centrality to motivation can be found by re-exploring the idea of self-efficacy. Research into feedback seeking (a close neighbor to advice seeking) suggests that individuals have fear when seeking feedback that it might make them look bad (Ashford & Cummings, 1983). If one believes that they can accomplish the tasks of their job, they might seek out advice from some others but should not need to seek out help from many coworkers. If an employee is heavily seeking out help from their coworkers, it is likely that he/she does not have confidence in his/her own abilities and may be losing face. This decrease of self-efficacy and potential (real or perceived) feeling of a loss of standing would likely act as de-motivating pressures from performing for fear that perceived deficiencies would be exposed. Since these detriments

to motivation may only be the case for those very high in advice out-degree centrality, these network positions should only moderately influence motivation (in a negative way).

All other network positions may only tangentially relate to motivation. For instance, to the extent that betweenness centrality in either network represents the spanning of multiple groups this may be a stressful and uncertain position (Krackhardt, 1999). This stress and uncertainty may easily impede motivation but will only be expected if there are clear delineations between groups; therefore, this position may be rare. Either form of in-degree centrality might induce norms of reciprocity whereby one is motivated to 'return favors' (Gouldner, 1960; Coleman, 1990). However, these norms will likely be strongest and most likely to influence motivation if they are embedded in reciprocal relationships rather than those friendships or advice relations that are one-sided (as is the case with in-degree centrality).

*Influences of Friendship and Advice Network Centrality on Awareness.* All network positions are at least moderately related to awareness of the organizational environment since networks act as prisms through which the environment is seen (Podolny, 2001). This organizational environment awareness will be highest for those measures which demonstrate clear access to others, while self-reported network positions will be more moderately related to awareness through some information accessed about the environment and some perceived awareness of the environment. Measures such as betweenness or in-degree centrality should convey high levels of awareness to employees. Those who are high in betweenness centrality have a good 'vantage point' from which to view the organization and best understand the environment and where opportunities may lie within it. Those who are considered to be a friend by many others



or are highly sought out for advice also should have a good awareness of the organizational context. The mixture of affective and instrumental information gained when another employee considers one to be a friend (friendship in-degree) should make someone highly aware of a variety of elements of the organization. When an employee is sought out for advice (advice in-degree), that employee is able to see into the KSAs of the coworker asking for help. Knowing the skillsets of coworkers can create strong advantages when trying to know with whom to coordinate on various tasks.

Employees who think that they have many friends in the organization (high friendship out-degree) would likely believe they know the organizational environment. In reality, they may only have access to some information about the environment to the extent that these relationships are reciprocated. This mixture of belief and some actual information may lead these employees to at least think they know the environment and what they must do to be good performers (particularly contextual behaviors). To the extent that those high in advice out-degree are seeking out others who have the resources to be able to help, they have some awareness of the environment. However, the quality of all these relationships is likely unequal, restricting these benefits.

A summary of all of ways in which network centrality should influence ability, motivation, and awareness is provided below as Table 5. While some of the mechanisms seem similar across both the friendship and advice networks, it is important to remember the primary distinction between centralities in each network when considering how these influences will translate into performance. For friendship ties, a mixture of affective and instrumental information is shared, which will be more beneficial for contextual than task performance. When one is helping coworkers (OCBi) or assisting the organization

(OCBo), instrumental information will be beneficial for developing the ability to perform certain actions while affective information might be crucial for knowing how to best help. An example of OCBo performance that could be influenced by friendship ties can be seen when an employee decides to reorganize a common area or file system. Knowing how to best accomplish this can be obtained from informal conversations with friends, as will information about whether this is something that should be done (i.e. if some people are very attached to the current design). The instrumental component of friendships may also assist with task performance, but not to the same extent as will be the case with contextual performance. There is also some empirical support for the influence of friendships on contextual performance. For instance, Bowler and Brass (2006) found that interpersonal citizenship behaviors were likely to be embedded in strong friendships.

When discussing the effects of advice network position, effects on performance will likely be stronger on task than for contextual performance. This stronger expected relationship is due to the idea that the information shared through advice relations is primarily instrumental and designed to assist in the performance of tasks. This idea is reflected in the stronger linkages between advice network centralities and ability described above and seen below in Table 5 compared to similar positions in the friendship network. Advice network centrality might also be related to some contextual performance behaviors, but it is important to note that I do not equate advice in-degree with contextual performance in this dissertation for several reasons, even though this interchangeability has been asserted in the past (Sparrowe et al, 2001). First, the OCBo performance measure would be difficult to equate to advice giving since OCBo are directed at the organization and not any individual. Secondly, the OCBi performance

benefit of giving advice is going to likely be modified by the quality of the advice. The idea that one might be *required* to give advice to others in the workplace via formal requirements of the job is a final reason for not equating advice giving to either type of contextual performance. Advice giving would only be potentially considered an OCBi if that advice was given outside of formal work requirements. This distinction (required advice vs. voluntary advice) has been discussed elsewhere (Soltis et al, working paper) and was not made in the question used to construct the advice network.

Table 3.2: The underlying mechanisms for a relationship between network centrality and performance.

Measure	Ability	Motivation	Awareness
Friendship Out-Degree Centrality	None	Strong	Moderate
Friendship In-Degree Centrality	Weak	None	Strong
Friendship Betweenness Centrality	Moderate	None	Strong
Advice Out-Degree Centrality	Moderate	Moderate (-)	Moderate
Advice In-Degree Centrality	Weak	None	Strong
Advice Betweenness Centrality	Strong	None	Strong

In the remainder of this chapter I re-present the basic shell of Figure 1 with specific measures of fit, centrality, and performance replacing the general terms. For the sake of parsimony, two overarching sets of models will be presented. These models will explore the relationships first between P-O fit, friendship network centrality, and performance. These models should have greater explanatory power for contextual than task performance, although all three measures of performance (OCBo, OCBi, Task) will be tested. Later, I will focus on measures of person-job fit, advice network centrality, and performance, in this case focusing primarily on task performance. These pairings were selected for four primary reasons. First, both P-O fit and friendship network centrality should primarily influence contextual performance, while P-J fit and advice

network centrality primarily speak to task performance potentially yielding strong explanatory power from joining the concepts in the proposed fashion. Second, similar theoretical perspectives (i.e. cognitive dissonance and social identity) are evoked to explain the roles of both P-O fit and friendship networks and to some extent (self-efficacy) P-J fit and advice. These similarities may amplify or inhibit potential effects depending on levels of each construct. Third, a variety of complementarities emerge when examining Tables 4 and 5 which suggest that each may be explaining different elements of task or contextual performance. If this is indeed the case, then controlling for relevant informal relationships may help to better understand the role of fit on performance. Finally, due to the foundations upon which friendships and advice relations are formed there is a greater likelihood that P-O fit will influence friendship network position and that P-J fit will help in the occupation of certain advice network positions.

### **Person-Organization Fit, Friendship Network Centrality, and Contextual Performance**

Contextual performance includes behaviors of an individual that extend beyond formal job requirements (Borman & Motowildo, 1993). Person-organization fit assesses perceived or actual congruence between one's values and those of the greater organization (Kristof, 1996). P-O fit should lead an individual to act in the best interest of the organization and his/her coworkers to reduce social identity violations or cognitive dissonance (Tajfel & Turner, 1986; Festinger, 1956). Similarly, the degree to which one is central in the friendship network of the organization can create pressures to provide social support to others in the organization. It could be the case that an employee's fit and social network position influence similar elements of performance (i.e. ability,

motivation, or awareness), and that they work together to create top contextual performers. Alternatively, P-O fit and friendship centrality could independently influence an employee's level of contextual performance through the influence of different elements of performance. Finally, an employee's level of fit could be an important antecedent to the occupation of social network positions which may be beneficial for performance.

It should be noted that there are competing logics behind each model driven by the underlying meanings of each measure. As such, I anticipate that the models have varying levels of success in explaining the relationship between P-O fit, friendship network centrality, and contextual performance. Exemplars of relationships that suggest moderation, additive, or mediation models are presented below. I will explore each measure of P-O fit with a single measure of friendship network centrality in the following pairs: perceived fit and out-degree, structural objective fit and in-degree, and social objective fit and betweenness. This is not to say that there are no relationships across these pairs, but rather that the strongest effects are expected within these groupings. While suggested effects are stronger for contextual performance, these combinations of P-O fit and friendship network centrality may also influence task performance (as indicated Tables 4 and 5). The mechanisms which drive contextual performance in the models will be the same (but weaker) for task performance; therefore, specific implications for task performance will not be discussed even though these relationships will be tested.

*Moderation Model.* Perceived P-O fit and out-degree centrality will be explored together, since they are both self-reports and each taps into the idea of felt obligations

toward coworkers and the organization. Whereas each was previously discussed as a potential source of consonance or dissonance, both are strong signals from the environment which might only influence actions when congruent. Furthermore, given what has been previously established regarding a lack of a relationship between perceived P-O fit and performance it is unlikely that even if friendship out-degree was an antecedent of this type of fit, mediation would be unlikely. Given the strong similarities in terms of both measures primarily influencing motivation to perform, an additive model is also unlikely for these measures. As such, a moderation model makes the most sense for this pairing as seen in Table 3.3.

Table 3.3: The joint effects of perceived person-organization fit and friendship out-degree centrality on contextual performance.

	<b>High Friendship Out-Degree Centrality</b>	<b>Low Friendship Out-Degree Centrality</b>
<b>High Perceived P-O Fit</b>	Congruent perceptions of cultural and social embeddedness increase motivation	Inconsistent perceived signals from the environment inhibit action
<b>Low Perceived P-O Fit</b>	Inconsistent perceived signals from the environment inhibit action	Congruent perceptions of a lack cultural and social embeddedness avoids inhibition of motivation

The nature of the expected interaction of perceived P-O fit and friendship network out-degree centrality on contextual performance is presented above as Table 3.3. The extent to which one’s social identity is linked to the organization through perceived value fit should lead one to take actions that benefit the organization, thus creating an internal pressure for performance (Tajfel & Turner, 1986; Festinger, 1956). The extent to which an employee thinks that he/she has many friends in the workplace should also be a contributing factor for performance expectations through the employee’s felt obligation

to provide support/help for any friends in the workplace. Just as the theory of cognitive dissonance suggests that individuals will attempt to align values with actions, it will be important that these pressures toward performance are not dissonant in order for the motivational features of each measure to take effect.

The extent to which perceived P-O fit will translate into contextual performance will be somewhat conditioned upon how one sees him/herself as integrated into the organization socially via the formation of friendships. Those employees who view their values as matching those of the organization and who consider many others to be personal friends should be able to reap the benefits suggested from perceived P-O and friendship out-degree in terms of OCBI and OCBO. These employees have congruent motivational signals from the environment and see opportunity to utilize this match. They should be eager to undertake actions for the greater good of coworkers and the organization. When this match is lacking, the benefits of either fit or centrality on performance might be significantly diminished due to the stressful position dissonance may cause.

For example, an employee who sees him/herself as holding very similar values to the organization will want to take actions to support his/her employer. However, if this same employee also does not have many friends in the workplace, this could suggest frustration and a potential withholding of effort. Additionally, this employee will have less awareness of potential contextual performance opportunities and may be likely to have his/her actual performance overlooked. To the extent that a performance evaluation contains reputational elements and is not purely objective, this overlooking of

performance can be particularly detrimental. It would be difficult to take action in an environment perceived to be providing such mixed signals.

Those who see themselves as very popular (having many friends) but do not associate their values with those of the organization are in a similarly precarious position. These individuals will feel normative pressure to help their friends with problems at work but also have a lack of attachment to the organization. As such they may turn to non-work actions to demonstrate their friendship (such as watching someone's children or helping them move a piano) since helping within the organizational setting would conflict with their lack of perceived fit. Additionally, if the lack of perceived fit is known by one's friends they might not even bother requesting help with organizationally-related activities.

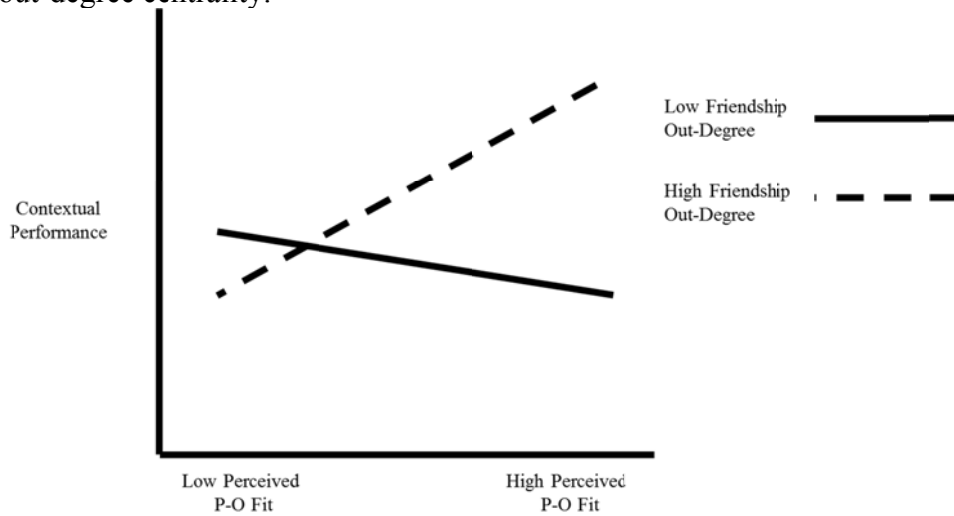
Finally, those who see themselves as holding values divergent to those of the organization and also view themselves as peripheral members of the organization's social network will likely do the minimums required of them but no more. They have little pressure to perform beyond what would be required to keep their job and would therefore not be rated as high in contextual performance. However, it is important to note that this is a consonant position where the employee is at least receiving consistent signals from the environment. This consistency may help the employee to rationalize the need for some contextual behaviors in order to avoid scrutiny or to compensate for their known deficiencies as an attempt to improve their situation. The stress caused by dissonant perceived signals which clouds ability to perform does not exist for those individuals who are low in both perceived fit and network centrality. This stress reduction, ability to rationalize counter-intuitive behaviors, and potential need for compensation of a



perceived lack of embeddedness (in culture or social structure) suggests that there may be limited benefits to this position.

In summary, being high in perceived P-O fit will likely be beneficial only if one is also high in friendship out-degree centrality. Being low in friendship out-degree would reduce a social identity linkage and increase cognitive dissonance inhibiting performance. Those low in perceived P-O should only see a detriment to performance to the extent to which they have many friends in the organization, since this suggests the formation of a social identity to a group of friends rather than the organization and a position of dissonance. When an employee is also low in friendship out-degree, these detriments of a lack of fit should be lessened since at a minimum there is no cognitive dissonance to impede action. The suggested nature of the interaction between perceived P-O fit and friendship out-degree centrality is presented as Figure 3.1 below:

Figure 3.1: Anticipated nature of the interaction between perceived P-O fit and friendship out-degree centrality.



*Additive Model.* Compelling arguments could also be made that fit and centrality contribute to contextual performance independently. From the P-O fit perspective, it has been assumed that fit should have effects on contextual performance through the creation

of various psychological states such as organizational commitment (Arthur et al., 2006). At the same time, position in the friendship network should be related to contextual performance through social support or information access which benefits either individual ability or organizational awareness. In fact, it is frequently the contention of more structuralist network scholars that actors are interchangeable, and it is only the position that matters (i.e. Mayhew, 1980). While there has been little to no research on whether fit provides information access or social support, research that uses social networks to directly predict organizational commitment has limited success (see indirect tests of Eisenberg, Monge & Miller, 1984; Morrison, 2002). This lack of cross-pollination of the underlying drivers behind a fit-performance or social network-performance suggests that the effects of each may be additive and not multiplicative, since each area is predicting a different impact on performance.

The primary benefit of a supported additive model is to help demonstrate that even if fit is only predicting a small amount of performance variance, this variance is unique. As will be discussed in the methods chapter, the statistical procedure used to test for additive effects will determine whether fit and social network position are predicting unique parts of performance or if there is some underlying relationship between the two variables (i.e. moderation or mediation).

When examining Table 3.1, we see that the primary benefit of structural P-O fit is that it should create motivating pressures and has some benefits for ability to communicate and coordinate. Friendship in-degree can provide an employee with access to information, increasing a variety of abilities and making an employee more aware of the social context (as seen in Table 3.2). While there is some overlap between the effects

of structural P-O fit and friendship in-degree centrality in terms of ability, these types of abilities influenced should be different enough that each type may independently predict performance. Those who are high in structural P-O fit will have some specific ability to communicate/coordinate with coworkers plus motivation to utilize it. Having many others who consider you to be a personal friend entails a level of access to some general abilities and an increased awareness of the organizational environment through the information and KSAs possessed by the friend. When statistically controlling for one another, each type should be significantly related to individual performance.

*Mediation Model.* Mediation, in which P-O fit is related to the occupation of beneficial network positions, is a final way in which P-O fit and friendship centrality may be linked. Before exploring a way in which P-O fit may lead to the occupation of a beneficial social network position, I will discuss the set of assumptions used in this section in order to clarify why P-O fit should influence friendship network position and not vice versa. I follow previous literature in assuming that the values of an individual are relatively stable (Meglino & Ravlin, 1998). While values may adjust slightly through the socialization process, these adjustments will be relatively small, such as one developing slightly more of a team orientation but not moving from holding strong individualistic values to a heavily team-oriented perspective. Social relationships, on the other hand, may be less static (Kilduff, Tsai & Hanke, 2006). It would be difficult to make the claim that that one's evolving network position impacts a relatively stable set of values (as is the case with social P-O fit), since friendships can be made and dissolved in the workplace.

This assumption also informs a portion of the directionality of the structural P-O fit and friendship network position relationship. An individual's values are compared to the organization's ascribed values in this type of fit. The idea that the values of an organization will be difficult to change has its roots in Schneider's (1987) ASA model. If people are attracted to organizations with values similar to theirs, organizations select individuals with values similar to the organization. Those who do not fit will leave the organization, since it is very difficult for an organization's values to change (Schneider, 1987). The organization's values are even less subject to change when it is considered that these values are not only determined by the people currently within the organization, but also by its underlying processes, goals, and history (Schein, 1985).

The case against reverse causality for perceived P-O fit and social network position takes on a slightly different flavor. Perceived P-O fit does not take into account the specific set of values of the individual or the organization, but rather it assesses holistically how well one feels he/she fits with the organization. While this may suggest that perceived P-O fit is more attitudinal and therefore more prone to be influenced by social relationships, two streams of research suggest otherwise. First, research in social networks has shown that while attitudes may diffuse through informal relationships, it makes assumptions that the attitude is specific and observable. For example, Erickson (1988) lays out ways in which networks may influence attitude similarity in dyads or larger groups. However, her discussions do not make as much sense for attitudes which have multiple or varying dimensions as is the case with individual self-assessments of fit. Second, recent theorizing by Shipp and Jansen (2011) suggests that individual assessments of fit are driven by lifelong experiences that include, but are not solely

determined by, the current organization. For instance, employees may make comparisons with previous jobs to determine levels of fit, or they may think back (or forward) to specific instances where fit was (or is anticipated to be) demonstrated. This added depth of the concept of perceived P-O fit suggests that, while social influences might be part of the internal calculus one uses to determine his/her own fit, it would be part of a much larger formula. I present the case for friendship network centrality as a mediator of the P-O fit-contextual performance relationship with these assumptions in mind.

The mechanism driving mediation for both structural and social P-O fit is the principle of homophily in social networks (McPherson et al., 2001). The basic premise of homophily is that people are attracted to those who are similar to themselves. The implication of structural P-O fit is that people should be attracted to those who hold values similar to those of the organization. An employee who is high in this type of fit will see common ground for friendship with many others (high out-degree) or be sought out for friendship by many others based on commonality of viewpoint (high in-degree). Assuming that all employees fit well into some dimension of the organization's values, those who are high in structural P-O fit would have the ability to be befriended by those who are either high or low in fit, as they would be likely to hold some common views with most others in the organization. This ability to span relationships between those high or low in fit suggests the potential for high betweenness centrality.

While structural P-O fit might be related to advantageous network positions, a stronger case for mediation can be made using social P-O fit and betweenness centrality. Since social

P-O fit measures the extent to which one's values are similar to those in the rest of the organization, employees high in this type of fit should be able to form relationships with many different others in the organization. Even if other employees do not have values similar to the group, those high in social P-O fit would have advantages of having common ground to befriend a variety of types of individuals. Structural P-O fit works similarly, but less directly, since in structural fit the individual holds values similar to those of the organization. The benefit of social P-O fit is that we do not have to make the assumption that all employees match some element of the organization's culture. Social P-O fit measures directly how similar one's values are to all others in the organization, and being high in this type of fit should be strongly related to betweenness centrality.

### **Person-Job Fit, Advice Network Centrality, and Task Performance**

The concepts of person-job fit, advice network centrality, and task performance are inherently linked. P-J fit assesses the degree to which one's knowledge, skills, and abilities match those needed to be successful at work-related tasks. Centrality in the advice network measures the extent to which one has access to others in the workplace in order to gain or give work-related help or advice. Task performance is the proficiency with which one undertakes work-related tasks. Given the variety of ways in which P-J fit and advice centrality can be measured, it may well be the case that there is not a uniform relationship between P-J fit, advice centrality, and performance. It is expected that each model will have varying success in its ability to explain task performance, since there is different logic as to why each type of fit and centrality might be related to performance.

I will pair types of P-J fit with specific advice network centrality measures for each model to best explain task performance, as was the case with P-O fit and friendship

network centrality models. The pattern of pairings for P-J fit and advice network centrality are as follows: structural P-J fit moderated by advice out-degree, perceived P-J fit and advice in-degree centrality as a likely additive model of performance, and advice betweenness centrality mediating the relationship between social P-J fit and performance. I will describe in some detail the logic behind why the pairs of variables will contribute best to moderated, additive, or mediated models following the same pattern as above, including as well a general discussion of why these models could be expected in other combinations. Given some support behind each model, all combinations will be tested across all models and both types of performance.

*Moderation Model.*

Table 3.4: The joint effects of structural objective person-job fit and advice out-degree centrality on task performance.

	<b>High Advice Out-Degree Centrality</b>	<b>Low Advice Out-Degree Centrality</b>
<b>High Structural Objective P-J Fit</b>	Employee has the KSAs currently needed for the job and access to others for greater ability to adapt.	Employee has KSAs needed to perform tasks of the job, but little opportunity to prevent these abilities from stagnating.
<b>Low Structural Objective P-J Fit</b>	Employee does not have KSAs needed to perform tasks of the job and exposes these deficiencies by seeking advice.	Employee does not have the KSAs needed to perform the tasks of the job but also does not demonstrate deficiencies.

Moderation is a likely option for the relationship between some type of P-J fit, advice network centrality, and task performance. The nature of this moderation for structural P-J fit and advice out-degree centrality on task performance is provided as Table 3.4. The extent to which one seeks help and advice will moderate the generally positive relationship expected between structural P-J fit and task performance.

Those who are high in structural P-J fit by definition have the KSAs needed to be a strong on-the-job performer. Supplementing this type of fit with the ability to seek out

advice from others will help an individual realize this potential, as advice seeking helps to acquire new abilities and provides an awareness of what skills will be most necessary to hone in order to be a strong performer. Being high in structural P-J fit also eliminates any potential detriments to motivation, as seeking advice likely gives affirmation to one's KSAs rather than exposing deficiencies and reducing self-efficacy.

When an individual is heavily seeking advice and does not have strong P-J fit, performance may suffer for two reasons. First, the lack of P-J fit suggests a lack of ability to perform the tasks of one's job, thus hindering performance. Second, not having the KSAs needed to perform the tasks of the job and seeking out a great deal of help or advice will likely lower self-efficacy as it will make these shortcomings more salient. A lack of ability and confidence (motivation) will make it difficult to be a strong performer. Over time, this position may improve if one is able to successfully improve KSAs by seeking help and advice, but while an employee is low in fit and frequently seeking advice, performance should suffer.

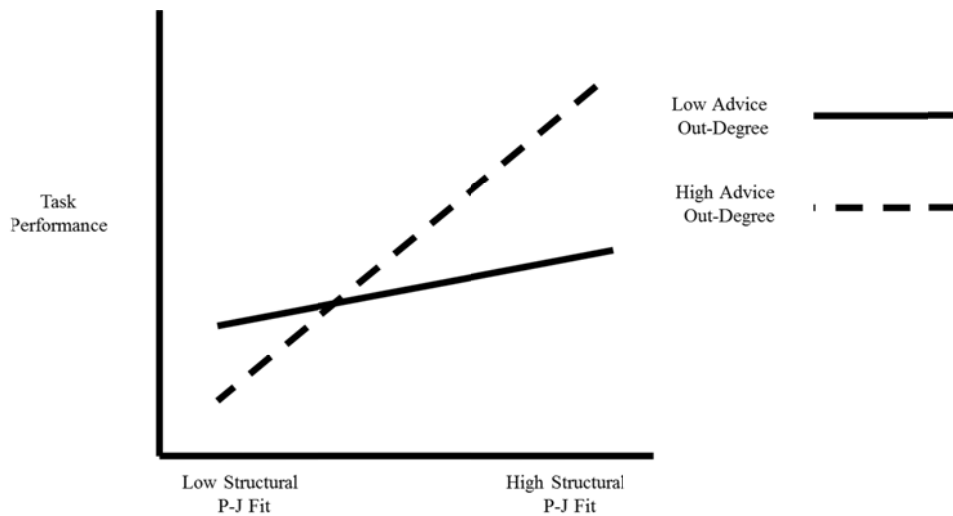
Employees who possess KSAs which fit the needs of the job but do not have a high advice out-degree will be moving in the opposite direction. In a cross-sectional view, these employees will exhibit above average performance thanks to the objective fit of their KSAs to the job. There are limits to this benefit to performance since the employee is lacking in access to others' resources in order to enhance or maintain skills or to become aware about needed supplemental skills. Therefore, there will be a benefit for performance driven from structural P-J fit but a lack of access to others will restrict the performance ceiling for these employees.



Finally, employees who do not have structural fit and do not seek out advice from others are likely poor performers given a lack of abilities and a lack of opportunities to improve their KSA set through the informal networks of the organization. What prevents this from being a disastrous situation for individual performance is drawn from the prisms function of advice relations. If these employees are not seeking out advice, they are not exposing these skill deficiencies and may be ‘flying under the radar’ in terms of performance. They are also not de-motivated by a lack of self-efficacy since they are not seeking out advice and may not recognize their own KSA deficiencies.

To summarize, structural P-J fit will be strongly positive for those who are also high in advice out-degree centrality due to the combination of detriments that may occur if one is low in fit but high in advice seeking and the strong benefits that can accrue to those who are both high in fit and seeking advice to maintain and improve an already impressive set of KSAs. Conversely, structural P-J fit will have only a slightly positive effect for those who are low in advice seeking. The benefits of being high in structural P-J fit will be limited in the short-run and diminishing in the long-term for those without the ability to seek out advice. The detriments of being low in structural fit will be mitigated by those who are low in advice seeking. Taken together this suggests an only slightly positive relationship for structural P-J fit when one is low in advice out-degree. The proposed nature of the interaction is presented below as Figure 3.2.

Figure 3.2: Anticipated nature of the interaction between structural P-J fit and advice out-degree centrality on task performance.



*Additive Model.* The model above illustrates a way in which centrality in the advice network may moderate the relationship between P-J fit and task performance. It may also be meaningfully argued that the effects of advice centrality and P-J fit are additive. The fact that both P-J fit and advice centrality have been independently related (at least weakly) to job performance might lend credence to this conception.

One set of fit and network centrality measures that will be particularly prone to an additive model of performance is the combination of perceived P-J fit and advice in-degree centrality. Being sought out by many others for advice might yield some benefits for ability as there is some exchange of information in this exchange and should more clearly create an awareness of the work environment. Perceived P-J fit is a proxy for motivation as it relates to the concept of self-efficacy. Since there is little to no overlap in the mechanisms by which advice in-degree and perceived fit should relate to performance, it may be the case that they each predict different elements of performance. As such, an employee will be able to perform the tasks of the job when they have high levels of both fit and centrality with only marginal benefits derived from either measure

independently. Exploring these in an additive fashion might help to uncover previously overlooked effects. For example, after statistically controlling for ability and awareness (by accounting for advice in-degree) we can get a clearer sense of if perceived P-J fit then yields significant explanatory power to explain performance. There is little reason to believe that network position will change the way in which perceived P-J fit influences performance, and so any relationships to performance will likely be independent and therefore additive.

*Mediation Model.* The logic behind a mediating role of social networks on the relationship between P-J fit and task performance are drawn from a mixture of prior research as to what leads an individual to be central in the advice network. I argue in this section that P-J fit is an important antecedent to some of beneficial network positions and therefore may indirectly influence task performance.

Most relevant to the idea of structural objective P-J fit is prior research which has suggested that individuals who already have a strong set of KSAs may be likely to be sought out for advice (Borgatti & Cross, 2003). It is likely pre-existing strengths or weaknesses which led to the development of the advice-giving or advice-seeking relationship, even though the exchange of advice-giving or advice-seeking may lead to the development of new KSAs. Employees with high structural objective P-J fit may also function as important bridges to employees with other jobs in the organization (high betweenness). For example, an employee who needs help from someone in another department may well be referred to someone who is seen as most knowledgeable in that department.

The most likely mediation model is the one in which social P-J fit influences task performance through advice betweenness centrality. Shared KSAs should facilitate advice-giving or seeking based on both the principle of homophily and research on communication in functionally diverse work teams. The principle of homophily suggests that people are attracted to those who are similar to themselves; therefore, employees may be most comfortable seeking or giving advice to those with some base-level of KSA similarity (McPherson et al., 2001). Research into how teams communicate in organizations suggests that functional diversity (which would typically indicate a wide variance in KSAs) may inhibit the ability for team members to communicate effectively with one another (Keller, 2001; Bunderson & Sutcliffe, 2002).

This is a particularly ripe area to explore for multiple types of mediation, since the relationship between social P-J fit and performance has yet to be meaningfully explored in previous work. Direct mediation would suggest that there is an underlying relationship between social P-J fit and performance and social P-J fit and betweenness. In previous sections I have laid out a case for why either of these individual characteristics might be related to performance and so direct mediation should be theoretically possible. Once advice betweenness is accounted for, the effect of social P-J fit may be eliminated or reduced which would indicate support for full or partial (direct) mediation (Baron & Kenny, 1986). For indirect mediation, a relationship between social P-J fit and performance is not necessary so long as social P-J fit is related to advice betweenness and advice betweenness is related to performance (MacKinnon, Fairchild, & Fritz, 2007; Zhao et al., 2010). Given prior work on the positive effects of instrumental network betweenness centrality on performance (i.e. Cross and Cummings, 2004; Burt, 2007) this

type of mediation might be easier to find. Provided there is a relationship between social P-J fit and advice betweenness centrality, both of these types of mediation are plausible and therefore I will be test for both types of effects.

The basic reasoning for either type of mediation is that those with a KSA profile similar to most other coworkers will be able to communicate more effectively with others, thereby providing better advice or drawing more information when seeking advice. Those with a more diverse skillset should have more similarities to those in many different jobs, since my measure of social P-J fit is the average correlation to all others' KSA profile. This KSA similarity will likely be enough to overcome cross-functional communication barriers and should lead one to be able to give or receive advice from various parts of the network therefore increasing task performance.

## CHAPTER FOUR METHODS

### **Sample**

Data for this dissertation was collected at 11 bases of Medical Aviation Systems (MAS). The primary service provided by the company is the transport of patients via helicopter or airplane from a crash site to a hospital or from one hospital to another. The organization has undergone two significant changes in the past five years. First was the acquisition of a major competitor, followed two years later by a reorganization and rebranding of acquired bases. The current MAS organizational structure consists of four divisions: aviation, medical, maintenance, and business services. Of these four divisions, the medical division is the largest, followed by aviation, with maintenance and business services each existing in much smaller capacities. The medical and aviation divisions were the focus of this study.

The pattern of personnel is consistent at the base level, with each base consisting of approximately 12-14 personnel about two-thirds of whom are medical (paramedics and nurses), a quarter are aviation (pilots), and each base typically has one maintenance person. Business services personnel are either shared between bases, or business responsibilities (public relations, marketing, customer relations) are overseen by a member of another division. Aside from periodic base-wide meetings, there are typically only four personnel on base during the day (a medic, a nurse, a pilot, and a mechanic) and three overnight (a different pilot with the same medic and nurse).

Hierarchically, the individual bases are relatively flat, with one lead pilot and one medical base supervisor whose titles are more administrative than supervisory. Given the fact that there is never a time in which two pilots are on shift at the same time (other than

brief overlaps due to late flights), lead pilots have little opportunity to observe the performance of the other pilots at the base. For medical staff, paramedics and nurses are teamed together for fixed periods of time (up to several months). Therefore, the medical base supervisor will likely only work with one other medical staff member over a certain time span and will never work with someone of the same job title (i.e. nurses will never work with other nurses).

### **Survey Development and Data Collection Procedures**

The data collection and survey development took place in three phases. The first phase was conducted between April and May of 2010. At this time an online survey was administered via SurveyGizmo to two bases outside of the geographic region that would be included in the final sample. This survey assessed employee fit using Likert scales, three networks (advice, friendship, communication), employee attitudes (job satisfaction and organizational commitment), and two 360-degree measures of performance (task and contextual) where all employees rated each other's performance.

The purpose of this pilot study was threefold. First, the study allowed me to gain greater insights into the workings of the organization. I spent up to 8 hours per day at each base for a period of two weeks and was even able to go on a flight with one of the crews. In this time, not only did employees complete the survey but also shared many stories with me and provided me with feedback on the survey. For instance, multiple employees expressed frustration with the contextual performance measure being unclear and containing sample items that were prohibited in the company or by Federal regulations (such as staying late to help coworkers). Two direct results of these

interactions was the need to delineate between OCB and ICB rather than using contextual performance and only sample behaviors that exist within the organization were used.

Second, the pilot study allowed me to test the use of a Likert-type scale in assessing fit within the organization. Traditionally, fit is assessed using a Q-Sort procedure where employees are forced to rank a set of values or KSAs and place them into categories from uncharacteristic to characteristic (Block, 1978; O'Reilly et al., 1991). Recently, scholars have begun to use Likert-type scales where employees would rate each value/KSA on a 1-7 scale with no restrictions on how many times a value can be given a certain rating (e.g. Billsberry, 2007; Elfenbein & O'Reilly, 2007). I found that there was a great deal of range-restriction in terms of employee values which makes the calculation of fit very difficult and reduces how meaningful these scores are. As such, for the full data collection I moved to Q-Sort method of assessing values/KSAs following a procedure that will be outlined below.

The third purpose for the pilot study was to be able to gain access to a larger sample of bases to serve as the data site for my dissertation. After the pilot study was completed, a research report was prepared and presented to corporate and regional executives. The company representatives saw value in the research and agreed to grant me access to an additional 11 locations.

Before collecting data at the 11 bases to be included in the final sample, I first needed to select the items to be used in the assessment of P-O and P-J fit. The second phase of the research was devoted to a systematic selection of values and KSAs specific to the organizational context from larger pre-established item sets. This customization was possible after I administered a survey of two larger Q-sorts to five region-level



executives representing the four divisions of the organization in April 2011. For this study, I used the online survey tool Qualtrics as SurveyGizmo did not have the functionality to perform Q-sorts. The full procedure used in this customization and the final item sets will be provided below when I discuss measures of P-O and P-J fit.

I collected the data for this dissertation from July-September 2011 using an online survey administered through Qualtrics. To raise response rates, I traveled to 10 of the 11 locations included in the final sample. One base had just opened, and I was able to meet a majority of the employees while they were still in training or covering shifts at other bases. Data was collected for pairs of bases based on geographic groupings in the sample, with a several-hour collection after the AM pilot/medic shift change at base A followed by a several-hour collection after the PM pilot shift change at base B. This pattern was reversed on the following day to ensure exposure to a majority of employees. The survey was administered online so that employees absent due to illness or vacation would still have the opportunity to participate. Participation primarily came from employees while I was on site, even though a small number completed the survey before I arrived or after I completed research at that location. The research protocol was approved by the Institutional Review Board at the University of Kentucky.

The final sample included 107 out of 126 potential employees for a response rate of 84.9%. The rate at each base varied between 100% (obtained twice) and 62.5% (for the base which I was unable to visit in person).

## **Measures**

*Performance.* Performance was assessed following the methods used by Kilduff and Krackhardt (1994), whereby each employee rates him/herself and every other

employee. I utilized three performance assessment items in the survey, because of the amount of time it takes to rate performance for each coworker in a 360-degree style appraisal. The task performance assessment question asked, “Please respond to the following questions about how well you feel that you and your coworkers are performing the requirements of your jobs.” Each employee then rated him/herself and coworkers on how well he or she feels that he/she and the coworkers are performing the requirements of their jobs on a seven-point scale with 1 representing “Not Well at All” and 7 representing “Extremely Well”.

OCBo and OCBi performance was assessed in the same way, asking individual employees to rate themselves and their coworkers on how well they perform above and beyond the requirements of their jobs. This question was supplemented with examples of OCBo and OCBi performance specific to the organization. The final wording of the OCBo question was, “Please respond to the following questions about how well you feel that you and your coworkers are performing above and beyond the requirements of your jobs to help the organization. This can include actions such as volunteering for non-required activities, speaking well of the company publicly, offering ideas to improve the company, and so forth.” The OCBi item was, “Please respond to the following questions about how well you feel that you and your coworkers are performing above and beyond the requirements of your jobs to help coworkers. This can include actions such as giving up time to assist others with their work, making new members of the company feel welcome, and showing genuine concern and courtesy toward coworkers.”

One benefit of assessing performance relationally is that it allows the researcher to construct a wide variety of performance measures within the task or contextual

dimension such as self-rating, peer-rating, supervisor-rating, or overall 360 style ratings. Given the fact that supervisors have a limited purview of employee performance, relying on these ratings would be problematic in this sample. Self-ratings and peer-ratings may have inherent biases which may move measures away from actual performance. In this dissertation, I present analyses based on 360-degree ratings to best assess an individual's actual performance by triangulating self, peer, and supervisor ratings. On average each employee was rated by 10 others across each type of performance. All of these ratings included self, and 74.5% of ratings included the perspective of the employee's direct supervisor.

*Person-organization fit.* The process of assessing P-E fit (either P-O or P-J) includes three sequential steps. The first step is to determine what types of P-E fit are important to assess for a given research question. Second is determining on what dimensions P and E will be measured. The third and final step is to determine how P and E will be compared to one another in order to determine what constitutes 'fit'.

The first step of this process was completed in chapter one and is seen in Table 2 where it was determined that P-O will be assessed using perceived, structural objective, and social objective measures. For perceived P-O, steps two and three can be avoided, as there are validated measures of both types of fit available that will be used in this study. Perceived P-O fit was assessed on a five-point scale with the anchors "strongly disagree" and "strongly agree" using Cable and DeRue's (2002) 3-item measures. This includes items such as "my personal values match my organization's values and culture". There were 105 employees who completed this section of the survey, and the scale had a Chronbach's alpha of .85, suggesting good consistency of items.

P-O fit is frequently assessed using a 54-item Organizational Culture Profile (OCP) developed by O'Reilly et al (1991). Alternatively, reduced versions have been utilized which contain all of the same underlying factors (Cable & Judge, 1997) or a subset of values most relevant to the research setting (i.e Dineen and Noe, 2009; Billsberry, 2007; Elfenbein & O'Reilly, 2007) has also been utilized. In these surveys, employees are typically asked to rate both themselves and the organization on all dimensions by describing which values are most characteristic or least characteristic of P and O. Sample values include items such as “team orientation”, “risk taking”, “analytical”, and “demanding”.

Using the full OCP was not possible in this setting, due to concerns about respondent fatigue and limitations on time placed by the organization. Using Cable and Judge's (1997) reduced 40-item scale is equally problematic. Thus, I used a subset of Cable and Judge's value set for assessing fit in this dissertation as determined using the following method. The full OCP was sent to five regional executives representing each of the company's four divisions plus one overall vice-president. In these surveys, the executives were asked to fill out only the organization side of the survey (i.e. what values are representative of the organizational culture and what KSAs are most needed to perform jobs within their division). These surveys were collected and analyzed, and a subset of values to be included in the AMK survey was selected with two goals in mind. First, items were selected to be representative of each level of representativeness of the organization's culture to preserve the distribution of the initial Q-sort. Second, items were selected within each category which had the highest consensus (lowest amount of variance) to ensure that the values were something that employees could 'fit to'. For

instance, if all of the executives placed a value in either the top or bottom category, the mean value would be the middle category. However, since there is such high variance it is unlikely that anyone will ‘fit’ on this dimension. After exploring the data gathered from the executive survey, 26 items were selected to be included in the Q-sort and placed into 7 categories ranging from “Two Most Characteristic” to “Two Least Characteristic”.<sup>2</sup>

The final step of measuring fit is to determine how P and E profiles will be compared. The two methods frequently used to assess fit are profile similarity indices (PSIs) or polynomial regression. PSIs are most frequently used, but are also heavily criticized and have led to the development of the polynomial regression method (Edwards, 2002). The primary criticisms of PSIs are that they (1) are rife with conceptual ambiguity since they combine a variety of items, (2) that they discard the nature of the difference (is P greater or less than E), and (3) that they fail to account for which particular items are the sources of differences (Edwards, 1993).

Profile correlations will be used to assess fit in this dissertation despite these criticisms, because I am interested in a more holistic fit (Kristof-Brown et al., 2005). Fit as conceptualized in this study is the general congruence between person and environment; I am not concerned about which items create the difference or whether there is an over- or under-supply of values. For instance, if I am very risk-taking and the organization is very risk-averse, this could be equally as problematic as if I were risk-averse in an organization characterized as risk-taking. Furthermore, using polynomial regression instead of profile correlations trades one set of problems for another. Problems with polynomial regression include the inability to explore multiple values

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<sup>2</sup> All fit Q-sorts used in this dissertation are provided as appendices 1-4.

simultaneously, difficulty in the interpretation of results, and lack of ability to use fit as a mediator or moderator (Edwards, 2002).

Structural P-O fit was measured by correlating an individual's values set with the mean employee rating of the organization's value set using Block's (1978) correlation developed for comparing Q-sorts provided below:

$$r = 1 - \frac{\sum d_{ip}^2}{2 N \sigma_D^2}$$

Where  $d_{ip}^2$  is the squared difference between self and organization rating of a given value, N is the number of values in the Q-set (i.e., twenty-six) and  $\sigma_D$  is the standard deviation of the Q-set. Chatman (1990) describes the need to particularly examine the extremes in the distribution. The above variation of the correlation formula squares the differences in order to accentuate the importance of these differences.

For structural P-O fit, the O is an aggregation of what all employees reported about the organization's culture. The O value set was constructed by averaging 100 employees' responses about the organization's culture (this number included six employees from outside of the focal 11 locations who took an online-only survey). Multiple O reports had to be discarded due to employees not following the guidelines for sorting. Any respondent who had more than four sorting errors in their P or O response was not included for two reasons. First, the mathematically possible range of potential fit scores begins to be overly restricted beyond this point (i.e. people cannot be strong fit or misfits). Secondly, the integrity of the response becomes more questionable as errors increase and it becomes less clear whether these were accidental errors (which are acceptable) or intentional distortions of the prescribed distribution (which would not be acceptable).

Since averaging responses to the values of the organization eliminates the distribution created by the Q-sort, the averages for each value are ranked and placed back into the Q-sort distribution (Chatman, 1988). For example, the two highest average values were “Has a good reputation” and “Competitive” with mean values of 6 and 5.34 respectively. These two values with the highest means were recoded into the “Most Characteristic” category changing these scores to each be 7. This process was repeated to re-create the initial distribution. Overall, this process yielded 93 valid structural P-O fit scores.

One important note is to be sure that a culture exists to “fit to”. If there is no consensus on what values make up the organization’s culture, then fit will be largely meaningless (Chatman, 1988). The tests Chatman performed in her dissertation were to examine the coefficient alphas for individual ratings of values in the organizational culture and to look at mean correlations of profiles. In order to test for the presence of a consistent culture, I ran “Consensus Analysis” in UCINET which is specifically designed to explore for consensus among raters. When conducting this analysis, two pieces of information are particularly useful: negative competence scores and eigenvalue ratios. The consensus analysis results demonstrated no negative competence scores and an eigenvalue ratio of 3.441, indicating a good fit to a consensus model and the presence of a strong organizational culture.

Social P-O fit was constructed by replicating the same procedure as was described above for structural P-O fit with the only change being the aggregation of employee responses about his/her own values as the “O”. The presence of a uniform set of values is not expected or necessary when discussing social P-O fit. Consensus analysis was again

performed to ensure that there was not a uniformity of employee values. If there was one strong value set, then all employees would have high fit as both P and O were based on P responses. While there again were no negative competence scores, the eigenratio was only 2.674, suggesting the presence of multiple profiles as expected. Since only 93 employees completed the self-values Q-sort with four or less errors, the total number of valid scores for social P-O fit was 93.

*Person-Job Fit.* To measure perceived P-J fit, I used Cable and DeRue's (2002) 3-item measure. A sample item in this scale is "my abilities and training are a good fit with the requirements of my job", and the scale had a Chronbach's alpha of .82.

The process for assessing both types of objective person-job fit is largely similar to the process described above for objective P-O fit. No generalizable measure of objective P-J fit has been established, since the KSAs needed to perform a job are idiosyncratic to a job and/or an organization. Instead, a method that is frequently used will be replicated and extended in this dissertation. One way to obtain a list of KSAs needed for specific jobs is to examine the Occupational Information Network database (known as O\*NET; Peterson et al., 2001). O\*NET lists the KSAs for a given job based on the frequency with which they are listed in specific job descriptions. One way to measure objective P-J fit is to select the most relevant KSAs across the jobs in an organization by consulting the organization (Caldwell & O'Reilly, 1990; Chatman, 1991). O\*NET can be used to facilitate this process by having individuals separately rate the degree to which they feel they possess the KSA and how much it is required in a job.

All knowledge, skills, and abilities for each job in each department were compiled. For non-key jobs (those idiosyncratic to MAS and thus not found on O\*NET),



the two jobs most representative of the company's position were averaged to construct a KSA profile. Following this, a departmental KSA list was created by averaging the total profiles for each department (medical, aviation, maintenance, and business). This yielded a total of 119 unique knowledge, skills, or abilities. Even though members of the business services and maintenance departments were not included in the final sample, their KSAs were included since some overlaps exist between the functions of these departments and the two focal departments. For instance, medics and nurses often schedule mock accidents for programs such as "Prom Promise" and other public relations events typically handled by business services. Pilots are often key contacts for maintenance staff, as they need to be able to detect when something is going wrong with an aircraft and be able to articulate the problem to a mechanic. In order for the initial organizational KSA set to be formed, only KSAs with an importance of at least 50% (as rated by O\*NET) in jobs within 3 out of 4 departments were included. This reduced the overall set to 52 unique knowledge, skills, and abilities. Finally, some knowledge, skills, and abilities are highly similar such as writing/written expression and speaking/oral expression. After these overlaps were removed the list was reduced to 40 items. This set of 40 items was sent to the regional executives.

The initial set of 40 KSAs was then reduced to 26 after analyzing the responses of the regional executives from each department. Whereas for P-O fit I wanted to select items with the most consensus for each portion of the Q-sort, for P-J fit the goal was to make sure I had a set of KSAs that were important across multiple jobs while being sure to represent some of the key functions of each job type. As such, the average scores of

the executives for each KSA were ranked, placed back into the desired distribution, and then the items from each band of the distribution with the highest variance were retained.

Structural and social P-J fit were measured in the same manner as structural and social P-O fit by correlating an individual's KSA set with the mean rating of how important the KSAs are to be able to perform the requirements of their specific job (structural) or how similar their KSA set was to the aggregate profiles of all employees (social). Again, the rule was used that if an individual had more than four errors in their Q-sort, that data was not used. As a result, the "O" profile for structural fit was constructed for each job using a total of 96 participants. The "O" profile for social fit utilized 86 self-ratings with no more than four errors. Since only 86 employees filled out their own KSA profile with four errors of less, only 86 valid scores were obtained for structural or social P-J fit.

*Social network centrality.* Two sets of relationships were assessed in the MAS survey: friendships and work-related advice seeking. To construct the friendship network, employees were given the prompt, "We are interested in who you consider to be a personal friend. Please check off as many or as few names as are applicable", followed by a list of all of the coworkers at their base. Following this list was another list of all bases along with the prompt, "Are there employees at any other location whom you consider a personal friend? If so, please check their location below and later you will have the opportunity to select them as well." On the next page they were given a list of all employees for any base they checked off. Each individual's responses were aggregated to form an overall network where a "1" exists from an actor to a coworker if they claimed the coworker was a personal friend.

The same procedure was completed for the following prompt, “We are interested in to whom you go for work-related help and advice. That is, if you have a question or problem at work, whom do you tend seek out for help or advice? Please check off as many or as few names as are applicable.” Once these responses are aggregated, a matrix will be formed where a “1” in a cell indicates that the person in the row claimed that they would go to the person in the column for advice.

Once the networks are constructed, network centrality can be measured. The sum of an actor’s row is the measure of out-degree centrality, as this indicates how many others an actor claimed were personal friends or persons to whom they would go for advice. Summing an actor’s column would provide in-degree centrality as it would indicate the number of times another employee said that they are friends with an actor or that they go to the actor for advice.

For betweenness centrality, the interest lies in how many times one falls on the shortest path length between two others. Betweenness can be measured to preserve the directionality of a tie, such that if one has an in-degree from two others they cannot spread information between those alters. Given the discussion in the literature review of how giving or receiving information from friendship or advice ties can benefit performance, directed betweenness proves an overly restrictive measure. For the friendship network, ties were symmetrized using the minimum rule such that a tie only existed if both parties claimed to be friends with one another. Since the primary benefit of betweenness is access to information, only including these ties in the friendship network ensures that information is able to flow. For the advice network, ties were symmetrized by a maximum rule instead. This means that if either actor claims there is a

tie between two individuals, then a relationship is said to exist through which information can be accessed and reputations can be formed. This idea is consistent with the assertion that even when one is giving advice they are being granted access to someone else's KSAs, and that knowledge flows in advice ties are inherently symmetric. All centrality measures (out-degree, in-degree, degree) and network manipulations (symmetrization) were constructed using UCINET VI (Borgatti, et al., 2002).

*Controls.* Given assertions that fit influences performance through attitudes such as job satisfaction and organizational commitment, both of these attitudes will be used as statistical controls (Arthur et al, 2006). Affective and normative organizational commitment were both assessed using six-item scales developed by Meyer and Allen (1991) and had Chronbach's alphas of .829 and .717 respectively. Job satisfaction was measured with Brayfeild and Rothe's (1951) five-item scale with an alpha of .771. Several demographic controls which might have an impact on social network characteristics were also measured including tenure, rank, gender and ethnicity (Mehra et al., 2001; Ibarra, 1995; Mehra, Kilduff & Brass, 1998). Finally, two company-specific dummy controls were included in all analyses: the specific base and job title. The base itself will be an important control, as some have always been part of MAS while others were originally part of various firms MAS acquired over the years and may therefore have different views of the organization's values. The number of respondents from the base will also be an important control captured in the base dummy variable, since this would limit the number of raters an employee would have for all three performance dependent variables. Job title may also be important since there are twice as many

medical staff as pilots. If there is any homophily based on job, this may otherwise bias network measures.

## **Analysis**

*Moderation models.* The procedure outlined for testing interactions by Aiken and West (1991) was used to test the moderation models. The first step in this process was to standardize the variables to be tested for a moderation or additive effect (i.e. perceived P-O fit and friendship out-degree centrality). This standardization consisted of subtracting the mean from the raw score and dividing by the standard deviation. This resulted in variables which have a mean of 0 and a standard deviation of 1, while preserving the sample distribution. These standardized variables were then be multiplied together to construct the interaction terms.

After variables were standardized and an interaction terms were constructed, additive and moderation models can be tested using hierarchical regression analysis. First, all controls will be regressed onto the dependent variable. Next, the fit and social network centrality measures of interest will be added. Finally, the interaction term will be added into the regression that already includes the controls and both independent variables. If there is a significant change in r-square and the interaction term is significant, this will indicate support for the moderation model. This process will be repeated to test each of the two moderation models.

*Additive models.* In order to test additive models, I employ a straightforward two-step hierarchical regression analysis. In step one, the controls were regressed on the dependent variable of interest. In step two, the relevant measures of both fit and network centrality were entered simultaneously. If fit and network centrality are each

significantly related to performance, support for the additive model would be found (Mehra et al., 2001). This process will be used for each of the two suggested additive models.

*Mediation models.* I will primarily utilize the standard statistical procedure outlined by Baron and Kenny (1986) to test for each of the mediation models with one notable variation. Mediation is the intervening of a third variable on the relationship between an independent variable and a dependent variable (in this case fit and performance). Traditionally, using OLS regression, first a test is performed for a relationship between the measure of fit and the relevant performance measure. Next, I will test for a relationship between the measure of fit and relevant network centrality measure. Finally, I will enter fit and the centrality measures in the same regression to predict performance. If the measure of centrality is significant and the relationship between fit and performance is significantly diminished, the mediation model will be supported. To test for robustness of any mediation findings, I will attempt to replicate results using bootstrapped versions of the Sobel, Aroian, and Goodman tests outlined in Preacher and Hayes (2004, 2008).

The situation described above is the traditional view of mediation, but given the general definition of mediation that a third variable intervenes on the relationship between two other variables, this is not the only type of mediation that is possible. Typically, to be considered mediation there would need to be a significant effect of fit on performance. Given prior research, this relationship is unlikely but not impossible since social P-O or P-J fit have not been previously studied in relation to individual performance. Authors have recently begun to suggest that this relationship between the

independent variable and the outcome might not be a necessary condition for mediation (MacKinnon et al., 2007). What is considered necessary for what has been termed indirect effects (Matthieu & Taylor, 2006; Zhao et al., 2010) are steps two and three of traditional mediation. For instance, if fit is significantly related to a measure of network centrality which is also found to be significantly related to performance, this would be an indirect effect of fit on performance (Preacher & Hayes, 2004). Both direct mediation and indirect effects were tested for each predicted mediation model.

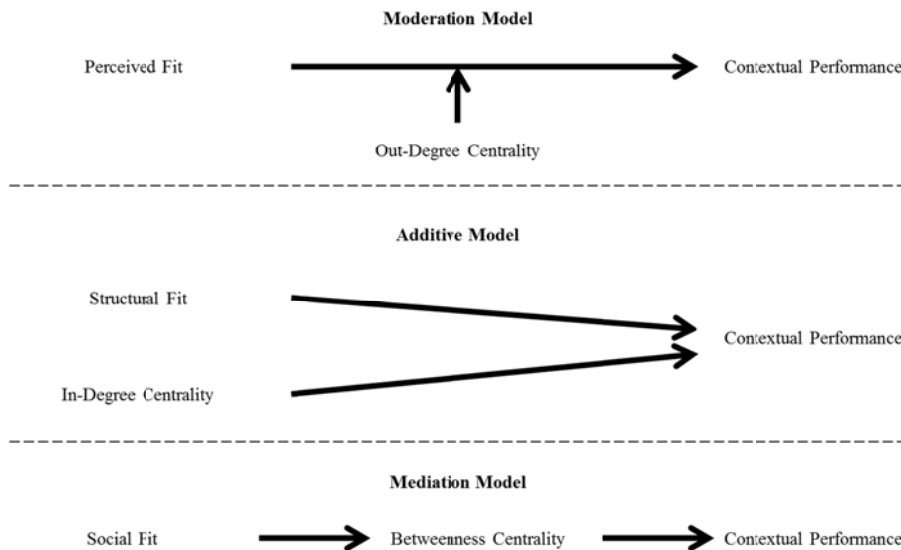
## CHAPTER FIVE RESULTS

In this chapter I will present the results of the analyses described in the previous chapter. I will follow the order in which the models were initially laid out, first turning attention to the moderation, mediation, and additive models involving P-O fit and friendship network centrality.

### **Person-Organization Fit and Friendship Network Centrality**

A summary of which measures of P-O fit and friendship network centrality will be examined in conjunction with one another to test various models is presented below as Figure 5.1. The expected effects of these measures of fit and centrality are more pronounced for types of contextual performance (OCBi and OCBo) than for task performance, although I performed tests across all three measures of performance.

Figure 5.1: Three models of the relationship between person-organization fit, friendship network position, and contextual performance.



The number of respondents, means, standard deviations, and correlations of all variables used in this series of analyses is presented below as Table 5.1. As was noted



above, not all employees properly filled out the Q-sort, reducing the number of responses for the two Q-sort based measures of fit. Another anomaly is seen in the N for friendship out-degree. One of the respondents was removed because he/she told me that he/she did not want to participate in that part of the survey. Therefore, the respondent had an artificial “0” for out-degree and was excluded from those analyses. One additional respondent was removed from analyses using friendship out-degree, as he/she was an extreme outlier in this statistic. The employee listed 121/140 of their coworkers in the primary region studied as personal friends (nearly twice as many as anyone else).

Table 5.1: Means, standard deviations, and correlations of variables included in P-O fit and friendship network models of performance.

Variable	N	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. OCBI Performance	107	5.579	0.6652														
2. OCBo Performance	107	5.384	0.7471	.891***													
3. Task Performance	107	5.856	0.586	.802***	.780***												
4. Gender	107	1.196	0.399	.126	.081	-.035											
5. White	107	0.935	0.2484	-.151	-.221*	-.129	-.060										
6. Tenure	107	6.28	5.1245	-.034	-.048	.133	-.064	.000									
7. Rank	107	1.15	0.3583	.089	.134	-.047	-.009	.005	.254**								
8. Affective Commitment	104	3.619	0.724	.157	.205*	.030	.016	.000	-.140	.077							
9. Continuance Commitment	104	2.649	0.696	-.076	-.113	-.038	-.149	-.071	.241*	-.015	-.316***						
10. Perceived P-O Fit	104	3.652	0.744	.073	.116	-.027	.107	.029	-.290**	-.052	.694***	-.368***					
11. Structural P-O Fit	91	0.297	0.1767	.047	.088	.064	.021	-.069	.047	.031	.073	-.124					
12. Social P-O Fit	91	0.461	0.172	-.063	-.031	-.055	.027	-.054	.016	-.080	.187 <sup>†</sup>	-.225*	.232*	.486***			
13. Friendship Out-Degree	105	16.07	16.316	-.106	-.098	-.127	.016	-.074	.166 <sup>†</sup>	-.026	.069	.150	-.080	.074	.052		
14. Friendship In-Degree	107	12.75	5.7052	.027	.036	.088	.204*	.035	.378***	.180 <sup>†</sup>	.035	.211*	-.067	.122	.049	.371***	
15. Friendship Betweenness	107	89.708	149.219	-.125	-.082	-.199*	.075	-.153	.149	.004	.096	.099	.022	.052	.083	.700***	.452***

<sup>†</sup>p < .10

\*p < .05

\*\*p < .01

\*\*\*p < .001

*Moderation Model.* To test for moderation I conducted three sets of hierarchical regressions, one for each type of performance. The suggested relationship was that friendship out-degree centrality would moderate the relationship between perceived P-O fit and performance (especially OCBi and OCBo performance). The suggested nature of this moderation was that fit would be beneficial for those with high friendship out-degree and could be detrimental for those who did not list many coworkers as personal friends. As can be seen below in Table 5.2 neither perceived fit nor out-degree centrality was ever significantly related to any type of performance. However, all three interaction terms were statistically significant at the  $p < .05$  level, and the inclusion of the interaction term significantly improved the overall R-Square of each model.

Table 5.2: Results of OLS regression for the perceived P-O fit and friendship out-degree interaction.

Variable	DV: OCBi Performance			DV: OCBo Performance			DV: Task Performance		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Location (dummies)									
Job Title (dummies)									
Gender	.130	.135	.155	.097	.103	.121	.047	.065	.085
White	-.109	-.112	-.125	-.160 <sup>†</sup>	-.163 <sup>†</sup>	-.175*	-.075	-.080	-.092
Tenure	.126	.135	.134	.128	.138	.137	.219 <sup>†</sup>	0.229 <sup>†</sup>	.227 <sup>†</sup>
Rank	.050	.046	.068	.137	.132	.152	-.114	-.128	-.107
Affective Commitment	.143	.151	.135	.168 <sup>†</sup>	.173	.159	.022	.090	.075
Continuance Commitment	-.029	-.015	.005	.041	.057	.075	.037	.063	.083
Perceived P-O Fit		-.003	.025		.000	.026		-.087	-.060
Friendship Out-Degree		-.084	-.060		-.089	-.067		-.186 <sup>†</sup>	-.163
Interaction Term			.192*			.175*			.187 <sup>†</sup>
Constant	5.679	5.708	5.743	5.522	5.556	5.592	6.229	6.294	6.324
R-Squared	.421	.426	.459	.461	.467	.494	.313	.341	.372
Change in R-Squared	.421	.005	.033*	.461	.006	.027	.313	.028	.031 <sup>†</sup>

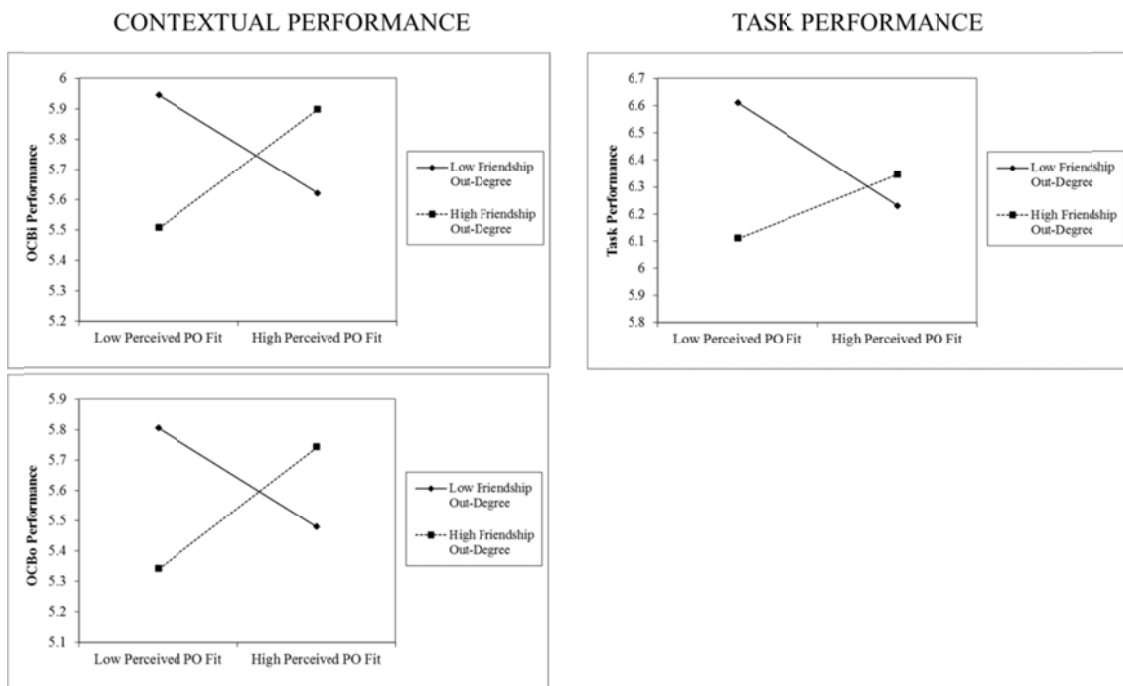
<sup>†</sup>p < .10

\*p < .05

Examining the patterns of the interactions seen in Figure 5.2 adds support to the predicted nature of the interaction. For both types of contextual performance, the nature

of the interaction is virtually identical with benefits of perceived P-O fit accruing to those who are also high in friendship out-degree centrality. As employees with low friendship out-degree centrality having increasing perceived fit, we see a decline in performance. These interactions for contextual performance lend support to the proposed moderation model for perceived P-O fit and friendship out-degree. For task performance, the benefits appear to be greater for those who are in the consonant low/low position than for those who are high in both or either individual measure. This finding is somewhat unexpected, and potential explanations will be discussed in the next chapter.

Figure 5.2: Interactions between perceived P-O fit and friendship out-degree centrality on employee performance.



*Additive Model.* The additive model of performance suggested that structural P-O fit and friendship in-degree might be proxies for distinct mechanisms influencing performance (P-O providing motivation while in-degree provides potential ability and awareness). As such these types of fit and performance may be explaining different elements of performance and might independently be related to performance when

included in the same model. These models were tested using the same procedure as I performed for the testing of moderated models with the exception of the construction of interaction terms (i.e. there was no step 3 in the regression). Results of these regression analyses are provided in Table 10. While friendship in-degree centrality was significantly related to performance in all of the full models at the  $p < .01$  level, structural P-O fit was not related to any of the three types of performance. Therefore, there was no support for the additive models.

Table 5.3: Results of OLS regression for the structural P-O fit and friendship in-degree.

Variable	DV: OCBi Performance		DV: OCB0 Performance		DV: Task Performance	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Location (dummies)						
Job Title (dummies)						
Gender	.082	.057	.063	.036	-.003	-.028
White	-.130	-.143	-.174 <sup>†</sup>	-.187*	-.079	-.093
Tenure	.029	-.082	.057	-.058	.128	.016
Rank	.107	.025	.191 <sup>†</sup>	.105	-.004	-.085
Affective Commitment	.131	.115	.132	.115	-.042	-.059
Continuance Commitment	-.034	-.054	.057	.037	.003	-.020
Structural P-O Fit		.054		.073		.018
Friendship In-Degree		.365**		.381**		.368**
Constant	5.591	5.446	5.448	5.273	6.142	6.026
R-Squared	.450	.510	.488	.555	.368	.426
Change in R-Squared	.450	.059*	.488	.067**	.368	.058*

<sup>†</sup>p < .10

\*p < .05

\*\*p < .01

*Mediation Model.* As discussed above, whether it is for testing for direct mediation or indirect effects, the crucial element is that the independent variable is significantly related to the proposed mediator. Without this relationship, neither a traditional mediation nor an indirect effects model can be supported. As such I start at step two of the traditional mediation process by regressing social P-O fit onto friendship betweenness centrality. The results of this regression can be found in Table 11. There

was no significant effect of social P-O fit on friendship betweenness centrality. This indicates that friendship betweenness cannot be an intervening variable in the relationship between social P-O fit and any type of employee performance. Therefore, there is no support for the mediation model.

Table 5.4: Results of OLS regression for social P-O fit on friendship betweenness.

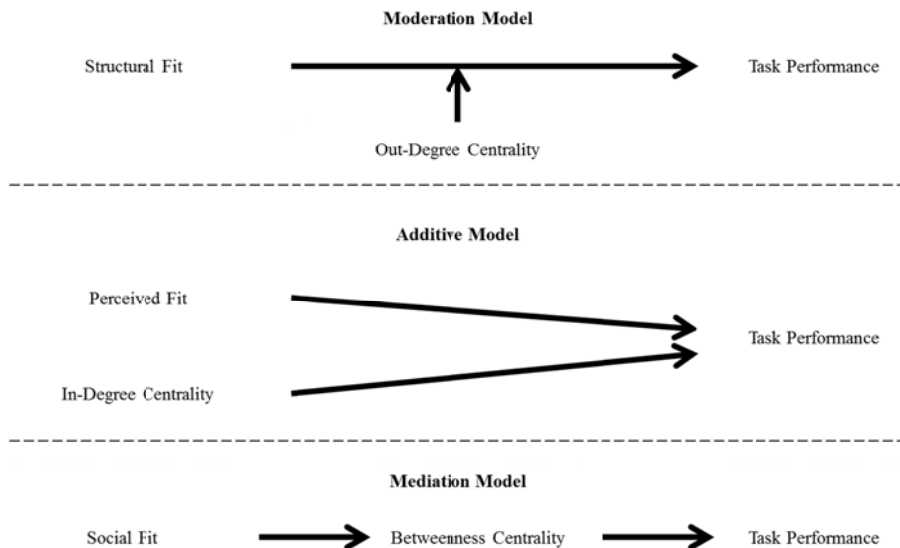
<b>Variable</b>	<b>Beta</b>
Location (dummies)	
Job Title (dummies)	
Gender	-.046
White	-.134
Tenure	.127
Rank	.027
Affective Commitment	.129
Continuance Commitment	.064
Social P-O Fit	.026
Constant	-53.541
R-Squared	0.208

In summary, the only model which received support when exploring P-O fit and friendship network centrality was the moderated model for perceived fit and out-degree. This model was supported across all three types of performance. The additive model was not supported, as only in-degree centrality was significantly related to employee performance while structural fit did not yield any predictive power for contextual or task performance. Finally, the mediated model was not supported in any fashion (direct or indirect), as there was no significant relationship between social fit and betweenness centrality. Implications of the support found for the moderated model and lack of support for the additive or mediated models will be discussed in the next chapter. At this time, I turn my attention to P-J fit and the advice network.

## Person-Job Fit and Advice Network Centrality

Figure 5.3 represents moderation, additive, and mediated models that will be tested using specific measures of P-J fit and advice network centrality. The effects of these measures of fit and centrality were expected to be most pronounced for task performance rather than for either type of contextual performance (OCBi and OCBo), although tests were again performed across all three measures of performance.

Figure 5.3: Three models of the relationship between person-job fit, advice network position, and task performance.



The number of respondents, means, standard deviations, and correlations of all variables used in this series of analyses is presented below as Table 12. As was noted above, not all employees properly filled out the Q-sort, reducing the number of responses for the two Q-sort based measures of fit. Lower numbers of employees followed the Q-sort instructions than was the case for P-O fit (86 vs. 91), which is likely attributable to the fact that the self KSA rating was the last portion of the survey and respondent fatigue likely set in.

Table 5.5: Means, standard deviations, and correlations of variables included in P-J fit and advice network models of performance.

Variable	N	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Task Performance	107	5.579	0.6652														
2. OCBi Performance	107	5.384	0.7471	.802***													
3. OCBo Performance	107	5.856	0.586	.780***	.891***												
4. Gender	107	1.196	0.399	-.035	.126	.081											
5. White	107	0.935	0.2484	-.129	-.151	-.221*	-.060										
6. Tenure	107	6.28	5.1245	.133	-.034	-.048	-.064	.000									
7. Rank	107	1.15	0.3583	-.047	.089	.134	-.009	.005	.254**								
8. Affective Commitment	104	3.619	0.724	.030	.157	.205*	.016	.000	-.140	.077							
9. Continuance Commitment	104	2.649	0.696	-.038	-.076	-.113	-.149	-.071	.241*	-.015	-.316***						
10. Perceived P-J Fit	104	3.652	0.744	.041	.082	.096	.010	-.033	-.024	.139	.340***	-.094					
11. Structural P-J Fit	86	0.297	0.1767	-.210	-.127	-.151	-.129	.067	-.048	.140	-.043	-.109	-.020				
12. Social P-J Fit	86	0.461	0.172	-.105	.043	-.003	.035	.111	-.008	.373***	-.021	-.102	-.030	.777***			
13. Advice Out-Degree	107	16.07	16.316	-.102	.002	.023	-.057	.096	.006	.155	.237*	-.039	.120	-.096	.082		
14. Advice In-Degree	107	12.75	5.7052	.154	.194*	.241*	.203*	-.051	.342***	.453***	.143	.150	-.010	.012	.177	.084	
15. Advice Betweenness	107	89.708	149.219	.046	.117	.123	.022	.039	.156	.282**	.264**	-.047	.056	-.187	.027	.760***	.402***

p < .10

\*p < .05

\*\*p < .01

\*\*\*p < .001



*Moderation Model.* Table 5.6 presents the results of a hierarchical regression analysis to explore the moderating role of advice out-degree centrality (advice seeking) on the relationship between structural P-J fit and performance. Step 2 of the model for predicting task performance shows unexpected significant negative effects of both structural fit ( $p < .01$ ) and advice seeking ( $p < .05$ ). The negative relationship for advice seeking was not necessarily unexpected, as earlier I discussed the potential for those who heavily seek advice to be de-motivated. The negative relationship between structural P-J fit and task performance is puzzling. Step 3 of the task performance model does indicate a significant effect of the interaction of structural P-J fit and advice seeking ( $p < .01$ ) and a significant increase in variance explained ( $p < .05$ ) from the previous model. This significant interaction term suggests some support for the moderated model of task performance. However, given the negative effects of both the independent variable and the moderator, the nature of the interaction cannot be as was predicted (more positive effects of structural fit for those high in advice out-degree).

Table 5.6: Results of OLS regression for the structural P-J fit and advice out-degree interaction.

Variable	DV: Task Performance			DV: OCBi Performance			DV: OCBo Performance		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Location (dummies)									
Job Title (dummies)									
Gender	-.056	-.106	-.084	.043	.011	.021	.027	.002	.008
White	-.036	-.051	-.011	-.104	-.113	-.096	-.137	-.142	-.131
Tenure	.140	.103	.047	.031	.010	-.014	.055	.040	.024
Rank	-.053	.044	.018	.071	.133	.122	.139	.188	.181
Affective Commitment	.008	.016	.003	.156	.163	.157	.190 <sup>a</sup>	.198 <sup>a</sup>	.194 <sup>a</sup>
Continuance Commitment	.002	-.077	-.011	-.028	-.077	-.049	.068	.031	.050
Structural P-J Fit		-.304**	-.291**		-.184	-.179		-.135	-.132
Advice Out-Degree		-.286*	-.381***		-.191 <sup>a</sup>	-.231*		-.160	-.188 <sup>a</sup>
Interaction Term			-.292**			-.121			-.085
Constant	6.125	6.390	6.509	5.591	5.777	5.833	5.431	5.592	5.636
R-Squared	0.349	0.442	0.498	0.414	0.451	0.461	0.469	0.493	0.497
Change in R-Squared	0.349	0.093**	0.056**	0.414	0.038	0.010	0.469	0.024	0.005

<sup>a</sup>p < .10

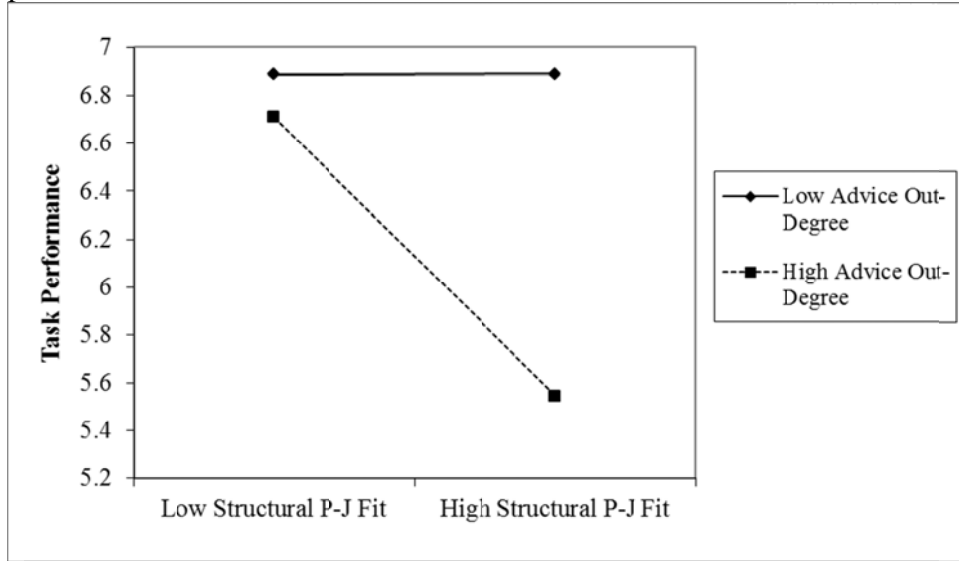
\*p < .05

\*\*p < .01

\*\*\*p < .001

The nature of the interaction between structural P-J fit and advice-seeking is displayed as Figure 5.4. Structural P-J fit seems to only be detrimental for performance when one is heavily seeking out advice. There appears to be no real effect of structural fit when one is not seeking out a great deal of advice. I will discuss implications of this finding in the next chapter.

Figure 5.4: Interaction between structural P-J fit and advice out-degree centrality on task performance.



As was seen above in Step 3 of Table 5.6 for OCBi and OCBo performance, the interaction of structural P-J fit and advice seeking did not have a significant impact on either type of contextual performance. One finding of interest was partial support for an additive model whereby structural P-J fit and advice out-degree independently influence OCBi performance (Step 2 of OCBi Performance Model,  $p$ 's < .10). This is another surprising finding with implications that will be discussed next chapter. In general, it appears as if structural fit and advice out-degree centrality do hold influences on performance, although the nature of the interaction for task performance was unexpected as was the marginal support for an additive model for OCBi performance. Next, I will turn attention to perceived P-J fit and advice in-degree centrality, suggesting additive effects.

*Additive Model.* Perceived P-J fit should be related to the motivation and self-efficacy of an employee, while advice in-degree (advice giving) should create awareness of the environment and provide access to the abilities of others. The distinct antecedents

of performance these measures represent suggest the potential for an additive model. As can be seen in Table 14, advice in-degree was significantly related to all three types of performance at the  $p < .01$  level and was in the predicted, positive direction. However, the relationship between perceived P-J fit and performance was in the predicted direction but was not significantly related to any type of performance (the closest was for task performance  $p = .167$ ). Therefore, I must conclude that the additive model using perceived P-J fit and advice in-degree centrality was not supported.

Table 5.7: Results of OLS regression for the perceived P-J fit and advice in-degree.

Variable	DV: Task Performance		DV: OCBi Performance		DV: OCBo Performance	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Location (dummies)						
Job Title (dummies)						
Gender	.045	-.006	.125	.059	.096	.031
White	-.075	-.045	-.110	-.086	-.158 <sup>†</sup>	-.133 <sup>†</sup>
Tenure	.219 <sup>†</sup>	.134	.121	.047	.130	.055
Rank	-.118	-.324**	.040	-.175	.129	-.086
Affective Commitment	.021	-.071	.150	.092	.164 <sup>†</sup>	.101
Continuance Commitment	.037	-.017	-.031	-.102	.041	-.028
Perceived P-J Fit		.134		.031		.045
Advice In-Degree		.407**		.447***		.444***
Constant	6.238	6.084	5.698	5.477	5.545	5.302
R-Squared	0.314	0.387	0.418	0.499	0.461	0.541
Change in R-Squared	0.314	0.073**	0.418	0.081**	0.461	0.080***

<sup>†</sup> $p < .10$

\* $p < .05$

\*\* $p < .01$

\*\*\* $p < .001$

*Mediation Model.* As was the procedure when examining for mediation with social P-O fit and friendship betweenness, the first test performed for social P-J and advice betweenness was to regress social P-J onto advice betweenness centrality. As can be seen below in Table 15 there was no significant relationship between social P-J fit and

advice betweenness and as such, there can be no support for either direct or indirect mediation.

Table 5.8: Results of OLS regression for social P-J fit and advice betweenness.

<b>Variable</b>	<b>Beta</b>
Location (dummies)	
Job Title (dummies)	
Gender	-0.066
White	0.008
Tenure	-0.002
Rank	0.279*
Affective Commitment	0.172
Continuance Commitment	-0.031
Social P-J Fit	-0.109
Constant	-29.991
R-Squared	0.267

\*p < .05

## CHAPTER SIX DISCUSSION

This chapter contains four parts. First, I summarize the results presented last chapter, discussing models that were supported, unexpected findings, and potential reasons for a lack of support for some models. Second, I acknowledge potential limitations of the data and analyses. Third, I will turn my attention to potential extensions of the research described in this dissertation with focuses on other ways to jointly explore fit and social network centrality to better understand employee performance and ways in which a fit perspective might help to inform research into social networks. Finally, I will conclude the chapter by briefly discussing the practical implications of the findings presented in this dissertation.

### **Results Summary**

*Moderation Models.* The support for moderation across different types of fit (P-O and P-J) and within different networks (friendship and advice) suggests that this may be the most powerful lens for exploring the relationship between P-E fit, social networks, and performance. The conclusion that may be drawn from these models is that fit does matter for individual performance, but only under certain social conditions.

Support for a moderating role of friendship out-degree centrality on the relationship between perceived P-O fit and performance was significant and consistent across all three types of employee performance (task, OCBo, OCBi). The anticipated nature of these moderations was that perceived fit would be beneficial for performance if accompanied by a high out-degree centrality, as these would create congruent environmental signals reducing cognitive dissonance. I also suggested that perceived fit could be detrimental for performance if an individual did not see him/herself as having

many friends within the organization as these mixed signals would create stress which would inhibit performance. This was found to be the case for OCBi, OCBo, and task performance; however, what was surprising was how powerful consonance in terms of being low/low benefited performance (equivalent to high/high for OCBi and OCBo, more beneficial than high/high for task).

A potential explanation for this finding is that those individuals who see themselves as not embedded in the organization either in terms of their values or the informal relationships have some clarity of their situation due to a lack of dissonance. It has long been suggested, but infrequently supported, that individuals faced with social exclusion or rejection might redouble their efforts in order to improve their standing (Baumeister & Leary, 1995; Baumeister, Dwall, Ciarocco, & Twenge, 2005). It may be the case that this lack of embeddedness is not necessarily seen as exclusion or rejection, but more as something that may either be improved or can be compensated for through performance. This explanation also helps to understand why the positive effect of being low/low is so pronounced in task performance. A lack of social embeddedness and agreement with organizational culture could more easily inhibit compensating via extra-role behaviors much more so than for task performance. This owns to the idea that a sense of the organizational culture and the needs of coworkers is be needed to be successful in performing OCBi or OCBo. Despite the surprising level of benefit gained from being low/low, the nature of the interaction was very similar to what was predicted, lending strong support to the idea of the moderating role of friendship network centrality the relationship between P-O fit and performance.

Support was more mixed in regard to proposed interaction of P-J fit and advice network centrality on performance. A significant interaction was observed between structural P-J fit and advice network out-degree centrality when predicting task performance. I suggested the nature of this relationship was that having the KSAs that fit the needs of the job (structural P-J fit) will be positively related to task performance, and that this positive relationship will be amplified when one is able to seek out advice from many others (advice out-degree). What I found was that structural P-J fit was unrelated to performance for those low in advice seeking and negative for those who were high in advice seeking. Additionally, both structural P-J fit and advice out-degree centrality were negatively related to task performance.

It is important to step back and explore these findings individually in order to attempt to make sense of the totality of confusing results. First, it was not entirely unexpected that there would be a negative relationship between advice seeking and task performance, as these relationships may cultivate a lack of self-efficacy and may be seen as a potential sign of weakness. In the organization I studied where many employees describe the environment as “a bunch of type A personalities” a great deal of advice seeking might cultivate a negative task performance reputation. Given the actual (self-efficacy) and reputational detriments of advice-out degree centrality, the negative relationship to task performance is not very surprising.

Turning to the negative relationship between structural P-J fit and task performance, at least four plausible explanations exist. First, it may be the case that those with all of the KSAs listed as needed to perform the tasks of the job can become complacent and less likely to continue to develop these skills. For example, the ability



“to quickly and repeatedly adjust the controls of a machine” might have been asset-specific. If the company switches from one type of machine to a new model or brand, this ability while still present, may no longer translate to task performance and may actually be an inhibitor.

The next two potential explanations for the negative relationship between structural P-J fit and task performance relate to the items used to assess fit. For instance, some of the knowledge assessed may have been too general to be of practical use. An example of this might be seen in the item “knowledge of business and management principles.” Knowledge of general business/management principles may not have been of great use, while some specific domains within this area would have been more relevant (i.e. strategy, human resources, finance). If someone has a strong foundation in macroeconomics, he/she would likely list him/herself as high in business/management knowledge while this particular domain would likely do little to help performance in this context.

It may also be the case that despite my best efforts in following prior research, the wrong KSA set may have been selected. The primary management contacts within the organization were interested in surveying all employees within the region; therefore, the KSA set was developed with medical, aviation, maintenance, and business in mind. It became clear very early on in the implementation of the study that there was little to no interest from the maintenance (number of respondents = 3) and business divisions (respondents = 0). While the items selected with the maintenance and business services divisions in mind had some relevance to the medical and aviation divisions, it may have

led to the inclusion of KSAs that employees possessed but that were largely irrelevant for core elements of job performance.

Finally, greater delineation of job may have been needed. Since medical or aviation base supervisors typically act first as pilots, medics, or nurses and secondarily as supervisors, only three job categories were used to calculate fit in this dissertation. Further research could expand to five job categories, splitting out the two types of base supervisor. This would create two other “J”s as well as limiting the profiles used to create “J” to just those in the specific job. Another possibility would be to create a “J” profile for each job at each location as there may be some specificity of KSAs needed to be strong performer within a given base.

With all of these possible explanations for the negative main effects of advice out-degree and structural P-J fit on task performance, I will now attempt to interpret the nature of the interaction of these two variables on task performance. Recall that there was virtually no relationship between structural fit and task performance for those who were not seeking much advice. The context within which performance is measured is a key factor in performance appraisal (Murphy and Cleveland, 1995), and in this context not seeking advice may have sent a strong signal of task competence regardless of actual fit level. Since these individuals were not seeking advice and demonstrating either competency or a lack thereof, coworkers may have assumed their coworkers were not seeking advice because they already knew what they were doing and are good performers.

There was a negative relationship between P-J fit and task performance for those high in advice out-degree. The fact that the plotting of this line was entirely below the

low advice out-degree line is further support for the idea that advice seeking is generally seen as a negative in this organization. This negative effect might be mitigated to the extent that someone does not have the KSAs which match job requirements and is therefore seeking help and advice in order to improve. Those who have high P-J fit should be seeking less help and advice as they do not have an 'excuse'. When an employee has high fit and a high advice out-degree, this may indicate that he/she is set in his/her ways and are refusing to adapt their skills. For instance returning to the new equipment example, if someone has the capability to learn to use the equipment but repeatedly asks questions about its use, this constant questioning will be seen as pestering and may potentially demonstrate an inability to independently perform tasks using that piece of equipment.

In summary, moderation models were supported across both P-O and P-J fit using measures drawn from friendship and advice networks. This effect was particularly robust for P-O fit and friendship out-degree as it was significant and had a consistent plotting across three separate measures of performance. The significant interaction of structural P-J fit and advice out-degree should be interpreted with more caution, as it was only present for one type of performance (task), and the main effects and nature of the interaction were both counter-intuitive. Several of the possible reasons for these findings were related to potential measurement issues; therefore, replication will be needed to determine if the non-methodological explanation given for the interaction is what is actually present. Next, I will turn attention to predicted (and one unexpected) additive models of the role of social network on the fit-performance relationship.

*Additive Models.* For both sets of predicted additive models, the selected network measures (friendship and advice in-degree centralities) were both significantly related to all types of performance in the predicted directions. However, neither measure of fit reached a level of statistical significance, lending no support to the additive models. These findings are consistent with prior research on perceived P-J fit and structural P-O fit but are important as they rule out the possibility that significant effects were being repressed because social network centrality was never previously used as a control. Also, in this study structural P-O fit was measured using actual employee values as “P” rather than what they desire to see in an organization. The lack of a significant relationship between this form of structural P-O fit and performance suggests that the measurement of “P” may not be an important moderator for the relationship as is the case with other fit measurement methods (Kristof-Brown et al., 2005).

One surprising element from these analyses was that structural P-O fit had extremely small effect sizes for predicting all three types of performance (.05 for OCBI, .07 for OCBO, .01 for task). This is surprising because prior meta-analyses have shown at least a moderate relationship to contextual performance with minimum  $p$ 's in the .20 range. These near zero effect sizes suggest either that structural P-O fit really has nothing to do with performance or that the relationship might not be linear in nature. The former explanation was also suggested by Edwards and Shipp (2007) who purport that fit can either help performance by easing communication and coordination barriers or inhibit performance (suggesting an inverted U-shaped relationship to performance). In order to test these effects, I conducted a post-hoc analysis using the Curve Estimator function of SPSS testing for both linear and quadratic models. For task performance neither the

linear nor the quadratic model was significant. For both OCBo and OCBi performance, the quadratic model was significant at the  $p < .05$  level. What is surprising is that rather than the inverted U suggested by Edwards and Shipp (2007), the nature of the relationship is U-shaped such that those with little to no fit and those who are very strong fits are better performers than those in the middle. It is important to note that the curve estimator function does not allow the input of control variables, so all of these results should be interpreted with caution (but may be generative of future research).

Two important takeaways from the analyses conducted in the initial tests of additive models can be found in the effects of social networks on performance. First, I was able to replicate the positive effect of advice in-degree centrality found by Sparrowe and colleagues (2001) suggesting some generalizability of my sample. One finding that contributes to the networks literature is the positive effect of friendship in-degree on task, OCBi, and OCBo performance. Bowler and Brass (2006) found that OCBi performance was embedded in strong dyadic friendships (i.e. strong friends were more likely to perform OCBi's for one another). The research in this dissertation extends this idea to demonstrate a general propensity to perform OCBi present even when one is not embedded in a 'strong' friendship. Also, when an employee is receiving friendship nominations from many others, they not only direct extra-role behaviors (OCB) at any specific individual but also take more actions to help the greater organization. Additionally, friendship in-degree was significantly related to task performance, suggesting there might be more instrumental information flowing through these ties than was first expected.

An alternative but equally plausible explanation is that those with high in-degree centrality are simply being rated higher because they are well liked or popular. To test this idea, I conducted post-hoc QAP correlations in UCINET to explore the effect of naming someone a friend on performance ratings task, OCBi, and OCBo. While the effects of this permutation-based test were significant at the  $p = .01$  level, the correlations were relatively small (task = .174, OCBi = .172, OCBo = .138). This suggests that while the results may indicate some form of friendship bias, it is relatively small, and the effects of in-degree centrality on performance are beyond reputational.

I found support for one unexpected additive model when conducting analyses for the potential moderating effect of advice out-degree on the relationship between structural P-J fit and OCBi performance. The interaction term in this model was not supported, but in the previous step there were marginally significant ( $p < .10$ ) negative effects of both structural P-J fit and advice out-degree centrality on OCBi performance. These findings are potentially more straightforward than the explanation in the previous section given the dependent variable was OCBi, as opposed to task, performance. Those who are heavily seeking out advice will be expected to perform more OCBi since they are receiving so much help from their coworkers. As such, they would be held to a higher standard which is more difficult to attain, resulting in a negative relationship to this type of performance. For structural P-J fit, it is possible that these individuals would have more of a task orientation, and since they have all of the skills needed to be a strong task performer, place less emphasis on performing interpersonal citizenship behaviors.

*Mediation Models.* The final set of models explored a potential mediating role of social networks whereby fit would influence network centrality which influences task

performance. Neither of these models were supported, as there was no significant relationship between social P-O fit and friendship betweenness centrality or social P-J fit and advice betweenness centrality which serve as the bases for either direct or indirect mediation. There may be several reasons why this model was not supported, primarily related to the way data was collected and the level of analysis.

In terms of the data collection, the variables used to test for mediation were all from the same time point as this was a cross-sectional study. With a cross-sectional design, mediation effects are not impossible to find, it is just difficult to establish causality. Since I expected that fit would lead individuals to occupy positions of high betweenness centrality, an ideal design would have included multiple time points. Since social P-O or P-J fit will be somewhat malleable as turnover occurs within the organization, it could be the case that these types of fit at  $t-1$  influence an individual occupying an advantageous network position at  $t$ . A study which employs a longitudinal design can help to better determine whether there is a mediating effect of network centrality on the fit-performance relationship or if causality is potentially reversed.

The introduction of social P-O and P-J fit is a natural extension of the ways in which fit may be conceptualized and provides an additional perspective on how employees are embedded within organizations. One challenge of using these measures is that it is hard to find an “O” or “J” to fit to since employees do not have one clear set of values or KSAs. The concept of social fit might be more aptly used for exploring the ways in which an employee is embedded in a particular workgroup and be more powerful for predicting position in the local social network rather than a global indicator. It is more likely that there will be greater similarity within a small group than across an

organization, which might provide a level of consensus for a more meaningful fit score. As such, the similarity (or dissimilarity) of values or KSAs to immediate coworkers might lead an employee to occupy important positions within the workgroup, acting as a bridge between departments. Exploring complimentary or supplementary fit within the workgroup and how this affects the local network structure might be a prudent route for exploring future mediation effects.

Finally, if the non-relationship found in this sample persists over time or when using more localized measures of fit and centrality (i.e. group-level measures), this would suggest the distinctiveness of the two concepts. While this may seem a foregone conclusion, it could be argued that social network position is simply another type of P-O fit and that adding this perspective would not really contribute to the fit literature. The results of this dissertation in terms of significant findings in both moderation and additive models (and particularly the lack of findings for mediation) demonstrate that social network position and person-environment fit are two distinctive (although sometimes complimentary) perspectives on ways in which employees relate to the organizational environment. This is further bolstered by the fact that there were not even any significant zero-order correlations between any measures of fit and social network centrality when examining Tables 8 and 12. While the possibility to study networks as a type of fit exists (and will be discussed as an extension), current data suggests that in their current forms network centrality and performance describe different elements of employee embeddedness.



## **Limitations**

There are three factors which limit this dissertation. One has already been discussed in the previous section and is the potential for the cross-sectional design to suppress potential mediation findings. The other two sets of issues relate to the data site and the measurement of fit in this setting.

*Data Site.* The mission of the organization studied in this dissertation presents challenges to the generalizability of results. First, the nature of the work that these individuals do is highly idiosyncratic. In many organizations, departments which may be studied exist in a wide variety of settings (such as marketing, sales, research and development, human resources, etc.). At MAS, the two departments studied were medical and aviation. These are linked departments which one would be hard pressed to find in many other organizations. Despite these highly-specialized functions, some functions of the workplace are common across many other settings. For instance, at any given time a group of three persons from two different departments are forced to coordinate their efforts in order to reach common goals. Teamwork is frequently touted as one of the most important features of any organization. In this setting, the importance of teamwork is palpable as lives are at stake. In this sense, rather than being a deviation from the traditional organization, MAS is generalizable to any setting where extensive teamwork is required in order to accomplish tasks.

Another limitation of the data was the sample size and response rate. The number of subjects for a given test ranged from 86-104. With extensive controls needed (including 12 dummy variables), degrees of freedom were restricted and significant results more difficult to find. The design of this study makes it easily scalable to a larger

sample; in fact, employees in the main sample were given the opportunity to select friends or advice relations from the all of the bases in a neighboring geographic area. The reason for this was because the potential existed for an opportunity to include a dozen more bases in this neighboring geographic region. If the study was expanded, it was important to capture cross-regional ties. In order to test the viability of adding this additional region, four bases that were within, but geographically distinct from, the region of primary sample were studied using an online-only design (this would have had to been the only viable method for assessing the geographically diverse neighboring region). The number of responses within these four bases ranged from 0 to 2, for an overall online-only response rate of 9.8%. Therefore, I did not deem expansion of the study within the current organization a viable option.

The response rate within the sample used to test models in the previous chapter could also be a potential limitation of the analyses. A strong response rate is needed in social network analysis, since missing a few key respondents has the potential to greatly alter the overall network structure (Tichy, Tushman, Fombrun, 1979). While the overall response rate of 84.9% was acceptable by social network standards (Wasserman & Faust, 1994; Kossinets, 2006) the response rates within two bases were concerning (62.5% and 64.3%). The fact that no social network analyses were conducted at this level should serve to alleviate these concerns. For instance, if only 5 employees at a given base participated in the survey, they could list out-degree ties to all of their coworkers as well as those at other bases. Similarly, in-degree would not be restricted even though 4 direct coworkers had the opportunity to list a respondent, because all other respondents across other locations within the sample would have this opportunity as well. Furthermore, the

base of a respondent was included as a control in all analyses to help reduce any base-specific biases including the possibility that the subject's base had a low response rate.

*Fit Measurement.* There were three potential issues regarding how measures of objective fit were calculated in this dissertation, two stemming from the item set included and one relating to errors made by participants. The values selected for use in Q-sorts for self and organization were derived from a larger set developed by Cable and Judge (1997). These items were developed to assess the desired organizational values of individuals rather than the values possessed by individuals (as they were used in this study). As such, they contained some items that were not commensurate in describing both an individual's values and an aspect of the organizational culture. Most of these items were not included in the final Q-set of 26 items after the set was customized from the executive responses. However, the items "provides opportunities for professional growth", "provides secure employment", "requires working long hours", and "high pay for good performance" were inadvertently not screened out and replaced with more commensurate items. Despite the difficulty in using these items to describe oneself, the category that these items were placed in for the calculation of structural and social O indicates a washing-out effect of these four items. In the item, "provides opportunities for professional growth" the average organizational rating was in category 4 (out of 7) while the average individual rating was in category 3. The item "provides secure employment" had an organizational rating of 5 and a self-rating of 3. "Requires working long hours" had average ratings of 2 and 4 for organization and self. Finally, "high pay for good performance" was rated as a 1 on average to describe both the organization and self. Since two of the items people generally saw fit with (differences of 0 or 1) and two

of the items people generally saw a lack of fit with (differences of 2), it is unlikely that these four items drastically altered an individual employee's level of fit. Despite these reassurances, one should interpret the lack of findings for structural or social P-O fit should be interpreted with caution as the inclusion of these items reduces the face validity of these measures.

Turning to objective measures of P-J fit, recall that the set of items used for this Q-set were derived from how necessary executives felt the KSAs were for the employees within their division. Initially, it seemed as if all four departments would be participating in the survey; however, after data collection had begun it became clear that only the aviation and medical divisions would be participating in the study. There were two primary reasons why the maintenance and business staff did not participate: a lack of access and a communication breakdown. Maintenance employees were essentially 'on-call' employees at most locations, which means the only time they would report to work was when maintenance needed to be conducted on the aircraft. Business services employees were not embedded within any of the bases in the region and were rather frequently 'floaters' in the field. These work structures provided little opportunity for interaction with the individuals in these divisions in order to administer the survey. Additionally, there seemed to be a standing impression within the locations that the survey was only for the medical division or only for the medical and aviation divisions. This further hindered my ability to obtain responses from the other two divisions.

As was described above, despite the eventual non-participation, KSA items with applicability to all four divisions were deployed in the Q-sort used to assess structural and social P-J fit. The inability to develop a Q-set specific to only the jobs being studied is a

limitation to this study. It is, however, not a severe limitation for several reasons. First, several medical staff crew perform business- services type functions such as establishing relationships with hospitals and call centers, arranging public relations visits, and tracking some base performance metrics. Secondly, at some of the locations, various employees have secondary unofficial title such as “marketing” or “outreach”. As such, several of the KSA items included primarily for the business services staff have applicability to medical staff. These include “knowledge of business and management principles” and “knowledge of principles for providing customer and personal services.” Also, some of the items included primarily for the maintenance staff are also relevant to members of the aviation division, as it is important for aviation staff to be able to effectively describe what is happening with a piece of equipment that needs (or might need) servicing. Furthermore, oftentimes when a mechanic is working on an aircraft, the pilot on duty will be out watching/talking/helping in this process. In summary, the lack of a highly specified KSA Q-set is a limitation, but one that might not have had a great impact on results.

The final limitation related to the measurement of fit is the number of errors by participants when sorting the Q-set. A single error makes a perfect fit score of 1 or -1 impossible, since there is an extra item in one of the seven rating categories for “P” while “O” is properly distributed. For the assessment of P-O fit, only 74 of respondents filled out the “P” portion with no errors. Allowing for up to four errors increased the usable number of responses for P-O fit analyses to 91 without overly restricting possible fit or misfit of respondents. For the self-assessment of KSAs (the final part of the survey), only 70 employees properly performed the Q-sort following instructions for how many

items to place in each category. Allowing for up to 4 errors enabled the inclusion of 16 additional responses. Controlling for the number of errors made by respondents (up to 4) did not significantly alter any of the results for the analyses using any objective measure of fit.

### **Future Research**

The use of social networks in conjunction with P-E fit is generative of two types of research possibilities. First, the research presented above can be extended to better understand the intricacies of the fit-networks-performance interrelationships found or suggested above. Second, fit can be used to better understand some of the consequences of network positions and help to test some of the suggested mechanisms of social networks. These two applications seek to explain a lack of previous findings of either area in isolation and are answers to more direct calls for research to inform both areas.

*Networks and the Fit-Performance Relationship.* In addition to the models presented above, there are other ways in which fit and networks may be related to each other and, ultimately, to performance. The simultaneous exploration of multiple types of fit has been identified as a key future direction in fit research (Kristof-Brown et al, 2005). Exploring multiple conceptualizations of P-O and P-J fit in a single study is a step in this direction, but it can be taken further. If perceived P-J fit is essentially a measure of self-efficacy and motivation, while objective measures of P-J fit tap into actual KSAs an individual has in relation to his/her job (structural) or his/her coworkers (social), it would be beneficial not only to explore variables in isolation, but also to jointly explore the levels of each. I present, with this idea in mind, the three additional models of the dissertation, which can be classified as a three-way interaction, a three-way additive

model, and moderated mediation. I focus specifically on how perceived P-J fit, structural P-J fit, and advice in-degree centrality jointly predict task performance, given the number of new types of moderation and mediation that this type of integration creates.

Three-Way Interaction Model. Various combinations of perceived P-J fit, structural P-J fit, and advice in-degree centrality might lead either to increased or decreased task performance. For instance, an employee who is high in both perceived and objective P-J fit should see performance benefits only to the extent that he/she is frequently sought out for advice. This giving of advice performs two important functions to those high in combined P-J fit: it provides access to new information and also provides an opportunity to demonstrate high levels of fit through high-quality advice. If an employee is high in combined P-J fit but is not sought out for advice, their KSAs are being underutilized and would be at risk of stagnation since there are few flows of information present.

If an employee has misguided confidence in his/her abilities and is highly sought out for advice, the employee will likely be demonstrating this lack of competency, and his/her task performance would be diminished. The silver lining to this scenario is that through their advice ties, these individuals may be able to improve their objective fit by the information gained in advice exchanges. No such silver lining exists for those who are high in perceived fit, but low in objective fit and are not sought out for advice. These individuals will confidently perform the tasks of their jobs, but a lack of ability may diminish actual task performance. When these employees are giving little advice, these deficiencies may be masked; but it is unlikely that they will improve quickly.

The benefits of being high in objective fit and/or advice in-degree will be greatly diminished for those who are low in perceived P-J fit. When these individuals are in a position where they are sought out for advice by many others, their lack of confidence in their abilities would possibly diminish the quality of advice provided and restrict the ability to extract new information from these exchanges. Being sought out for advice might actually, over time, increase perceptions of fit. However, while employees are in this cell, performance will be neither overly weak nor strong. When employees who are lacking perceived fit (despite actual possession of KSAs needed to perform their jobs) are not sought out for advice, this may accentuate the detriments that may occur due to low perceived P-J fit. If persons feel that they do not have the abilities needed to perform the tasks of their job, they may view the fact that they are not sought out for advice as confirming evidence of their lack of necessary abilities. This may also, in turn, cause them to exhibit signs of withdrawal, thereby reducing task performance.

Finally, there are employees who might be low in both perceived and structural P-J fit. While these employees would likely not be sought out heavily for advice, when they are sought out it should be a short-term detriment to performance. Being sought out for advice might eventually increase perceived P-J fit, but as long as both types of fit are low it is likely that this exposure is unwanted as it might demonstrate the KSA deficiencies of the employee. Conversely, employees with low perceived and objective fit who are not sought out for advice might be able to mitigate performance detriments. Since these employees know that they do not have the KSAs needed for their job, they may consciously choose to refrain from giving advice in order to avoid exposure of these deficiencies. This suggests a net neutral effect on task performance.



Three-Way Additive Model. Following the logic behind additive models presented throughout this dissertation, one could claim that perceived P-J fit, structural P-J fit, and advice in-degree explain different facets of task performance. The additive model would be tested in the process of conducting analysis for a three-way interaction.

Moderated Mediation Model. A moderated mediation model basically suggests that various combinations of two variables influence a third variable, which predict an outcome of interest (Baron & Kenny, 1986). One way to begin to explore this relationship is to map out the nature of the moderation on the mediator.

Perceived and structural P-J fit may combine to influence the extent to which one is sought out for advice, using the previous perspective to suggest that perceived fit should signify a willingness to provide advice, while objective fit may enable an individual to be highly sought out for advice. Those who are high in both types of P-J fit should seek out and be sought out by others who need work-related help or advice. Those who are low in both types of P-J fit will likely be unwilling and unable to provide work-related help or advice. Employees who are willing but unable, or able but unwilling, should ultimately be sought out by a few others for advice. Therefore, being high in both perceived and structural P-J fit may lead one to be a stronger performer to the extent to which the combination increases advice in-degree centrality. While some types of fit might be limited in terms of their individual predictive abilities, continuing to explore combinations might better explain the fit-performance relationship.

*Group Level Measures of Networks and Fit.* Another approach to exploring the joint influence of fit and networks on individual performance would be to explore how well an individual fits within his/her workgroup and the relationships an employee has

which are strictly within that workgroup. All of the measures described in the models tested in this dissertation can be adopted to explore localized networks and fit. For instance, the measures of out-degree centrality used in the main analyses of this dissertation count the number of others an individual considers to be a personal friend or advice partner from throughout the organization. Alternatively, local ties which can be pressed more easily for information and other benefits might be an important driver of performance. I may, therefore, compute out-degree as just the number of outgoing ties within the workgroup as an important moderator or mediator of the fit-performance relationship.

Additionally, I could measure fit from a person-group perspective (known as P-G fit). In this case, structural P-G fit would be how well one's values align with the values immediate coworkers feel are representative of the organization. At MAS there was a strong consensus around the organizational culture, so this type of fit might not alter results too drastically, but it might be of more importance in other research settings. Social P-G fit, on the other hand, might be particularly salient at MAS and in other settings. Having a value set that is similar to those of your coworkers might be particularly beneficial in terms of facilitating performance. Social P-G fit may be particularly important in helping an employee attain positive network positions within the workgroup. The homophily-based attraction mechanism, suggesting that those with high fit will be more sought-after, is based around the idea that there is some interaction between individuals in order to determine this similarity (McPherson et al., 2001). This opportunity for interaction is assumed when discussing the potential effects of social P-O fit, but would be much more likely to occur in a social P-G setting where interaction is

present. The combination of homophily-based attraction and stronger communication/coordination benefits derived from social P-G fit might lead an employee not only to occupy positions of prominence in the local friendship network but also in the advice network. Exploring this level of analysis utilizing the frameworks described above provides the potential to continue its contribution to our continued understanding of *how* P-E fit may influence employee performance.

*Fit as an Explanatory Variable.* Just as using the network perspective to better understand the relationship between fit and performance has the potential to better integrate the social networks and industrial-organizational psychology literatures, insights gleaned from fit might help the field gain traction among social network scholars. For instance, research has scarcely been conducted on the influence of social networks on attitudes such as employee job satisfaction (Brass, 1981) and organizational commitment (Eisenberg et al., 1984). The P-E fit literature has shown strong relationships between various types of fit and these employee attitudes (Kristof-Brown and Guay, 2010). Turning the tables of the models suggested throughout this dissertation, it may be the case that fit is a moderator or mediator which helps explain the influence of networks on employee attitudes.

Using the same cognitive dissonance approach described above, it may be the case that the signals provided from the occupation of certain network positions only influence attitudes such as commitment when accompanied by complementary pressures derived from being embedded in the organizational culture. For example, if an employee has a high friendship centrality but does not have strong fit with the organization, these conflicting signals will be stressful and may adversely affect employee attitudes. The

effects would likely be stronger than those found above for perceived fit and out-degree centrality, since the outcome being influenced here is an attitude and not a behavior. The mental state (motivation) of an employee is just one factor influencing performance behaviors, whereas the mental state of being committed serves as an end in and of itself. Arguments can also be made for a moderating role of P-J fit on the relationship between advice centrality and job satisfaction. Being sought out for advice would be thought to increase satisfaction, as it demonstrates that the employee is needed within the organization. However, if the employee does not have strong P-J fit, being sought out for advice might be a very stressful position which may, in turn, reduce employee satisfaction. Also, if an employee is very high in P-J fit and is very heavily sought out for advice, that employee may be at risk for burnout also resulting in reduced satisfaction. Greater theorizing into the mechanisms by which network centrality should influence employee attitudes is needed, but it is likely that how well an employee fits within the organization can have a significant impact on this relationship.

There also exists a strong potential for a mediating role of fit on the network position/ employee attitude relationship. While most types of fit are relatively stable, perceived fit is both malleable and strongly related to other attitudes such as satisfaction and commitment (Kristof-Brown et al, 2005; Hoffman & Woehr, 2005). An employee's embeddedness in the social networks of an organization might hold a strong influence on how well they feel they are embedded in the organizational culture (P-O fit) or how well suited they are for the job (P-J fit). The fulfillment of this research might not only uncover a mechanism through which social network centrality relates to employee attitudes (as has been called for in the networks literature) [(Brass, in press), but also

begins to answer calls from leaders in the fit area to better explore the antecedents of fit (Kristof-Brown & Guay, 2010).

A final fruitful way in which fit can contribute to the networks literature is by helping to test some of the underlying assumptions of prominent social network theories. One of the underlying assumptions of Burt's (1992) structural hole theory is that individuals who are connected to disconnected others will have access to a greater diversity of information and resources. There are two ways in which bringing in the concept of P-E fit can help to test this theory. First of all, we can use P-J fit to assess the degree to which those who span structural holes are actually accessing individuals who have different skillsets by comparing the KSA sets of those being brokered by the individual occupying the structural hole. Secondly, it has been assumed that the diverse information obtained through the occupation of structural holes will have to be relatively simple. The reason for this is that complex information has been known to move more freely through strong ties (Hansen, 1999), and that strong tie triads tend toward closure and not the creation of structural holes (Heider, 1958). It may be that having dyadic fit (person-individual [P-I] fit; Antonioni & Park, 2001) may act as a lubricant which allows complex information to flow more easily through weak, bridging ties. Those with strong P-I fit who occupy brokerage positions may be able to overcome what is generally considered a limitation of the benefits accrued to those who occupy structural holes.

### **Managerial Implications**

While the primary focus of this dissertation was to address an issue within the fit literature and to help generate future research merging the concepts of fit and social networks, the problem being addressed should be of interest to managers. As was seen in

the quote at the beginning of this dissertation, organizations frequently hire an employee because they feel that the employee will be a good fit and assume that this fit will aid performance. The findings of this dissertation are that this assumption is sometimes, but not always the case, depending on the social structure within the organization.

If a manager senses that an employee does not feel that he/she is a good fit, one approach to 'fix' this problem might be to try and better assimilate them into the informal structures of the organization via introductions, mentoring relationships, and other socialization tactics. The findings of this dissertation suggest that, at least in the short term, an individual who is low in fit will see a decline in performance as they become more socially integrated. In order to help this employee, a more prudent tactic would be to find why they feel they are low in fit and address this problem. If it is determined that network ties do act as an antecedent to increased fit perceptions (as I will test in future research), managers need to realize that during this transitional period while an employee is integrating into the social structure, dissonance will increase and performance may suffer.

One implication that is clear from this dissertation is that there are performance benefits to some social network positions. Friendship and advice in-degree were both positively related to employee performance, while advice seeking was negatively related to performance. Helping employees to cultivate friendships, rewarding the giving of advice, and de-stigmatizing the seeking of advice would be ways in which the organization could help to maximize the benefits of informal networks.

In sum, fit is an important selection criteria, if for no other reason than its relationship to positive employee attitudes and a turnover deterrent. However, fit will not

manifest itself into performance unless accompanied by proper social conditions, and so it should not be used as the focal selection criteria. After organizational entry, it is important that those who fit are given opportunities for interaction, while those who do not fit can be left to their own devices until fit improves. A lack of fit is not reason for involuntary attrition as some of these individuals can be strong performers and perceptions of fit are malleable.

### **Conclusion**

In this dissertation I set out to demonstrate that jointly exploring several ways in which employees are embedded in the workplace (through values, abilities, and relationships) may help explain why some utilize or gain those opportunities and why other potential does not materialize into performance. While the findings were mixed, some paths exist through which fit is related to employee performance once we account for the social networks of the organization. Job performance and the resulting benefits of successful performance cannot be separated from an employee's values, KSAs, and how well he/she works and interacts with others. I have maintained (and in some cases found) through this dissertation research, that it truly is not just who you *are* but also who you *know* that leads to true success within the workplace.

## Appendix A: Organizational Culture Q-Sort

Below you will find a set of words or phrases that could be used to describe an organization on the left and several empty boxes on the right. Please read all of these descriptions first and then begin ranking them in terms of how well they represent [REDACTED]. Please base this ranking on how well the words or phrases actually describe the organization rather than how well the organization would like or strives to be seen.

Begin with the 2 most characteristic descriptors by clicking and dragging each descriptor to the box labeled "TWO most characteristic". Next, identify the 2 least characteristic descriptors and place them in the next box. Do not worry about ranking within each group. Repeat this process for the remaining descriptors, following instructions for how many values to place in each box. There will be some words or phrases left over when you are finished.

Items	TWO Most Characteristic
-Decisiveness	TWO Least Characteristic
-Team oriented	
-Is quick to take advantage of opportunities	Next THREE Most Characteristic
-Adaptability	
-Results oriented	
-Values calmness	Next THREE Least Characteristic
-Not constrained by many rules	
-Shares information freely	
-Socially responsible	
-Achievement oriented	FIVE More Characteristic
-Confronts conflict directly	
-Emphasizes individual responsibility	
-Praises good performance	
-Pays attention to detail	
-Has a good reputation	FIVE Less Characteristic
-Requires working long hours	
-Reflective	
-Provides opportunities for professional growth	
-Provides secure employment	
-Distinctive	
-Emphasizes developing friends at work	
-Informal	
-High pay for good performance	
-Tolerant	
-Competitive	
-Analytical	



## Appendix B: Job Requirements Q-Sort

In this section, you will find a set of sentences describing various knowledge, skills, or abilities (KSAs) that could help someone to perform their job well. Following the same procedure as you did on the previous page, by first reading all options and then ranking these KSAs in terms of their importance for someone who does your job.

Begin with the 2 most important by clicking and dragging each KSA to the box labeled "TWO most important". Next, identify the 2 least important KSAs and place them in the next box. Again, do not worry about ranking within each group. Repeat this process for the remaining KSAs, following instructions for how many to place in each box. There will be some KSAs left over when you are finished.

<p><b>Items</b></p> <ul style="list-style-type: none"> <li>-Using mathematics to solve problems.</li> <li>-Talking to others to convey information effectively.</li> <li>-The ability to recognize when something is wrong or is likely to go wrong.</li> <li>-The ability to quickly and repeatedly adjust the controls of a machine.</li> <li>-Knowledge of business and management principles.</li> <li>-The ability to see details at close range (within a few feet of the observer).</li> <li>-Communicating effectively in writing as appropriate for the needs of the audience.</li> <li>-Considering the relative costs and benefits of potential actions to choose the most appropriate one.</li> <li>-The ability to use different sets of rules for combining or grouping things.</li> <li>-Understanding the implications of new information for both current and future work.</li> <li>-The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules.</li> <li>-Determining how changes in conditions and the environment will affect outcomes.</li> <li>-Adjusting actions in relation to others' actions.</li> <li>-Bringing others together and trying to reconcile differences.</li> <li>-Managing one's own time and the time of others.</li> <li>-Understanding written sentences and paragraphs in work related documents.</li> <li>-The ability to come up with a number of ideas about a topic.</li> <li>-Knowledge of principles for moving people or goods by air or road, including relative costs and benefits.</li> <li>-Knowledge of the design and use of components of electronic equipment.</li> <li>-The ability to imagine how something will look after its parts are moved or rearranged.</li> <li>-The ability to quickly move your hand/hands/arms to grasp, manipulate, or assemble objects.</li> <li>-Using reasoning to identify the strengths and weaknesses of alternative solutions to problems.</li> <li>-The ability to detect a known pattern (a figure, word, or sound) that is hidden in other distracting material.</li> <li>-Watching gauges, dials, or other indicators to make sure a machine or device is working properly.</li> <li>-Giving full attention to what other people are saying and understanding the points being made.</li> <li>-Knowledge of principles for providing customer and personal services.</li> </ul>	<p><b>TWO most important.</b></p>
	<p><b>TWO least important.</b></p>
	<p><b>Next THREE most important.</b></p>
	<p><b>Next THREE least important.</b></p>
	<p><b>FIVE more important.</b></p>
	<p><b>FIVE less important.</b></p>

## Appendix C: Individual Values Q-Sort

Below you will find a set of words or phrases that could be used to describe yourself on the left and several empty boxes on the right. Please read all of these descriptions first and then begin ranking them in terms of how well they represent you.

Begin with the 2 most characteristic descriptors of yourself by clicking and dragging each descriptor to the box labeled "TWO most characteristic". Next, identify the 2 least characteristic descriptors and place them in the next box. Do not worry about ranking within each group. Do not worry about ranking within each group. Repeat this process for the remaining descriptors, following instructions for how many values to place in each box. There will be some words or phrases left over when you are finished.

Items	TWO Most Characteristic
-Distinctive	TWO Least Characteristic
-Adaptability	
-Values calmness	Next THREE Most Characteristic
-Competitive	
-Not constrained by many rules	Next THREE Least Characteristic
-Informal	
-Emphasizes developing friends at work	FIVE More Characteristic
-Shares information freely	
-Analytical	FIVE Less Characteristic
-Requires working long hours	
-Provides opportunities for professional growth	
-Has a good reputation	
-Socially responsible	
-Achievement oriented	
-High pay for good performance	
-Tolerant	
-Confronts conflict directly	
-Emphasizes individual responsibility	
-Is quick to take advantage of opportunities	
-Praises good performance	
-Decisiveness	
-Provides secure employment	
-Reflective	
-Pays attention to detail	
-Results oriented	
-Team oriented	

## Appendix D: Individual Knowledge, Skills, and Abilities Q-Sort

In this final section, you will find a set of sentences describing various knowledge, skills, or abilities (KSAs) that you might possess. Following the same procedure as you did on the previous page, by first reading all options and then ranking these KSAs in terms how characteristic each item is of your knowledge, skills, or abilities.

Begin with the 2 most characteristic by clicking and dragging each KSA to the box labeled "TWO most characteristic of me". Next, identify the 2 KSAs you do not feel characterize your knowledge, skills, or abilities and place them in the next box. Again, do not worry about ranking within each group. Repeat this process for the remaining KSAs, following instructions for how many to place in each box. There will be some KSAs left over when you are finished.

Items	TWO most characteristic of me
<ul style="list-style-type: none"> <li>-Using reasoning to identify the strengths and weaknesses of alternative solutions to problems.</li> <li>-Knowledge of principles for moving people or goods by air or road, including relative costs and benefits.</li> <li>-The ability to use different sets of rules for combining or grouping things.</li> <li>-Understanding the implications of new information for both current and future work.</li> </ul>	TWO least characteristic of me
<ul style="list-style-type: none"> <li>-Watching gauges, dials, or other indicators to make sure a machine or device is working properly.</li> <li>-Considering the relative costs and benefits of potential actions to choose the most appropriate one.</li> <li>-The ability to see details at close range (within a few feet of the observer).</li> <li>-Determining how changes in conditions and the environment will affect outcomes.</li> </ul>	Next THREE most characteristic of me
<ul style="list-style-type: none"> <li>-The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules.</li> <li>-The ability to imagine how something will look after its parts are moved or rearranged.</li> <li>-The ability to recognize when something is wrong or is likely to go wrong.</li> <li>-Bringing others together and trying to reconcile differences.</li> </ul>	Next THREE least characteristic of me
<ul style="list-style-type: none"> <li>-Giving full attention to what other people are saying and understanding the points being made.</li> <li>-Knowledge of business and management principles.</li> <li>-The ability to detect a known pattern (a figure, word, or sound) that is hidden in other distracting material.</li> <li>-The ability to quickly and repeatedly adjust the controls of a machine.</li> <li>-The ability to come up with a number of ideas about a topic.</li> </ul>	FIVE more characteristic of me
<ul style="list-style-type: none"> <li>-Understanding written sentences and paragraphs in work related documents.</li> <li>-Knowledge of the design and use of components of electronic equipment.</li> <li>-Managing one's own time and the time of others.</li> <li>-The ability to quickly move your hand/hands/arms to grasp, manipulate, or assemble objects.</li> <li>-Knowledge of principles for providing customer and personal services.</li> <li>-Talking to others to convey information effectively.</li> <li>-Using mathematics to solve problems.</li> <li>-Communicating effectively in writing as appropriate for the needs of the audience.</li> <li>-Adjusting actions in relation to others' actions.</li> </ul>	FIVE less characteristic of me

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