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**WHAT GOES AROUND, COMES AROUND: JOB
REFERRALS THROUGH RELATIONS BETWEEN SOCIAL
TIES AND ORGANIZATIONAL CITIZENSHIP BEHAVIOR**

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**What goes around, comes around: job referrals through
relation between social ties and organizational citizenship
behavior**

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DEDICATION

I dedicate this study to all those professionals who take up every opportunity to do their best and bring their teams and organizations to the highest performance, who understand the importance of walking the second mile when asked to walk only one.

I especially dedicate this study to the students of Insper, both those I have had the privilege to work with as well as those I am yet to meet. You are learning the value of perseverance and camaraderie.

While developing the present study, one phrase by Björk accompanied me: "... maybe not from the sources you have poured yours, maybe not from the directions you are staring at". I hope that the findings and knowledge presented in this study serve to more effectively direct your efforts and improve your professional relationships.

IN APPRECIATION

First and foremost, I thank God for bringing me to this point in time and space, as well as for giving me the responsibilities through which I can honor Him.

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ABSTRACT

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What types of citizenship behavior and ties are associated with teammates' disposition to refer someone to a professional project? Assuming that referral hiring is a strategy to overcome information asymmetries in the selection process and that referrals are made according to the assessment of a professional's demonstrated contributions to team performance, I study both network configurations in teams and evaluations of Organizational Citizenship Behavior (OCB) to identify which are associated with colleagues' disposition to provide these professional with a job referral. Ties are evaluated in terms of Contact Frequency and Perceived Closeness, while OCB is studied using Williams & Anderson's (1991) factors, where OCB is presented in terms of being in-role (IRB) and extra-role, where extra-role is subdivided in behavior directed to the individual (OCBI) and behavior directed toward the group (OCBO). I study the associations between OCB and tie characteristics. I also introduce the concept of Tie Salience, which is a measure of the intensity of the tie relative to the other ties present in the group in which the dyad is embedded, finding that salience plays an important role in building a tie within a team. I test the model through Structural Equations estimated on data obtained through a survey and find a system that regulates building personal relationships with group interests. I also find significant effects of Extra-Role behavior on Perceived Closeness.

Key Words: Referral Hiring; Organizational Citizenship Behavior (OCB); Social Networks.

RESUMO

WHITE, Sean R. **What goes around, comes around: obtaining job referrals through relations between social ties and organizational citizenship behavior**, 2012. 77 f..
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Que tipos de comportamentos de cidadania e laços são associados à disposição de colegas de equipes para recomendar um profissional a um projeto? Partindo do princípio de que contratação por recomendação é uma estratégia para superar assimetrias de informação no processo seletivo e que referências são feitas a partir da avaliação das demonstradas contribuições ao desempenho da equipe, avalio tanto as configurações de laços nas equipes como avaliações de comportamentos de cidadania (Organizational Citizenship Behavior – OCB) para identificar quais são associados à disposição de membros da equipe para conferir recomendações profissionais a seus colegas. Laços são avaliados nas dimensões de Frequência de Contato e Proximidade Percebida, enquanto OCB é estudado a partir dos fatores identificados por Williams e Anderson (1991), onde OCB é apresentado como dentro do papel (In-Role Behavior – IRB) e além do papel (Extra-Role Behavior), sendo este subdividido em comportamentos direcionados ao indivíduo (OCBI) e direcionados ao grupo (OCBO). São estudadas também as causalidades mútuas entre OCB e as características dos laços. É introduzido o conceito de Saliência do Laço, que é uma medida da força do laço relativo aos demais laços travados no grupo no qual o diade está embutido. O modelo é testado através de Equações Estruturais estimadas em dados obtidos em pesquisa de campo e encontro um sistema que regula a formação de relacionamentos pessoais com os interesses do grupo. Também são identificados efeitos significativos de OCBO e OCBI em Proximidade Percebida.

Palavras-chave: Contratação por referência; Comportamentos de Cidadania Organizacional (OCB); Teoria de Redes Sociais.

TABLES INDEX

Table 1 - OCB factor analysis	34
Table 2 - Descriptive Statistics	37
Table 3 – Matrix of Pearson Correlation	39
Table 4 - Ordinary Least Squares Analysis	41
Table 5 - Structural Equations Analysis using Total OCB	45
Table 6- Structural Equations Analysis using OCB Dimensions	47
Table 7 - Report of Hypothesis Tests	55

FIGURES INDEX

Figure 1 – Participants in the phenomenon of candidate referral for a future project by a colleague .	16
Figure 2 – Simplified model of the relation between Organizational Citizenship Behavior, network composition and the colleague’s disposition to refer the candidate	21
Figure 3 - Representation of Model 2, with Total OCB	50
Figure 4 - Representation of Model 5 with OCB dimensions.....	51
Figure 5 - Model 2: Paths with significant parameteres as estimated.....	52
Figura 6 - Model 5: Paths with significant parameteres as estimated.....	53

INDEX

1. INTRODUCTION	12
2. RELEVANCE OF STUDYING JOB REFERRALS	12
3. RESEARCH QUESTION AND ITS PRACTICAL RELEVANCE.....	16
4. SOCIAL NETWORKS AND JOB REFERRALS	17
4.2.1. Tie Characteristics	17
5. THE MODEL	18
5.1. The Context: Project Team.....	18
5.2. Colleague's Disposition to Provide a Job Referral (Dependent Variable).....	20
5.3. Organizational Citizenship Behavior (OCB).....	22
5.4. Social Network	24
5.4.1. Tie Strength	24
5.4.2. OCB-Network Configuration Association.....	25
5.4.3. Tie Saliency	27
5.5. Control Variables and Paths	29
5.5.1. Colleague's Perception of Candidate's Technical Expertise.....	29
5.5.2. Colleague's Gender	30
5.5.3. Colleague's Age	30
5.5.4. Colleague's Perception of the Candidate's Personal Network	30
5.5.5. Relationship Outside of the Project.....	30
6. METHOD.....	31
6.1. Population.....	31
6.2. Data collection.....	32
7. PSYCHOMETRIC PROPERTIES OF THE DATA.....	34
7.1. Confirmatory Factor Analysis of OCB Dimensions.....	34
7.2. Data Summary	37
8. DATA ANALYSIS	38
8.1. Analysis Through Ordinary Least Squares.....	38
8.2. Analysis through Structural Equations	42
8.2.1. Fit Indices	43
8.3. Results of Structural Equation Analysis and Test of Hypotheses	54
8.4. Significant Control Paths.....	57

8.4.1. Significance of Perceived Technical Expertise	58
8.4.2. Significance of Project Class.....	58
8.4.3. Significance of Perception of Candidate’s Network	58
8.4.4. Significance of Meeting on Other Occasions.....	59
8.4.5. Significance of Contact in Previous Projects	59
9. DISCUSSION	60
9.1.1. Discussion of the Model Containing Total OCB	61
9.1.2. Discussion of the Model Containing OCB Dimensions.....	62
9.2. Theoretical Discussion of the Results	64
10. CONCLUSIONS.....	66
11. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH.....	66
11.1. Limitations	66
11.2. Recommendations for Future Studies	67
REFERENCES.....	72
APPENDICES.....	78
Appendix I – The Questionnaire	78
Appendix II – Questionnaire validity tests.....	82

1. INTRODUCTION

In this study, I describe and test factors that interact to lead to a job referral through an individual's performance through work relationships in a team.

The reasearch question is:

- What types of citizenship behavior and ties are associated with teammates' disposition to refer someone to a professional project?

To answer this, I study the individual's colleagues' disposition to recommend her as a function of the configuration of ties within the team (frequency and perceived closeness) and as a function of the directions of behavior (In-Role Behavior and Extra-Role Behavior, which can be directed to the group interests or towards individual interests).

I begin the study with a discussion of the theoretical and practical relevance, first exploring the importance of studying job referrals, followed by a description of the relevance of verifying the behavior and ties involved in job referrals.

I then review the connections between network building with referral hiring and form a theory to describe how job referrals can be a function of OCB and network characteristics.

In the following section, I explore the proposed model, describing each variable, with the proposed hypotheses. I also describe the population and how the data was obtained.

I then present and discuss the results, both identifying sustained connections between the variables and observing the dynamics of the complete system, closing with descriptions of the study's limitations and suggestions for future studies.

2. RELEVANCE OF STUDYING JOB REFERRALS

Before discussing the model, it is necessary to present the context in which the observed phenomenon occurs. The research question is directed towards informal hiring channels, i.e., Referral Hiring, and the dynamics that are considered by an individual when deciding to refer a colleague in a project. Formal recruiting means, such as job postings and head hunting through on-line services, are not considered.

Referral hiring has been studied in terms of economic and social functionality to overcome the difficulties in using formal channels (Casella & Hanaki, 2008). However, according to these authors, economic studies postulate the possibility that formal channels

develop technology and social policies that effectively overcome the scarcity of personal channels that hinder a selection process that considers all possible candidates in the marketplace. These authors show that sociological studies state that the impossibility to completely substitute personal channels due to information asymmetry inherent in the system and the role of trust in this setting. According to Casella & Hanaki (2005), in highly complex social networks, where the value of social contacts falls and the cost of trustworthy information is high, the use of formal channels becomes more effective. Vecchio (1995) said that the use of references to recruit works best in low-tension environments, where there are few incentives to hide information.

Fernandez, Castilla & Moore (2000) identified five reasons for a firm to use referral hiring:

- The company expands its access to candidates, since its employees' personal contacts might not consult formal means of communication;
- Ties to obtain referrals tend to be homophilous, i.e., the people in this tie carry similar characteristics, so if a certain employee is adequate for the company, her contacts will also tend to be adequate;
- Reputation protection, where the person who makes the referral has incentives to recommend quality professionals to preserve their own reputation;
- Obtaining information that does not appear in formal communication channels, especially tacit information;
- Accelerated social integration of the newly hired employee.

The first three points cited above are advantages that enhance the quality of the candidates in the selection process.

Likewise, Montgomery (1991) shows how referral hiring is advantageous to the firm, as it diminishes process costs, uses homophily-based channels and provides clearer perspectives of the candidate by the hiring firm and of the firm for the candidate.

Since reliability of information is at the heart of the matter, I approach the question through social network theory. According to Gulati (1995), the study of the flow of information is the cornerstone of social network studies. The actors present in a social network are embedded in an environment where information circulates. This information may or may not flow through their position.

In his seminal study, Granovetter (1973) uses job search dynamics as a context to understand social network composition. Therefore, he directed his attention to the person who makes the connection between the candidate and the employer. Who makes this connection? Which social ties better position the candidate? He found that only weak ties avoid the redundancy that would eliminate the need for an intermediary. In the following year, he further developed the issue of job seeking in the perspective of social networks with a more thorough analysis, where he shows that candidates usually discover job opportunities through people who currently work at the recruiting firm (Granovetter, 1974). Since the intermediary plays an important part in the process, weak ties seem to be the best channel for candidates to find job opportunities and for firms to recruit the best professional.

However, Jacobs & Cornwell (2007) found evidence that administrators can show a preference for strong ties, be the ties strong between the recruiter and the intermediary or between the intermediary and the job seeker, as this provides mechanisms to assure superior quality of the information. They point out that, according to the theory put forth by Granovetter (1973), strong ties would lead to redundancy in the network, as described above. The authors explain the contradiction between their findings and theory by revealing two distinct networks: one is a recruitment network and the other a job seeking network, where the intermediary is present in both.

Obukhova (2012) shows that candidates prefer to seek assistance in their search for jobs from contacts in the same occupation as them over contacts that have higher status but who don't share their occupation. Similar to the studies cited above, she also found that résumés forwarded through strong ties tend to be more efficient than when sent through weak ties. Nevertheless, she also finds that job proposals are not necessarily accepted when made through strong ties.

To my knowledge, there are no studies that explicitly study referral hiring among pools of students, although practitioners commonly recognize that business school students expect their studies to leverage their competitiveness in the job market and hope to build their network. The present study sheds light both on how a student can indeed gain social capital through an assignment that requires teamwork, as well as what a recruiter that relies on referral hiring among students can expect to receive.

Alongside the interest in referral hiring, there has been a profound paradigm shift in career management to what has been named a "boundariless" or "protean" career (Sullivan, 1999). The career is said to be "boundariless" because it is not limited merely to the organizational environment and internal needs of one single firm. Career paths are directed by

Market dynamics, where the professional passes through a sequence of various firms, on the strength of her performance in teams and projects (Greenhaus, 2003). This career advancement is marked by the certainty that the individual will have to undergo great personal changes, be they geographic or psychological (Sullivan & Arthur, 2006). Career advancement happens through progression through several firms. Hence, hiring dynamics, including Referral Hiring, are central when studying career advancement in a boundariless context.

A “Boundariless Career” is drastically different from the traditional career on several key points. Sullivan (1999) indicated that it plays out in multiple firms (and not only one or two), employability is obtained through performance and flexibility (instead of stability obtained through loyalty), success is measured in subjective terms (in place of wage, promotion, status), responsibility for career advancement lies with the individual (and not with the organizational career plan), training is on the job (with less value placed on formal training) and career advancement milestones are defined by a learning curve (and not by age).

Other scholars emphasize that these careers demand colaboration and team work (Fletcher 1996), which is consolidated in the development of multiple relationships with peers and in the network (Kram 1996). In this context, the professional accrues value by developing the skill to learn on the job (McCall, Lombardo & Morrison, 1998).

In a nutshell, the “boundariless” setting is highly dynamic, where teams form and disperse around tasks. To advance in one’s career, professionals must concern themselves with the ability to enter teams and demonstrate that they have resources valuable for the team to achieve its goals.

Defillippi & Arthur (1994) identified three dimensions of skills that rule career advancement:

- Beliefs and identity (know-why),
- Abilities and knowledge (know-how)
- Contact and relationships networks (know-who).

To my knowledge, there is no study that describes the relationship between the development of these three dimensions described by Defillippi & Arthur (1994) with boundary spanning, although their value has been recognized (Colakoglu, 2011). The research question in this study explicitly explores the third dimension, “know-who”, and seeks to understand how the candidate builds this network in such a way to increase chances of

crossing boundaries. I find evidence that also contributes to better understanding of the remaining two dimensions, “know-why” and “know-how”.

The phenomenon here studied involves three roles: the candidate, the intermediary (henceforth referred to as “colleague”) and the recruiter for the next project, as represented in Figure 1.

The candidate and the colleague work together on a project in the context of a project team. Based on this experience, the colleague decides if the candidate will be recommended to the next project. For the effect of this study, the role of the recruiter is left implied. I assume that certain cues are given by the team in which the colleague and candidate find themselves that form a concept of future recruiters’ expectations. How can the candidate enhance her chances of a colleague recommending her, given the possibilities of shared experiences and her performances in the project performed by the team?

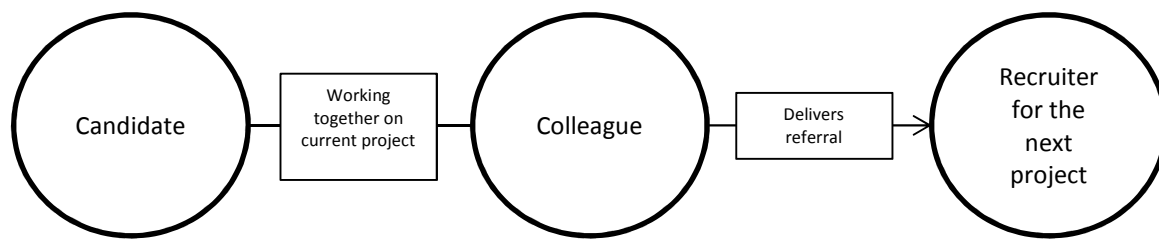


Figure 1 – Participants in the phenomenon of candidate referral for a future project by a colleague

3. RESEARCH QUESTION AND ITS PRACTICAL RELEVANCE

Since Referral Hiring is a common practice within the context of the Boundariless Career to achieve the most reliable information regarding a candidate’s competence for a specific professional position, it seems relevant to direct attention to what happens between the candidates and their teammates which helps them advance in their careers. The answer to this contributes to the discussion of a “boundariless” career environment with an analysis that rests on a behavioral analysis and network analysis.

According to Sullivan (1999), and expanded upon by Colakoglu (2011), success in a “boundariless” environment is measured in subjective terms. In this sense, it is much more related to the team member’s personal interests. Colakoglu (2011) emphasizes that success is felt in terms of positive experiences (autonomy) and negative experiences (insecurity). Therefore, the answer found for the research question will contribute to understanding how this individual multiplies her positive experiences and reduces her negative experiences.

The answer to this question will also generate useful information for team managers, since the phenomenon of referral of a human resource to participate in a new project team supposedly eliminates inefficiencies and reduces the risks to which the firm is exposed when accepting a new team member, as will be discussed in more detail further on. This piece seeks to find exactly what is being recommended when a referral is made.

My focus is behavioral, using the Organizational Citizenship Behavior (OCB) construct. As will be discussed further on, OCB has been widely studied in its relation to certain personality traits that have been shown to affect team efficiency.

Although there are many benefits to relying on referral hiring, the firm might be at risk of expecting to obtain information on behavior that simply is not contained in the job referral. If colleagues refer teammates based on factors other than good behavior and technical competence, it might bring professionals into itself that can hinder operations. Aside from OCB, I analyze social ties within the team. I include control variables regarding shared experience outside the current project to capture these effects other than OCB and technical expertise.

4. SOCIAL NETWORKS AND JOB REFERRALS

The phenomenon of the referral of professionals has been researched in social network studies (Granovetter, 1974; Brown & Reingen, 1987). As illustrated in figures 1 and 2, the phenomenon happens through ties.

Several studies have been performed regarding teamwork effectivity due to the configuration of ties inside the group, as will be further described in this section.

4.2.1. Tie Characteristics

As cited before, job referrals are preferred when they come from strong ties, as these tend to be more homophilous (Fernandez, Castilla & Moore, 2000). Reagans (2011) observed that homophily is directly connected to the formation of strong ties.

The way relationship conflicts are managed impacts the ability of the team to reach its goals (Peterson & Behfar, 2003). These authors describe that, while task conflict leads to moderate performance levels, relationship conflict leads to low performance levels. However, if there is a high level of trust in the team, the group is protected from suffering the worst

effects of relationship conflict and is more able to deal with task conflict. This indicates that the way relationships progress among people has the power to enhance the contribution an individual makes to the group task and, therefore, makes this individual more trustworthy, according to the principle of “Indirect Reciprocity” (Alexander, 1987). Teimoury, Fesharaki & Bazayr (2011) find signs that greater trust is related to strong ties.

For the team to fully perform its tasks, the team members organize their actions in routines, which are sequences of predictable behaviors performed by people who are connected by communication flows and/or authority relations (Cohen & Badoyan, 1994), which are based on shared language and points of view (Reagans et. al., 2004).

In the present study, I examine strength in terms of closeness and frequency. Both are studied in terms of intensity and salience of this intensity in relation to the ties within the team, as described in the following section.

5. THE MODEL

5.1. The Context: Project Team

To better study the dynamics of obtaining referrals in a “boundariless career” setting, I choose to study Project Teams. The environment of a team provides a dynamic that enhances the processes that lead to different levels of productivity success and failure, as studied in the Input-Moderation-Output-Input model (Hackman, 1987; Cohen & Bailey, 1997; Ilgen, Hollenbeck, Johnson & Jundt, 2004). This context also provides a close view of distinct dynamics that arise from distinct configurations of social ties and that affect the choice in favor or against a referral (Elliot, 2001; Reagans, Zuckerman & McEvily, 2004; Jacobs & Cornwell, 2007).

Teams are groups of people who collectively share tasks, carrying out interdependent actions. Teams are embedded in a greater organizational context that constrains the autonomy this team has to define and reach its own goals. To achieve its objectives, it is common for teams to reach out to teams beyond the context of their own organization (Cohen & Bailey, 1997; Kowalski & Bell, 2003). Research in a team context must identify the team members, how they perform their tasks collectively, and what each member does to fulfill her tasks (Mathieu, Maynard, Rapp & Gilson (2008).

Teamwork is the coordination of people who perform interrelated tasks (Edmondson, 2001). It is teamwork that creates a network of ties among team members, making the group of people a team, and not merely a gathering of people who perform their individual tasks.

Cohen & Bailey (1997) classify teams by nature of their tasks and governance, according to findings in their meta-analysis to describe how groups work. Their categories are:

- Work Teams: independent and self-directed teams with long-term relationships;
- Parallel Teams: teams that are managed internally, but that have general direction of a manager, who defines objectives and ratifies actions taken in the group;
- Top Management Teams: the firm's executive groups.
- Project Teams: teams that have strong interaction with partners beyond the frontiers of the group and, possibly, of the organization as well. Direction comes from top management, since the coordination of the actions is fundamental for the group to reach its objectives, due to high visibility of their actions.

Furthermore, still according to Cohen & Bailey's description (1997), project teams deal with tasks with high complexity, which makes them rely more on the competence of their members and less on predefined methods and corporate processes. These teams often operate along the frontiers of the firm either to manage logistics, through contract partnerships, or to keep close relationships with a client. This makes it possible for a team member to observe how a team outside of her firm operates and for people outside of the firm to observe her qualities and recommend her to other projects other than those options the member's own firm can offer.

The role of trust is most salient in constant teams than in short-term teams. Without trust, team members avoid interaction. Trust is mediated by team monitoring and collective efforts (De Jong & Elfring, 2010). Initial negative impressions lower the probability of interactions, and therefore are more stable. Systematic differences in interaction, however, produce systematic differences in impressions, due to more contact between these individuals. Closeness and presence in the social structure revert this dynamic (Denrell, 2005).

As a team depends on communication and trust, team members prefer to work with people who they already know (Jones et al, 1997; Hinds et al, 2000; Ferriani et al, 2009).

Apparently, when dealing with project teams the issue of trust should not be significant, since the projects have defined end dates. With little time for members to work together, there

would be little incentive to repress opportunistic actions (Hill, 1990). However, I propose that, when the phenomenon includes network dynamics and the possibility of transferring professionals from the current project to future projects, these project teams take on characteristics of long-term teams, since there is a tendency to rely on the same professionals when composing new teams. The use of referrals due to skills and competences proven in action to hiring talents brings to the team a dependence on trust, just as much as if it were a long-term team. If there is a consensus that the member of a previous team deserves trust, regardless of isolated opinions to the contrary, the recommended professional will have a chance to regain the trust of colleagues who would originally not recommend her (Denrell, 2005).

5.2. Colleague's Disposition to Provide a Job Referral (Dependent Variable)

As described above, the act of referring someone is expected to make the system more efficient by accessing the people available that are most trustworthy.

In his seminal work "The Biology of Moral Systems", Alexander (1987) introduced the term "Indirect Reciprocity" to refer to how a sense of systemic reciprocity evolved. People prove that they are trustworthy through behavior that supports people and the group. Depending on a person in whom one has placed trust is only worthwhile when cheaper than depending on a person of whom one is wary. After all, if it's possible to avoid monitoring costs because the person in question is trustworthy, it's better for the team to hire this person. The information about the existence of these people is available in the network, however it is not necessarily available to all people connected to it. In this sense, there is a "collective memory", since the information exists in the system and is accessed through contact with friends and acquaintances.

Access to this content depends on contacts. Network configuration is dynamic, which changes the information available (Mohtashemi & Mui, 2003).

In this system, it is necessary to trust that the information used is, in fact, bringing contact with people who are trustworthy. Ideally, it's correct (i.e., efficient and effective) to cooperate with trustworthy people and incorrect (i.e., costly to the system) to ignore them (Ohtsuki & Iwasa, 2004). Furthermore, according to these authors, it's necessary to be able to ignore people who are not trustworthy. Given this scenario, these authors suggest that it is

necessary for there to be conditional cooperation to eliminate the costs generated by the presence of opportunistic people.

When seeking out partners to compose a new team, there is a tendency to prefer people with whom one has worked to avoid uncertainty (Jones, et al, 1997; Hinds et al, 2000; Ferriani et al, 2009). In other words, one prefers to work with someone whose work is possibly below par, but that is predictable than to work with someone whose work has potential to be outstanding, but which is still uncertain. These authors also find that working in the same group does not contribute to the quality of future decision regarding group composition, although they find that shared history is strongly significant. The strength of the existing tie and a history of success contribute to making the person be sought out, as will be further developed in the description of the hypotheses of the present study. This describes a risk to the firm that relies on referral in their hiring process, as the recommendation might be based on information of dubious quality.

Westbrook (1987) found that the act of referring a candidate has positive affect antecedents (interest and joy) and negative ones (anger, bitterness, and hate), as well as cognitive antecedents (confirmation and denial of the promiss of satisfaction of by the product). However, the affective effects are much more significant than the cognitive ones in his study.

The model is summed up in Figure 2. In a nutshell, I propose that “what goes around, comes around”, i.e., support to the team and/or colleague can result in a referral. Both OCB

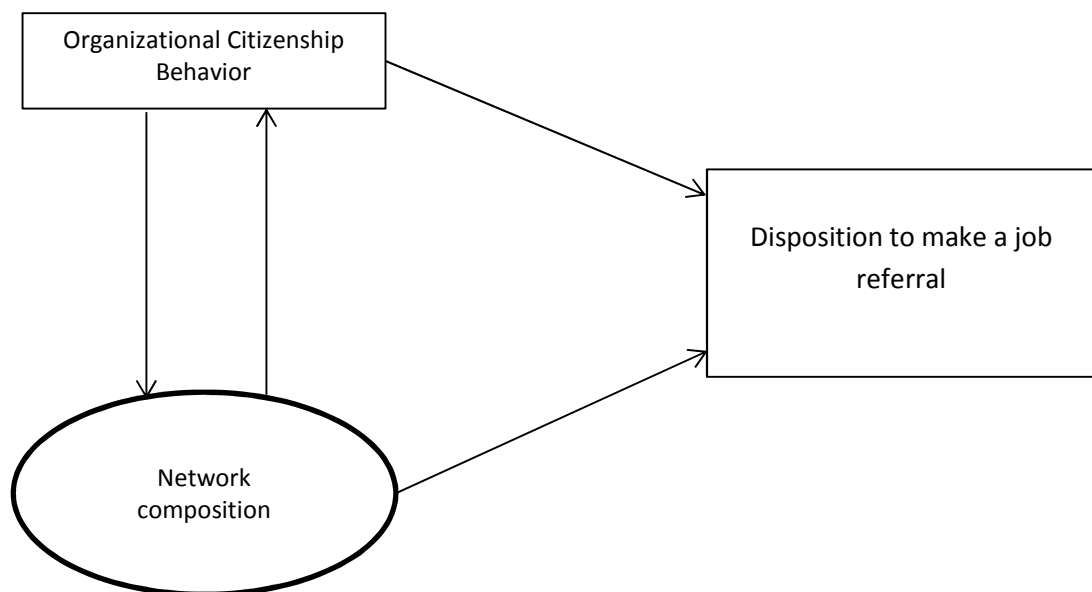


Figure 2 – Simplified model of the relation between Organizational Citizenship Behavior, network composition and the colleague’s disposition to refer the candidate

and Network composition are hypothesized to be associated with a disposition to make a job referral. Additionally, OCB is hypothesized to be associated with the closeness and frequency with which team members interact and the salience of their ties within the team. This network composition is, in turn, hypothesized to be associated with OCB, encouraging such behavior.

5.3. Organizational Citizenship Behavior (OCB)

Organizational Citizenship Behavior (OCB) are behaviors that are “discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization” (Organ, Podsakoff & MacKenzie, 2006).

This construct was found by Podsakoff et. al. (2011) to be influential in hiring decisions, which reinforces its importance to this study’s interest in maintaining relevance to referral hiring processes. These authors showed that greater OCB scores were related to perceptions of greater competence, higher performance appraisals, and amounts of recommendations to receive raises. The effect was greater for those who occupied higher places in hierarchy. They point out that there was interference from cognitive bias from those who made the recommendations, since OCB levels were merely inferred at the moment these were made, with OCB scores achieved after-the-fact.

An understanding of the present study is that contribution to team performance is desirable and approved by colleagues, and therefore those elements through which the candidate contributes to the team’s performance and well being should be related to her colleagues’ disposition to recommend her to a future project.

The assumption of altruism in the OCB construct was questioned by Bolino et. al. (2004). The authors question if the behavior associated with OCB couldn’t be attributed to more self-centered motivations, raising three propositions: 1) self-centered motivation (search for types of informal rewards and recognition in the group or in the company), 2) OCB might not be directed to benefitting the company and might even be forms of sabotage and 3) OCB as means for generating negative consequences for colleagues, such as helping the teammate to be successful in a task that, ultimately, would harm their reputation.

Although by traditional definition OCB is extra-role (Organ, 1987, 1997), OCB has been found to be intimately related to in-role performance (Morrison, 1994; Barksdale & Werner, 2001; Bell & Menguc, 2002).

Studies on OCB in high autonomy environments and in close contact with clients show that OCB can be considered expected behavior as per the job description (Morrison, 1994; Bell & Menguc, 2002). Even Organ (1997) describes the conceptual complications of pinpointing what exactly is meant by “extra-role” (vs. “in-role”), “discretionary” (vs. “compulsory”) and beyond contractual reward systems – since many important elements of performance aren’t formally rewarded, such as technical performance and brilliant innovation. He concludes that OCB is quite similar to Contextual Performance, as both describe behavior not related to theoretical aspects but that positively affect the organization’s performance and its psycho-social climate (Borman & Motowildo *apud* Organ, *ibid*).

Conversely, Bachrach & Jex (2000) found that positive affective disposition can lead individuals to describe Extra-role behavior as In-role behavior.

In their study of OCB’s dimensionality, Williams & Anderson (1991) identified items on the scale that are directly related to performance in the team, which they labeled “In Role Behavior” (IRB), which reinforces the notion that OCB is actually closer to the professional’s job description than originally supposed (Organ, 1987).

Furthermore, they identified two other dimensions: behaviors that are directed toward the benefit of the group or organization (OCBO) and those that are directed toward the benefit of the individual (OCBI).

In a metanalysis that explores the dimensionality of OCB the following dimensions were identified: Helping Behavior, Sportsmanship, Organizational Loyalty, Organizational Compliance, Individual Initiative, Civic Virtue, and Self Development (Podsakoff, MacKenzie, Paine & Bachrach, 2000). For the present study, it is more advantageous to use Williams & Anderson’s (*ibid*) dimensions, IRB, OCBO and OCBI, as they better emphasize the way the candidate behaves in relation to the social network in which she is embedded.

Incidentally, Podsakoff et. al. (*ibid*) regard OCBI as a form of Sportsmanship and OCBO as a form of Organizational Compliance. They do not include IRB in their analysis, perhaps because, by Williams & Anderson’s (*ibid*) definition, IRB is not extra-role, while Podsakoff et. al.’s (2000) focus is on the evolution of OCB as an extra-role construct.

Organ (1997) supports Williams & Anderson’s (1991) nomenclature because it preserves neutrality, in comparison to other terms such as “altruism”, “courtesy” and “helping” which, he says, contain moralistic overtones.

Podsakoff et. al. (2009), through meta-analysis, studied OCB effects on formal performance appraisals and reward allocations. They found statistically significant effects of both OCBI and OCBO on these. They also found negative relations between OCBI and

OCBO on intention to leave the company, as well as between OCB as a whole on turnover, although there was no statistically significant effect on absenteeism. They found a statistically significant positive effect of OCB and general performance of both the firm and the team, measured in objective and subjective terms, as well as in terms of business unit profitability.

Eatough et al. (2011) found that role stressors negatively affect Extra-role OCB, thus revealing that the separation between Extra-role and In-role behavior is not simple.

As the research question seeks to provide fine-grained descriptive analysis, it is important to identify exactly what orientation of OCB provides the greatest results. This allows for a fine-grained analysis, where insignificance of a relation can indicate lower priority and a negative effect can be avoided.

Hypothesis 1 is:

- Hypothesis 1: Candidate's Organizational Citizenship Behavior and its dimensions has total effects on the colleagues' disposition to provide her a job referral.

5.4. Social Network

5.4.1. Tie Strength

The present study's unit of analysis is the dyad established between two team members, embedded in the context of a team. Therefore, tie strength is hypothesized to significantly affect the candidate's colleague's disposition to provide a job referral.

Tie strength is measured in the present study through two questions answered on a five-point Likert scale:

- How frequently do you interact with [this colleague]?
- How close are you to [this colleague]?

Labels for the values of the scale are reported in Appendix 1.

“Frequency” measures how often the candidate and colleague interact. This construct indicates formal job interaction, providing chances for the candidate to showcase her skills.

According to Denrell (2005), formal job interaction breaks cycles of affinity, as it forces new situations to arise where the candidate has the opportunity to revert any negative impression that could have arisen. Frequency can also indicate successful job interactions, as the teammates who have interacted successfully are most expected to spontaneously seek out interaction when there is need to build partnerships to perform tasks. As described previously, there is a preference to work with those teammates with whom one has developed a routine over those who are more competent but with whom one has not worked before, thereby reducing uncertainty (Jones et al, 1997; Hinds, et al, 2000; Ferriani et al, 2009).

Hence, I hypothesize that:

- Hypothesis 2: Contact Frequency between candidate and colleague has total effects on colleague's disposition to provide a job referral.

I understand that teamwork is more than simply frequent interaction, involving mutual trust and lubricated communication (Ilgen et al., 2005; LePine, et al, 2008). Additionally, Teimoury, Fesharaki & Bazyar (2011) found that tie strength is associated with trust, and, according to Obukhova (2012), the preferred channels for finding jobs and candidates is through strong ties. As described previously, trust is a basis for teams to achieve better performance (Peterson & Behfar, 2003, Ohtsuki & Iwasa, 2004).

I use Closeness as a subjective measure of a relationship of trust between the candidate and the colleague.

I hypothesize that:

- Hypothesis 3: Perceived closeness between candidate and colleague has total effects on colleague's disposition to provide a job referral.

5.4.2. OCB-Network Configuration Association

According to Dalal (2005), OCB follows the hedonist principal, that is, it is an adaptive behavior to maximize well-being. It is logical to assume that OCB, as a behavior that is perceived as altruistic by the object of this behavior, would invite frequent interaction and

closeness. Denrell's (2005) understanding is that interaction is sought with those who provide positive experiences and avoided with those team members who provide negative experiences.

Lin et. al. (2007) found positive relations between social ties and OCB, however they did not use the factors proposed by Williams & Anderson (1991). They measured tie strength through evidence of Closeness, finding Closeness to be an antecedent of OCB's.

Since extra-role behavior, (i.e., OCBO and OCBI) are those which are seen as reaching beyond formal role definitions, they can be perceived by the colleague to be signs of spontaneous interest, be it in the team's well-being or in the colleague's well-being. I hypothesize that:

- Hypothesis 4: OCB and its dimensions have total effects on tie characteristics, i.e., frequency or closeness.

Denrell (ibid) suggests that structural impositions provide opportunities to showcase positive behavior. In other words, even if there were a negative interaction that would explain diminishing interaction, the existence of ties and job requirements gives team members chances to redeem themselves in the eyes of their colleagues. It is logical to assume that the existence of the ties leads to perception of performance of OCB. After all, if there is no interaction, there would be no stage where OCB could be showcased.

Brañas-Garza et al. (2010) performed experiments where individuals could choose whether or not to benefit their colleagues in a network. They found that altruism was related to the position that the person occupied in the network: the most intensely integrated individuals benefitted more people in their experiment.

I hypothesize, therefore, that:

- Hypothesis 5: Tie characteristics have total effects on OCB and its dimensions.

The different effects of tie characteristics on OCBO and OCBI are tested in alternative models to better identify the strongest model. Hypotheses are then tested within the strongest model.

5.4.3. Tie Salience

As the dyad studied is embedded in the context of a team, I hypothesize that this embeddedness affects network characteristics (i.e., frequency and closeness) and OCB. Tie salience is a measure of how different the tie established in the dyad is from the average ties established in the group.

When a group of people is intimately connected, a “clique” is formed. A clique is a group that uses social signals to communicate its expectations in terms of acceptable and desired behavior, as well as to reward and punish those who demonstrate or deviate from these expectations (Krackhardt, 1999). If they were in a perfectly symmetrical group, there would be no asymmetry of information and no edge to be gained. However, given the inherent differences between the individuals in the group and the many possible configurations of relationships, I expect the individuals to organize themselves in the manner which best achieves well-being for themselves while balanced with the worries and expectations of their team.

If a tie is stronger than the other ties established in the group, it provides advantages of information asymmetry and a greater disposition towards trust between the two people in the dyad. As previously cited, Hinds et al (2000) found that there is a preference to bring people to future projects that know each other over unknown people, even when the latter signal greater competence to perform the proposed task.

As Podsakoff et al (2011) indicate, evaluation of OCB is susceptible to cognitive bias. If the tie is salient due to greater intensity, this should signal greater familiarity and/or greater reason for trust, which should make the colleague more susceptible to inflating positive aspects, both in relation their perception of behavior that benefits the group as well as behavior that benefits the colleague in question.

Casciaro & Lobo’s study (2008) showed that sympathy can come before competence whereas, generally, people who are evaluated as nice, but who were less competent, were sought out more for task-based interactions than were those who were more competent but scored lower on being nice. They conclude that colleagues have to like their work partner to seek out the resources that she has to offer, more than simply have slightly positive feelings or maintain neutrality. They suggest that the way people form work relations follows rules of social interaction that are not susceptible to task-contingent characteristics.

I infer from the above that ties which are salient for being less intense will diminish the perception of OCB of the candidate. This also means that there is less chance for the

candidate to showcase OCB and promote frequency and closeness. Conversely, with less closeness and/or frequency than happens among other dyads in the group, there is less presence of OCB.

Kenny (1996) raises the issue of bias in social-interaction studies due to variances associated with actor and partner. He states that different results can appear within data regarding one specific person due to interaction with different people. In other words, variance in the actor's behavior might be more associated with her connection with the partner than simply a matter of personal characteristics, and *visa versa*. In the present study, the colleague is the "actor" and the candidate is the "partner".

Tie salience captures this variance according to different associations of the partner with actors and of different actors with partners within the group.

Tie salience values were found for the complete data set (n=407). It was achieved by first finding the average of the frequency and closeness scores attributed to the candidate by the various colleagues in the team. I then found the average of the scores the colleague attributed to the various candidates in the questionnaire. The difference between these two average scores was found, and then centered using the group's average score and standard deviation. Centering was necessary to capture the experienced effect of deviation from the group's established norm, as the construct supposes that a small deviation from a highly cohesive group can have a similar effect to a large deviation from a highly diverse group, or possibly even a larger effect. Kenny (1996) also describes the presence of bias due to association of the actors and partners to particular groups. By centering tie salience, I am able to account for such bias, although I am not able to pinpoint in the data what the sub-groups are inside the team.

I center at the micro-level, as my interest is only at the group level (i.e., with the values found within the team) and not the context of the whole sample. Through this operation, a new, distinct, variable is created, and not simply a transformation of the original values (Paccagnella, 2006).

This operation is described in the following equations:

$$Tie\ Salience_i = \mu_m - \mu_n$$

$$Centered\ Tie\ Salience_{ij} = \frac{Tie\ salience_{i^o} - \mu_{o_j}}{\sigma_{o_j}}$$

Where:

m = tie value attributed by colleague to teammates

n = tie values attributed to candidate by teammates

i = dyad tie salience values

j = group tie salience values

I hypothesize that:

- Hypothesis 6: Tie salience has total effects on colleague's disposition to provide a job referral.
- Hypothesis 7: Tie salience has direct effects on OCB and its dimensions.

The different effects of tie characteristics on OCBO and OCBI are tested in alternative models to better identify the strongest model. Hypotheses are then tested within the strongest model.

5.5. Control Variables and Paths

Control paths were found through trial and error, observing their impact on model fit indices, as recommended by Williams, Vandenberg & Edwards (2009). These paths were not simply kept or discarded due to statistical significance.

5.5.1. Colleague's Perception of Candidate's Technical Expertise

As described previously, OCB refers to behavior that reaches beyond formal, contract-bound, demands. However, perception of technical expertise should affect disposition to provide a job referral since the development of technical expertise has been found to overcome low social capital in job searches (Casella & Hanaki, 2005).

After all, the candidate would be referred to a job which is defined by a contract that has formal, performance-based demands. According to Hackman (1987), group effectiveness depends on the level of effort the team members dispense collectively to perform the task, the amount of knowledge and skill each member brings to the task and how adequate the task is to the performance strategies that the group will use to perform it. That is to say, team

performance relies on individuals who have something of use to the team and that the team can (or cannot) use in a way that will achieve its goals. A candidate of value, therefore, is one who is technically fit for the task, and recommending this candidate accrues value to the colleague's reputation, as described in the section above in reference to the mechanisms of referral hiring.

Since this variable is expected to be very influential, I test the model with and without it to observe the explanatory power of the other variables.

5.5.2. Colleague's Gender

Several studies show that there is a difference in performance appraisals that can be attributed to gender (Mauer & Taylor, Peters et al., Robbins & Denisi, Terborg & Shingledecker, Wexley & Pulakos *apud* Maas & Torres-González, 2011). In this variable, male = 0 and female = 1.

5.5.3. Colleague's Age

Age is significantly positive in advice centrality (Klein, Lim, Saltz & Mayer, 2004). This shows that there is value in advanced age and, therefore, a possibility of obtaining a referral for a future project.

5.5.4. Colleague's Perception of the Candidate's Personal Network

Kilduff & Krackhardt (1994) found that, when a group has the perception that the individual possesses connections of value, the individual's reputation for offering quality performance grows, even if, in fact, the individual does not possess the perceived connection. They also found that the individual who, in fact, does possess such a valuable connection, but who is not perceived as having it, does not enjoy these benefits.

5.5.5. Relationship Outside of the Project

If the colleague had other experiences with the colleague, be it in parallel institutions (fraternities, church, social projects, other projects in the firm or school), or in previous projects, it is safe to assume that there will be distortions in performance appraisals in regards to the current project. In the present study, two dummy variables are used: if the candidate and colleague currently meet in a different forum and if they have worked together in previous projects (no=0, yes=1).

This can have worrisome implications for Referral Hiring. As shared experience can be a basis for preference – regardless the quality of job performance, as previously cited – simple previous experience might bring into the referral process candidates who are simply average or below par, resulting in higher costs and wastes or even severe damages to the firm that hires them.

6. METHOD

6.1. Population

This study was performed on data obtained through a questionnaire distributed among third-year undergraduate students of Business Administration at a leading business school in Brazil. These students were asked to answer the questionnaire based on their experience in one of two specific group tasks. Both tasks involved intense business decisions and constant team work over the course of a full semester. The two experiences and the respective means of collecting data are described below:

- 1) A business-game simulation, where teams create, produce, distribute, and sell a product. In rounds, the teams were compared and ranked according to performance, with performance weighing on their final grade. This is a highly competitive environment.
- 2) A consulting experience on location, where teams deal with a real problem presented by a company. Students study the problem and generate data from the company's processes with discussions of the case with a mentor who is a professional consultant and finally discuss the proposed solution with the organization's leaders. There is no formal incentive towards competition among groups. They are simply pressured for quality because they are in a real boundary spanning environment with real clients.

No student answered the questionnaire in both groups, nor was any student evaluated in both groups, as the two were entirely separate.

The difference in the nature of the projects and in data collection was controlled for through a dummy control variable, where the consulting experience teams were indicated with the number 1.

6.2. Data collection

Among students in the business-game group, the questionnaire was passed in class, after the final feedback session where the class's performance was compared with strategy theory. Students who were not present at this class were contacted by e-mail and invited to answer the questionnaire. A response rate of 92,3% was achieved with this group.

Among students in the consulting experience group, the questionnaire was sent by email on four occasions throughout the second half of the semester, and two prizes were given to two respondents through a random draw. A response rate of 61,19% was achieved. For this group, a two-tailed t-test was performed on the grades these students achieved to test if the students who answered the questionnaire were different from those who did not. The p-value found was 0,07, so I reject the hypothesis that there is a difference in respondents.

The questionnaire was applied in Portuguese (Appendix I), with a translation of the OCB scale that had been discussed with a professor for readability and revised by three translators, obtaining Cronbach's Alpha of 0,94. (See Appendix II for full report of all reliability statistics.)

Students were asked for personal information (age, gender, satisfaction with the project), information about their teammates (on a likert scale: Contact Frequency, closeness with each colleague, disposition to recommend each teammate to a future project, perception of their teammates' technical expertise and perception of the quality of their teammates' network; with a yes or no: if they had worked together before and if they met in other forums outside the group project). They were then asked to rank their colleagues from the most recommendable to the least recommendable and then provide OCB scores for the most recommendable teammate and the least recommendable teammate.

Self-reported OCB scores were also collected, however the factor analysis on the answers provided weights that were quite different from the factors achieved with peer-related OCB scores, and therefore were found unfit for a satisfactory comparison.

The answers were organized by dyad, providing 470 observations. However, only 203 of these observations had OCB scores. All 470 observations were used to calculate tie salience values, but only the dyads where OCB scores were provided were maintained for the regressions, preserving 203 observations. For the sake of comparison, in the Ordinary Least Squares regressions of network data on the colleagues' disposition to recommend the candidate both the set with $n=470$ and $n=203$ were used, as reported in Table 4. The averages of the dependent variable (i.e., colleague's disposition to recommend the candidate) in both sets were compared and tested, obtaining averages of 2.95 and 2.84, respectively. The difference in averages was not statistically significant (p -value = 0.3073).

This provided a dummy variable that measures the most and least recommendable candidate according to the colleague which could have been used as a proxy for disposition to provide a job referral. Although this can reflect a possible situation where the colleague will have to choose only one of her teammates to recommend to a future project, for several reasons I prefer to use the information obtained on a five point likert scale regarding the candidate's disposition to recommend a teammate.

First, the hypothetical occasion here described can happen repeatedly, and on each occasion the colleague has the option to simply not recommend anyone. The likert scale variable theoretically captures this colleague's preference to refer a teammate over not recommending anyone. If I used most and least recommendable as a proxy for the dependent variable to address the research question, I would not account for bias due to "cluster variance" (Kenny, 1996), where association with a cluster (in this study referred to as "group") can explain variance in the individual's responses. Using the colleague's disposition to provide a job referral at dependent variable captures variations on this disposition, regardless their ranking within the group.

Second, the evaluations the colleague makes of her teammates might be concentrated around high disposition or low disposition, which is correctly paired with the other variables, where the dummy variable can mix relations between the variables and be misleading.

Third, the proposed occasion will also include various specific characteristics of the job opportunity to which the colleague would recommend the candidate and that can influence her choice to make the referral. Since I do not collect information regarding specific job opportunities, the candidate's ranking of her teammates is incomplete. The correlation between this dummy variable and the colleague's general disposition to provide a job referral was 0,604, providing evidence that these are not synonymous.

After all, being most recommendable in a poor group does not necessarily mean that disposition to refer the candidate is high, nor does being least recommendable in a strong group mean that disposition is low.

The questions related to tie qualities were evaluated for reliability as a single scale, obtaining Cronbach's Alpha of 0,854. Further reliability statistics are reported in Appendix II. Inter-item correlations are reported within Table 3.

7. PSYCHOMETRIC PROPERTIES OF THE DATA

7.1. Confirmatory Factor Analysis of OCB Dimensions

OCB was measured through the questionnaire provided in Williams & Anderson (1991). This questionnaire was translated to Portuguese (see Appendix I), discussed with a professor for readability, backtranslated, and revised by three translators. Based on the responses obtained, Cronbach's Alpha achieved for the translation was 0,94 (see Appendix II for complete questionnaire reliability statistics).

After reversing those scores that are reversible, a factor analysis was performed on the data obtained to identify the appropriate loadings for OCBI, OCBO, and IRB. Table 1 compares loadings obtained through Equamax rotation with the loadings reported in Williams & Anderson (ibid).

To test and achieve the three factors described by Williams & Anderson (ibid), I perform a Confirmatory Factor Analysis (CFA). This method is appropriate when seeking to test models already described in theory and which are expected to be present in the data (Anderson & Gerbing, 1988), as well as to test the validity of the expected model (Harrington, 2009).

Table 1 - OCB factor analysis

	Williams & Anderson (1991)			Present Study		
	IRB	OCBI	OCBO	IRB	OCBI	OCBO
1. Adequately completes assigned duties.	<u>0,83*</u>	-0,09	0,20	<u>0,725*</u>	0,472	0,245
2. Fulfills responsibilities specified in job description.	<u>0,88*</u>	0,05	0,00	<u>0,734*</u>	0,402	0,295
3. Performs tasks that are expected of him/her	<u>0,87*</u>	0,01	0,06	<u>0,688*</u>	0,390	0,337
4. Meets formal performance requirements of the job.	<u>0,83*</u>	0,04	-0,09	<u>0,748*</u>	0,415	0,240

5. Engages in activities that will directly affect his/her performance evaluation.	<u>0,52*</u>	0,12	-0,11	<u>0,542*</u>	0,504	0,247
6. Neglects aspects of the job he/she is obligated to perform. (R)	<u>0,64*</u>	-0,04	0,22	<u>0,452*</u>	0,000	<u>0,477</u>
7. Fails to perform essential duties. (R)	<u>0,72*</u>	-0,05	0,04	<u>0,644*</u>	0,148	0,406
8. Helps others who have been absent.	-0,11	<u>0,75*</u>	0,17	0,308	<u>0,705*</u>	0,252
9. Helps others who have heavy work loads.	0,07	<u>0,73*</u>	0,14	0,289	<u>0,683*</u>	0,328
10. Assists supervisor with his/her work (when not asked).	0,21	<u>0,42*</u>	0,17	0,315	<u>0,578*</u>	0,218
11. Takes time to listen to co-workers' problems and worries.	-0,10	<u>0,75*</u>	0,01	0,237	<u>0,770*</u>	0,204
12. Goes out of way to help new employees.	0,08	<u>0,82*</u>	-0,17	0,274	<u>0,798*</u>	0,214
13. Takes a personal interest in other employees.	0,00	<u>0,77*</u>	0,01	0,363	<u>0,730*</u>	0,206
14. Passes along information to co-workers.	0,24	<u>0,57*</u>	0,01	0,470	<u>0,504*</u>	0,146
15. Attendance at work is above the norm.	0,00	0,17	<u>0,58*</u>	<u>0,269</u>	0,194	0,205*
16. Give advance notice when unable to come to work.	-0,12	-0,04	<u>0,80*</u>	0,430	<u>0,476</u>	0,289*
17. Takes underserved work breaks. (R)	0,20	0,02	<u>0,57*</u>	0,294	0,114	<u>0,683*</u>
18. Great deal of time spent with personal phone conversations. (R)	0,18	0,01	<u>0,36*</u>	0,120	0,170	<u>0,525*</u>
19. Complains about insignificant things at work. (R)	0,10	0,13	<u>0,35*</u>	0,000	0,131	<u>0,708*</u>
20. Conserves and protects organizational property.	0,21	0,10	0,12*	0,396	<u>0,560</u>	0,231*
21. Adheres to informal rules devised to maintain order.	0,18	0,20	<u>0,36*</u>	0,291	<u>0,401</u>	0,237*
Eigenvalue (unrotated solution)	8,37	2,29	1,57	4,374	5,098	2,62
Percent variance explained	0,399	0,109	0,075	0,208	0,242	0,124
Cumulative percent variance explained	0,399	0,508	0,583	0,208	0,451	0,575

Note: * indicates the loading expected by Williams & Anderson (ibid) to be highest for each item. Underlined items were used in IRB, OCBO, and OCBI scales.

Total cumulative variance of the data in the present study under the CFA for three factors is similar to those found by Williams & Anderson (ibid).

CFA was also performed on the items associated with each factor to test their explanatory power. IRB was found to have an explanatory power of 62,42%, OCBI has an explanatory power of 56,04%, and OCBO explains 42,16%. Cronbach's alpha was found among the items that had heaviest loadings in each factor: IRB presented an alpha of 0,872, OCBI presented an alpha of 0,925, and OCBO presented an alpha of 0,734. The complete OCB scale's alpha is 0,94. This is evidence of strong convergent validity.

As reported in Table 3, correlation among these factors is very high, nearly reaching 1.0. This shows that among the factors there is little evidence of discriminate validity. In other words, these factors should not be treated as distinct constructs. They seem to be aspects of one single construct: Organizational Citizenship Behavior. As will be demonstrated below, such high correlation difficultly analysis through OLS. In the analyses, I find that OCB is directly associated with the disposition to provide job referrals, but none of the factors are necessary conditions for the job referral. To achieve answers to the research question from these factors, I use path analysis to better isolate their effects.

It is worth noting that IRB has the same exact same correlation to OCBO as it does to OCBI, which could be evidence that there is a distinction between In-Role Behavior from Extra-Role Behavior. The same happens with the correlation of Total OCB with these dimensions.

To avoid confusion, I refer to these factors as OCB dimensions.

Certain deviations from Williams & Anderson's (ibid) factor analysis in the present study deserve analysis. Although both studies are performed with students, the object students are invited to appraise has different characteristics. These authors study MBA students' experience on the job, while I study business school students' relationship with each other in a primordially academic setting. In the context studied, students are free to assign tasks amongst themselves, far from the authority of the professor, which could explain the deviance in item 6. Since these students are physically present in the school for a series of activities, of which the projects here studied are only one, I understand that attendance is perceived as task-related, which means that item 16 refers to commitments to meetings which can be set between certain team members to perform specific tasks, instead of a general notion of attendance at work. This can also explain how item 21 has a greater loading in OCBI than OCBO. Item 15, regarding attendance, is formally controlled in class, which can explain how it is grouped best in IRB.

It is also worth noting that OCBO is left with four items, all of which are reversed. This means that team members who neglect hindering the group through negligence and absence score higher on the OCBO scale. Although this imposes a double negative in the analysis, I preserve the reversed score and the factor loadings to maintain common ground with Williams & Anderson's (ibid) study instead of incorporating these items in their original scores as a proxy for counterproductive activity. As described at the end of this study, inclusion of the Counterproductive Work Behavior scale (Spector & Fox, 2003; Spector et. al., 2006; Spector et al, 2010; Podsakoff et. al., 2011) should identify if the dimension associated with behavior

that is harmful or if it is unique because the behavior is directed toward the group. Since there is a reversible item that did not enter this dimension, in the present study I treat OCBO results according to the definition proposed by Williams & Anderson (ibid).

7.2. Data Summary

Table 2 reports variable means and standard deviations. The scales' reliability statistics are described in Appendix II. Table 3 reports Pearson Correlations for the variables in the model.

The colleague's disposition to provide a job referral is significantly strongly correlated with her perception of candidate's technical expertise. Additionally, there is significantly strong correlation with the various forms of OCB.

Closeness and Frequency are significantly strongly correlated also, which might indicate that they are facets of the same construct. This reflects the similarities in the previous description of these variables. Due to the theory described previously, there is still value in maintaining both in the model, as proximity theoretically does not require frequent interaction to be present without frequent interaction and frequency captures formal job impositions of the function without necessarily supposing there is a basis for trust. Although in practice both variables should be expected to appear together, they are not mutually exclusive and can be a basis for the increase or decrease of the other.

Different from what Williams & Anderson (1991) observed, I found no evidence that OCBI, OCBO, and IRB are separate constructs in their correlations. On the contrary, they are very closely correlated, which indicates that they are facets of the same construct. They are also closely correlated to Total OCB scores. Therefore, in the models tested, I include comparisons with models where OCB is accounted for only by Total OCB. This accounts for their lack of significance in the following Ordinary Least Squares analysis when placed together, regardless the importance of Total OCB.

Colleague's perception of candidate's technical expertise has significantly strong correlations with OCB.

Table 2 - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Project class	203	0	1	,40	,492

Colleague's age	203	19	24	21,12	1,245
Colleague's gender, 0=male, 1=female	203	0	1	,34	,476
Colleague's level of satisfaction	203	0	4	1,66	1,156
Meeting on other occasions, 0=no, 1=yes	203	0	1	,14	,346
Contact in previous projects 0=no, 1=yes	203	0	1	,23	,420
Perception of candidate's network	203	0	3	2,02	,850
Perceived technical expertise	203	0	4	3,07	1,143
Contact Frequency	203	0	4	2,81	1,193
Perceived closeness	203	0	4	2,83	,962
Total OCB	203	25,000000	105,000000	76,52259951	19,307031439
OCBI	203	10,912000	45,725000	33,33930167	8,477368837
OCBO	203	7,759000	33,465000	24,35404555	6,245350622
IRB	203	10,743000	42,945000	31,42424397	8,039895691
Colleague's disposition to recommend candidate	201	,0000000	4,0000000	2,840796020	1,3944631093
Valid N (listwise)	201				

8. DATA ANALYSIS

8.1. Analysis Through Ordinary Least Squares

As a preliminary test of hypotheses 1, 2, and 3, I perform Ordinary Least Square regressions of the variables on the colleague's disposition to give a job referral. Results are reported in Table 4.

Significant impact is observed of colleague's perception of candidate's technical expertise on her disposition to provide a referral. As this variable is consistently highly significant on the dependent variable, regressions are reported here without this control variable to verify if the observed R^2 is due to its strong importance.

Since the best relations among variables were found through trial and error, I indicate the variables and relations that achieve p -value $< 0,1$ to track fluctuating significance to better track important relations. However, I do not find in such a p -value basis to reject null hypotheses.

Table 3 – Matrix of Pearson Correlation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Project class	1	,229***	,079	-,096	-,230***	-,043	,079	-,145**	-,155**	,204***	,204***	,220***	,196***	,051	,130	,107	,058
(2) Colleague's age	,229***	1	-,019	-,015	-,165**	,002	,004	-,081	-,107	,020	,014	,030	,012	-,014	-,019	-,020	,008
(3) Colleague's gender	,079	-,019	1	,101	,177*	,008	,080	,126	,087	,129	,131	,138**	,130	,041	,117	,128	,068
(4) Meeting on other occasions	-,096	-,015	,101	1	,500***	,142**	,062	,281***	,295***	,058	,069	,050	,064	,000	,169**	,079	,015
(5) Contact in previous projects	-,230***	-,165**	,177**	,500***	1	,085	,120	,374***	,355***	,146**	,153**	,134	,155**	,066	,121	,071	,096
(6) Candidate's network	-,043	,002	,008	,142**	,085	1	,483***	,448***	,416***	,394***	,393***	,399***	,402***	,195***	,285***	,189***	,473***
(7) Perceived technical expertise	,079	,004	,080	,062	,120	,483***	1	,519***	,543***	,692***	,683***	,696***	,688***	,555***	,387***	,311***	,772***
(8) Contact Frequency	-,145**	-,081	,126	,281***	,374***	,448***	,519***	1	,825***	,405***	,386***	,420***	,411***	,237***	,368***	,291***	,484***
(9) Perceived closeness	-,155**	-,107	,087	,295***	,355***	,416***	,543***	,825***	1	,373***	,359***	,383***	,380***	,221***	,255***	,342***	,513***
(10) Total OCB	,204***	,020	,129	,058	,146**	,394***	,692***	,405***	,373***	1	,995***	,995***	,996***	,450***	,405***	,368***	,789***
(11) OCBI	,204***	,014	,131	,069	,153**	,393***	,683***	,386***	,359***	,995***	1	,984***	,991***	,432***	,395***	,357***	,777***
(12) OCBO	,220***	,030	,138**	,050	,134	,399***	,696***	,420***	,383***	,995***	,984***	1	,991***	,455***	,412***	,370***	,793***
(13) IRB	,196***	,012	,130	,064	,155**	,402***	,688***	,411***	,380***	,996***	,991***	,991***	1	,441***	,398***	,362***	,789***
(14) Technical Expertise salience	,051	-,014	,041	,000	,066	,195***	,555***	,237***	,221***	,450***	,432***	,455***	,441***	1	,514***	,424***	,538***
(15) Frequency tie salience	,130	-,019	,117	,169**	,121	,285***	,387***	,368***	,255***	,405***	,395***	,412***	,398***	,514***	1	,741***	,384***
(16) Closeness tie salience	,107	-,020	,128	,079	,071	,189***	,311***	,291***	,342***	,368***	,357***	,370***	,362***	,424***	,741***	1	,385***
(17) Colleague's disposition to recommend candidate	,058	,008	,068	,015	,096	,473***	,772***	,484***	,513***	,789***	,777***	,793***	,789***	,538***	,384***	,385***	1

Equations 1 and 2 present a regression of the variables that are hypothesized to have an effect on candidate's disposition to provide a referral. Equations 1 and 5 test OCB dimensions' statistical significance, while equations 2 and 6 test for OCB significance as a single score (Hypothesis 1). Equations 8, 9, and 10 perform similar tests, though without including Technical Expertise, since this variable is quite significant in Equations 1 through 7.

Hypothesis 1 seems to be sustained in equations 2 and 6. OCB dimensions's significance are not sustained in equations 1 and 5, even though these factors are highly correlated with Total OCB. There is little change in the significance of the parameters observed in for variables when comparing these equations, while removal of OCB variables from the equations reduces the model's explanatory power. It seems that OCB is a necessary condition for the candidate to provide a job referral, though the same cannot be said of each OCB dimension.

Disregarding the OCB factors due to lack of significance might be a Type II error induced by multicollinearity. Note that model fit is not lost when using OCB dimensions. I use structural equations to estimate simultaneous effects between variables to seek clarity as to the actual significance of OCB and its dimensions to colleagues' disposition to provide job referrals and the relations of these dimensions with other variables considered in this study. Equations 1 through 4 test for significance of network characteristics, i.e., frequency and closeness, as well as salience in both types of network. Equations 3, 4, and 7 compare the importance of the variables in the base that was used with OCB scores and the complete data base, regardless OCB scores provided. These equations do not include OCB scores, and hence allow for this comparison. There is difference in significance of variables and adjusted R^2 , which suggests that a more comprehensive evaluation of all team members should provide a stronger analysis than those performed only on those team members deemed most and least recommendable.

With the exception of equation 3, Closeness is highly significant, while Frequency does not achieve statistical significance. In this same equation, Closeness Tie Salience is significant. This variable achieves a p-value $< 0,0001$ when regressed using the complete database. This is expected because the database provides a richer spectrum of Tie Salience within teams.

Technical expertise is highly significant in equations 1 through 7. This seems to show that technical expertise is the most important reason to recommend a candidate. For this reason, control paths leading technical expertise to network characteristics and OCB were estimated in the structural analysis. However, explanatory power remains above 70% in

Table 4 - Ordinary Least Squares Analysis

Dependent variable: colleague's disposition to provide a job referral													
	(1)	(2)	(3a)	(3b)	(4a)	(4b)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)
	n=203	n=203	n=203	n=470	n=203	n=470	n=203	n=203	n=203	n=470	n=203	n=203	n=470
Intercept	-2,048**	-2,1441**	-0,6502	-0,1319	-0,8578	-0,3324	-1,7028*	-1,7892*	-0,4359	0,1932	-2,578***	-2,461**	1,8415**
Project Class	-0,2187*	-0,2033*	0,0224	-0,0672	0,0701	-0,0563	-0,248**	-0,2379**	0,0204	-0,1679*	-0,2025*	-0,2263*	0,0195
Colleague's age	0,0198	0,0212	0,0194	0,0086	0,0165	0,0095	0,0094	0,0111	0,0087	0,0061	0,0292	0,0271	-0,0168
Colleague's gender (0=masc, 1=fem)	-0,0657	-0,0569	-0,0142	-0,0327	0,0232	0,0064	-0,0532	-0,0406	0,031	-0,0012	-0,0556	-0,0694	0,1485
Do colleague and candidate meet in other occasions? (0=no, 1=yes)	-0,243	-0,2652	-0,3397	-0,1519	-0,3472	-0,1649	-0,1657	-0,1844	-0,2645	-0,0342	-0,3734**	-0,3533*	-0,1906
Has colleague worked previously with candidate? (0=no, 1=yes)	-0,1329	-0,1466	0,0395	-0,1925**	0,019*	-0,2427**	-0,0814	-0,0828	0,1117	-0,04	-0,204	-0,1866	0,1022
Colleague's perception of the quality of candidate's network	0,1116	0,1159	0,188	0,1547***	0,1877**	0,1559***	0,1334*	0,1457**	0,2297***	0,2268****	0,1875**	0,1838**	0,6812****
Colleague's perception of candidate's technical expertise	0,402****	0,3979****	0,755****	0,6373****	0,7732****	0,6375****	0,4678****	0,4741****	0,8532****	0,7298****			
Perceived closeness of colleague to candidate	0,2136**	0,2194**	0,114	0,1406*	0,1912**	0,2122***					0,4024	0,3969***	
Frequency of colleague's contact with candidate	-0,0532	-0,0353	0,0359	0,1157*	0,022	0,1052*					-0,0535	-0,0706	
Perceived closeness tie salience	0,1179	0,1141	0,2308**	0,1898****							0,0403***	0,0466	
Frequency tie salience	-0,0319	-0,0302	-0,0361	-0,0174							0,0581	0,0544	
OCBI	-0,0311						-0,0476					-0,0096	
OCBO	0,0742						0,0888					0,1054	
IRB	0,0625						0,0707					0,0445	
Total OCB		0,0357****						0,0366****			0,0476****		
R2	0,7567	0,7537	0,6414	0,5704	0,6248	0,5532	0,7416	0,7367	0,6127	0,518	0,7124	0,7146	0,2242
Adjusted R2	0,7386	0,7382	0,6208	0,5601	0,6073	0,5445	0,7281	0,7258	0,5988	0,5107	0,6958	0,695	0,2141
F	41,77****	48,46****	31,06****	55,29****	35,7****	63,29****	55,09****	67,85****	44,07****	70,92	43,01****	36,4****	22,3****
Df	188	190	191	458	193	460	192	194	195	462	191	189	463

* p-value < 0,1; ** p-value <0,05; *** p-value <0,01; **** p-value<0,001

Equations 8 and 9, where technical expertise was ignored, indicating the strength of the remaining statistically significant variables.

Colleague's perception of candidate's network fluctuates in importance. Statistical importance is achieved mostly when OCB or technical expertise are not present. This sensitivity to the evaluation of technical expertise and performance appraisal is consistent with Kilduff & Krackhardt's (1994) finding that the perception of a high-quality network affects the evaluations made of technical expertise and job performance. I address this result in the section regarding suggestions for future research.

Contact in previous projects is significant in equations 3b and 4b. Although the sample in these equations is complete, significance cannot be attributed solely to this feature, as it is lost in equation 10. Significance in equations including OCB dissipates, which might indicate that OCB captures somewhat of the same elements. In the discussion regarding OCB dimensions, it was suggested that OCBO might actually be associated with counterproductive behavior. Shared previous experience would provide more chances for counterproductive behavior to appear, and hence would be reason for hesitance in providing a job referral. Deeper insight into the importance of this variable will be clear in the SEM analysis.

Gender and age are not significant in these equations. It would seem that colleagues are not sensitive to these issues. Age could possibly not vary enough within the groups to capture the colleagues' sensibility. Although gender in itself is not a sensitive issue, I suggest in the recommendation for future research that gender homophily be included.

8.2. Analysis through Structural Equations

As explained previously, there is theoretical reason to believe that OCB and network characteristics interact. The fluctuations reported above in OCB significance and its weight in achieving stronger explanatory power for the models also indicate that deeper investigation into these associations is in order.

Structural Equation Modeling provides analyses of relations among variables, mapping out a system of associations. These associations can be direct, where the association between one variable and another is described through a parameter, or indirect, where the association of a variable with another follows through direct associations of these variables with others. The sum of direct effects and indirect effects is called Total Effect (Bollen, 1989).

Factor loadings were applied to the OCB questionnaire manually to generate the variables used in the OLS analyses. To maintain comparability, these same values were kept in the SEM analysis. Models were also tested leaving OCB items connected to latent variables. These models were undefined, most likely due to sample size.

I use IBM SPSS Amos 19 to estimate the parameters in the full model with interaction between OCB factors and tie characteristics of the dyad moderated by tie salience as presented in Figure 3. Estimations are done through Maximum Likelihood.¹

Maximum Likelihood Estimations are asymptotically unbiased and efficient, as well as scale scale free. It is useful as an exploratory tool, as it provides basis for comparison between models. However, parameters are correlated, so the configuration of restrictions can affect the significance of the parameters found (Bollen, 1989).

To better identify the appropriate model to answer the research question, I estimate variations on the model represented in Figure 3. Tables 5 and 6 report fit indices, and the parameter estimations for several models, where table 5 reports the model estimated with total OCB and table 6 reports the model estimated with OCB dimensions.

Models 1 and 4 are constrained model, where effects of the variables on the colleague's disposition to provide a job referral are estimated without the hypothesized relations among interest variables.

Models 1, 2, and 3 use Total OCB, while the remaining models test the relations between network characteristics and OCB dimensions. Since there is no clear reason to associate In-Role Behavior (IRB) and Extra-Role Behavior (OCBO and OCBI) to Contact Frequency or Perceived Closeness, several combinations were estimated. I find that the strongest model was one where Extra-Role Behavior is associated with Perceived Closeness and In-Role Behavior is associated with Contact Frequency.

Model 9 is similar to Model 5, with the only difference being the absence of the relation between Frequency Tie Salience and Closeness Tie Salience. As reported in Table 6, there is considerable improvement in the model and a shift in the dynamics of significant relations in the model with the introduction of this connection.

8.2.1. Fit Indices

¹ I attempted estimations through Generalized Least Squares, however these models often were unidentified, requiring more restrictions than were available in the data. In the section where I suggest future research, I provide a solution to generate homophily variables that might achieve better results for estimations through Generalized Least Squares.

Along with estimations of the proposed model (also termed the “default model” in SEM literature), Amos estimates a “Saturated Model” and an “Independence Model”. The Saturated Model has no constraints placed on population moments and therefore fits the the data set perfectly – but does not represent any specific test of significance of these relations. The Independence Model fixes the means of all variables at 0 and assumes that the variables are uncorrelated, providing the poorest fit for the variables in the model.

Simply put, models that have fit indices closest to the Saturated Model and farthest from the Independence model are the best (Arbuckle, 2010). The fit indices consulted in the present study are listed and commented below, as presented by Arbuckle (*ibid*):

- **CMIN:** Minimization of the discrepancy function C between the covariance matrix for model S (according to the sample) and the implied covariance matrix Σ (for the population). This value corresponds to the chi-squared value calculated for the model. The preferred model should have the lowest CMIN.
- **CMIN/DF:** Considering that different values of degrees of freedom imply different significance levels for the Chi-Square estimated, it is accepted to find the value of CMIN divided by the model’s degrees of freedom. This adds a reward for parsimony to the CMIN index.
- **FMIN:** Minimization of the discrepancy function F , similar to CMIN. Tables 5 and 6 report the distance between the FMIN estimated for the default model and the independence model, where the largest Δ FMIN indicates the model with best fit.
- **NFI (Normed Fit Index):** This index compares the discrepancy functions C and F with those of the independence model, with values ranging between 0 and 1. Values closest to 1 are farthest from the Independence Model and, hence, fit better.
- **CFI Comparative Fit Index):** Similar to NFI, this index includes a reward for parsimony through inclusion of degrees of freedom. Models with values closest to 1 fit better.
- **RMSEA (Root Mean Square Error of Approximation):** This index calculates discrepancy functions, but using population moments instead of sample moments. This value also includes a lower and upper range, as the value is implied, although not reported in the table to preserve readability. RMSEA finds

Table 5 - Structural Equations Analysis using Total OCB

		(1)	(2)	(3)
Control Paths	Disposition for job referral ← Project class	-0,204**	-0,204**	-0,204**
	Disposition for job referral ← Colleague's age	0,021	0,021	0,021
	Disposition for job referral ← Colleague's gender	-0,057	-0,057	-0,057
	Disposition for job referral ← Contact in previous projects	-0,147	-0,147	-0,147
	Disposition for job referral ← Meeting on other occasions	-0,265	-0,265	-0,265
	Disposition for job referral ← Perception of candidate's network	0,115*	0,115*	0,115*
	Disposition for job referral ← Perceived technical expertise	0,0398****	0,0398****	0,398****
	Meeting on other occasions ← Frequency tie salience	0,039*	0,02	0,023
	Total OCB ← Perceived technical expertise	11,684****	12,762****	12,739****
	Contact Frequency ← Perceived technical expertise	0,382****	1,004****	0,981****
	Contact Frequency ← Contact in previous projects	0,798****	1,019****	1,004****
	Contact Frequency ← Perception of candidate's network	0,336****	0,442****	0,438****
	Contact Frequency ← Meeting on other occasions	0,203	0,059	0,081
	Meeting on other occasions ← Total OCB	-0,001	0,001	0,001
	Meeting on other occasions ← Contact in previous projects	0,408****	0,401****	0,401****
	Perceived closeness ← Perception of candidate's network	0,432****	0,089	0,086
	Perceived closeness ← Meeting on other occasions	0,67****	0,693***	0,69***
Interest variables	Closeness tie salience ← Perceived closeness	0,164****	0,103*	0,278****
	Frequency tie salience ← Contact Frequency	0,314****	0,313****	0,265****
	Closeness tie salience ← Frequency tie salience	0,648****	0,683****	
	Disposition for job referral ← Total OCB	0,036****	0,036****	0,036****
	Disposition for job referral ← Contact Frequency	-0,036	-0,036	-0,036
	Disposition for job referral ← Perceived closeness	0,22****	0,22**	0,22**
	Disposition for job referral ← Closeness tie salience	0,115	0,115	0,115**
	Disposition for job referral ← Frequency tie salience	-0,03	-0,03	-0,03
	Total OCB ← Perceived closeness		-45,684****	-44,405****

	Total OCB ← Contact Frequency		36,039****	35,502****		
	Perceived closeness ← Total OCB		0,038****	0,39****		
	Contact Frequency ← Total OCB		-0,057****	-0,055****		
	Total OCB ← Frequency tie salience		-10,155****	-6,099***		
	Total OCB ← Closeness tie salience		14,725****	8,24****		
Model fit indices		CMIN	383,157	166,752	330,905	
			CMIN/DF	7,229	3,548	6,894
			NFI	0,687	0,864	0,730
			CFI	0,712	0,895	0,753
			FMIN Default model	1,897	0,826	1,638
			FMIN Independence model	6,058	6,058	6,058
			Δ FMIN	4,161	5,232	4,420
			RMSEA Default model	0,176	0,112	0,171
			RMSEA Independence model	0,270	0,270	0,270
			Δ RMSEA	0,094	0,158	0,099
			MECVI default model	2,439	1,432	2,234
			MECVI independence model	6,334	6,334	6,334
			Δ MCVI (independence - default)	3,895	4,902	4,100
		MCVI saturated model	1,106	1,106	1,106	
		Δ MCVI (default - saturated)	1,333	0,326	1,128	
* p-value < 0,1; ** p-value <0,05; *** p-value <0,01; **** p-value<0,001. The model with best fit is indicated with a strong border.						

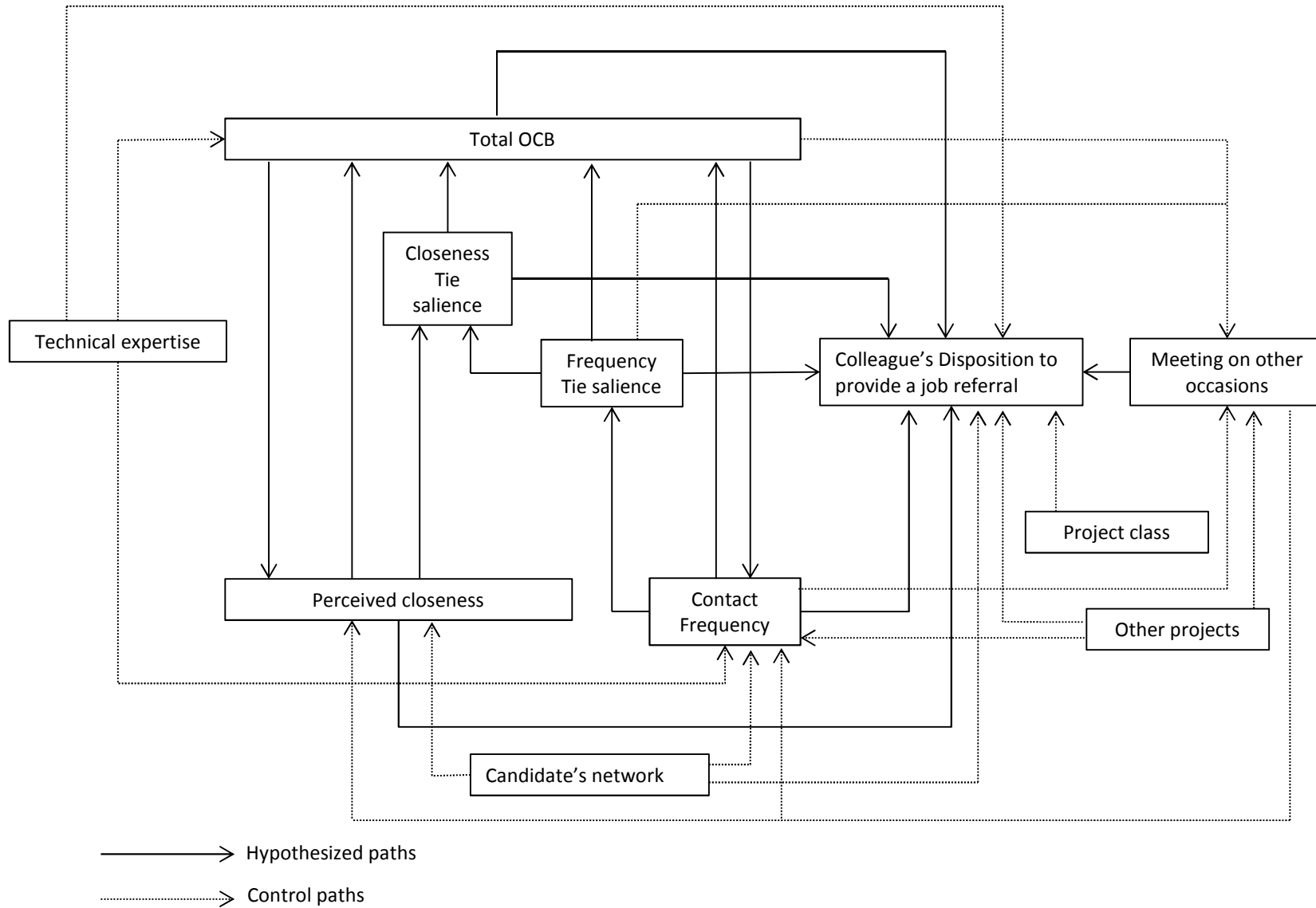
Table 6- Structural Equations Analysis using OCB Dimensions

		(4)	(5)	(6)	(7)	(8)	(9)
Control Paths	Disposition for job referral ← Project class	-0,22**	-0,22**	-0,22**	-0,22**	-0,22**	-0,22**
	Disposition for job referral ← Colleague's age	0,2	0,2	0,2	0,2	0,2	0,2
	Disposition for job referral ← Colleague's gender	-0,66	-0,66	-0,66	-0,66	-0,66	-0,066
	Disposition for job referral ← Contact in previous projects	-0,133	-0,133	-0,133	-0,133	-0,133	-0,133
	Disposition for job referral ← Meeting on other occasions	-0,243	-0,243	-0,243	-0,243	-0,243	-0,243
	Disposition for job referral ← Perception of candidate's network	0,111*	0,111*	0,111*	0,111*	0,111*	0,111*
	Disposition for job referral ← Perceived technical expertise	0,402****	0,402****	0,402****	0,402****	0,402****	0,402****
	Meeting on other occasions ← Frequency tie salience	0,042**	-19,391	4,886	0,073	0,04*	-21,848
	OCBI ← Perceived technical expertise	5,065****	1,523	-1,086	4,597**	4,909**	0,649
	OCBO ← Perceived technical expertise	3,802****	5,801***	4,889**	3,34**	3,604**	5,681***
	IRB ← Perceived technical expertise	4,837****	-34,621	181,66	3876,285	4270,651	-14,993*
	Contact Frequency ← Perceived technical expertise	0,382****	0,633	0,202	0,745	0,382****	0,606
	Contact Frequency ← Contact in previous projects	0,801****	-11,204	1,228**	-7,716	0,793****	-11,285
	Contact Frequency ← Perception of candidate's network	0,336****	-1,25	0,3	-1,15	0,335****	-1,265
	Contact Frequency ← Meeting on other occasions	0,196	29,352*	0,837	18,057	0,214	29,526*
	Meeting on other occasions ← OCBI	0,014****	136,731	-37,693	-0,18	0,03	138,396
	Meeting on other occasions ← OCBO	-0,019****	193,063	-53,162	-0,295	0,003	195,941
	Meeting on other occasions ← IRB	-0,002	-293,975	81,011	0,416	-0,037	-297,831
	Meeting on other occasions ← Contact in previous projects	0,402****	70,551	-18,816	0,301***	0,41****	71,834
	Hypothesized Paths	Perceived closeness ← Perception of candidate's network	0,432****	0,154	-0,172	0,432****	-0,963
Perceived closeness ← Meeting on other occasions		0,67****	1,54**	9,144****	0,67****	-5,441	1,579**
Closeness tie salience ← Perceived closeness		0,164****	0,115*	0,114*	0,164****	0,116**	0,544****
Frequency tie salience ← Contact Frequency		0,314****	0,654***	0,61****	0,647****	0,314****	0,703****
Closeness tie salience ← Frequency tie salience		0,648****	0,656****	0,66****	0,648****	0,66****	
Hypothesized Paths	Disposition for job referral ← OCBI	-0,032****	-0,032	-0,032	-0,032	-0,032	-0,032
	Disposition for job referral ← OCBO	0,074****	0,074	0,074	0,074	0,074*	0,074

	Disposition for job referral ← IRB	0,063****	0,063	0,063	0,063	0,063	0,063
	Disposition for job referral ← Contact Frequency	-0,054	-0,054	-0,054	-0,054	-0,054	-0,054
	Disposition for job referral ← Perceived closeness	0,214****	0,214****	0,214****	0,214****	0,214****	0,214****
	Disposition for job referral ← Closeness tie salience	0,118	0,118	0,118	0,118	0,118	0,118**
	Disposition for job referral ← Frequency tie salience	-0,32	-0,32	-0,32	-0,32	-0,32	-0,032
	OCBI ← Perceived closeness		7,512			-0,509	7,58
	OCBO ← Perceived closeness		-5,23			-0,236	-4,175
	IRB ← Perceived closeness			-412,199		-9925,783	
	OCBI ← Contact Frequency			7,808	0,062		
	OCBO ← Contact Frequency			-1,881	0,23		
	IRB ← Contact Frequency		32,696		-5144,539		24,917**
	Perceived closeness ← OCBI		-1,806****			-10,086	-1,879****
	Perceived closeness ← OCBO		2,493****			-13,685	2,583****
	Perceived closeness ← IRB			0,03		21,386	
	Contact Frequency ← OCBI			-1,656****	-3,09		
	Contact Frequency ← OCBO			2,249****	-3,307		
	Contact Frequency ← IRB		0,062		5,879		0,069
	OCBI ← Frequency tie salience			5,492	1,243		
	OCBO ← Frequency tie salience			-0,194	0,964		
	IRB ← Frequency tie salience		51,725		-3100,486		18,097**
	OCBI ← Closeness tie salience		0,422			1,489**	3,651
	OCBO ← Closeness tie salience		1,502**			1,172**	0,111
	IRB ← Closeness tie salience			44,202		1034,118	
Model fit indices	CMIN	1780,4	403,825	440,463	986,808	939,705	544,215
	CMIN/DF	24,059	6,213	6,776	15,182	14,457	8,246
	NFI	0,382	0,860	0,847	0,658	0,674	0,811
	CFI	0,386	0,878	0,865	0,668	0,685	0,828
	FMIN Default model	8,814	1,999	2,181	4,885	4,652	2,694

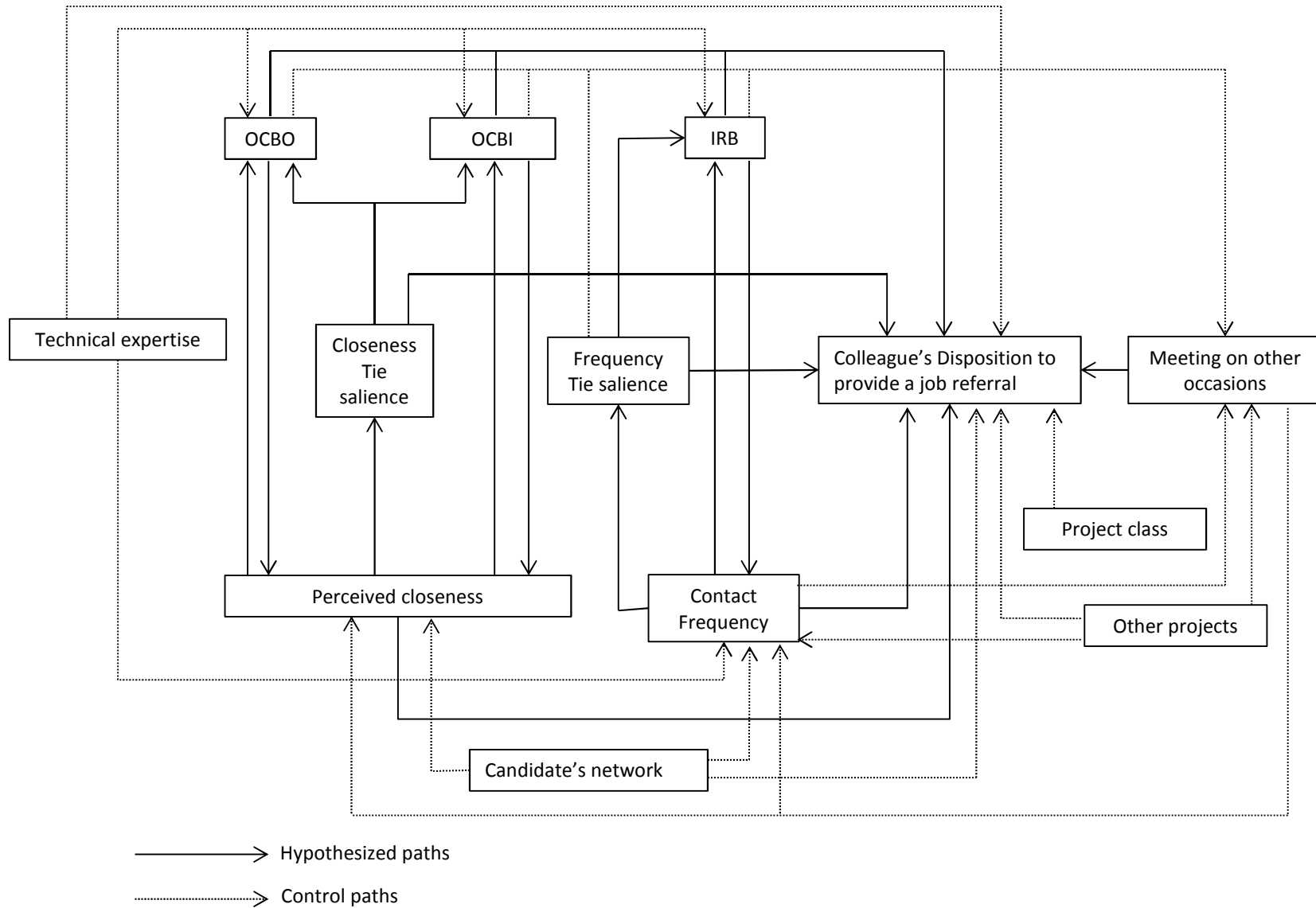
FMIN Independence model	14,272	14,272	14,272	14,272	14,272	14,272
Δ FMIN	5,458	12,273	12,091	9,387	9,620	11,578
RMSEA Default model	0,338	0,161	0,169	0,265	0,258	0,189
RMSEA Independence model	0,362	0,362	0,362	0,362	0,362	0,362
Δ RMSEA	0,024	0,201	0,193	0,097	0,104	0,173
MECVI default model	9,470	2,752	2,933	5,638	5,405	3,436
MECVI independence model	14,594	14,594	14,594	14,594	14,594	14,594
Δ MCVI (independence - default)	5,124	11,842	11,661	8,956	9,189	11,158
MCVI saturated model	1,452	1,452	1,452	1,452	1,452	1,452
Δ MCVI (default - saturated)	8,018	1,300	1,481	4,186	3,953	1,984

* p-value < 0,1; ** p-value <0,05; *** p-value <0,01; **** p-value<0,001. The model with best fit is indicated with a strong border.



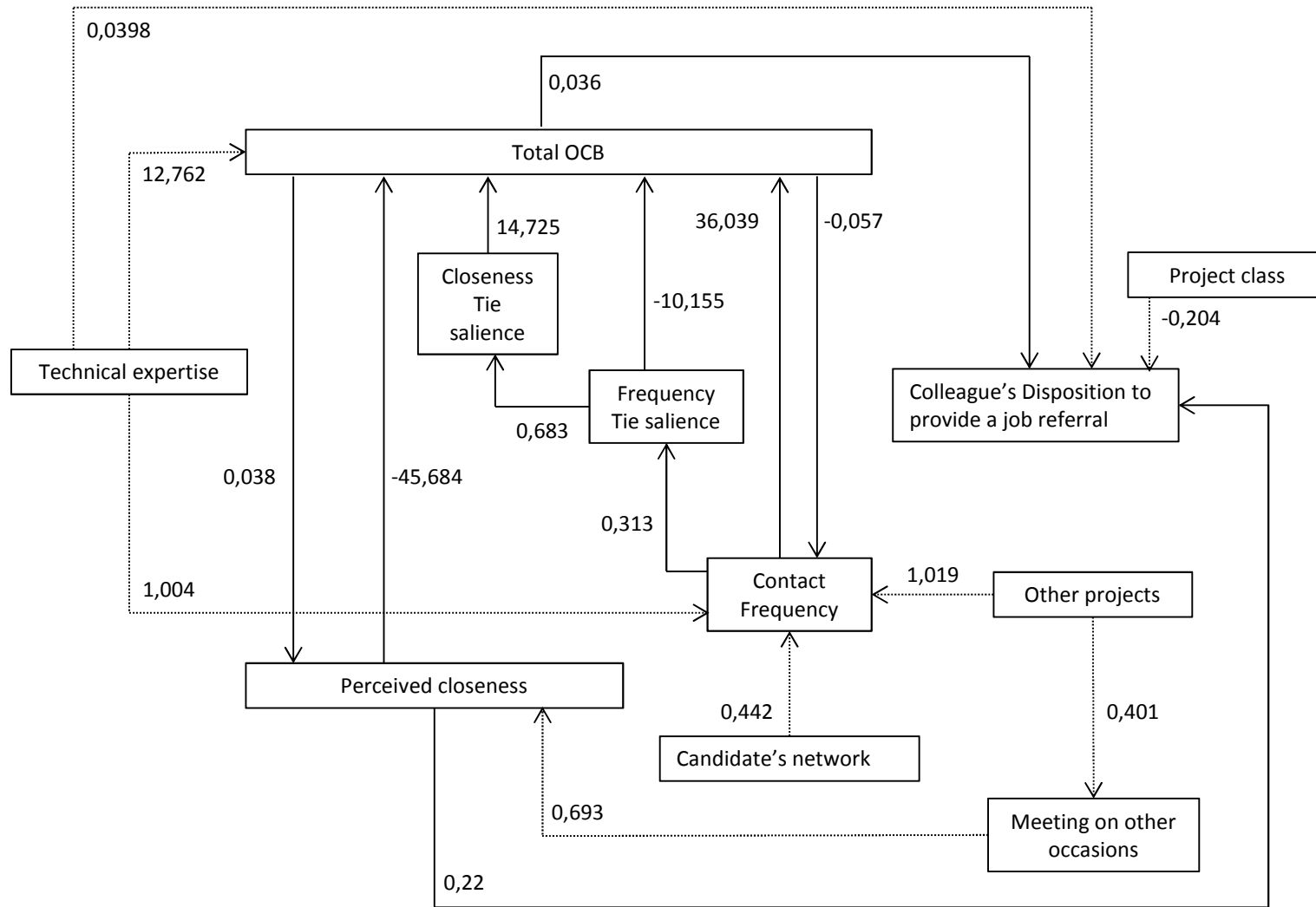
Colleague's Age and Gender were also tested on Colleague's disposition to provide a job referral as control paths.

Figure 3 - Representation of Model 2, with Total OCB



Colleague's Age and Gender were also tested on Colleague's disposition to provide a job referral as control paths.

Figure 4 - Representation of Model 5 with OCB dimensions

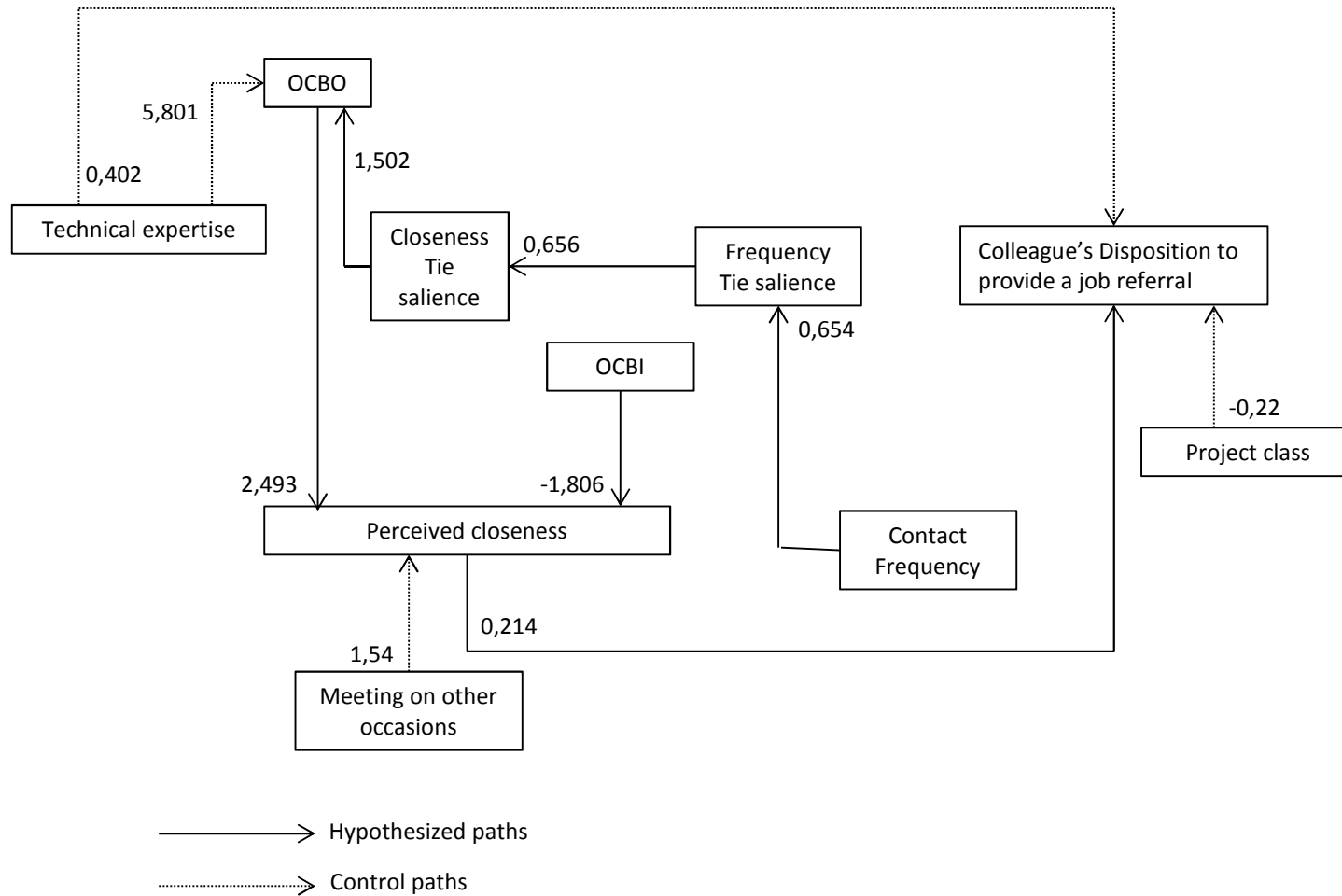


—————> Hypothesized paths

.....> Control paths

Colleague's Age and Gender were non-significant on Colleague's disposition to provide a job referral.
 Non-significant paths are reduced to zero.

Figure 5 - Model 2: Paths with significant parameters as estimated



Colleague's Age and Gender were non-significant on Colleague's disposition to provide a job referral. Non-significant paths are reduced to zero.

Figura 6 - Model 5: Paths with significant parameteres as estimated

the square root of the ratio between discrepancy function and degrees of freedom, thereby rewarding models that are parsimonious. Tables 5 and 6 report the distance between the RMSEA estimated for the default model and the independence model, where the largest Δ RMSEA indicates the model with best fit.

- **MECVI:** This index is the only one of these listed that is specific to Maximized Likelihood Estimations. It also provides measures of discrepancy functions and compares them to degrees of freedom, applying a scale factor according to sample size. I report both the distance of the default model's MECVI from the Independence Model (where greater values indicate better fit) and distance from the Saturated Model (where smaller values indicate better fit).

8.3. Results of Structural Equation Analysis and Test of Hypotheses

As indicated in Tables 5 and 6, the strongest models estimated through structural equations are Models 2 and 5. However, the fit indices are low, as described in SEM studies (Byrne, 2001; Arbuckle, 2010). This could be due to sample size, as the fit indices used in this study tend to over-reject models with low samples (Byrne, *ibid*). However, in comparison to other models reported in this study, these are the strongest found. In the section regarding Limitations and Recommendations for Future Studies, I provide suggestions that can improve model fit.

Since these models are based on different variables, i.e., Total OCB in Model 2 and OCB dimensions in Model 5, I have no basis to exclude one in favor of the other. In the hypothesis test and discussion of the results, I use both models to complement each other and to draw conclusions. Figures 3 through 6 provide representations of both models, where figures 3 and 4 present the models as estimated and figures 5 and 6 present the significant paths with their estimated parameters. Figures 3 and 5 present the model based on Total OCB and figures 4 and 6 present the model based on OCB dimensions.

The hypotheses are tested within models 2 and 5. I report and comment the hypothesis tests below and summarize the hypothesis tests in Table 7, where sustained hypotheses are indicated according to model 5. Model 2 is indicated in this table as a supplementary analysis.

Table 7 - Report of Hypothesis Tests

Hypotheses		Comments
Hypothesis 1: Candidate's Organizational Citizenship Behavior and its dimensions has total effects on the colleagues' disposition to provide her a job referral.	✓	In Model 2, Total OCB has direct and indirect effects. In Model 5, no direct effects are observed, yet Extra-Role behaviors have indirect effects through Perceived Closeness. OCBO has a positive indirect effect, while OCBI has a negative indirect effect.
Hypothesis 2: Contact Frequency between candidate and colleague has total effects on colleague's disposition to provide a job referral.	✓	Contact Frequency has no significant direct effect as observed in Models 2 and 5. In Model 2, indirect effects are observed through Total OCB, as well as through tie salience as they affect Total OCB. In Model 5, Contact Frequency has an indirect effect indicating tie salience and, subsequently, positive association with OCBO, which in turn is associated with closeness and, finally, the colleague's disposition to provide a job referral.
Hypothesis 3: Perceived closeness between candidate and colleague has total effects on colleague's disposition to provide a job referral.	✓	In Models 2 and 5, Perceived Closeness has a direct effect on the colleague's disposition to provide a job referral. In Model 2, indirect effects are observed through OCB.
Hypothesis 4: OCB and its dimensions have total effects on tie characteristics, i.e., frequency or closeness.	Partial	In Model 2, association is observed between tie characteristics and OCB. In Model 5, only Extra-Role behaviors are observed to have effects on Perceived Closeness. In this model, IRB was tested for its association with Frequency.
Hypothesis 5: Tie characteristics have total effects on OCB and its dimensions.	Partial	In Model 2, association is observed between tie characteristics and OCB. In Model 5, Contact Frequency has an indirect effect on OCBO through the observed dynamics of Tie Salience observed (see Hypotheses 6 and 7).
Hypothesis 6: Tie salience has total effects on colleague's disposition to provide a job referral.	✓	No direct effect of Tie Salience on colleague's disposition to provide a job referral, however indirect effects were observed in both models for Perceived Closeness Tie Salience and Contact Frequency Tie Salience through OCB and its dimensions (see Hypothesis 7).

Hypothesis 7: Tie salience has direct effects on OCB and its dimensions.	✓	Positive direct effects of Perceived Closeness Tie Salience were observed on OCB in both models (in Model 5, only on OCBO). Contact Frequency Tie Salience has indirect effects on OCB (in Model 5, only on OCBO) through Perceived Closeness Tie Salience. In Model 2, a negative direct effect of Contact Frequency Tie Salience on Total OCB is also observed.
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In Model 2, Total OCB has direct effects on the colleague's disposition to provide a job referral. However, in Model 5, this effect is not significant. However, both models present indirect effects of OCB. In Model 2, it is apparent that some effect exists on Frequency, though this effect disappears when the dimensions are observed separately. In-Role Behavior was not observed to have any significant influence on the dynamics that lead to disposition to providing a job referral. Indirect effects of Extra-Role Behavior occur through Perceived Closeness, albeit through opposite effects. OCBO increases closeness, strengthening the disposition to provide a job referral. OCBI reduces closeness, thereby weakening this disposition. The indirect effects observed in the model produce dynamics that will be further explored in the Discussion section below. I reject the null hypothesis for Hypothesis 1, finding significant relations effects of OCB and its dimensions on the candidate's disposition to provide a job referral.

Although there is no significant direct effect of Contact Frequency on the candidate's disposition to provide a job referral, to reject this variable in the study of this phenomenon would underestimate its importance. Evidence of indirect effects abound in the estimated models. In Model 2, indirect effects are observed through Total OCB, and in both models Contact Frequency is associated with increase in Frequency Salience, which in turn is associated with increase in Closeness Salience and OCB behaviors – specifically, OCBO, as observed in Model 5. Since closeness is associated with increase in OCB, the colleague's disposition to provide a job referral is positively associated with Frequency through indirect effects. I do not reject Hypothesis 2, which states that Contact Frequency has total effects on the colleague's disposition to provide a job referral.

Perceived Closeness is observed to have direct effects on the colleague's disposition to provide a job referral. In Model 2, indirect effects are also present through Total OCB and the dynamics in which this construct is involved. Therefore, I do not reject Hypothesis 3, which

suggests that Perceived Closeness has total effects on the colleague's disposition to provide a job referral.

Hypothesis 4 suggests that OCB and its dimensions have total effects on Contact Frequency and Perceived Closeness. In model 2, mutual effects were observed between Total OCB and these constructs. Total OCB was observed to have positive associations with Perceived Closeness and negative ones with Contact Frequency.

In model 5, Extra-Role Behavior was tested on Perceived Closeness and In-Role Behavior was tested on Contact Frequency, although other models tested different possible configurations (see Table 6). Only Extra-Role Behavior was observed to have a significant association, where OCBO is associated with increases in Perceived Closeness and OCBI is associated with decreases of this construct. The implications of these relations are described in the Discussions section. Hypothesis 4 is, therefore, only partially sustained.

Contact Frequency is observed to have positive direct effects on Total OCB in Model 2. No direct effect of Contact Frequency on OCB dimensions is observed in Model 5. However, there are indirect effects in both models through tie salience, which will be further explored when discussing Hypothesis 6.

Perceived Closeness is only observed to have effects on OCB in Model 2, which are direct and negative. No effect of Perceived Closeness on OCB dimensions was observed in Model 5. I therefore find only partial evidence to sustain or reject Hypothesis 5.

No direct effect of Tie Salience on colleague's disposition to provide a job referral was observed. However, in both models Tie Salience was observed to have effects on OCB, thereby contributing to the dynamics that lead to disposition to provide a job referral.

Frequency Tie Salience is associated with decreases in Total OCB in Model 2. In both models, it has positive indirect effects through Contact Tie Frequency. Interestingly, in both models no significant direct effect of Perceived Closeness on Closeness Tie Salience is observed. This will be further explored when describing the full observed dynamic further on. Due to the indirect effects observed, I do not reject Hypothesis 6, which suggests that Tie Salience affects colleague's disposition to provide a job referral. Similarly, I do not reject Hypothesis 7, which suggests that Tie Salience has effects on OCB and its dimensions. In Model 5, I find significant positive relations of Frequency Tie Salience (indirect) and Closeness Tie Salience (direct) only on OCBO.

8.4. Significant Control Paths

Aside from the dynamics of tie characteristics and OCB observed in the model, the control paths provide a clearer view of what actually is associated with the colleague's disposition to provide a job referral. I find evidence that OCB, though desirable for the firm that relies on referral hiring, might be completely ignored by the colleague, as an alternative system is identified that gives priority to shared experience outside the project.

8.4.1. Significance of Perceived Technical Expertise

Perception of candidate's technical expertise is statistically significant and positive in its relation with the colleague's disposition to provide a job referral. As stated before in the description of control variables, technical expertise is the basis for enhanced team performance (Hackman, 1987), and therefore is a solid basis for referring a professional. Perceived Technical Expertise also significantly affects OCB. In model 5, it is apparent that this effect happens through OCBO, having no significant effect on OCBI or IRB. In other words, Perceived Technical Expertise seems to allow the candidate to engage herself in ways that benefit the team. This could be evidence of greater assertiveness, as greater technical expertise should grant better understanding of the team's needs. Greater Perceived Technical Expertise might also shift the colleague's attention towards the candidate, thereby increasing perception of OCBO that might have otherwise gone unnoticed.

8.4.2. Significance of Project Class

Project class is significant at the 0,05 level, which indicates that the study is, indeed, somewhat sensitive to the two populations, be it due to the difference in methods for collecting data, the different nature of projects, or the presence of nearly complete teams in the business game answers.

8.4.3. Significance of Perception of Candidate's Network

In Model 2, the Perception of Candidate's Network has a significant positive direct effect on Contact Frequency. This could mean that colleagues seek out more frequent

interaction with those teammates that they understand have better networks. It could also mean that a candidate that seeks more frequent interaction is seen as having better social skills, which the colleague might confuse with a better quality network. This perception could be understood as access to better resources and solutions through the candidate's social capital, where the candidate would be perceived as a broker (Burt, 2004).

This still does not confirm Kilduff & Krackhart's (1994) findings, since no direct benefits arise from this perception. Rather, it would seem that evidence of a quality network generates curiosity, where the perception is tested through the dynamics observed in the path analysis.

However, it is important to note that the significance of this construct disappears when OCB is broken down into dimensions. This seems to signal that Extra-Role Behavior is seen as better evidence for social skills that build a network of quality for the colleague to evaluate the candidate's relevance for a job referral.

8.4.4. Significance of Meeting on Other Occasions

In both Model 2 and Model 5, Meeting on Other Occasions has positive direct effects on Perceived Closeness. This could mean that several different venues allow for a more rounded view of the candidate. Different types of experiences may allow the colleague to understand the candidate's qualities in greater depth, both in terms of her qualities as well as in terms of her shortcomings, knowledge which must diminish uncertainty and, hence, increase trustworthiness. Shared experiences in different venues also provides opportunities for the colleague to expose herself to different types and levels of risk in the presence of the candidate and thereby generate mutual trust. No significant direct effect of meeting on other occasions is observed on OCB or on the colleague's disposition to provide a job referral.

8.4.5. Significance of Contact in Previous Projects

Contact in Previous Projects has significant direct effects on Contact Frequency, as well as on Meeting on Other Occasions, both of which are positive. This does not mean that this contact was positive. In fact, this could even be negative experience. Confirming findings cited previously (Jones et al, 1997; Ferriani et al, 2009), people prefer to interact with those whom they know and avoid uncertainty. A caveat is due, though: this contact does not

associate with the disposition to provide a job referral. In other words, issues of trust and reputation trump avoidance of uncertainty. This is also evident in the disappearance of this construct's significance when OCB dimensions come into play: desirable behavior appears as the preferred evidence of relevance for a job referral.

The significance of this variable and meeting each other in different forums pinpoints the risk to the firm: perhaps the job referral is given due to these, with complete disregard to OCB or Technical Expertise. If this is the case, there is serious risk of hiring someone who is sub-par or even harmful to the organization.

9. DISCUSSION

The analysis of hypotheses reveals the relevant pieces of the puzzle to understanding the colleague's disposition to provide job referrals. With these elements, an analysis of the dynamics of the identified system is now possible. I start with analyzing Model 2, since it presents more comprehensive dynamics, where I identify certain questions that an analysis with Total OCB leaves unanswered. I then seek the answers to these questions Model 5. An assumption in this analysis is that Model 5 is, indeed, nested in Model 2. As described previously, OCB dimensions are not separate constructs. Rather, they are aspects of Organizational Citizenship Behavior.

A *caveat* regarding association is in order: the models here estimated are non-recursive, i.e., certain paths lead back to the variable of departure, essentially suggesting that changes in this variable can be associated with its presence in the model. This presents difficulties for establishing causal relations. Relations of association between OCB and network characteristics are estimated because it is as yet unclear what direction the paths should attain. True isolation of the variables and time-lagging are not possible in the data, nor is there theoretical clarity as to the directions the paths should take. Much caution should be used by the reader who seeks to infer information of a prescriptive nature based on this analysis. Although Model 5, containing OCB dimensions, resulted in recursive significant paths, conclusions implying causality are still not warranted, as these estimations were obtained with a non-recursive model. Models where only one direction of association between OCB and network characteristics were estimated, however there was considerable loss of model fit (unreported in this paper).

9.1.1. Discussion of the Model Containing Total OCB

Disposition to provide a job referral seems to be sustained by on three elements: Perceived Technical Expertise, Perceived Closeness, and Organizational Citizenship Behavior, though it is unclear if OCB indeed has direct effects, as none of OCB's dimensions proved to have such an effect.

Technical Expertise does not seem to have any antecedents in the estimated model. As well as proving to be highly relevant to the disposition to provide a job referral, it is also associated with increase in OCB and might be associated with increase in Contact Frequency.

Perceived closeness can be achieved without OCB. Meeting on other occasions, which can have influence from previous work experience, can contribute to closeness. Shared experience leads to shared team work routines, which seems to be enough to lead to a job referral. This does not mean that the familiarity in team work is necessarily positive to the firm – on the contrary, this can be a source of risk to the firm's operations, as discussed previously in this study.

Closeness seems to be associated with diminished performance of OCB's. It would seem that established closeness reduces the need to actually perform OCB. If OCB really does have an effect on the colleague's disposition to provide a job referral, even though in lesser intensity, the candidate should make an extra effort to perform OCB's, even though this does not seem to be the intuitive move. Although this seems to be associated with diminished Contact Frequency, it is associated with increased Perceived Closeness, which then would cover two of the pillars that sustain the colleague's disposition to provide a job referral.

Contact Frequency might happen so the colleague can work with someone she knows how to work alongside (contact in previous projects), someone who has social capital (perception of candidate's network), and someone who knows how to get the job done (technical expertise). However, antecedents to Contact Frequency may be more complex, as clarity regarding the significance of these relations disappears in Model 5.

Certain regulatory systems are revealed in the Model, which seems to suggest that there is sensitivity to too much cultivation of the dyad. As OCB is associated with more Perceived Closeness, it seems to shun Contact Frequency, thereby diminishing the performance of more OCB. Similarly, as Contact Frequency elicits more performance of OCB and, consequently, more Perceived Closeness, greater Perceived Closeness is associated with reduced need for OCB and, hence, holds back the cycle. In this manner, the dyad maintains a certain balance

while retaining resilience. But what exactly holds back the cycle? Why is there a need for this regulation?

The answer to these questions might be in a similar and complementary regulatory system between Perceived Tie Saliency and Frequency Tie Saliency. Contact Frequency generates a relationship that stands apart in the team, first in terms of quantity of interaction, and then in terms of quality. As Frequency Tie Saliency increases, it seems that OCB is held back. This reduces investment in Perceived Closeness while preserving Contact Frequency.

An opposite and complementary regulatory mechanism is present through Closeness Tie Saliency. Frequency Tie Saliency generates Closeness Tie Saliency, which does not mean that actual closeness is achieved, as these constructs are not directly connected and saliency is a relative measurement. I understand, then, that interaction that is more frequent than the interaction in the rest of the team signals that closeness is possible and provides a “front row seat”. To build greater closeness, it seems the candidate then performs more OCB, or at least that the colleague is more sensitive to the observed OCB’s. This successfully generates more actual closeness as perceived by the colleague, but ends up diminishing OCB. Again, this increases Contact Frequency, which in turn brings OCB back up.

It seems that the dyad works toward generating closeness, but regulates itself so it does not surpass the status quo within the team.

However, this still does not provide the fine-grained descriptive information sought to answer the proposed research question. Which orientation of OCB is preferred for generating Closeness? Do Extra-Role and In-Role behavior “play at tug-o’-war” to achieve the regulation described above, or do they complement each other in this system? Do colleagues prefer those candidates that deviate from the *status quo*? Or does group oriented OCB play a role? How does this relate to simply getting the job done (IRB)?

9.1.2. Discussion of the Model Containing OCB Dimensions

To better understand the subtleties of the system, Model 5 provides some answers, but at the cost of some paths observed above, thereby rendering these paths questionable. Contact Frequency no longer is seen to be related to Technical Expertise, Contact in Previous Projects, or Quality of Candidate’s Network. The significance of mutual association, and, hence, the regulatory system observed above, disappears.

On the other hand, certain relations that retain clarity are striking. Contact Frequency is still associated with Frequency Tie Saliency, which in turn is associated with Closeness Tie Saliency. Closeness Tie Saliency continues not to be significantly connected to Closeness. This attests to how a tie is formed, and complements Denrell's (2005) proposition that formal job interaction generates new opportunities to form connections of affinity. Meeting on other occasions is still observed to associate with Closeness in a system which in this model is completely independent of OCB.

In model 5, only Extra-Role Behavior (OCBO and OCBI) appears to have statistical significance. In-Role Behavior (IRB) does not have any significant relation to any of the constructs in the model. It is worth noting that, in Model 9, IRB and Contact Frequency form a cycle which is completely independent from the rest of the system with no association with the colleague's disposition to provide a job referral, which seems to suggest that they are maintained by other variables within the organization. This might be linked to the organizational level, such as productivity, relationship with other teams, incentive plans or Organizational Justice (Cohen-Charash & Spector, 2001). When Frequency Tie Saliency is linked to Closeness Tie Saliency, the connection between Frequency and IRB becomes non-significant.

I conclude from this that there is no regulatory work between In-Role and Extra-Role behavior. They seem to be indifferent to each other in this system.

OCBI is negatively related to Perceived Closeness. This might come as a surprise, as one might expect behavior directed towards individuals to generate closer relationships. Another surprising connection with OCBI is the non-significance of the relation of Closeness Tie Saliency to this dimension.

Although the items in OCBI do not necessarily harm the group's interests, some aspects of tending to the relationship could still be reason to avoid encouraging it. OCBI does not necessarily refer to those behaviors directed to the colleague. The colleague may feel that her interests are ignored or that she is being "pushed to the sidelines" if OCBI is directed towards other team members. Even being the object of OCBI could generate such suspicions, if there are no firm codes in the group that impose the continuation of the relationship. What guarantee is there that the candidate won't start performing OCBI in other relationships in the group and ignore the colleague?

Conversely, OCBO is positively connected to Perceived Closeness, as well as associated with increase in Closeness Tie Saliency. Given that Closeness Tie Saliency has associations with contact frequency and frequency saliency, which could be imposed by the

task or by team pressure, it follows that the OCB dimension most coherent would be the one related to a view of the team. Perhaps achieving relative closeness helps the colleague notice the candidate's OCBO.

Similarly, Technical Expertise capacitates the candidate to correctly assess the teams needs and interests, while reaching the individuals needs and interests requires more than Technical Expertise. It might also provide the candidate with greater confidence to engage in the team's activities and avoid shirking responsibilities. This could explain the significant relation of Technical Expertise to OCBO.

Given this analysis, it seems that behavior directed toward the team is desired and maintained by colleagues, while behavior directed toward the individual is avoided and receives no encouragement.

Disposition to provide a job referral seems to hinge on Perceived Closeness and Technical Expertise. Two systems are associated with generating Perceived Closeness. Behaviors directed towards the benefit of the group and contact in multiple situations that lead to relative distinction of the dyad embedded in the context of the team are associated with increasing Perceived Closeness. Alternatively, cultivating frequent interaction which sets the relationship apart from the group, while directing the relationship to the team's interests is also associated with Perceived Closeness.

9.2. Theoretical Discussion of the Results

A sense of exclusivity of the relationship as it is embedded within a team can both encourage and discourage the colleague's disposition to provide a job referral. When the candidate benefits the group, the colleague seems to be more sensitive to the action, perhaps because the salience gives her a better view – a “front row seat”, so to speak. The sense of exclusivity, when related to actions directed towards individuals, can hinder disposition to provide a job referral.

I find that actions that are directed to group interests and that appear to benefit a larger number of people without deliberately affecting specific individuals have a positive direct effect on disposition to provide a job referral. I understand from this evidence that actions directed towards strengthening ties with individual teammates are not as effective for raising colleagues' disposition, while generalized actions, which do not necessarily invite specific and clear feedback within the dyad, in fact are effective. The dynamic of the effects of tie

salience described above seems to create an adequate setting for creating strong ties that will resist bridge decay.

These findings also complement Defillippi & Arthur's (1994) description of dimensions of skill that affect career advancement: "know-why", "know-how", and "know-who".

As stated earlier, the research question attends foremost to the dimension of "know-who" (contact and relationship networks). The present study reveals that frequency is associated with the cultivation of ties and a sense of closeness. However, this should be reverted to behavior centered on the team's interests and needs. Shared experience is also associated with increases in Closeness. However, those team members who neglect team's interests and are too highly focused on developing personal relationships may distract the candidate from meaningful interaction, i.e., interaction that generates results for the group.

The importance of "know-how" (abilities and knowledge) is clear in the control paths of Technical Expertise. Alongside the importance of this aspect to the colleague's disposition to provide a job referral, know-how also assists the candidate in directing her effort toward the group's needs and interests beyond those formally stated in her job description. I find in this study that know-how actually feeds into know-who, as it capacitates the candidate to skillfully and productively interact with her teammates.

This also provides insight into "know-why" (beliefs and identity). The striking importance of OCBO indicates that it's not enough to simply be helpful. The help must be meaningful in the context of the team and work – which is why the dyad most probably came to exist in the first place. The non-significance of IRB also reveals that one's job description is not enough to reveal what is truly meaningful. Beliefs and identity that make the candidate recommendable are those that benefit the team as a whole beyond those that are described formally – or at least are able to avoid problematic behavior. Identifying these meaningful actions also requires know-how, since this reveals what is truly important and capacitates the candidate to act on the groups needs (or avoid unnecessarily burdening the team). This also feeds into know-who.

In other words, know-how and know-why that are meaningful as according to the group's explicit and implicit needs and interests lead to the kind of know-who that builds relationships where the colleagues have greater disposition to provide job referrals. As described by Alexander (1987), trustworthiness is grounded in behavior that supports the group's interest, signaling to the group that it is efficient to place trust in the supportive person, thereby diminishing monitoring costs.

10. CONCLUSIONS

I find that certain elements are crucial to the job referral: Closeness and Technical Expertise, with Organizational Citizenship Behavior playing a central role in this dynamic. At the same time that the tie needs to be developed through frequent interaction, strengthening of the tie is regulated by the group's interests and status quo. The colleagues find themselves developing stronger relationships with those candidates who advance the group's interests and shun those candidates who threaten to draw the relationship away from these interests. The factor analysis reveals that avoiding behavior that hinders the group's performance can generate greater disposition to recommend the candidate, which is evident in the importance of OCBO to Perceived Closeness. Tie salience, developed through frequent interaction, gives the colleagues "front-row seats" to the behavior that advances the interests of the group signals that the candidate is trustworthy, and thereby draws colleagues closer. I find no evidence of importance of task-related behavior as formally expected of the role to the phenomenon of job referrals.

Recruiters who rely on referral hiring should be aware of what is being referred. They seem to be correct to expect someone with elevated technical expertise, as well as someone who can be trusted to be a "team player". They will probably successfully avoid hiring a professional who dedicates too much time to building personal relationships. On the other hand, based on this study, it is unrealistic to expect the referral to bring a professional who is attentive to her job description. They are also running the risk of hiring someone who simply has had several shared experiences with the colleague, but who does not necessarily have the above characteristics and would be wise to investigate with the colleague what experiences were shared to identify which mechanisms were used to build closeness.

11. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

11.1. Limitations

Due to the fairly cumbersome size of the questionnaire, certain restrictions had to be made when collecting the data to achieve greater response rate. Specifically, I was not able to collect peer-rated OCB scores on all dyads. Complete peer-reported OCB scores would

eliminate the need to require ranking of candidates and possible biases this ranking induced in respondents answers.

Nor was I able to cross the data with self-reported OCB scores, for lack of sufficient respondents. Introducing this variable would reveal the level of coherence between candidate's perception of her behavior in the group and the group's perception. This could further validate convergent validity. When studied alongside tie salience, such level of coherence could reveal the dynamics of how performance, the group's evaluation, and the colleague's disposition to recommend the candidate interact and if low cohesion between self analysis and peer's evaluation lowers the various colleagues' disposition to recommend the candidate.

As previously stated, the results here presented do not present sufficient basis to establish association between OCB and network. There is some confusion as to the appropriate means to establish association when using Structural Equation Modeling (Pearl, 2000). As distance in time between variables is traditionally expected to be associated with association (Bollen, 1989), longitudinal data provides clearer understanding. Bollen (*ibid*) points out that in time-lagged data there is a risk of contamination from unobserved variables, thereby introducing further difficulties in isolating the variables. In this sense, SEM using cross-sectional data is a solution for providing isolated variables and establishing associations, albeit unclear regarding actual causal relationships. Since this study finally identified a possible recursive model (see Model 5), it would be best served if complimented by one based on longitudinal data.

The small sample size might have been the cause for overall weak goodness-of-fit indices. Future studies would do best to increase the amount of dyads studied. Ideally, this would be with OCB scores for all team members, and not only those who are most and least recommendable in the colleague's perception.

Group size and satisfaction with the project were initially included in the analysis, but proved to be non-significant. Since parsimony is an important element for SEM fit (Bollen, 1989; Arbuckle, 2010), these were omitted from the study.

11.2. Recommendations for Future Studies

To better understand what a recruiter who relies on referral hiring runs the risk of receiving through the referral, a similar study to the present one that includes

Counterproductive Work Behavior (CWB) would be in order. CWB is defined as “behavior that harms or intends to harm organizations and its members” (Spector et. al., 2006). Spector et. al. (2010) found that OCB and CWB are slightly positively related. They show that a team member can switch from OCB to CWB and vice-versa, justifying CWB as a “necessary evil” or using OCB to balance out CWB. Podsakoff et. al. (2011) suggest that cognitive bias affects the way behavior is interpreted as OCB and CWB and how these are filtered out of the evaluation.

In the present study, OCBO could be used as a CWB scale, as this factor was found to be comprised solely by reversed items. To better compare with studies in CWB that have already been performed, such as those cited above and in the subsequent paragraph, it is best to work with a CWB scale that was designed specifically for this purpose.

Both scales assume the hedonist principle, since their focus is on adaptive behavior to achieve a positive disposition or a high level of future satisfaction (Dalal, 2005). They are also both based on task performance, and can be subdivided in behavior directed towards the group and towards the individual teammate (Williams & Anderson, 1991; Spector et. al., 2006). A similar study that includes CWB would verify if these behaviors are overlooked when deciding about providing referrals and, if so, what network configurations within the team are associated with overlooking CWB. Such information would be useful for recruiters who wish to avoid bringing CWB into their organization.

Similarly, inclusion of a variable measuring formal performance evaluations could provide a more complete understanding of they dynamics here studied. In the case of the present study, grades in the studied projects would be the most obvious choice. However, the school where the data was collected has a strict policy against divulging their students’ grades.

Implicit in my understanding of the relevance of tie salience is the notion of ostracism, where those team members that deviate from the team’s expectations and *status quo* are less close and receive less frequent interaction. However, this was not brought explicitly into the data, though hints of this movement seem to be suggested in the significant paths. A future study that substitutes the colleagues’ disposition to recommend the candidate with ostracism as a dependent variable could reveal the redeeming powers of acting through OCB (or lack thereof).

The issue of causality is insufficiently explored in the present study, as the data analyzed was obtained on one single occasion. This provides little base for a prescriptive analysis. Bazerman (2005) suggests that social sciences, especially Psychology, lack a greater

social impact due to their focus on descriptive research. He states that social impact is achieved only when advice is given. The author challenges researchers of these areas to emulate the production in Economic Sciences, which has maintained a prescriptive production, suggesting that conflicts and even deaths could be avoided with more prescriptive research in social fields. To achieve such a prescriptive analysis, time-lagged data collection and experimentation can provide analyses that might give clues of a prescriptive nature.

Certain contextual elements in the present study deserve closer scrutiny and variations to test for generalizability.

Perhaps the great importance of OCBO found in this study can be an effect of being in a high-context culture, that is, one that relies on the group's codes of communication and the interests of the group and its members to preserve indirect and implicit messages (Hall, 1976), which has been suggested is the case of Brazil (Copeland & Griggs, 1985). Performing this same study in a low-context group, one where communication is explicit, with little regard to the group's and its members interests (Hall, *ibid*) could provide striking contrast to the results found in the present study.

Likewise, I assume that the study of the behavior of business school students when they engage in projects is in some manner analagous to what happens in other project teams and, hence, the outcomes observed here are relevant to those who seek to achieve job referrals among colleagues. Some discrepancies in the OCB factors found in this study in relation to Williams & Anderson's (1991) indicate that particular aspects of the academic setting lead to different connotations of behavior from those present in corporate settings. To test this, the questionnaire should be applied in project teams in companies that function along the frontiers of their firm, such as consulting or project engineering. In the same vein, the questionnaire should be applied with a greater age range.

The information collected in this study measures the candidates' disposition to provide a job referral, assuming the team members have a vague notion of what is expected in the job market. A survey could be performed where the team members are presented with specific job opportunities and are asked whether they would refer their colleagues. This would strain even more the hypothesis that OCB is significant, as technical and personal characteristics would be more explicitly demanded by the specified job opportunities.

As described previously, the present study sought to study project teams to better achieve relevance in a boundariless career setting, assuming that the possibility of achieving a referral from colleagues elicited the need to establish trust. It would be interesting to perform a similar study with teams that function without a defined end date, where the need for a

referral is less important, as well as in teams that function distant from the frontiers of the firm. Once again, ostracism as an explicitly measured variable could provide useful information in this context. Do OCBO, OCBI, and IRB, as well as proximity and frequency and respective tie salience achieve similar significance as in project teams?

Lastly, measures of homophily on such variables as age and gender can provide further nuances in the dynamics of achieving referrals (Brown & Reingen, 1987; Reagans, 2011). The occasional importance observed of the colleague's perception of the candidate's contacts could be better understood with the perception of homophily in this variable: does the impression of similar types of social capital generate some form of solidarity, be it as an indication of shared social status or shared social challenges, and therefore worthy of job referrals? The inclusion of homophily might generate models that achieve better fit.

In the Ordinary Least Squares analysis, the colleague's perception of the candidate's network significantly and positively affects the colleague's disposition to provide the candidate a job reference. This may seem contradictory, as a candidate with good connections is in no need of one more job referral. Indeed, this variable only had significant effects on Contact Frequency in Model 2, but it might indicate possible lines for future research.

As previously cited, Krackhardt & Kilduff (1994) found that greater quality was attributed to those individuals who were perceived to have better connections. This could mean that colleagues who perceive better connections infer that the candidate is actually a more qualified professional and, ergo, is at least a safe referral and, at best, a valuable one.

This effect may not be solely contamination from perceived high-level contacts. Burt (2002), in his study of bridge decay, concludes that social capital accrues to those individuals that already have social capital, as these individuals possess the competence to maintain relationships in the face of the peril of bridge decay. A perceived network of quality may be interpreted by the colleague as an indication that the candidate actually possesses the competence to maintain relationships and, therefore, is a contact worth benefitting.

Regan (1971) found strong indications there is a greater tendency of people to comply with a request for a favor from those who have already done them a favor. In other words, when a benefit is exchanged, the chances are greater that the recipient of the benefit will return the benefit in some manner. Hence, another possible explanation for the significance of the perception of the candidate's network quality is that the colleague benefits the candidate in the expectation that the candidate will return the favor.

Similarly, Meeting on Other Occasions plays an enigmatic role in the models. Although its relations to variables were rarely significant, removing these relations from the models

greatly affected model fit. This seems to indicate that certain subtleties of this variable beg scrutiny. What “occasions” have what types of effects? Do leisure activities, such as happy hours or physical training, have the same impact as more project-based activities, such as social work? Does participating in external groups, such as fraternities or churches, affect the phenomenon? Do activities performed within the frontiers of the firm, such as participation in committees, impact differently from those performed outside the firm?

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APPENDICES

Appendix I – The Questionnaire

1. Seu nome e sobrenome:
2. Idade:
3. Sexo:
4. Qual é o nome do projeto ou equipe?
5. Qual é seu curso?
6. Qual é seu nível de satisfação com o projeto, como um todo?
 - Muito insatisfeito
 - Insatisfeito
 - Nem satisfeito, nem insatisfeito
 - Satisfeito
 - Muito satisfeito
7. Informações sobre sua equipe:
Cite o nome dos integrantes de sua equipe que trabalham com você neste projeto.
8. Para cada colega citado, indique a sua disposição para recomendá-lo a um futuro projeto onde você estaria trabalhando.
 - Nada disposto a recomendá-lo
 - Pouco disposto a recomendá-lo
 - Indiferente
 - Disposto a recomendá-lo
 - Muito disposto a recomendá-lo
9. Com que frequência você conversa com cada colega?
 - Quase nunca
 - Muito raramente
 - Pouco
 - Muito
 - Quase sempre
10. Quanto próxima é sua relação com o colega?
 - Evito interagir com ele(a), mesmo quando é necessário
 - Só conversamos o necessário para realizar a tarefa
 - Apenas formal
 - Próximo
 - Muito próximo
11. Como você avalia o domínio técnico do colega para a tarefa?
 - Nenhuma habilidade técnica
 - Consegue aprender o necessário
 - Tem alguma habilidade técnica

- É razoavelmente qualificado
- É altamente qualificado

12. Como você avalia os contatos de seus colegas?

- Nada relevantes
- Pouco relevantes
- Bons
- Muito bons

13. Quais colegas você atualmente encontra em outras instituições (igreja, fraternidades, comitês, etc.) ou projetos? (Deixe em branco caso não houver tal contato com nenhum colega.)

14. Com quais colegas você já trabalhou em outros projetos? (Deixe em branco caso não houver.)

15. Ranqueie todas pessoas de sua equipe que trabalham com você neste projeto, inclusive seu líder, em função do quando você os recomendaria para um futuro projeto, começando do MAIS recomendável e colocando o MENOS recomendável na última caixa.

16. Responda às seguintes questões referente ao colega que você ranqueiou como MAIS recomendável. Indique com que frequência seu colega faz as seguintes ações expressas nos itens a seguir.

	Nunca	Uma vez ou outra	De vez em quando no mês	De vez em quando na semana	Sempre
Completa as tarefas designadas a ele(a) de maneira adequada.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Realiza as tarefas especificadas na sua própria descrição de cargo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Realiza as tarefas que a equipe espera dele(a).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Atende aos requisitos de desempenho requeridos pela função.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Se envolve em atividades que afetam positivamente sua própria avaliação de desempenho.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Negligencia atividades da função que ele(a) é obrigado(a) a cumprir.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deixa de realizar tarefas essenciais.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Auxilia aqueles que tiveram que se ausentar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Auxilia aqueles que têm cargas de trabalho mais pesadas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ajuda o supervisor com seu trabalho (quando não solicitado).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dedica tempo para escutar as dificuldades e preocupações dos colegas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Se esforça para ajudar novos funcionários.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demonstra interesse sincero nos demais funcionários.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Repassa informações aos colegas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As faltas dele(a) no trabalho são abaixo do esperado.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avisa antecipadamente quando terá de se ausentar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pausa para descanso sem necessidade.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Passa muito tempo em telefonemas pessoais ou uso pessoal de sites de rede social.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reclama de coisas insignificantes durante o expediente.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conserva e zela pela propriedade organizacional.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adere às regras informais estabelecidas para manter a ordem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Responda as seguintes questões referente ao colega que você ranqueiou como MENOS recomendável. Indique com que frequência seu colega faz as seguintes ações expressas nos itens a seguir.

	Nunca	Uma vez ou outra	De vez em quando no mês	De vez em quando na semana	Sempre
Completa as tarefas designadas a ele(a) de maneira adequada.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Realiza as tarefas especificadas na sua própria descrição de cargo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Realiza as tarefas que a equipe espera dele(a).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Atende aos requisitos de desempenho requeridos pela função.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Se envolve em atividades que afetam positivamente sua própria avaliação de desempenho.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Negligencia atividades da função que ele(a) é obrigado(a) a cumprir.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deixa de realizar tarefas essenciais.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Auxilia aqueles que tiveram que se ausentar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Auxilia aqueles que têm cargas de trabalho mais pesadas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ajuda o supervisor com seu trabalho (quando não solicitado).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dedica tempo para escutar as dificuldades e preocupações dos colegas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Se esforça para ajudar novos funcionários.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demonstra interesse sincero nos demais funcionários.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Repassa informações aos colegas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
As faltas dele(a) no trabalho são abaixo do esperado.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avisa antecipadamente quando terá de se ausentar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pausa para descanso sem necessidade.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Passa muito tempo em telefonemas pessoais ou uso pessoal de sites de rede social.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reclama de coisas insignificantes durante o expediente.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conserva e zela pela propriedade organizacional.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adere às regras informais estabelecidas para manter a ordem.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix II – Questionnaire validity tests

OCB Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,944	,946	21

OCB Scale Item Statistics

	Mean	Std. Deviation	N
Completa as tarefas designadas a ele(a) de maneira adequada.	3,99	1,237	203
Realiza as tarefas especificadas na sua própria descrição de cargo.	3,92	1,228	203
Realiza as tarefas que a equipe espera dele(a).	3,99	1,251	203
Atende aos requisitos de desempenho requeridos pela função.	3,96	1,164	203
Se envolve em atividades que afetam positivamente sua própria avaliação de desempenho.	3,76	1,217	203
Negligencia atividades da função que ele(a) é obrigado(a) a cumprir.	3,86	1,309	203
Deixa de realizar tarefas essenciais.	3,74	1,380	203
Auxilia aqueles que tiveram que se ausentar.	3,39	1,411	203
Auxilia aqueles que têm cargas de trabalho mais pesadas.	3,27	1,365	203
Ajuda o supervisor com seu trabalho (quando não solicitado).	3,02	1,344	203
Dedica tempo para escutar as dificuldades e preocupações dos colegas.	3,31	1,334	203
Se esforça para ajudar novos funcionários.	3,43	1,368	203
Demonstra interesse sincero nos demais funcionários.	3,55	1,354	203
Repassa informações aos colegas.	3,84	1,316	203
As faltas dele(a) no trabalho são abaixo do esperado.	3,56	1,489	203
Avisa antecipadamente quando terá de se ausentar.	3,66	1,498	203
Pausa para descanso sem necessidade.	3,31	1,330	203
Passa muito tempo em telefonemas pessoais ou uso pessoal de sites de rede social.	3,55	1,401	203
Reclama de coisas insignificantes durante o expediente.	3,54	1,376	203
Conserva e zela pela propriedade organizacional.	3,89	1,185	203
Adere às regras informais estabelecidas para manter a ordem.	3,98	1,134	203

OCB Scale Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum
Item Means	3,644	3,025	3,990	,966	1,319
Item Variances	1,748	1,287	2,245	,959	1,745

OCB Scale Summary Item Statistics

	Variance	N of Items
Item Means	,080	21
Item Variances	,068	21

OCB Scale Statistics

Mean	Variance	Std. Deviation	N of Items
76,52	364,290	19,086	21

OCB ANOVA

	Sum of Squares	df	Mean Square	F	Sig
Between People	3504,126	202	17,347		
Within People					
Between Items	322,790	20	16,139	16,674	,000
Residual	3910,544	4040	,968		
Total	4233,333	4060	1,043		
Total	7737,460	4262	1,815		

Grand Mean = 3,64

Tie Mapping Case Processing Summary

	N	%
Cases		
Valid	201	99,0
Excluded ^a	2	1,0
Total	203	100,0

- a. Listwise deletion based on all variables in the procedure.

Tie Mapping Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,854	,859	5

Tie Mapping Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	2,717	2,030	3,075	1,045	1,515	,159	5