

May 2013

Virtual Team Citizenship Behaviors: Scale Development and Validation

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**VIRTUAL TEAM CITIZENSHIP BEHAVIORS:
SCALE DEVELOPMENT AND VALIDATION**

by

Joline C. Robertson

A Dissertation Submitted in
Partial Fulfillment of the
Requirements for the Degree of

Doctor of Philosophy
in Management Science

at

The University of Wisconsin-Milwaukee

May 2013

ABSTRACT
VIRTUAL TEAM CITIZENSHIP BEHAVIORS:
SCALE DEVELOPMENT AND VALIDATION

by

Joline Robertson

The University of Wisconsin-Milwaukee, 2013
Under the Supervision of Professor Margaret Shaffer

Organizational citizenship behaviors (OCBs) are the extra-role, voluntary behaviors performed by organization members for the benefit of the organization. These behaviors have been widely studied and several dimensions have been defined. However, the majority of the work on OCBs focuses on traditional organizations where all employees are collocated and can interact on a regular basis. With the changing workplace, employees can now work remotely or across different locations and still be expected to work together. Those employees who are not collocated may not feel the need to benefit the organization, but may feel connected to the team and therefore participate in virtual team citizenship behaviors (VTCBs).

This paper reviews the current OCB literature by defining OCBs, reviewing the empirical literature, and providing a critique of the current literature. Next, a framework for studying VTCBs is developed based on virtual team literature. I define and discuss the differences between VTCBs and OCBs. Next, I develop propositions for assessing construct validity using multiple validation approaches, including convergent, and divergent, and nomological validity. I then propose and conduct three interlocking studies to generate items for the scale (Study 1), to assess the dimensionality and psychometric properties of the scale and establish convergent and divergent validity

(Study 2), and to test the proposed nomological model (Study 3). The results of each study and the implications of the studies are discussed.

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ACKNOWLEDGEMENTS

The completion of this dissertation would not have been possible without the assistance of many people. First, I would like to thank my committee, Dr. Sarah Freeman, Dr. Janice Miller, Dr. Hong Ren, and Dr. Romila Singh for their helpful inputs and feedback. I would especially like to thank my committee chair, Dr. Margaret Shaffer, for her many years of dedication and patience with my progress. She has provided invaluable input and assistance, all the while pushing me along towards completion.

I also want to thank all the friends and family who have been a part of this process and were willing subjects during the data collection phase of my dissertation. Your time and commitment is greatly appreciated.

Lastly, I need to acknowledge my immediate family – they have been amazing through this process. My mom and husband wouldn't let me quit, even though I felt like I could no longer continue. They also went out and recruited subjects for my study when responses started to slow . Without the two of them, I would not have finished. My sister and dad have been ever-supportive and this has been greatly appreciated. My two little dissertation “delays,” Casey and Holly, have greatly improved my life and they can finally stop worrying about bothering me when I am doing my homework.

CHAPTER ONE

INTRODUCTION

All organizations are looking for ways to become more efficient and, oftentimes, they can do this with help from their employees. Employees can help one another, or even act as good sports when they don't get their way, and these seemingly small gestures aid an organization as it tries to reach its goal. They keep an organization going as everyone pitches in to help. These behaviors help organizations succeed in their goals. Known as organizational citizenship behaviors (OCBs), this concept was originally introduced by Organ (1988) and was defined as extra-role behaviors that employees engage in to aid an organization. Although there are many aspects of OCBs, they all contribute to an organization's well-being through the interaction between members of the organization.

Increasingly, organizations are relying on employees to engage in OCBs and, consequently, these behaviors continue to be a focus of interest for organizational researchers (Podsakoff, MacKenzie, Paine & Bachrach, 2000). However, research has not kept pace with the technologically-driven changes that have resulted in structural and cultural changes in organizations. One of the greatest developments in organizations has been the ability to work remotely, first through telecommuting and more recently, through the use of computer-mediated communications (CMC's). This has shifted dynamics in organizations where employees report to an office for work every day, to a situation where it is possible to participate in and interact with a team from a distance. This change has created new challenges and new opportunities for organizations and

teams. One of these challenges is identifying ways that virtual team members can contribute to the success of the team as well as the organization.

One of the most striking differences between traditional and virtual teams is the use of computer-mediated communication (CMCs) (Schiller & Madviwalla, 2007). This lack of face-to-face communication changes everything from traditional work meetings to informal gatherings. Informal gatherings in organizations are typically referred to as discussions “around the water cooler.” When teams work virtually, there is a lack of this informal discussion, which can impair the team’s teambuilding activities and social interactions. Still, people that each employee interacts with most are the employee’s teammates. Therefore, it makes sense that employees identify more with a team, as constant reminders of the organization and organizational culture aren’t present.

In a similar way, formal gatherings such as team meetings are difficult. Initially, building shared understanding and vision between teammates can be a challenge because of the communication challenges (Tan, Wei, Huang & Ng, 2000). Consequently, much of the research around virtual teams has focused heavily on communication and its impact on the team and team members. There has been little research regarding how behaviors of team members affect one another. Therefore, studying citizenship behaviors of virtual teams is a new approach to both virtual teams and the citizenship behavior literature.

Research Purpose and Objectives

The purpose of my research is to define and understand virtual team citizenship behaviors through the development of a scale and nomological network. Specifically, my objectives are:

1. To integrate the organizational citizenship behavior and virtual team literatures to introduce a new concept - virtual team citizenship behavior (VTCB).
2. Develop and validate a scale that can be used to test VTCBs.
3. Discuss the implications of these findings for both future researchers and management practitioners.

Contributions of Thesis

My thesis makes the following contributions:

First, I develop a new construct of virtual team citizenship behavior that is different from organizational citizenship behaviors in two ways: it is at the team level and the focus is on teams that are not collocated.

Second, I develop and validate a scale that can be used to measure citizenship behaviors of virtual teams. This scale is similar to the organizational citizenship behavior scales, but is different and unique because of the contextual changes required for a virtual team as well as the level of analysis (team versus organization).

Last, I utilize the data collected to make recommendations for both researchers and practitioners. The results describe ways for practitioners to increase VTCBs in their organizations, which will increase team performance. For researchers, these data can be

used to expand the current scope of citizenship behavior research to a virtual team setting.

Thesis Organization

My thesis is organized in the following way:

First, in this chapter, I have laid out the background for the research problem that I would like to address. I have also laid out the practical and theoretical importance of my thesis. In the next chapter, I will review the organizational citizenship behavior literature and its theoretical foundations. In Chapter III, I will integrate the OCB and virtual team literature to develop a theoretical framework for VTCBs. I will define VTCB and offer hypotheses to assess its dimensionality and validity (convergent, divergent and nomological). Chapter IV describes the methodology used for my research. Chapter V shows the results of the research and, lastly, chapter VI discusses the results and implications of my research.

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE

In 1964, Katz made the first distinction for in-role and extra-role behavior. Nearly two decades after that came the first empirical articles on organizational citizenship behavior (OCB) where Bateman and Organ (1993) and Smith, Organ and Near (1983) focused on the linkages between OCB and job satisfaction. Since that time, researchers have striven to better understand OCB, its importance to organizations, its antecedents and the ways in which it can manifest itself.

At the practitioner level, OCB is becoming more important in the workplace and becoming more of an “expected” behavior (Coyle-Shapiro, Kessler and Purcell, 2004). Certainly, it is something that many managers expect from their employees (Kamdar, McAllister and Turban, 2006; Hui, Lam, and Law, 2000), so much so that performing OCB increases chance for promotion (Hui et al., 2000) and is considered instrumental by many in achieving a promotion (Hui, Lee and Rousseau, 2004).

In this chapter, I will define the OCB construct as well as discuss its operationalization. I will then review and discuss the theories that are the foundation of OCB, and give an overview of the antecedents, and outcomes of OCBs. Lastly, I will discuss and review the current state of research in OCB.

Defining the concept of organizational citizenship behavior:

The definitions of OCB vary from author to author and study to study; however, there are common characteristics throughout the various definitions. First, organizational citizenship behavior is not called for by any specific job or task requirement, it is a type

of extra-role behavior that an employee may choose to perform. Secondly, this behavior is not recognized by a formal rewards system; that is, a person does not receive rewards based on OCB actions alone. Lastly, OCB actions over time or across a group of people will combine to produce a benefit to the organization as a whole.

Although this definition is widely accepted and was developed by Organ (1988), Organ (1997) also posited that there needed to be some necessary refinement of the OCB construct. Van Dyne, Cummings, and Parks (1995) suggested that there were problems with defining OCB as discretionary, extra-role behavior. Organ (1997) countered this by refining his definition of discretionary behaviors to those that are “not an *enforceable* requirement of the role or job description.” Additionally, many articles (see Kamdar et al., 2006; Hui et al., 2000) recognize that there are rewards for participating in OCB. It is important to note that such rewards are not given as a direct result of OCB actions, thereby preserving the definition of an OCB. Further, the performance link with OCB has been difficult to operationalize and prove. Lastly, there are many OCBs that may go un-noticed by others. Organ (1997) states that the benefits from these behaviors may not be measurable on an individual basis, but they do have a benefit to the organization when considered as a group.

In 1983, Smith et al., first defined organizational citizenship behavior as two major types: altruism and generalized compliance. Later, Organ (1988) expanded the definitions from Smith et al. (1983) by adding 3 dimensions: sportsmanship, civic virtue and courtesy. Organ (1988) re-used altruism and re-defined generalized compliance as conscientiousness. Over time, Organ (1997) suggested that his altruism grouping change from “altruism” to “helping”.

In addition to this, several other authors have added other types of OCB. First, Organ (1990) created two additional types of OCB – cheerleading and peacemaking, which are seldom used in literature. Next, Organ and Ryan (1995) further divided OCB into two groupings based on the target of the OCB. Thus, organizational citizenship behavior directed toward the individual (OCBI) and organizational citizenship behavior directed toward the organization (OCBO) became part of the mainstream literature. Graham (1991) added a loyalty dimension to OCB which was further pursued by George and Brief (1992). Another dimension of OCB that has also been developed is that of individual initiative by Podsakoff et al. (2000). Lastly, another type of OCB that has appeared in the literature is Van Dyne and LePine’s (1988) “voice”. The definitions of the various types of OCB can be found in Table 2.1.

Types of OCB

Helping. The helping dimension of OCB has been widely studied and defined in many ways, as shown in Table 2.1. Since the table is in chronological order, one can look at the evolution of the helping dimension of OCB. In the beginning, it was called altruism and was later changed to many variations of “helping” behavior due to the fact that many believed that the altruism implied some type of selflessness that may not be present (Organ, Podsakoff, MacKenzie, 2006; Organ, 1997). Still, looking at the definitions, one can see that there are common themes – all of the authors agree that it is a voluntary behavior directed toward other people. All the authors also agree that actions are meant to be beneficial to others, although there are many types of this behavior.

Smith et al. (1983) defined that the behavior was a face-to-face activity. Over time, the other authors have omitted the need for helping to be face-to-face and acknowledged that it can be much more subtle. Additionally, the early definitions of altruism are focused on the person that is performing the behavior when they see a problem. Subsequent definitions speak to helping as a more interpersonal activity that can be strategic in nature. For example, Farh, Zhong and Organ (2004) referred to altruism as interpersonal harmony which refers to actions that are premeditated and meant to facilitate relationships in the workplace. Along this same line, the focus of helping has changed from why people help to the benefits of the helping behavior, such as office harmony.

Sportsmanship. Sportsmanship was originally developed by Organ (1990b) and was meant to describe behaviors where a person endures things not going his/her way without complaining. Although it is not widely studied, the definition of sportsmanship has been expanded by both Borman and Motowidlo (1993) and Podsakoff et al. (2000) to be more like the schoolyard definition of sportsmanship – having a good attitude despite a loss or being willing to take a personal loss for the benefit of the team.

Organizational Loyalty. Organizational loyalty was developed and defined by Graham (1991) who defined it as identification with the organization, defending it against others who may seek to cause it harm and cooperating with others to help achieve organizational goals. Loyal boosterism (Moorman & Blakely, 1995) and promoting the organization (Farh et al., 2004) both speak to employees taking action to better the image of the

organization to the community. In addition, George and Jones (1997) discussed spreading goodwill as a way of promoting the organization to the community in order to achieve better status for the organization, which will lead to better opportunities for the organization. Although there are many different types of organizational loyalty, there are very few fundamental differences between the different dimensions of organizational loyalty. At its core, organizational loyalty is highly focused on an external relationship between the employee and the rest of the world, and this type of OCB is an employee working to better the image of the organization to the world.

Organizational Compliance. Together with helping, organizational compliance is highly studied in organizational behavior. According to Smith et al. (1983), compliance is essentially following a set of norms that the organization has set in place. This means following norms such as adhering to both formal and informal rules (Williams & Anderson, 1991; Van Scotter & Motowidlo, 1996; Borman & Motowidlo, 1993) and following orders (Borman & Motowidlo, 1993). General examples of this are arriving to work on time, respecting authority and following deadlines as required. This is highly measurable and therefore is more easily studied than other types of OCB.

Individual Initiative. Individual initiative was first introduced as civic virtue (Organ, 1990b) and is the involvement of a person in the organizational processes, which includes expressing opinions. Over time, individual initiative has also evolved to be less about action and more relevant to expressing opinions and making constructive suggestions for the benefit of the organization.

Self-Development. Self-development is the newest dimension of OCB. It originated with George and Jones (1997) as “developing oneself” and equates to making oneself better through increasing knowledge and skills which will, in turn, benefit the organization. Podsakoff et al. (2000) later changed the name of the dimension from “developing oneself” to “self-development”.

Table 2.1. Definitions of Various Types of OCB. Based on work by Organ et al. (2006) and Podsakoff et al. (2000).

Type of OCB	Author(s)	Construct	Definition
Helping	Smith, Organ and Near (1983)	Altruism	"... behavior that is directly and intentionally aimed at helping a specific person in face-to-face situations..." (page 657)
	Organ (1988), Organ (1990b)	Altruism	"Voluntary actions that help another person with a work problem - instructing a new hire on how to use equipment, helping a co-worker catch up with a backlog of work, fetching materials that a colleague needs and cannot procure on his own." (Organ, 1990b, p. 96)
		Courtesy	"Subsumes all of those foresightful gestures that help someone else prevent a problem -- touching base with people before committing to actions that will affect them, providing advance notice to someone who needs to know to schedule work. (Organ, 1990b, p. 96)
		Peacemaking	"actions that help to prevent, resolve, or mitigate unconstructive interpersonal conflict" (Organ, 1998, p. 96)
		Cheerleading	"The words and gestures of encouragement and reinforcement of coworkers' accomplishments and professional development." (Organ, 1990b, p. 96)
	Borman & Motowidlo (1993)	Helping and Cooperating With Others	"... assisting/helping coworkers... assisting/helping customers... [and] altruism" (p.82)
	Moorman & Blakely (1995)	Interpersonal Helping	"focuses on helping coworkers in their jobs when such help was needed. (p. 130)
	Van Scotter and Motowidlo (1996)	Interpersonal Facilitation	"Consists of interpersonally oriented behaviors that contribute to organizational goal accomplishment... In addition to the spontaneous helping behaviors that Smith et al. (1983) called altruism and George and Brief (1992) labeled helping co-workers, interpersonal facilitation that encompasses deliberate acts that improve morale, encourage cooperation, remove barriers to performance, or help coworkers perform their task-oriented job activities. Thus, interpersonal facilitation encompasses a range of interpersonal acts that help maintain the interpersonal and social context needed to support effective task performance in an organizational setting." (p. 526)
	George & Jones (1997)	Helping Co-workers	"includes all voluntary forms of assistance that organizational members provide each other to facilitate the accomplishment of tasks and attainment of goals. Helping coworkers includes behaviors ranging from helping a coworker with a heavy workload and sharing resources to calling attention to errors and omissions and providing instruction in the use of new technology when one is not required to do so." (p. 154)
	Van Dyne & LePine (1998)	Helping	"promotive behavior that emphasizes small acts of consideration. Helping is a

			cooperative behavior that is noncontroversial. It is directly and obviously affiliative; it builds and preserves relationships; it emphasizes interpersonal harmony. (p. 109)
	Helping	Podsakoff, MacKenzie, Paine and Bachrach (2000)	"Conceptually, helping behavior involves voluntarily helping others with, or preventing the occurrence of work related problems" (p. 516)
	Helping Co-workers	Farh et al. (2004)	"refers to helping colleagues in work-related matters or non-work matters, and is similar to altruism or...helping" (p. 246)
	Interpersonal Harmony		"Refers to employee actions aimed at facilitating and preserving harmonious relations in the workplace..." (p. 247)
Sportsmanship	Sportsmanship	Organ (1990b)	"A citizen-like posture of the tolerating the inevitable inconveniences and impositions of work without whining and grievances..." (Organ, 1990b, p. 96)
	Helping and Cooperating With Others	Borman & Motowidlo (1993)	"[Including] organizational courtesy and not complaining..." (p. 82)
	Sportsmanship	Podsakoff, MacKenzie, Paine and Bachrach (2000)	"Organ (1990b [Organ 1990b]: 96) has defined sportsmanship as a willingness to tolerate the inevitable inconveniences and impositions of work without complaining." However his definition seems somewhat narrower than the label of this construct would imply. For example, in our opinion "good sports' are people who not only do not complain when they are inconvenienced by others, but also maintain a positive attitude even when things do not go their way, are not offended when others do not follow their suggestions, are willing to sacrifice their personal interest for the good of the work group, and do not take the rejection of their ideas personally. (p. 517)
	Keeping the Workplace Clean and Neat	Farh et al. (2004)	(p. 247)
Organizational Loyalty	Organizational Loyalty	Graham (1991)	"Identification with and allegiance to organizational leaders and the organization as a whole, transcending the parochial interests of individuals, work groups, and departments. Representatives behaviors include defending the organization against threats; contributing to its good reputation; and cooperating with others to serve the interests of the whole." (p. 255)
	Endorsing, Supporting, and Defending Organizational Objectives	Borman & Motowidlo (1993)	"[Including] organizational loyalty... concern for unit objectives... staying with the organization during hard times and representing the organization favorably to outsiders."
	Loyal Boosterism	Moorman & Blakely (1995)	"the promotion of the organizational image to outsiders." (p.130)
	Spreading Goodwill	George & Jones (1997)	"Is the means by which organizational members voluntarily contribute to organizational effectiveness through efforts to represent their organization to wider communicates in a beneficial light whether it be describing one's organization as supportive and caring, or describing an organization's goods

			and services as high quality and response to customers' needs, instances of spreading goodwill contribute to organizational effectiveness by insuring that organizations obtain needed resources from various stakeholder groups." (p. 155)
	Podsakoff et al. (2000)	Organizational Loyalty	"Essentially organizational loyalty entails promoting the organization to outsiders, protecting and defending it against external threats, and remaining committed to it even under adverse conditions (p. 517)
	Farh et al. (2004)	Promoting Company Image	"is similar to loyalty and loyal boosterism" (p. 247)
Organizational Compliance	Smith et al. (1983)	Generalized Compliance	"pertains to a more impersonal form of conscientiousness that does not provide immediate aid to any one specific person, but rather is indirectly helpful to others involved in the system. The behavior (e.g., punctuality, not wasting time) seems to represent something akin to compliance with internalized norms defining what a 'good employee ought to do'" (p. 657).
	Graham (1991)	Organizational Obedience	"An orientation toward organizational structure, job descriptions, and personnel policies that recognizes and accepts the necessity and desirability of a rational structure of rules and regulations. Obedience may be demonstrated by a respect for rule and instructions, punctuality in attendance and task completion, and stewardship of organizational resources' (p. 255)
	Borman & Motowidlo (1993)	Following Organizational Rules and Procedures	"[Including] following orders and regulations and respect for authority... complying with organizational values and policies... conscientiousness... meeting deadlines..." (p. 82)
	Van Scotter and Motowidlo (1996)	Job Dedication	"Centers on self-disciplined behaviors such as following rules... It encompasses Smith et al's (1983) generalized compliance dimension..." (p. 526)
Individual Initiative Organ	(1990b)	Civic Virtue	"is responsible, constructive involvement in the political process of the organization, including... expressing opinions" (p. 96)
	Graham (1991)	Organizational Participation	"Acts of responsible participation in the governance of the organization, when they include sharing informed opinions and new ideas with others, and being willing to deliver bad news and support an unpopular view in combat groupthink" (p. 255)
	Borman & Motowidlo (1993)	Volunteering to Carry Out Task Activities	"when it includes suggesting organizational improvements" (p. 82)
	George & Jones (1997)	Making Constructive Suggestions	"Includes all voluntary acts of creativity and innovation in organizations. Such suggestions can range from the relatively mundane (a more efficient way to handle paperwork) to the more monumental. (reorganization of an entire unit to better serve a changing customer base)... workers who engage in this form of organizational spontaneity... actively try to find ways to improve

	LePine & Van Dyne (1998)	Voice	individual, group, or organizational functioning" (p. 155) "speaking out and challenging the status quo with the intent of improving the situation... voice is particularly important today given the emphasis on flexibility, innovation, and continuous improvement... One example of voice as we define it is when a group member makes and innovative suggestion for change to a standard operating procedure in order to improve work flow, even when such a suggestion might upset others" (pp. 853-854) "Such behaviors include voluntary acts of creativity and innovation designed to improve one's task or the organization's performance...and encouraging others in the organization to do the same" (p. 524) "making constructive suggestions or speaking up to prohibit harmful behavior to the firm" (p. 246)
	Podsakoff et al. (2000)	Individual Initiative	
	Farh et al. (2004)	Voice	
Self-Development	George & Jones (1997)	Developing Oneself	"Includes all the steps that workers take to voluntarily improve their knowledge, skills and abilities so as to be better able to contribute to their organizations. Seeking out and taking advantage of advanced training courses, keeping abreast of the latest developments in one's field and area, or even learning a new set of skills so as to expand the range of one's contributions to an organization..." (p. 155) "includes voluntary behaviors employees engage in to improve their knowledge, skills and abilities. According to George and Brief (1992:155) this might include seeking out and taking advantage of advanced training courses, keeping abreast of the latest developments in one's field and area, or even learning a new set of skills so as to expand the range of one's contributions to an organization" (p. 525) "Refers to improving one's own knowledge of working skills" (p. 247)
	Podsakoff et al. (2000)	Self-Development	
	Farh et al. (2004)	Self-Training	
OCBI	Williams & Anderson (1991)		"Behaviors that immediately benefit specific individuals and through this means contribute to the organization" (p.602)
OCBO	Williams & Anderson (1991)		"Behaviors that benefit the organization in general. (e.g., gives advance notice when unable to come to work, adheres to informal rules devised to maintain order)...Prior research has labeled...the OCBO dimension as generalized compliance" (pp. 601-602)

Operationalization of organizational citizenship behavior:

As discussed previously, OCB is a very general term used for several different types of behaviors, which are classified into many different categories as outlined in Table 2.1. Generally, these behaviors are measured by distributing and pairing questionnaires between an employee and another stakeholder of the employee's performance. The employee would fill out a self-report questionnaire about specific behaviors and the stakeholder would fill out a similar questionnaire on the employee's performance. Typically, measurements are taken at the individual level and address specific behaviors of an individual. These behaviors target either the organization or other organizational members, but they do not specifically refer to behaviors of team members.

Although there are many different types of measures available, most often, measurements center around Organ's (1988) five dimensions of OCB: altruism/helping; civic virtue, sportsmanship, conscientiousness, and courtesy, although there are those that deal with some of the other variants of OCB such as OCBI, OCBO or individual initiative. Based on the types of OCB outlined in Table 2.1, some typical OCB measures are listed in Table 2.2.

One can see that there are many variations, but they center around the same type of questions and behaviors. As always, helping and compliance were the most defined and clearly measured areas, since those are the most studied.

Table 2.2. Examples of OCB measures.

Type of OCB	Author	Specific Measure
Helping	Podsakoff et al., 1997	Help each other out if someone falls behind in his/her work
		Willingly share their expertise with other members of the crew Try to act like peacemakers when other crew members have disagreements Take steps to try to prevent problems with other crew members Willingly give of their time to help crew members who have work-related problems
		"Touch base" with other crew members before initiating actions that may affect them
	Konovsky, & Organ (1996)	Encourage each other when someone is down Tries to avoid creating problems for others Considers the effects of his/her actions on coworkers Consults with me or other people who might be affected by his/her actions or decisions
		<p>Smith et al., 1983</p> <p>Informs me before taking any important actions Helps other employees with their work when they have been absent Volunteers to do things not normally required by the job Takes the initiative to orient new employees to the department even though it is not part of his/her job description Helps others when workload increases</p>
Sportsmanship	Konovsky, & Organ (1996)	Complains a lot about trivial matters* Always finds fault with what the organization is doing* Expresses resentment with any changes introduced by management*
		Thinks only about his/her work problems, not others* Tries to make the best of the situation, even when there are problems Is able to tolerate occasional inconveniences when they arise

Organizational Loyalty	Farh et al., 2004	Does not complain about work assignments Promote company image and products to outsiders
Compliance	Smith et al., 1983	Exhibits punctuality in arriving at work on time in the morning and after lunch and breaks Takes undeserved work breaks * Exhibits attendance at work beyond the norm (for example, takes fewer days off than most individuals or fewer than allowed Gives advance notice if unable to come to work Spends a great deal of time in personal telephone conversations *
Individual Initiative	Konovsky, & Organ (1996) Podsakoff et al., 1997	Does not take unnecessary time off work Does not take extra breaks Does not spend a great deal of time in idle conversation Stays informed about developments in the company Attends and participates in meetings regarding the company Offers suggestions for ways to improve operations Provide constructive suggestions about how the crew can improve its effectiveness Are willing to risk disapproval to express their beliefs about what's best for the crew
Self-Development	Farh et al., 2004 Farh et al., 2004	Attend and actively participate in team meetings Making constructive suggestions Prohibit behavior harmful to the organization Engage in self-training
OCBO	Williams & Anderson, 1991	Helps others who have been absent Helps others who have heavy work loads Assists supervisor with his/her work (when not asked) Takes time to listen to co-workers' problems and worries Goes out of way to help new employees

OCBI	Williams & Anderson, 1991	Takes a personal interest in other employees Passes along information to coworkers Attendance is above the norm Gives advance notice when unable to come to work Takes undeserved work breaks * Great deal of time spent with personal phone conversations * Complains about insignificant things at work * Adheres to informal rules devised to maintain order
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* Denotes Reverse-Scoring

Theories underlying OCB

Social Exchange Theory

Most OCB theorists point to the origins of OCB as social exchange theory (Blau, 1964), which is based on the norm of reciprocity (Gouldner, 1960). Social exchange theory in the context of OCB would tell us that an organization can garner better OCB outcomes through treating its employees better. As a result, considering Figure 1, we see that many of the antecedents are those that deal with the way that an organization treats an employee and how employees internalize this goodwill and return it to the company. For example, an organization provides leadership, benefits, career development, opportunities, etc. for an employee and the employee returns this care by performing OCBs.

A model of OCB based solely on social exchange theory would focus heavily on organizational antecedents or personal characteristics. A person's propensity toward engaging in OCB could be affected by the social exchange that they encounter. Organizational antecedents include leadership, organizational characteristics, job/task qualities and some team descriptors; all of these help an organization care for its employees, which should engender an exchange.

The vast majority of articles reviewed refer to social exchange theory, noting that the relationship between the organization, the leader, and the employee are critical. This can be seen in leadership antecedents and some of the organizational antecedents. Most of the theory centers around a person's defined role and obligations that are felt by an individual based on this and the norms within the organization. A person will act in accordance with an organizational norm or belief about the organization in exchange for

some type of benefit that is determined by the giver. For example, organizational justice has been widely studied by a variety of scholars (see Rioux & Penner, 2001; Kamdar McAllister and Turban, 2006). Both of these posit that when an organization's leadership acts fairly, employees feel cared for and valued and, therefore, enter a social exchange relationship. So, by treating employees fairly, an organization can encourage OCBs through encouraging social exchange.

Another example of this is team cohesiveness (Kidwell, Mossholder & Bennett, 1997). Here, a team's cohesiveness could engender a real social exchange, rather than an economic exchange. Additionally, if a team is cohesive, there is more likely to be cooperation and trust, which will help an employee feel valued and cared for and therefore more likely to have an exchange with either the organization or its team members.

Pro-social Behavior Theory

Contrary to social exchange theory, pro-social behavior proposes that an individual who exhibits pro-social behavior expects no reward for his or her efforts. This is more consistent with Organ's (1988, 1997) definition of OCBs, yet pro-social behavior is seldom used to explain OCBs. Batson (1995) stated that "The debate over the nature of pro-social motivation is a debate over whether benefiting others is an instrumental behavior on the way to some self-interested ultimate goal or an ultimate goal in its own right with the self-benefits being unintended consequences."

Work based on pro-social behavior theory emphasizes individual differences as predictors of OCB while forgoing organizational antecedents. Although not called out as

a theory, prosocial values is an antecedent studied by Finkelstein and Penner (2004) as well as Rioux and Penner (2001). Both articles indicate that employees may engage in OCBs because they have personal motives that may be satisfied by engaging in OCB. Along these same lines, many other antecedents, such as impression management or job insecurity can all be viewed as creating OCBs because employees have other motivations.

While it is not specified in many articles, Kamdar, McAllister and Turban (2006) asserted that role identity as part of pro-social behavior can be used to explain sustained OCB behavior. The more a person identifies with a role, such as the role of a volunteer or good organizational citizen, the more willing he or she is to continue in those behaviors. As a person continues to identify with their role, it begins to incorporate itself into his or her self-concept and will sustain itself. Clearly, although not specifically noted, there are examples of this in the literature with role identification antecedents as well as role definition antecedents.

Pro-social behavior theory is an interesting addition to the theoretical underpinnings of OCB; however, it also offers some specific dilemmas. First and foremost, it does not seem to be recognized as a theory by all scholars. Many view these as personal traits and not a theory. Secondly, it is interesting to note that if people have other motivations for performing OCBs, then one has to wonder whether it conflicts with the definition of OCB requiring that the OCB not be the sole reason for a person receiving an reward.

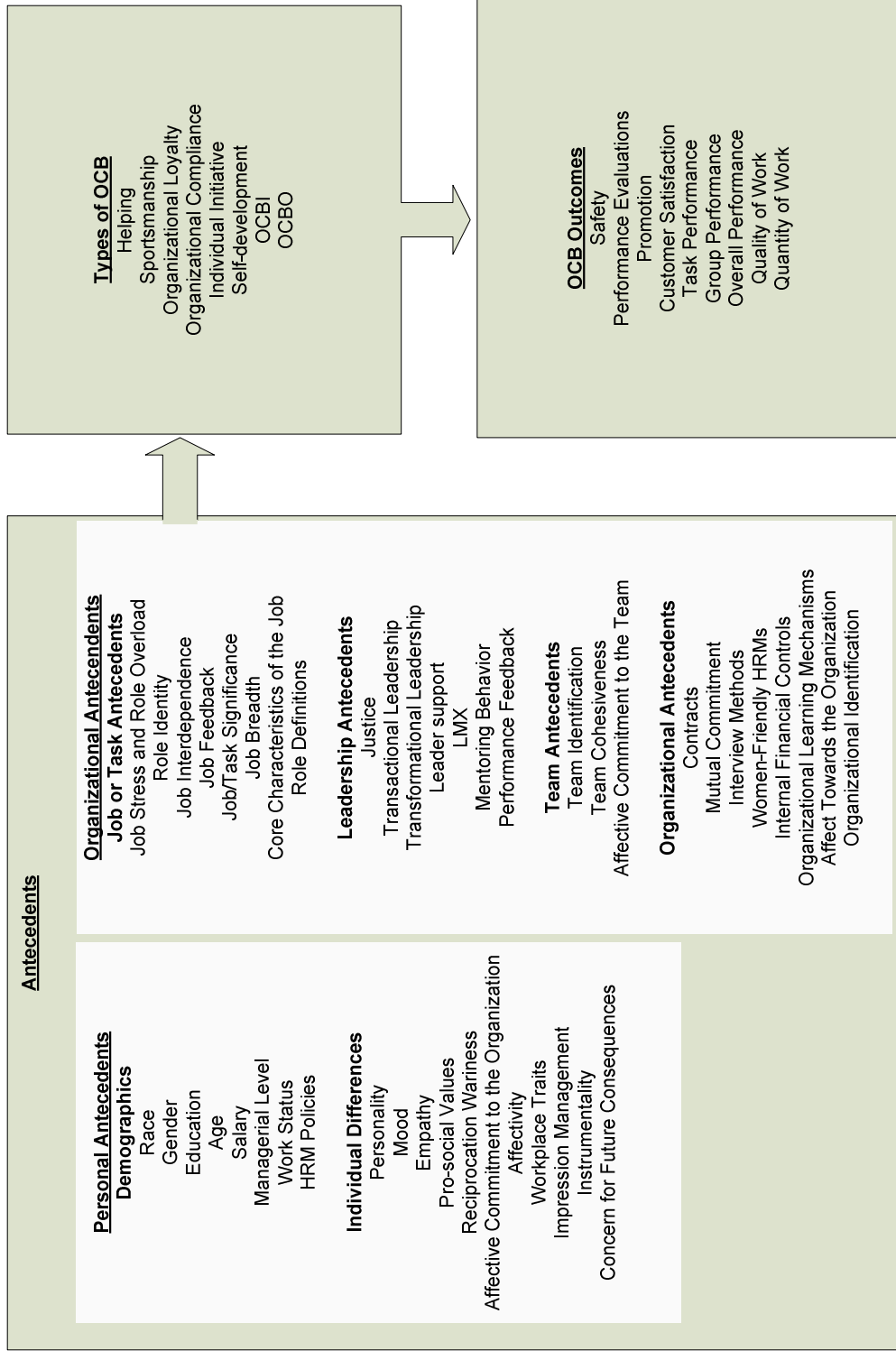


Figure 1. Model of OCB based on current literature. Note: Antecedent grouping is based on the work of Podsakoff, Mackenzie,

Paine and Bachrach (2000).

Review of the Empirical Literature

There has been considerable research on organizational citizenship behavior and the research is diverse with regard to the variables that are related to OCB. In order to better understand the OCB literature, it is best to organize the research into personal antecedents, organizational antecedents and outcomes. I have summarized the significant relationships by type of OCB in Table 2.3.

Personal Antecedents

Personal antecedents are those that deal with the individual and how that person's individual differences or demographic characteristics affect the likelihood of a person performing OCBs.

Demographics. As a specific topic, demographics are not widely studied, but have yielded some significant relationships as part of collecting data for other lines of research. However, taken as a whole, there are still some interesting relationships that can be uncovered.

In Jones and Schaubroeck's (2004) study of race and OCB, they found positive relationships between the compliance and helping dimensions of OCB and education and, additionally, a positive relationship between age and the OCB helping dimension. Jones and Schaubroeck's (2004) main finding that race had a significant relationship with both compliance and helping also indicated the relationship was mediated by negative affectivity, job satisfaction, co-worker social support and internalization of commitment.

Similarly, while studying gender differences, Bolino and Turnley (2005) found that OCBs are different among men and women; in fact, gender moderates the link between work-family conflict and individual initiative, and their results show stronger relationships for women between individual initiative and work-family conflict.

Jones and Schaubroek's (2004) study has received mixed support. Lee and Allen (2002) also studied the link between education and OCB and found that there was a positive relationship between age and OCBO. Contrary to Jones and Schaubroek's (2004) work, Feather and Rauter (2004) found a negative relationship between a generalized OCB dimension and age. The difference between the two studies could be due to the fact that they investigated OCB's relationship to age on two different dimensions of OCB (helping vs. a non-specific form).

While evaluating the personal costs of OCB, Bolino, and Turnley (2005) found a positive relationship between OCB and salary. This is consistent with both Lee and Allen (2002) and Jones and Schaubroek (2004), if one is willing to believe that education level is positively related to salary. On the other hand, Chiu and Ng (2001) found a negative relationship between managerial level and OCB, which could be inconsistent with both Bolino and Turnley (2005) as well as Jones and Schaubroek (2004), assuming a positive relationship among education, salary and managerial level. As already noted, Jones and Schaubroek (2004) studied helping and compliance dimensions of OCB, as well as did Chiu and Ng (2002). Bolino and Turnley (2005) used the individual initiative dimension.

Another study of individual initiative was conducted by Coyle-Shapiro et al. (2004). They found significant relationships between individual initiative and both work status (whether someone is full-time or part-time) and trade union membership. The

overall study focused on the authors' assertion that a person's relationship with an organization affects whether or not they engage in OCBs. Work status and trade union membership are both indicators of a certain type of relationship between an organization and an individual.

Chiu and Ng (2001) studied the relationship between human resources management policies and organizational commitment and found a significant relationship between compliance and elderly dependents amongst women. Additionally, Chiu and Ng (2001) found that there was a significant negative relationship between managerial level and OCB. Chiu and Ng (2001) posited that the relationship between elderly dependents and OCB exists because women will reciprocate the care that the organization shows for them through its HR policies.

Overall, the link between demographic variables and OCB has not been widely studied theoretically. The limited empirical research does not provide any clear conclusions and has not been focused on any one area of demographics. Still, as controls, there seems to be evidence that demographic characteristics are related to OCBs. The outwardly visible characteristics, such as race and gender, are either mediated by or moderate other relationships and age has yielded mixed results on different dimensions of OCB. Other demographic variables were studied only once, so there is little comparison between studies. Most of the studies with significant demographic variables focused on the helping, organizational compliance and individual initiative dimensions of OCB, while there was only one study with a generalized OCB measure and one study on OCBO.

Individual Differences. Individual differences are interesting to researchers as they can help predict a person's propensity toward performing OCBs in the workplace. If clear enough, they can be used during the employment screening process to find candidates who are willing to perform OCBs or used for planning to determine who would be likely to perform OCBs. Individual differences can be roughly categorized into mood-based differences, personal values, motivations, and work traits.

Personality traits can definitely have an effect on OCB. One of the most studied is conscientiousness (Organ et al., 2006) which includes the traits of dependability, planning, self-discipline and perseverance. These traits are clearly linked to compliance and individual initiative, which, by definition, encompass some of these traits. A second personality trait, agreeableness, consists of friendliness, likeability and ability to get along with others. In this way, this trait is clearly linked to helping behaviors, because in order to be agreeable, friendly and likeable, one must be willing to help others. Other personality traits such as neuroticism, extraversion and openness to experience do not have a direct link to OCB (Organ et al., 2006).

Mood-based differences can be a general positive predisposition relating to sportsmanship (Rioux & Penner, 2001) or to OCBI and OCBO (Lee & Allen, 2002). Similarly, how much a person believes in him or herself can related to OCBI and OCBO (Lee & Allen, 2002) as well as a generalized measure of OCB (Chiu & Chen, 2005). A person's ability to be empathetic to others, and taking their perspective in trying to understand people, can also relate to individual initiative (Joireman, Kamdar, Daniels & Duell, 2006) and generalized OCB (Kamdar et al., 2006), in that the more you understand others, the more willing you will be to help other people. Also, the more

important pro-social values such as fairness, helpfulness, responsibility, and considerateness are to a person, the more likely they will be to engage in individual initiative OCBs (Rioux & Penner, 2001), OCBI, OCBO and generalized OCB (Finkelstein & Penner, 2004). Another trait, reciprocation wariness, or a general worry that a personal relationship will be exploited, has been shown to have a negative effect on helping and organizational loyalty (Kamdar et al., 2006). This is consistent with the combination of previous studies that would lead a company to conclude that those who have positive attitudes, are confident in themselves, and can understand others' point of view should be the individuals who engage in OCB the most.

Similarly, affective commitment to an organization also had a positive relationship to generalized OCB (Bentein, Stinglhamber, and Vandenberghe, 2002) as does organization commitment, which has been widely studied across helping (Chen, Hui & Segó, 1998; Chiu & Ng, 2001; Jones & Schaubroeck, 2004), sportsmanship (Rioux & Penner, 2001), organizational compliance (Kidwell et al., 1997), individual initiative (Rioux & Penner, 2001) and OCB general. (Pillai, Schrieschem, & Williams, 1999; Schappe, 1998; Tepper, Duffy, Hoobler & Ensley, 2004).

Similarly, a person's affectivity, whether positive or negative, is a predictor of OCB. As anticipated, positive affect positively predicts helping and compliance (Jones and Schaubroeck, 2004) and generalized OCB (Zeller, Tepper & Tuffy, 2005) while negative affect (Zeller et al., 2005) is negatively related to generalized OCB. Although not directly related to affect, organizational concern also has a positive relationship to OCB in three dimensions: OCBI, OCBO and OCB general. (Finkelstein & Penner, 2004). Another way that this concern, commitment, or affect, can manifest itself is

through identification with an organization. A person's organizational role identity (Finkelstein & Penner, 2004) and organizational identification (Feather & Rauter, 2004; Christ, van Dick, Wagner & Stellmacher, 2003) both increase OCB. A person's feelings about an organization can contribute to OCB through identification, concern or affectivity.

A person's motivation for OCB is also a factor. For example those who are especially concerned about impression management are more likely to perform OCBI or generalized OCBs (Finkelstein & Penner, 2004). Instrumentality of OCB, which is the use of OCB for other purposes, has a positive relationship to OCB as well, along the dimensions of helping, sportsmanship, compliance, initiative and non-specific OCBs. Instrumentality and impression management are highly related, so there is no surprise that both positively related to OCBs. Interestingly, a related motivation, concern for future consequences (Joireman et al., 2006) had both positive and negative significant results. Concern for future consequences had a positive relationship with helping, but a negative relationship to sportsmanship and individual initiative. It was found to moderate the impact of planning to leave in the short term's effect on OCB. That is, if a person who planned to leave an organization has strong concern for future consequences, they are willing to help others, but they will not engage in sportsmanship or individual initiative. On the surface, this would conflict with impression management and instrumentality; however, given the short time that a person is planning to work at a firm, it would make sense, as neither instrumentality nor impression management are necessary when one is leaving a position.

An employee's work habits or traits, have also been studied with regards to OCB. Somech and Drach-Zahavy (2004) found OCBO links with issue orientation, or a person's focus on the merit of information rather than on the personal issues, how accountable a person feels, how much a person requires complete, undistorted and verifiable information, and how willing they are to hold issues open for other people to view. A person's commitment to a goal also has a positive effect on OCB general. (Piccolo & Colquitt, 2006). Usually, these studies indicate that the more objective a person is about what has to be done, the more likely they are to engage in OCBs. The findings regarding workplace traits seem to contradict some of the disposition research, for example, those who are most objective are most likely not empathetic to others or in possession of pro-social values.

Clearly, there has been a significant amount of research around all types of individual differences across all types of OCB. For an organization, this research is invaluable, because the more employees that engage in OCB, the more an organization can reap the benefits.

Organizational Antecedents

Organizational antecedents are factors within an organization, not under the control of an individual, that can affect the amount of or type of OCBs that are performed in an organization. To organize this section, organizational antecedents are divided into four categories: job or task antecedents, leadership antecedents, team antecedents, and organizational antecedents.

Job or Task Antecedents. A person's role within an organization has generated a significant amount of study with regard to a person's role and its effect on OCB. There are several studies describing the effects of how a person handles their role, how the role is defined and the way the roles are set-up within the organization.

The way that a person internalizes the role of the organization can be a strong predictor of OCB. Higher levels of individual initiative are predictably associated with higher job stress and role overload (Bolino & Turnley, 2005) because people are more likely to take on additional tasks. Contrary to this, the more insecure one feels about his or her job, the more likely one is to perform OCBs (Finkelstein & Penner, 2004). This is because OCBs are used as a method to make employees more valuable to the company in hopes of achieving more security or permanence, in the case of job status's (Feather & Rauter, 2004) relationship to generalized OCB. Perhaps these go back to impression management and the need to impress people to increase security, which may reduce stress and role overload. Contrary to this, in positions where the anticipated time horizon is short (Joireman et al., 2006) or turnover intention (Chen et al., 1998) is high, OCBs are low because an employee is less vested in the future of the organization, so they can act with less regard for the organization and its future.

Role definition for the employee has also inspired several studies investigating how an organizations defines roles for an employee and whether or not OCBs were included as part of the role definition. When organizations defined individual initiative, loyal boosterism and personal industry as part of the requirements for the role, there was a negative effect on the amount of OCB performed (Tepper et al., 2001). Other research suggests that defining interpersonal helping (Kamdar et al., 2006), mentoring (Tepper et

al., 2001) and a general form of OCB (Zeller et al., 2002, Tepper et al., 2001) could have a positive effect on citizenship behaviors. Generally, the research for role definitions has shown mixed support for whether or not it increases OCBs.

Within an organization, there are several things that it can do to increase OCB. First, job interdependence, has been shown to have a positive relationship with OCB (Bachrach et al., 2006, Chiu & Chen, 2005). The variety of tasks that a person performs, how significant they feel those tasks are, and the amount of feedback they receive also have positive relationship with OCB (Chiu & Chen, 2005). Job breadth (Coyle-Shapiro et al., 2004), as well as the core characteristics required for the job (Piccolo & Colquitt, 2006), have positive relationships with OCB. Along the same lines, a person's perceptions about their job's core characteristics, which encompass variety, identify, significance and autonomy, also affect generalized OCB (Piccolo & Colquitt, 2006). Generally, if a person's role is broad and varying, they are more likely to include some type of OCB in their role. If a role depends on the inputs of others, then an individual is more likely to perform OCBs in order to be a good teammate or interact better with their team.

Leadership Antecedents. A leader can affect OCB through many different actions. The most widely studied leadership antecedent has been procedural justice (Kamdar et al., 2006; Rioux & Penner, 2001; Tepper, Lockhart & Hoobler, 2001; Coyle-Shapiro et al., 2004; Lee & Allen, 2002; Pillai et al., 1999; Tepper & Taylor, 2003), and all these studies found a positive relationship between procedural justice and OCB, although there were several moderators such as role definition (Kamdar et al., 2006; Tepper et al., 2001;

Tepper & Taylor, 2003), perspective taking (Kamdar et al., 2006), mutual commitment (Coyle-Shapiro et al., 2004), and trust (Pillai et al., 1999). Interactional justice, moderated by mutual commitment (Coyle-Shapiro et al., 2004), and distributive justice (Rioux & Penner, 2001), moderated by trust (Pillai et al., 1999), also have been found to have links with OCB, although they have been studied much less. These studies encompass all facets of OCB, with the exception of OCBI. Clearly, the perceived justice distributed by a leader has an effect on OCB of almost all types.

Both transformational and transactional leadership have positive significant relationships to generalized OCB (Piccolo & Colquitt, 2006; Pillai et al., 1999), although researchers found some mediators for the relationships. Piccolo and Colquitt (2006) found that the relationship between transformational leadership and OCB was moderated by LMX, and Pillai et al. (1999) found that although transformational leadership did have a direct effect, it affected OCB through mediation through procedural justice and then trust. They also found that transactional leadership was mediated by distributive justice and then trust.

A leader's style, such as leader support (Chiu & Chen, 2005), mentoring behavior (Bachrach et al., 2001), giving good performance feedback (Bachrach et al., 2001), and good leader member-exchange (LMX) (Piccolo & Colquitt, 2006) can all provide explanations for increased OCB. Mentoring behavior and good performance feedback are both linked to individual initiative, while the others are linked to a generalized OCB measurement. These can potentially be explained by increasing affective commitment to a supervisor, which also has a positive relationship to OCB (Bentein et al., 2002) and

trust in leader (Pillai et al., 1999). Abusive supervision has also been shown to decrease OCB (Zeller et al., 2002; Tepper et al., 2004).

In summary, positive actions taken by leaders can help increase OCB in an organization, although the relationships between leadership type and procedural justice is not straightforward, with many different moderators and mediators coming into effect. Additionally, all of these studies focused on a generalized measurement, with only a few focused on other areas. It was also interesting to note that procedural justice studies span the entire gamut of OCB types, but in all other types of leadership studies the links to OCB are either with individual initiative or generalized OCB with the majority linking to generalized OCB.

Team Antecedents. Being part of a team can have a significant effect on an individual, and, therefore, the team can have a great impact on whether or not a person performs OCBs. Christ, van Dick, Wagner and Stellmacher (2003) studied teachers and found that the more that teachers identify with their team and organization, the more they perform general OCBs. In the same study, they also found that the more positive the climate, the more likely one would be to perform OCBs. Team cohesiveness is another indicator for helping and compliance dimensions OCB (Kidwell, Mossholder & Bennett 1997), which is in line with Christ et al. (2003), because as people are more cohesive, they identify more with one another and create a more positive climate. Yet another study showed that the more affective commitment people have to a group, the more likely they are to perform a general OCB (Bentein, Stinglhamber, & Vandenberghe, 2002). In summary, the team articles indicate that the more positive one feels toward one's team, the more

they identify with the team, create a positive climate or increase team cohesiveness, the more likely one is to perform OCBs.

Organizational Antecedents. One of the factors that has been studied through multiple dimensions is the relationship between an organization and an individual worker. Hui, Lee and Rousseau (2004) studied various types of contracts – transactional, relational and balanced contracts – and found links to helping, sportsmanship, compliance, and individual initiative. Coyle-Shapiro, Kessler, and Purcell (2004) found a positive link between mutual commitment and individual initiative, although it was moderated by the job that a person performed. This information together with the previous discussions on affect and commitment, suggests that an established relationship between the organization and the individual – whether it is short-term, long-term or affective – encourages OCB.

There are several ways that an organization can increase OCB. An organization can seek people who are likely to perform OCBs by using interview methods to predict who will engage most in compliance (Allen, Fecteau & Fecteau, 2004), OCBI or OCBO (Latham & Skarlicki, 1995). This is further supported with women-friendly HRM's relationship to a non-specific OCB measure (Chiu & Ng, 2001). Also, the more internal financial controls an organization has, the more likely it is to have OCBs, again using a non-specific measure (Holmes, Langford, Welch & Welch, 2002). Additionally, if an organization provides good co-worker social support, members of an organization are more likely to engage in helping OCB behaviors (Jones & Schaubroeck, 2004) and if it

has good organizational learning mechanisms, it also increases OCBI and OCBO (Somech & Drach-Zahavy, 2004).

From an organizational perspective, there are several ways that OCBs can be influenced. First, there are specific actions organizations can take to create OCBs such as selecting employees who are more likely to perform OCBs or by providing good social support. Secondly, a person's feelings about an organization, whether it be through commitment, affect or identification also affect OCB. Lastly, organizations have several processes that can be put in place to increase OCB.

OCB outcomes

Researchers and business people are interested in OCBs due to their perceived organizational benefits. Despite this, there have been few studies of outcomes because organization outcomes are notoriously hard to quantify and measure. However, some important linkages between organization and personal outcomes and varying types of OCB have been found.

One study found that a generalized OCB measure was linked to better safety at work, through more favorable perception of safety programs, more commitment to safety practices, and lower rates of accident involvement (Gyekye & Salminen, 2005). Other studies have looked at quality and quantity of work (Podsakoff, Ahearne & MacKenzie, 1997). Interestingly, they found that the quantity of work had a negative relationship to helping, while the quality of work had a positive relationship to helping and sportsmanship which would lend credence to Joireman et al's (2006) assertion that OCBs

present a social dilemma that requires a decision process to determine whether or not they are worthwhile.

Additionally, MacKenzie, Podsakoff and Fetter (1993) and Podsakoff and MacKenzie (1994) found positive links among helping, compliance, organizational compliance and individual initiative dimensions of OCB and overall performance evaluations. Along similar lines, Hui, Lee and Rousseau (2004) studied helping, organizational compliance and a generalized dimension of OCB's relationship to promotions and found positive significant relationships. In fact, the link between different types of OCBs and their outcomes was moderated by instrumentality. Since these studies clearly indicate positive outcomes for individuals who perform OCBs, instrumentality and impression management may be even stronger motivators than they was previously thought.

Payne and Webber (2006) used hair stylists to perform a study of customer outcomes, which indicated that OCB led to better customer satisfaction, more intention to be loyal to their stylist and word-of-mouth promotion to others. More specifically, they found that helping and organizational loyalty related to customer loyalty and word-of-mouth promotions. Organizational loyalty was positively related to customer satisfaction, but helping was not. Customer complaints were negatively related to helping, but had no relationship with organizational loyalty and OCB. This study leads one to believe that different types of OCB lead to different outcomes for the customer, and provides evidence of a clear link between OCBs and positive organizational outcomes, especially in service industries.

In a study of performance, Bachrach, Powell, Bendoly and Richey (2006) performed a study of the individual initiative dimension of OCB against performance and found that task performance, group performance and overall performance were all positively related to OCB. Their study also focused on task interdependence, so it is not a surprise that task performance has a significant positive relationship to OCB. Piccolo and Colquitt (2006) also studied task performance and found a positive link to a generalized OCB measure, although the focus of their study was on transformational leadership and its direct and indirect effects. Combining these studies shows that both leadership and task interdependence affect OCB outcomes such as performance.

Clearly, there are some important linkages between organizational and personal outcomes and varying types of OCB. From a personal perspective, an individual can expect a positive link between OCB and performance evaluation, as well as promotion. Organizations can expect better customer satisfaction, quality of work, quantity of work, and performance. Most research on OCB outcomes focuses on the helping dimension, while only a few deal with sportsmanship, loyalty, compliance, individual initiative, or non-specific OCB. There are no studies of either OCBI or OCBO and their relationships with any types of outcomes.

Table 2.3. Summary of Empirical Literature Findings

	Helping	Sportsmanship	Organizational Loyalty	Organizational Compliance
PERSONAL ANTECEDENTS				
Demographics				
Gender				
Age	Jones & Schaubroeck (2004)			Jones & Schaubroeck (2004)*
Race	Jones & Schaubroeck (2004)*			Jones & Schaubroeck (2004)
Education	Jones & Schaubroeck (2004)			
Salary				
Managerial Level	(-) Chiu & Ng (2001)			(-) Chiu & Ng (2001)
Work Status				
Trade Union Membership				
Elderly Dependents				
Individual Differences				
Issue Orientation				
Accountability				
Valid Information				
Impression Management				
Concern for Future Consequences	Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)	(-) Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)		
Reciprocation Wariness	(-) Kandrar, D., McAllister, D.J. & Turban, D.B. (2006)		(-) Kandrar, D., McAllister, D.J. & Turban, D.B. (2006)	
Transparency				
Joviality/Positive Mood		Rioux, S.M. & Penner, L.A.(2001)		
Self-assurance/Self-Efficacy				

	Helping	Sportsmanship	Organizational Loyalty	Organizational Compliance
Empathy / Empathetic Concern/Perspective Taking	Kandar, D., McAllister, D.J. & Turban, D.B. (2006); Joireman, J., Kandar, D., Daniels, D. & Duell, B. (2006)	Hui, C., Lam, S. S. K., Law, K. K. S. (2000)	Kandar, D., McAllister, D.J. & Turban, D.B. (2006)	Joireman, J., Kandar, D., Daniels, D. & Duell, B. (2006)
Instrumentality	Hui, C., Lam, S. S. K., Law, K. K. S. (2000)	Hui, C., Lam, S. S. K., Law, K. K. S. (2000)		Hui, C., Lam, S. S. K., Law, K. K. S. (2000)
Goal Commitment				
Conscientiousness				
Pro-social Values				
Intrinsic Motivation				
Intrinsic Satisfaction				
Extrinsic Satisfaction				
ORGANIZATIONAL ANTECEDENTS				
Job/Task				
Role Overload				
Job Stress				
Job Status				
Role Identity - Individual				
Job Insecurity				
Job Satisfaction	Chiu, W.C.K. & Ng, C.W. (2001); Kidwell, R.E., Mossholder, K.W. & Bennett, N. (1997); Jones, J.R. and Schaubroeck, J. (2004)*		Payne, S.C. & Webber, S.S.(2006)	Kidwell, R.E., Mossholder, K.W. & Bennett, N. (1997)
Work-Family Conflict				
Role Definitions for Individual Initiative			(-) Tepper, B.J., Lockhart, D. & Hoobler, J. (2001)	

	Helping	Sportsmanship	Organizational Loyalty	Organizational Compliance
Role Definitions for Personal Industry	(-) Tepper, B.J., Lockhart, D. & Hoobler, J. (2001)		(-) Tepper, B.J., Lockhart, D. & Hoobler, J. (2001); Kandar, D., McAllister, D.J. & Turban, D.B. (2006)	
Role Definitions for Loyal Boosterism				
Role Definitions for Interpersonal Helping	Kandar, D., McAllister, D.J. & Turban, D.B. (2006)		Kandar, D., McAllister, D.J. & Turban, D.B. (2006)	
OCB Role Definitions				
Mentoring Role Definitions				
Interdependence	Bachrach, D.G., Powell, B.C., Bendoly, E. & Richey, R. G. (2006)			
Job Variety				
Job Significance				
Job Feedback				
Job Breadth				
Core Characteristic Perceptions				
Anticipated Time Horizon	Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)	Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)		
Turnover Intention		Chen, Xiao-Ping, Hui, C. & Segoo, D.J. (1998)		
Career Identification				
Leadership				
Procedural Justice	Kandar, D., McAllister, D.J. & Turban, D.B. (2006)*; Rioux, S.M. & Penner, L.A. (2001); Tepper, B.J., Lockhart, D. & Hoobler, J. (2001)*	Rioux, S.M. & Penner, L.A. (2001)	Kandar, D., McAllister, D.J. & Turban, D.B. (2006)*; Tepper, B.J., Lockhart, D. & Hoobler, J. (2001)*	Rioux, S.M. & Penner, L.A. (2001)

	Helping	Sportsmanship	Organizational Loyalty	Organizational Compliance
Interactional Justice				
Distributive Justice		Rioux, S.M. & Penner, L.A.(2001)		
Abusive Supervision				
Leader Support				
Transformational Leadership				
Transactional Leadership				
Trust in Leader				
LMX				
Performance Feedback	Bachrach, D.G., Bendoly, E. & Podsakoff, P.M. (2001)			
Mentoring Behavior				
Affective Commitment to Supervisor				
Team				
Team Identification				
Team Cohesiveness	Kidwell, R.E., Mossholder, K.W. & Bennett, N. (1997)			Kidwell, R.E., Mossholder, K.W. & Bennett, N. (1997)
Team Climate				
Affective Commitment to Group				
Organizational				
Organizational Learning Mechanisms				
Transactional Contracts	Hui, C., Lee, C., & Rousseau (2004)	Hui, C., Lee, C., & Rousseau (2004)		Hui, C., Lee, C., & Rousseau (2004)
Relational Contracts	Hui, C., Lee, C., & Rousseau (2004)	Hui, C., Lee, C., & Rousseau (2004)		Hui, C., Lee, C., & Rousseau (2004)
Balance Contracts	Hui, C., Lee, C., & Rousseau (2004)	Hui, C., Lee, C., & Rousseau (2004)		Hui, C., Lee, C., & Rousseau (2004)
Mutual Commitment				
Internal Controls				

	Helping	Sportsmanship	Organizational Loyalty	Organizational Compliance
Women-Friendly HRMs				
Interview Methods for OCBs				Allen, T.D., Fecteau, J.D. & Fecteau, C.L. (2004)
Affective Commitment to the Organization				
Negative Affectivity	Jones, J.R. and Schaubroeck, J. (2004)			Jones, J.R. and Schaubroeck, J. (2004)
Positive Affectivity				
Organizational Concern				
Role Identity - Organizational				
Organizational Identification				
Co-Worker Social Support	Jones, J.R. and Schaubroeck, J. (2004)			
Organizational Commitment	Chen, Xiao-Ping, Hui, C. & Sego, D.J., (1998); Chiu, W.C.K. & Ng, C.W. (2001); Jones, J.R. and Schaubroeck, J. (2004)	Rioux, S.M. & Penner, L.A.(2001)		Kidwell, R.E., Mossholder, K.W. & Bennett, N. (1997)
OCB Outcomes				
Positive Perception of Safety Programs				
Commitment to Safety Practices	MacKenzie, S.B., Podsakoff, P.M. & Fetter, R. (1993); Podsakoff, P.M. & MacKenzie, S.B. (1994)	MacKenzie, S.B., Podsakoff, P.M. & Fetter, R. (1993); Podsakoff, P.M. & MacKenzie, S.B. (1994)		MacKenzie, S.B., Podsakoff, P.M. & Fetter, R. (1993); Podsakoff, P.M. & MacKenzie, S.B. (1994)
Lower Rate of Accident Involvement				
Overall Evaluation				

	Helping	Sportsmanship	Organizational Loyalty	Organizational Compliance
Promotion	Hui, C., Lee, C., & Rousseau (2004)			Hui, C., Lee, C., & Rousseau (2004)
Quality of Work	Podsakoff, P.M., Ahearne, M. & MacKenzie, S.B. (1997)	Podsakoff, P.M., Ahearne, M. & MacKenzie, S.B. (1997)		
Quantity of Work	(-) Podsakoff, P.M., Ahearne, M. & MacKenzie, S.B. (1997)			
Customer Satisfaction			Payne, S.C. & Webber, S.S.(2006)	
Customer Loyalty Intentions	Payne, S.C. & Webber, S.S.(2006)		Payne, S.C. & Webber, S.S.(2006)	
Customer Word-of-Mouth Promotion	Payne, S.C. & Webber, S.S.(2006)		Payne, S.C. & Webber, S.S.(2006)	
Customer Complaints	(-) Payne, S.C. & Webber, S.S.(2006)			
Task Performance	Bachrach, D.G., Powell, B.C., Bendoly, E. & Richey, R. G. (2006)			
Group Performance	Bachrach, D.G., Powell, B.C., Bendoly, E. & Richey, R. G. (2006)			
Overall Performance	Bachrach, D.G., Powell, B.C., Bendoly, E. & Richey, R. G. (2006)*			

	Individual Initiative	OCBI	OCBO	OCB (Non-Specific)
PERSONAL ANTECEDENTS				
Demographics				
Gender	Bolino & Turnley (2005)			(-) Feather & Rauter (2004)
Age				
Race				
Education			Lee & Allen (2002)	
Salary				
Managerial Level	Bolino & Turnley (2005)			
Work Status	Coyte-Shapiro, Kessler & Purcell (2004)			
Trade Union Membership	Coyte-Shapiro, Kessler & Purcell (2004)			
Elderly Dependents				
Individual Differences				
Issue Orientation			Somech, A. & Drach-Zahavy, A. (2004)	
Accountability			Somech, A. & Drach-Zahavy, A. (2004)	
Valid Information			Somech, A. & Drach-Zahavy, A. (2004)	
Impression Management		Finkelstein, M.A. & Penner, L.A. (2004)		Finkelstein, M.A. & Penner, L.A. (2004)
Concern for Future Consequences	(-) Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)			
Reciprocation Wariness			Somech, A. & Drach-Zahavy, A. (2004)	
Transparency				
Joviality/Positive Mood		Lee, K. & Allen, N.J. (2002)	Lee, K. & Allen, N.J. (2002)	

	Individual Initiative	OCBI	OCBO	OCB (Non-Specific)
Self-assurance/Self-Efficacy		Lee, K. & Allen, N.J. (2002)	Lee, K. & Allen, N.J. (2002)	Chiu, S. & Chen, H. (2005)
Empathy / Empathetic Concern/Perspective Taking	Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)			Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)
Instrumentality	Hui, C., Lam, S. S. K., Law, K. K. S. (2000)			Hui, C., Lam, S. S. K., Law, K. K. S. (2000)
Goal Commitment				Piccolo, R.F. & Colquitt, J.A. (2006)
Conscientiousness				
Pro-social Values	Rioux, S.M. & Penner, L.A.(2001)	Finkelstein, M.A. & Penner, L.A. (2004)*	Finkelstein, M.A. & Penner, L.A. (2004)*	Finkelstein, M.A. & Penner, L.A. (2004)*
Intrinsic Motivation				Piccolo, R.F. & Colquitt, J.A. (2006)
Intrinsic Satisfaction				Chiu, S. & Chen, H. (2005)
Extrinsic Satisfaction				Chiu, S. & Chen, H. (2005)
ORGANIZATIONAL ANTECEDENTS				
Job/Task				
Role Overload	Bolino, M.C. & Turnley, W.H. (2005)			Feather, N.T. & Rauter, K.A. (2004)
Job Stress	Bolino, M.C. & Turnley, W.H. (2005)			Finkelstein, M.A. & Penner, L.A. (2004)
Job Status				Feather, N.T. & Rauter, K.A. (2004)
Role Identity - Individual		Finkelstein, M.A. & Penner, L.A. (2004)	Finkelstein, M.A. & Penner, L.A. (2004)	Finkelstein, M.A. & Penner, L.A. (2004)
Job Insecurity				Feather, N.T. & Rauter, K.A. (2004)

	Individual Initiative	OCBI	OCBO	OCB (Non-Specific)
Job Satisfaction				Podsakoff, P.M., MacKenzie, S.B., Paine, J.B. & Bachrach, D.G. (2000); Chiu, S. & Chen, H. (2005); Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999); Tepper, B.J., Duffy, M.K., Hoobler, J., & Ensley, M.D., (2004)*
Work-Family Conflict	Bolino, M.C. & Turnley, W.H. (2005)*			
Role Definitions for Individual Initiative	(-) Tepper, B.J., Lockhart, D. & Hoobler, J. (2001)			
Role Definitions for Personal Industry				
Role Definitions for Loyal Boosterism				
Role Definitions for Interpersonal Helping				
OCB Role Definitions				Tepper, B.J., Lockhart, D. & Hoobler, J. (2001); Zeller, K.L., Tepper, B.J. & Tuffy, M.K. (2002) Tepper, B.J., Lockhart, D. & Hoobler, J. (2001)
Mentoring Role Definitions				
Interdependence	Bachrach, D.G., Powell, B.C., Bendoly, E. & Richey, R. G. (2006)			Chiu, S. & Chen, H. (2005)
Job Variety				Chiu, S. & Chen, H. (2005)
Job Significance				Chiu, S. & Chen, H. (2005)
Job Feedback				Chiu, S. & Chen, H. (2005)
Job Breadth	Coyle-Shapiro, J. A., Kessler, I. & Purcell, J. (2004)			

	Individual Initiative	OCBI	OCBO	OCB (Non-Specific)
Core Characteristic Perceptions				Piccolo, R.F. & Colquitt, J.A. (2006)
Anticipated Time Horizon	Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)			Joireman, J., Kamdar, D., Daniels, D. & Duell, B. (2006)
Turnover Intention				Chen, Xiao-Ping, Hui, C. & Sego, D.J. (1998)
Career Identification				Christ, O., van Dick, R., Wagner, U. & Stellmacher, J. (2003)
Leadership				
Procedural Justice	Coyle-Shapiro, J. A., Kessler, I. & Purcell, J. (2004)*; Rioux, S.M. & Penner, L.A.(2001); Tepper, B.J., Lockhart, D. & Hoobler, J. (2001)*	Lee, K. & Allen, N.J. (2002)		Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999)*; Tepper, B.J., & Taylor, E.C. (2003)*
Interactional Justice	Coyle-Shapiro, J. A., Kessler, I. & Purcell, J. (2004)*			Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999)*
Distributive Justice				Zeller, K.L., Tepper, B.J. & Tuffy, M.K. (2002)*; Tepper, B.J., Duffy, M.K., Hoobler, J., & Ensley, M.D. (2004)
Abusive Supervision				Chiu, S. & Chen, H. (2005)
Leader Support				Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999)*; Piccolo, R.F. & Colquitt, J.A. (2006)*
Transformational Leadership				Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999)*
Transactional Leadership				Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999)*

	Individual Initiative	OCBI	OCBO	OCB (Non-Specific)
Trust in Leader				Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999)
LMX				Piccolo, R.F. & Colquitt, J.A. (2006)
Performance Feedback				Tepper, B.J., & Taylor, E.C. (2003)
Mentoring Behavior	Bachrach, D.G., Bendoly, E. & Podsakoff, P.M. (2001)			Bentein, K., Stinglhamber, F.m and Vandenberghe, C. (2002)
Affective Commitment to Supervisor				Christ, O., van Dick, R., Wagner, U. & Stellmacher, J. (2003)
Team				Christ, O., van Dick, R., Wagner, U. & Stellmacher, J. (2003)
Team Identification				Christ, O., van Dick, R., Wagner, U. & Stellmacher, J. (2003)
Team Cohesiveness				Christ, O., van Dick, R., Wagner, U. & Stellmacher, J. (2003)
Team Climate				Bentein, K., Stinglhamber, F.m and Vandenberghe, C. (2002)
Affective Commitment to Group				
Organizational				
Organizational Learning Mechanisms		Somech, A. & Drach-Zahavy, A. (2004)	Somech, A. & Drach-Zahavy, A. (2004)	
Transactional Contracts	Hui, C., Lee, C., & Rousseau (2004)			
Relational Contracts	Hui, C., Lee, C., & Rousseau (2004)			
Balance Contracts	Hui, C., Lee, C., & Rousseau (2004)			
Mutual Commitment	Coyte-Shapiro, J. A., Kessler, I. & Purcell, J. (2004)*			

	Individual Initiative	OCBI	OCBO	OCB (Non-Specific)
Internal Controls				Holmes, S.A., Langford, M., Welch, O.J. & Welch, S.T. (2002)
Women-Friendly HRMs				Chiu, W.C.K. & Ng, C.W. (2001)
Interview Methods for OCBs		Latham, G.P. & Skarlicki, D.P. (1995)	Latham, G.P. & Skarlicki, D.P. (1995)	
Affective Commitment to the Organization				Bentein, K., Stinglhamber, F.m and Vandenberghe, C. (2002)
Negative Affectivity				(-) Zeller, K.L., Tepper, B.J. & Tuffy, M.K. (2005)
Positive Affectivity				Zeller, K.L., Tepper, B.J. & Tuffy, M.K. (2005)
Organizational Concern		Finkelstein, M.A. & Penner, L.A. (2004)	Finkelstein, M.A. & Penner, L.A. (2004)	Finkelstein, M.A. & Penner, L.A. (2004)
Role Identity - Organizational		Finkelstein, M.A. & Penner, L.A. (2004)	Finkelstein, M.A. & Penner, L.A. (2004)	Finkelstein, M.A. & Penner, L.A. (2004)
Organizational Identification				Feather, N.T. & Rauter, K.A. (2004); Christ, O., van Dick, R., Wagner, U. & Stellmacher, J. (2003)
Co-Worker Social Support				
Organizational Commitment	Rioux, S.M. & Penner, L.A.(2001)			Pillai, R., Schriesheim, C.A. & Williams, E.S. (1999); Schappe, S.P. (1998)*; Tepper, B.J., Duffy, M.K., Hoobler, J., & Ensley, M.D. (2004)
OCB Outcomes				
Positive Perception of Safety Programs				Gyekye, S.A. & Salminen, S. (2005)

	Individual Initiative	OCBI	OCBO	OCB (Non-Specific)
Commitment to Safety Practices				Gyekeye, S.A. & Salminen, S. (2005)
Lower Rate of Accident Involvement				Gyekeye, S.A. & Salminen, S. (2005)
Overall Evaluation	MacKenzie, S.B., Podsakoff, P.M. & Fetter, R. (1993)			
Promotion				Hui, C., Lee, C., & Rousseau (2004)
Quality of Work				
Quantity of Work				
Customer Satisfaction				
Customer Loyalty Intentions				
Customer Word-of-Mouth				
Promotion				
Customer Complaints				
Task Performance	Bachrach, D.G., Powell, B.C., Bendoly, E. & Richey, R. G. (2006)			Piccolo, R.F. & Colquitt, J.A. (2006)
Group Performance				
Overall Performance	Bachrach, D.G., Powell, B.C., Bendoly, E. & Richey, R. G. (2006)*			

* Indicates a Moderated or Mediated Relationship

Critique of the Current Literature

The literature review clearly shows some strong themes and reveals to a few possible critiques. One can clearly see that the research is very broad and addresses many different types of questions. There are also many linkages between OCB and other streams of research. However, this also means that the research lacks a consistent focus and, while broad, lacks strong conclusions. Even in areas where there has been a great deal of research, such as justice, the research has varied with different types of OCB and how they relate to either the antecedents or outcomes.

Another item of concern is that the definition of OCB requires that the behavior is not recognized by a formal reward system that a person does not receive rewards based on OCB, and that OCBs are behaviors not specified by any job or task requirement. While this is certainly true, items such as compliance can be considered part of a person's job requirements. Many of the definitions of organizational compliance are not extra-role behaviors, and they are clearly behaviors that can be measured, required by the organization, and rewarded or be detrimental to someone's performance. Additionally, in contradiction with the definition of OCB several researchers (examples include Hui et al., 2004, Mackenzie et al., 1993) have measured OCB against formal rewards such as promotion, increased salary or better performance reviews. While one may not receive a reward based on OCB alone, there is clearly another motivation to perform OCB.

Similarly, social exchange theory assumes that people do things without thinking of long term benefits; however, many studies have focused on outcomes that are clearly beneficial to an employee. Despite the breadth of lines of research, it is astonishing that it relies so heavily on social exchange theory, nearly to the exclusion of other theories. In

cases where employees are able to reap other benefits from their behaviors, pro-social behavior theory seems to be a good descriptor, although whether or not it is a theory is questionable.

Another item of note is that definitions of OCB seem to be highly correlated and not necessarily distinct from one another. For example, someone can engage in individual initiative by involvement in the political process of an organization, which may mean helping others to achieve some means. By doing this, the helping dimension and the individual initiative dimension have crossed. Additionally, many of the helping behaviors can be perceived as requirements, which would then overlap with compliance OCBs.

It is also important to notice that the literature focuses primarily on antecedents not outcomes. Understandably, organizations would like to focus on antecedents so they can better predict and encourage OCB; however, without a clear picture of the benefits, the work seems premature.

OCB has focused primarily been on traditional organizations. It does not take into consideration different cultural groups or alternative work arrangements where employees are not collocated. When employees do not belong to the same cultural group, there are potential cultural differences that may affect OCB. For example, a focus on timeliness by some may be seen as a lack of organizational compliance by others. On teams where employees are not collocated, organizational citizenship behaviors must be modified to encompass these issues. Starting work at a specific time may no longer be important, and without being collocated, employees may not be able to build the same

relationships with one another. Therefore, the workplace takes on a different dimension that could be affected by OCB.

CHAPTER THREE

VIRTUAL TEAM CITIZENSHIP BEHAVIORS: CONSTRUCT AND SCALE DEVELOPMENT

From the most basic perspective, virtual teams and traditional teams share the same purpose: both are working for a common goal. Both virtual and traditional teams have interconnected roles and tasks for each team member to perform. Each team should have a team leader and also use various methods of communication to share information.

Although the basic structure and purpose of teams within organizations is the same for virtual and traditional teams, there are also key differences in how teams are able to execute their functions.

One of the most striking differences between virtual teams and collocated teams is the lack of face-to-face interactions on a daily basis. Due to this, an entire stream of research has been created around the virtual team. Conceptually, a virtual team is one that works toward a common goal, while having minimal face-to-face interaction. Upon reviewing the literature, it seems that the definitions of a virtual team vary widely, but Schiller and Mandviwalla (2007) summarized the definition of virtual teams in the following way:

... (a) Members interact through interdependent tasks guided by common purposes (Lipnack & Stamps, 1997), (b) they use CMC [computer mediated communication] or telecommunication media substantially more than face-to-face communication (Anawati & Craig, 2006; Fiol & O'Connor, 2005; Griffith & Neale, 2001), and (c) they are geographically dispersed from each other (Cohen & Gibson, 2003; Griffith & Meader, 2004).

Although the definition can seem cumbersome because there are so many factors, it does lay out key differences that can challenge members of a virtual team. The virtual team literature is based on a plethora of theories. These theories range from

communication theories which are specific to virtual teams, such as media synchronicity theory or task-media fit theory, to well-established theories such as punctuated equilibrium. A brief overview of theories utilized is summarized in Table 3.1.

The quantity and variety of theories indicate that the streams of research have not yet merged together. Researchers are still working to better define and develop the theories around virtual team research. While some theories such as dialogue theory, learning theory or punctuated equilibrium model have only been utilized by one or two articles, some are utilized by many different researchers.

Media richness theory (MRT), media synchronicity theory (MST), social information processing theory, time interaction and performance theory, and social presence theory all deal with the social and interactive portions of a team. While they are not identical, they are all based on the general idea that either social interactions or social cues play an important role in teams.

Contingency theory of leadership effectiveness addresses and adaptive structure theory (AST) relate more to the context change induced by working in a virtual team environment. Both of them posit that the context or development of a team in a virtual environment will have an effect on how the team performs.

Clearly, based on Table 3.1, one can see that the two main concerns of virtual team researchers are the social interactions and the development of a team in the virtual team environment. In addition to the social and contextual differences, there are differences in the way that members of a team are able to communicate, learn, structure, and the ways that interpersonal differences manifest themselves. The contextual differences greatly affect organizational interactions, including citizenship behaviors.

Malhotra, Majchrzak and Rose (2007) found six basic principles that make virtual teams work: trust, appreciation of diversity, management of a virtual work-life cycle, monitoring progress, enhancing visibility of team members within the team, and enabling individual members to benefit from the team. In fact, because the virtual workplace is still evolving, Qureshi and Vogel (2001) took a contrary approach and outline five challenges that virtual teams face. Specifically they addressed structure, specialization, coordination, task challenges and learning and they found that virtual teams are successful based on how well they can adapt themselves to prevent problems.

In this chapter, I will establish VTCBs as a distinct construct for OCBs, propose the development and validation of a new measure for VTCBs and discuss potential antecedents to VTCBs.

Table 3.1. Theories Utilized in Virtual Team Literature

Theory	Definition	Benefits in applying to OCB	Challenges in applying to OCB	Theory Referenced By:
Dialogue Theory	True to its name, dialogue theory creates suggestions on how team members can discuss the rules they use to make decisions and create an ongoing dialogue. Ideally, this should create a culture of awareness of a person's experiences and thought processes.	Dialogue can help establish group norms and what is required of an individual. It can also help to define what is considered an OCB and what is considered "normal work. Additionally, dialogue theory, would be important for team members who are trying to assess what OCBs can be used and what would be either recognized or appreciated.	Rules on dialogue and open communication would be beneficial in establishing team rituals, these dialogue rules are not necessarily useful in creating or maintaining OCBs in an organization.	Tan, Wei, Huang and Ng (2000)
Media Richness Theory (MRT)	Different types of media differ in the amount of social cues they can carry, the timeliness of feedback and the capacity for natural expression.	Media Richness can affect the appropriateness of OCBs as well as limit the amount and type of OCBs that can be used.	There are a seemingly endless number of permutations of media that can be used to convey messages and information.	Lee (2000); Lowry and Nunamaker (2003); Majchrzak, Rice, King, Malhotra and Ba (2000); Pauleen (2003-2004); Warkentin and Beranek (1999); Zak (1993)
Media Synchronicity Theory (MST)	For convenience communication, low synchronicity will be more effective and for convergence communication, high media synchronicity will be more effective. The	Synchronicity can affect the appropriateness of OCBs as well as limit the amount and type of OCBs that can be used.	Synchronicity seems to be a larger issue for only those teams affected by it. Some teams do not have any synchronicity issues. Additionally, synchronicity issues are specific to the type of work being performed.	Murthy and Kerr (2003); Peffers and Tuunan (2005)

Theory	Definition	Benefits in applying to OCB	Challenges in applying to OCB	Theory Referenced By:
	fundamental concern is that the media and technology fit, which will create the highest performance			
Social Information Processing Theory	Social information rates of exchange differ between face-to-face and computer-supported groups	Social information processing is very closely related to both MRT and MST. The exchange between teammates is the focus of OCB and understanding the exchange will help clarify OCB.	This is very closely related to the other communications theories. Social interaction has not been widely studied in the OCB literature.	Chidambaram (1996); Chidambaram and Bostrom (1993), Walther (1995), Walther and Burgoon (1992), Warkentin and Beranek (1999) Lind (1999); Majchrzak, Rice, King, Malhotra and Ba (2000); Pauleen (2003-2004); Walther and Burgoon (1992); Warkentin and Beranek (1999) Hollingshead, McGrath and O'Connor (1993)
Social Presence Theory	The less present a person seems through the type of communication used, the less attention will be paid to others' interactions. As social presence declines, messages become more impersonal.	Very similar to social information processing theory, MRT and MST, social presence can help define a relationship within a virtual team which may then enable OCBs to develop.	This is very closely related to the other communications theories. Social interaction has not been widely studied in the OCB literature.	
Task-media Fit Theory	Developed based on MRT. For each type of communication, the proper media type should be used.	Task-media fit also applies to OCBs and whether or not they are recognized as OCBs. In addition, the media may limit what OCBs can perform.		

Theory	Definition	Benefits in applying to OCB	Challenges in applying to OCB	Theory Referenced By:
Learning Theory	Learning at work happens from learning work practices, not from learning outside the organization. Participants in practice learn that work is important for their immediate work needs and can ignore work practices that are perceived as less relevant to their performance.	Learning can be difficult for organizations or teams, especially in a virtual environment. OCBs could aid the process of learning if employees were willing to help others learn and understand work processes.	Learning theory is important in team development, but not necessarily relevant to OCB in all teams. Many teams are not dependent on one another to learn.	Robey, Khoo and Powers (2000)
Punctuated Equilibrium Model	Groups experience periods of stability followed by periods of intense change. During these periods of changes, the group's equilibrium shifts and a different set of behaviors is established.	In periods of intense change, it would seem likely that employees would need to participate in OCBs in order to help one another and benefit the company. Therefore, if OCBs aren't already present, a punctuating event could create the need for OCBs and induce them in the organization.	Although it is very possible that OCBs would become possible after or during change, it is hard to measure before and after the event, as these events are very unpredictable. Additionally, those who are likely to participate in OCBs will most likely do so in some way, however small, before the event(s) happen.	Chidambaram (1996)
Team Knowledge Transfer Model	A knowledge transfer model that is designed to apply to virtual teams.	Knowledge transfer could mean the transfer of knowledge of organizational culture or team members could use knowledge transfer to transfer key practices to other team members as a form of OCB	Since it is not widely used and the implications for OCB are very specific, the hypotheses from utilization of this theory will lack generalizability.	Griffith, Sawyer and Neale (2003)

Theory	Definition	Benefits in applying to OCB	Challenges in applying to OCB	Theory Referenced By:
Team Performance Model	There are seven stages of team performance: orientation, trust building, goal or role clarification, commitment, implementation, high performance and renewal.	Team performance model may explain some of the reasons that the team performs well, including OCB	OCB could be part of many of the different phases of the team performance model, however, the focus of this paper is to segregate OCB from the rest of the performance variables.	Warkentin and Beranek (1999)
Adaptive Structure Theory (AST)	Giddens (1989) posits that groups develop differently in different situations, especially when technology is introduced. A primary goal of group action is adaptation to the situation.	One element of adaptation could be differing forms of OCBs filling in where necessary	The varying types of group structures as well as the situational variables can be difficult to measure and use for conclusions. Therefore, OCBs could develop because of the situation or because of other factors and, due to lack of repeatability, be almost impossible to find the reason for.	Archer (1990); Chidambaram and Bostrom (1993); Chidambaram, Bostrom and Wynne (1990-1991); Dennis and Garfield (2003); Krumpel, (2000); Majchrzak, Rice, Malhotra, King and Ba (2000); Maznevski and Chudoba (2000); Qureshi and Vogel (2001)
Contingency theory of leadership effectiveness	Developed by Fiedler (1964), this theory states that interaction between leadership style and situational favorableness leads to group performance.	There is potential for OCBs to interact between both leadership style and situational favorableness and group performance	There are already multiple studies regarding OCB and leadership. Certainly, this could be included, however situational favorableness and leadership style vary, so it would be difficult to measure and achieve generalizable results	Belanger, Collins and Cheney (2001); Galagher and Kraut (1994); Kayworth and Leidner (2001-2002)

Theory	Definition	Benefits in applying to OCB	Challenges in applying to OCB	Theory Referenced By:
Control Theory	A organization utilizes a series of control mechanisms to ensure that employees are in line with predefined strategies.	Control mechanisms could be put in place to encourage or demand OCBs from the team.	This is very similar to other theories where a specific set of protocols is prescribed.	Piccoli and Ives (2003)
Network and Organization Theory	A model of network performance in virtual organizations -- it is dependent upon network structures and emergent networks such as resource-dependence theories and related-exchange theories, contagion theories, cognitive theories and theories of network and organizational forms	OCB could be seen as a way to promote networks and exchange.	Much of this is already covered in the social information processing theory and the social presence theory.	Ahuja and Carley (1999)
Time, Interaction and Performance (TIP) Theory	The development of links in groups is dependent upon performing activities related to member-support and group well-being functions. Groups make contributions to group discussions at three levels: production, member-support and group well-being.	Linkages between group members can encourage OCBs. OCBs can be contributions to the member-support and group well-being levels of TIP theory.	This is very closely related to network theory as well as some of the social information processing and social presence theories.	Massey, Montoya-Weiss and Hung (2003); Warkentin and Beranek (1999); Warkentin, Sayeed and Hightower (1997)

Theory	Definition	Benefits in applying to OCB	Challenges in applying to OCB	Theory Referenced By:
Role Theory	The nature of organizations is such that they can be understood in terms of the functional dependencies between individuals and groups. Although technically not a theory, this model proposes that the dimensions of a person's personality contribute to working in an organization	Many OCB studies already include roles and interdependencies and have found correlations between how roles are defined or how interdependent roles are to OCB.	This already has a significant amount of study between roles and OCBs.	Ahuja, Galleta and Carley (2003)
"Big Five" Personality	Although technically not a theory, this model proposes that the dimensions of a person's personality contribute to working in an organization	Already used in OCB, this theory may help determine who is more likely to participate in OCBs.	Current research has found weak linkages, linking only some of the dimensions to OCB. Putting the weak linkages into the virtual environment is not likely to increase their importance.	Balthazard, Potter and Warren, 2004
Commitment Theory	This theory proposes that those who have a strong commitment to an organization can be counted on to accomplish their tasks while remaining consistent with organizational goals and culture	From an OCB standpoint, it seems likely that organizations with high based on the fact that there are several types of commitment already outlined as topics in the OCB literature	Already a part of OCB literature, there are many different types of commitment that are correlated with OCB, including organizational commitment. This area has already been highly studied.	Schmidt, Montoya-Weiss, and Massey (2001)
Conflict Management Behavior Theory	Describes conflict management of work groups which includes avoidance, accommodation, competition, collaboration and compromise	Conflicts managed well can definitely help facilitate OCBs. It could create an environment where people are encouraged to use OCBs such as sportsmanship after resolving conflicts.	Virtual teams may have conflicts, however, it is difficult to accept that OCBs would be solely dependent on conflicts. Although it may be a factor in determining OCBs on virtual teams, there are likely to be more important factors.	Paul, Seetharaman, Samarah, and Mykytyn (2004)

Theory	Definition	Benefits in applying to OCB	Challenges in applying to OCB	Theory Referenced By:
Self-efficacy	An individual's behavior, environment and cognitive factors are all highly interrelated.	Already a part of the OCB literature, there are several studies creating correlations between OCB and self-efficacy.	Self-efficacy is already a part of the OCB literature.	Staples, Hulland and Higgins (1999)
Social Comparison Theory	An explanation for group polarization that indicates that people are motivated to present themselves as socially desirable. They compare their opinions and beliefs with those around them and adjust to be valued by others.	Although not directly called out in the literature, there are several topics that allude to social comparison theory such as instrumentality and impression management. If one compares themselves with others on the team, it is possible that a positive feedback loop of OCBs will develop until group norms are established.	Social comparison theory may be hard to measure because those who are doing something to compare themselves to others may be unwilling to admit that they are comparing themselves to others.	Sia, Tan and Wei (2002)
Social Identity or deindividuation theory	People seek to characterize themselves as either the in-group or out-group based on the characteristics of others in the group.	If there is a member of the in-group who performs OCBs then it would make sense that OCBs would propagate and placing employees who are involved in OCBs to make them the in-group would be beneficial to the organization. OCBs and various forms of identity have been widely studied.	In an organization where people work on a virtual team, it may be difficult to form an in-group or out-group as physical behaviors are difficult to observe. Therefore, the successful application of this theory is heavily linked to a team's interaction style.	Crampton (2001); Jarvenpaa and Leidner (1999), Scott and Timmerman (1999)
Swift Trust theory	Focused on how to maintain trust in virtual teams. Swift trust removes the focus from personal dimensions and cases it on social structures and actions.	Trust with teammates has not yet been studied as part of the OCB literature. The literature instead focuses on interdependence, cohesiveness and affect.	OCB literature has already studied interpersonal interactions as well as leadership trust. This is a new dimension to an area already studied.	Jarvenpaa, Knoll and Leidner (1998); Jarvenpaa and Leidner (1999)

VTCB as a multidimensional construct

OCBs in traditional teams are voluntary extra-role behaviors that aren't recognized by a formal rewards system, but that will produce a benefit to an organization as a whole. When employees are collocated, they can easily identify and perform OCBs by helping other members of the organization.

However, in a virtual team environment, extra-role behavior opportunities aren't as easy to identify and the benefit may not be to the organization, but instead to a virtual team since the majority of interactions are with the team, rather than the organization. Some of the theories in the virtual team literature such as media richness theory, social information processing theory or social presence theory may make the virtual team worker focus on the team rather than the organization. When working virtually, the team is more salient, since the majority of interactions are with team members and not organizational managers or other non-team members that would otherwise be considered as part of the organization.

Therefore, a distinction must be made between OCBs and virtual team citizenship behaviors (VTCBs). The underlying concept of citizenship behaviors are the same, but VTCBs differ because they are citizenship behaviors directed toward the virtual team. This changes the context of the behavior as well as the target of the behavior.

The clear example of this is in the area of communication, where most of the interaction among team members is done without meeting face-to-face. In a review of the literature, there are two theories that address this - social presence theory and social information processing theory. Both these theories are widely used in virtual team literature. One could conclude that since face-to-face interactions have a higher rate of

exchange for social information, social cues are lessened in virtual teams. Again, this greatly reduces the implicit demands on team members who might benefit from VTCBs. That is, a team member may not be aware of the fact that there is an opportunity to perform a VTCB for the team. Behaviors between team members typically require some type of cue indicating that a person is open and willing to receive a team citizenship behavior. Limited cues drastically affect the interactions between employees. For example, teams that are more cohesive will probably have more citizenship behaviors because their interactions are an important part of the team dynamic. Similarly, team members with higher perceived dissimilarity may have fewer VTCBs as they are less sure of the needs of others.

If VTCBs follow the same dimensions as OCB, the changes in context and behavior will create some differences in the dimensional definitions as well as how much they contribute to team performance. A summary of these changes is offered in Table 3.2. The next few sections will detail the definitions and differences expected between VTCBs and OCB dimensions.

Table 3.2. Comparison of Dimensions Between OCB and VTCB.

OCB Dimension	VTCB Dimension	Difference from OCB to VTCB	Summary of differences
Helping	Helping	Decreased Importance to Team Performance	In a virtual team environment, it is hard to identify appropriate methods and timing where help can be offered and be beneficial to the team.
Sportsmanship	Sportsmanship	Increased Importance to Team Performance	Due to decreased media richness and synchronicity, it's important for team members to offer constructive conversation without taking things personally if things do not go their way.
Organizational Loyalty	Virtual Team Loyalty	Decreased Importance to Team Performance	For those that are on virtual teams and work without collocated counterparts, organizational loyalty is greatly decreased. If team members work with others, organizational loyalty is defending the team against those that are collocated, rather than organizational outsiders.
Organizational Compliance	Virtual Team Compliance	Increased Importance to Team Performance	Virtual teams often require special management of processes such as communication and feedback to overcome the challenges of being on a virtual team. Given this, it is essential that team members comply with all processes and procedures set up within the team.
Individual Initiative	Individual Initiative	No Change in Importance to Team Performance	Differences of opinion need to be discussed and handled in an appropriate manner, regardless of whether or not the team is virtual or collocated.

Helping. The basic definition of helping does not change – helping team members in work or non-work related issues. However, in a virtual team, there would certainly be some differences in the manifestation of this helping behavior.

One type of helping is courtesy, which is defined as making adjustments to personal lives for the benefit of teammates. Based around the idea of media synchronicity, there are significant challenges facing virtual team members, including when to have meetings or overlap time with other team members. Referencing Tan et al. (2000), it is important to build shared understanding. As a result, it may be necessary to have meetings where employees gather either face-to-face or through other means to create this shared understanding. If these meetings are not face-to-face, it is important to make sure that this happens during work hours, but when that's not possible, it is good to take turns infringing on team members' personal lives. That is, teammates should rotate in having evening or early morning meetings during times when team members are not normally at work.

Sportsmanship. Typical definitions of sportsmanship relate to enduring differences of opinion or things not going a person's way without complaining. While sportsmanship hasn't been widely studied as an OCB, this is potentially important in a virtual team. Having a constructive conversation and being willing to have a good attitude despite things not going your way must be an essential part of the team. In virtual teams, everything is communication-based, and with the lack of media richness, it is easy to take things incorrectly or personally and there are large opportunities for misunderstanding or

feeling bullied. If employees can participate constructively without taking things personally, it would clearly benefit the team and be a VTCB.

Virtual Team Loyalty. Virtual team loyalty is defined as promoting the team to outsiders. That is, those with virtual team loyalty will defend the team, even when someone else is putting down the team or demeaning it. This may only apply to those who work on both collocated and virtual teams.

Seemingly, most challenging part of establishing virtual team loyalty is getting team members to identify with and commit to the team (Schmidt, Montoya-Weiss & Massey, 2001). With this comes the challenge for identifying as strongly with a virtual team as with a collocated team. If a team member is working on a virtual team exclusively, there will be better identification with the team and, therefore, the team's success should be more important to the individual. However, those who are working on both virtual and local teams will have stronger identification with their local teams as the virtual and local teams compete for attention (Majchrzak et al., 2000).

The challenge of defending the team against others is that virtual teams are much less visible than an organization, so the only people who may talk negatively about a virtual team are likely to members of the larger organization. In summary, virtual team loyalty relies mostly on identification with the team and defending it against those that are collocated.

Team Compliance. Organizational compliance is about following group norms as well as following requirements within an organization. Virtual teams would have similar norms

and requirements that are both explicit and implicit. Many studies of virtual teams focus on developing tools that enhance the virtual team environment (see Lowry & Nunamaker, 2003; Geister, Konradt & Hertel, 2006; Tan, Wei, Huang & Ng, 2000).

Since employees aren't collocated, it is difficult to create a culture where others lead by example; therefore critical work practices and standards must be spelled out explicitly to avoid any misunderstanding. It may be necessary to standardize communication in order to transfer information properly (Kruempel, 2000). Even without knowledge transfer, there are many articles that address methods to structure dialogue in order to build shared understanding in teams (Tan, Wei, Huang and Ng, 2000).

Due to differences in media richness and synchronicity, many subtleties that seem obvious in face-to-face meetings are not clear in virtual meetings or through written communication. Therefore, it is important to set standards and processes which team members need to follow in order to effectively participate in a team.

Individual initiative. Individual initiative is defined as regular, constructive participation in the daily activities and planning of team processes and activities. In any team environment, it is important to have differences of opinion that are expressed and handled effectively. In order to better facilitate the knowledge transfer, it is important for a team leader to set expectations of team members (Bosch-Sijtsema, 2007). This could include structured dialogue which will help a team to develop shared understanding (Tan, Wei, Huang and Ng, 2000). Going a step further, researchers found that employees on a virtual team who were most able to express their opinions via a feedback system

experienced an increase in overall team performance, indicating that feedback has a positive effect on motivation, satisfaction and performance (Geister, Konradt & Hertel, 2006).

In summary, although OCBs and VTCB's have similar dimensions, the context is different and context change makes an important difference in the way these behaviors manifest themselves. The current measurements for OCBs do not capture these changes. Therefore the expectation is that, like OCBs, VTCBs will be multidimensional, although the dimensions may differ from OCB dimensions.

Hypothesis 1: VTCBs are a multidimensional construct.

Construct validity for VTCB

Convergent Validity

Since VTCB is a new construct that is distinct from, but similar to OCB, we will need to develop a scale in order to study it effectively. In developing a scale, it is necessary to establish convergent and divergent validity with existing measures.

Convergent validity is a measure of whether or not the new measure is related to other, similar constructs, and discriminant validity is a measure to show that it is distinct and separate from measures we expect it to differ from (Campbell and Fiske, 1959; Hinkin, 1995). Clearly, much of the theory used to develop the concept of VTCBs is based on OCB and its various dimensions. However, these should still be distinct and separate from one another. Therefore, OCBs dimensions and VTCB dimensions should be positively correlated to one another.

Hypothesis 2: The dimensions of VTCB are positively correlated with the dimensions of OCB.

Divergent Validity

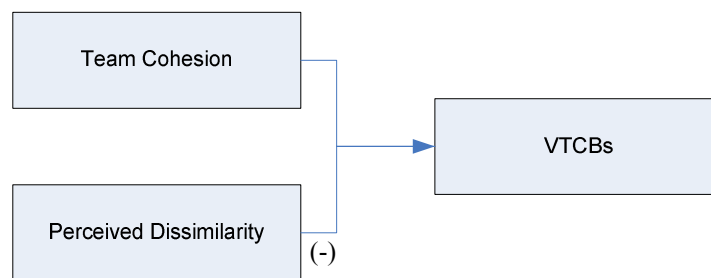
In order to show divergent validity, it is necessary to show that VTCBs differ from an opposite type of behavior, such as workplace deviant behavior (WDB). WDB, defined by Robinson and Bennett (1995) is defined as “voluntary behavior of organizational members that violates significant organizational norms, and in doing so, threatens the well-being of the organization and/or its members” (p. 556). Behaviors that violate significant norms should be different than those that contribute to the best interest of an organization.

Hypothesis 3: The VTCB construct measures will be distinct from WDB measures.

Nomological Validity

The primary theory underpinning OCBs is social exchange theory (Blau, 1964). Many of the theories in Table 3.1 also reference social exchange but have different names. If we review VTCBs in the context of social exchange theory, we would expect that teams can garner better outcomes for the team by encouraging citizenship behaviors between team members. Given that this is true, what types of activities would happen within a team to get people to reciprocate or engage in VTCBs? The variables presented in this section and their relationships with VTCBs are presented in Figure 2 below.

Figure 2. A Nomological Network for VTCBs.



Team Cohesion

Based on social exchange theory, it makes sense that social encounters would enhance an environment of VTCBs. The OCB research indicates that there are several personal factors, such as motives, that play an important part in predicting OCBs (Rioux

& Penner, 2001; Van Dyne et al., 1995) and, therefore, would also play an important role in VTCBs.

One such factor is team cohesiveness, which has also been shown to be an important factor in predicting group performance (see Salisbury, Carte & Chidambaram, 2006). Team cohesion is the perception that team member belong to a particular group and the morale they feel from being associated with membership in the group (Bollen & Hoyle, 1990). There are two primary dimensions to cohesiveness, team morale and an individual's sense of belonging to that team. In fact, Salisbury et al., (2006) lay out convincing arguments that virtual teams do not develop cohesiveness in the same way as collocated teams and experience several challenges.

Cohesion depends strongly on team interactions, which can be challenging in virtual teams. In fact, much virtual team research has focused on communication and difficulties with virtual team interactions.

Computer-mediated communication usage for complex collaborative work can be difficult, especially for tasks that require interactive, expressive communication (Galegher & Kraut, 2004). Lowry and Nunamaker (2003) developed a tool to decrease the loss of media richness and social context cues associated with virtual teams while increasing productivity and Warkentin, Sayeed and Hightower (1997) suggested the use of emoticons to help reduce the effects from lower media richness. Additionally, in order to counteract many of the effects of asynchronicity and lack of media richness, some researchers address methods to structure dialogue in order to build shared understanding in teams (Tan, Wei, Huang and Ng, 2000). All of these studies aim to understand how teams can reduce the effects of computer mediated communication on outcomes. With

this challenge, it is obvious that team members may have an easier time developing cohesion with more expressive, interactive communication.

Since cohesiveness is important in creating an environment where positive behaviors are encouraged, it would make sense that those teams that are more cohesive have greater likelihood of VTCBs. In fact, OCBs can be regarded as social dilemmas that require a person to evaluate if the cost is worth the gain on a case-by-case basis (Joireman, Kamdar, Daniels & Duell, 2006). Team members need to evaluate VTCB opportunities on a case-by-case basis to determine if the cost of participating in a VTCB is worth the gain. The more a team member feels that he/she belongs and has team morale, the more likely they are to feel that they are performing VTCBs which are worth the impact to their own schedule.

Hypothesis 4: Members on cohesive virtual teams will be more likely to engage in virtual team citizenship behaviors.

Perceived Dissimilarity

Much attention has been paid to how members of an organization interact and how differences between organizational members that benefit and detract from organizational performance. Much of this research has focused on variations of perceived dissimilarity.

One area of organizational research addresses organizational demography, which is what Tsui and O'Reilly (1989) define as "the comparative demographic characteristics of members of dyads or groups who are in a position to engage in regular interactions"

(p.403). The majority of this research has been based on traditional, collocated teams, but there are still important lessons that can apply to a virtual team, especially as people determine to whom they should direct VTCBs.

Much of the research has focused on race/ethnicity and manager-employee dyads (see Avery, McKay & Wilson, 2008) and its effect on trust (Lau, Lam & Salamon, 2008). However, in a virtual team, race/ethnicity is less salient, without some of the daily interactions and visual cues to indicate that there are race/ethnicity differences. Certainly, there could be some differences detected based on accent or location, but they should be less important when members are not physically collocated.

Another area of demography has to do with demographic similarity in terms of social classes and gender. Demography can be used as a method to be more socially mobile (Chattopadhyaya, Tluchowska & George, 2004). In fact, relational demography in terms of gender and hierarchical status were negatively related to creative behavior (Choi, 2007). Choi (2007) suggested that it is necessary to look at multiple levels of classification that happen between team members.

In a virtual team, levels of dissimilarity are much less visual. In fact, all team members may be different, and therefore, the physical and demographic dissimilarity is less important. Williams, Parker and Turner's (2007) performed a study in which employees who perceived themselves as more dissimilar were less likely to consider the perspectives of others. When employees do not consider others' perspectives, they are less likely to make compromises and be less willing to accept others' ideas.

More specific to virtual teams, Lee (2000) found that team members were highly influenced by organizational protocols and hierarchy. Media choices depended on

whether or not team members were able to show correct protocol to managers. Without the same social cues and indicators of similarity and dissimilarity, media had to be chosen appropriately to convey the correct message.

Beyond this, even the more traditional definitions of similarities applied to virtual teams – those that are on the surface, such as race, seem much less important than those that are more deeply rooted, such as values. Elfenbein and O'Reilly (2007) found that deeper value fits were stronger than surface demographic fits and that deeper value fits were most important for team members to fit into a group.

In virtual teams, it is much less likely that race is relevant, especially those races that can be different without written or auditory indicators such as grammatical structures, geographic indicators, or accents. While some team members may have accents based on their cultural background, there are also those that may not have accents or written indicators because they were immersed in another culture and therefore can represent themselves without giving away their cultural background. Also, employees can focus on deeper value fits which are stronger. Team members that have deep value fits will fit in better with the team and be more likely to engage in VTCBs as part of the social exchange with their teammates. The focus in virtual teams will shift from demographics to similarity or dissimilarity with team members.

Working across multiple time zones, through varying media, and through different schedules certainly requires special understanding with teammates. This understanding can be loosely categorized as similarity or dissimilarity between team members at a values level. If team members are working toward the same goals and have similar thought processes, they will be better able to anticipate the one another's needs.

In this way, VTCBs should increase as team members feel that they have the same purpose and can help one another through daily processes.

Hypothesis 5: Employees with lower perceived dissimilarity will participate more often in VTCBs.

CHAPTER FOUR

METHODOLOGY

From a review of chapter three, one can deduce that there are several opportunities for study; therefore, I conducted three interlocking studies. The first study generates items to measure citizenship behaviors in virtual teams (VTCBs). The second study refines items on the scale, identifies the dimensionality of the scale, assesses its psychometric properties and establishes convergent and divergent validity. The third and last utilizes the scale developed in the previous studies and provides nomological validity by determining which antecedents contribute to various forms of VTCBs.

Study 1: Scale Development

The objective of study one was twofold. Primarily, the goal was to determine what types of behaviors are important to team members of virtual teams and, secondly, to develop a feel for whether or not the scales used to assess OCB in a traditional team setting still apply to VTCBs. Since this is exploratory in nature and will set the stage for quantitative analysis, it is appropriate to apply qualitative research methodologies (Babbe, 2001).

Item Generation

Methods. To get a variety of opinions, there were semi-structured face-to-face interviews (Kvale, 1996) of 10 participants who have worked on virtual teams, five of the interviews focused on negative virtual team experiences and five focused on positive virtual team experiences. To provide a broad scope of experiences, I targeted a

heterogeneous sample that includes both male and females of different ethnic groups, professions and age ranges.

The interviews were structured to understand citizenship behaviors in a virtual team context. Interviews lasted between 30 and 60 minutes and use the funnel approach (Kvale, 1996) and went from general to specific. Questions focused on which items are considered citizenship behaviors on virtual teams as well as collect demographic data and information on citizenship behavior antecedents in virtual teams. Results are presented as a table of highlights for each section. An interview framework is shown below, although the interviewer was able to deviate from the script to ask probing or clarifying questions (Kvale, 1996).

Table 4.1. Interview questions for VTCBs.

Category	Question
Team Characteristics	Can you please give me an overview of the virtual team that you worked on?
	What methods were used to conduct meetings? Video or Teleconference?
	How often did the team meet?
	Did you have relationships with the virtual team members before you worked with them virtually?
	Did you meet with people face-to-face at any point?
	What were some of the goals of the team?
	Was the team effective?
	Did they meet their goals?
	Who worked on the team - what was the size of the team and what countries were represented?
	Was there any one group who was difficult to work with?
	What was your role on the team?
VTCBs	How did you feel that your overall experience on virtual teams went?
	Did you feel that it was positive or was it more negative?
	Do you prefer to work on virtual or face-to-face teams?
	What types of behaviors did your peers engage in that were really beneficial or really detracted from the work together.
	Why do you feel that way?
	What types of things make working on virtual teams easy/hard?
	Which team members engaged in these behaviors?
	Why did you perceive that behavior was beneficial or a detractor?
	Do you think that the same behavior would be a detractor/benefit in general, or was it because of the specific person/role that you were working with?

What kinds of things did you do in order to benefit the team?
What kind of relationship did you have with your peers?
Did you have a personal relationship or was it a strictly business relationship?
What types of behaviors do you feel are most valued in a virtual team?

The interview information gathered was classified into different behaviors by the researcher and presented as new items for content validation.

Content Validation

As content validity can be one of the most important parts of developing sound measures, it is important to review existing OCB items as well as the new items generated to ensure that the scale is sound and applies in the new context. Following Hinkin (1995), I used an inductive approach by asking a panel of experts to classify the existing and new item measures into a number of categories.

The panel of experts was comprised of five people who have had experience on a virtual team. Similar to Anderson and Gerbing's (1991) method of an item sort, experts will be asked to sort behaviors into groupings, and indicate which items are applicable in a virtual team environment. This item sort will be distributed in Microsoft Word format, so it is editable by those who are not collocated with the researcher. This helps solidify the classifications made by the researcher and provides content validity for the survey.

Study 2: Scale Dimensionality, Psychometric Properties and Initial Construct Validity

The focus of this study will be to first assess the dimensionality of the scale and assess psychometric properties. In this portion, I also test the new scale for convergent and divergent validity.

Sample. The sample consisted of 87 people within the researcher's personal and professional network. This convenience sample was recruited via snowball sampling and this allowed for a good variety of professions, age groups, experiences and organizations. While some subjects have met and worked together, there are many who have never met and therefore have only interacted through teleconferences, instant messaging and e-mails. Surveys will be administered electronically via an online tool at surveymonkey.com.

No particular gender, ethnic group, age range, or profession was targeted, although to be included in the survey, each subject must have worked on a virtual team in the past year for a period of greater than one month. The introduction to the survey will ask the subjects to provide information on a single virtual team experience they have had in the prior year.

A power analysis based on correlations, indicates that with a moderate effect size ($r = .30$) and $\alpha = .05$ and 80% power, a sample of 87 team members is adequate (Snedecor & Cochran, 2009).

Scales. The items chosen from the OCB, and WDB scales are listed in Table 4.3 below. Additional items were generated based on the results of Study 1. At this point, it is important to note that although self-development was listed as a dimension of OCB in Chapter 2, it has never been empirically tested (Podsakoff et al., 1997) and, therefore, was not included in this study. Additional open-ended items were used to collect information about each subject's personal demographic background, position within the organization, team interactions, and information on the virtual team.

Scale Distribution. Demographic items, as well as items in Table 4.2, were placed in an electronic format. Responses to all scale items were on a 7 point Likert scale from strongly disagree to strongly agree. Demographic data was collected as indicated in Table 4.2 below. An e-mail from the author asked for participation and gave a link to the electronic questionnaire.

Analytical Procedure. There were two parts to the analytical procedure. First, the items generated will be analyzed following Hinkin's (1998) recommendations. First, normality plots will be used to verify the assumption of normality. In addition, kurtosis and skewness were checked to identify items that exceed the standard plus one and minus one range. Second, to determine dimensionality, I conducted a principal components analysis and items with loadings lower than .60 were removed. Questions that load on more than one factor, or do not load on any factor, were removed. In addition to this, Cronbach's alpha will be used to assess internal consistency reliability and 0.6 will serve as the minimum acceptable value (Price & Mueller, 1986).

The second part of the study analysis was a correlation matrix of the dimensions of OCB and the WDB (Campbell & Fiske, 1959). These results were placed in a table with the mean and standard deviation of each dimension of VTCB as well as WDB and OCB. An additional factor analysis was performed to further review the difference in dimensions between VTCB and OCB.

Table 4.2. Proposed Questions for VTCB Scale Development and Validity

Category	Source of Item	Item
Virtual Team Participation	Podsakoff et al., 1997	How often do you participate in virtual teams?
		When was the last time you participated in a virtual team?
		What is/was your primary method of communication with the team?
		What area of the company do you work for (e.g. engineering, service, manufacturing, sales, etc.)?
		How long have you worked for the company?
		What country do you currently reside in?
		Is this the ethnic background that you most identify with? If not, what is your ethnic background?
		In what country is the group that you most often work with on virtual teams?
		Help each other if someone falls behind in his/her work
		Willingly share their expertise with other members of the team
		Try to act like peacemakers when other team members have disagreements
		Take steps to try to prevent problems with other team members
		Willingness give of their time to help team members who have work-related problems
		"Touches base" with other team members before initiating actions that might affect them
Encourage each other when someone is down		
Podsakoff, Mackenzie, Moorman and Fetter, 1990	Helps others who have been absent	
	Helps others who have heavy work loads	
	Helps orient new people even though it is not required	
	Willingly helps others who have work related problems	

OCB - Individual Initiative	Podsakoff et al., 1997	<p>Is always ready to lend a helping hand to those around him/her</p> <p>Provide constructive suggestions about how the team can improve its effectiveness</p> <p>Are willing to risk disapproval to express their belief about what's best for the teams</p> <p>Attend and actively participate in team meetings</p> <p>Attends meetings that are not mandatory, but are considered important</p> <p>Attends functions that are not required, but help the company image</p> <p>Keeps abreast of changes in the organization</p>
OCB - Sportsmanship	Podsakoff et al., 1997	<p>Reads and keeps up with organization announcements, memos and so on</p> <p>Always focus on what is wrong with our situation rather than the positive side*</p> <p>Consume a lot of time complaining about trivial matters*</p> <p>Always find fault with what crew members are doing*</p>
OCB - Courtesy	Podsakoff, Mackenzie, Moorman and Fetter, 1990	<p>Consumes a lot of time complaining about trivial matters *</p> <p>Always focuses on what's wrong rather than the positive side *</p> <p>Tends to make "Mountains out of Molehills" *</p> <p>Always finds fault with what the organization is doing *</p> <p>Is the classic "Squeaky Wheel that always needs greasing *</p>
	Podsakoff, Mackenzie, Moorman and Fetter, 1990	<p>Takes steps to prevent problems with other workers</p> <p>Is mindful of how his/her behavior affects other people's jobs</p> <p>Does not abuse the rights of others</p> <p>Tries to avoid creating problems for coworkers</p> <p>Considers the impact of his/her actions on coworkers</p>

OCB - Organizational Compliance	Podsakoff, Mackenzie, Moorman and Fetter, 1990	<p>Attendance at work is above the norm</p> <p>Does not take extra breaks</p> <p>Obeys company rules and regulations even when no one is watching</p> <p>Is one of my most conscientious employees</p> <p>Believes in giving an honest day's work for an honest day's pay</p> <p>Defends the organization when other employees criticize it</p> <p>Encourages friends and family to utilize organization products</p> <p>Defends the organization when outsiders criticize it</p> <p>Shows pride when representing the organization in public</p> <p>Actively promotes the organization's products and services to potential users.</p>
OCB - Organizational Loyalty	Moorman & Blakely, 1995	<p>Made fun of someone at work</p> <p>Said something hurtful to someone at work</p> <p>Made an ethnic, religious or racial remark at work</p> <p>Cursed at someone at work</p> <p>Played a mean prank on someone at work</p> <p>Acted rudely toward someone at work</p> <p>Publicly embarrassed someone at work</p> <p>Spent too much time fantasizing or daydreaming instead of working</p> <p>Falsified a receipt to get reimbursed for more money that spent on business expenses</p> <p>Taken an additional or longer break than is acceptable</p> <p>Come in late without permission</p> <p>Neglected to follow the boss's instructions</p> <p>Intentionally worked slower than he/she could have worked</p> <p>Discussed confidential company information with an unauthorized person</p>
Workplace Deviant Behaviors	Robinson & Bennett, 2000	

Put little effort into his/her work
Dragged out work in order to get overtime

* Indicates item is reverse-coded.

Study 3: Nomological Validity

Nomological validity represents the ability of a scale to show relationships among varying constructs. This study utilized the scale of VTCBs developed in Studies 1 and 2 to identify potential antecedents of VTCBs. I utilized developed scales for team cohesiveness and perceived dissimilarity.

Sample: The sample consisted of 107 professionals who have experience working on virtual teams. Similar to Study 2, this was a convenience sample of people from the author's personal and professional networks. While some employees have met and worked together, there are many who have never met and therefore have only interacted with their virtual teams through teleconferences, instant messaging and e-mails. As with the other studies, all ethnic groups, genders, age ranges and professional will be targeted with an online survey tool.

A power analysis based on correlations indicates that with a moderate effect size ($r = .26$) and $\alpha = .05$ and 80% power, a sample of 107 team members is adequate (<http://www.biomath.info/power/corr.htm>, 2012).

Scales. The VTCB scale developed in Study 2, was utilized with the additional items listed in Table 4.3 below.

Table 4.3. Additional Survey Items to Test Nomological Validity

Measure	Source	Items
Perceived Dissimilarity	Williams, Parker and Turner, 2007	<p>My teammates are similar in terms of outlook and values.*</p> <p>My teammates and I see things in much the same way.*</p> <p>My teammates and I are alike in a number of areas.*</p> <p>My teammates and I handle problems in a similar way.*</p> <p>My teammates and I think alike in terms of coming up with a similar solution.*</p> <p>My teammates and I analyze problems in a similar way.*</p>
Team Cohesiveness	Salisbury, Carte, Chidambaram, 2006	<p>I feel that I belong to the virtual team.</p> <p>I am happy to be part of the virtual team.</p> <p>I see myself as part of the virtual team.</p> <p>This team is one of the best anywhere.</p> <p>I feel that I am a member of this team.</p> <p>I am content to be part of the virtual team.</p>

* Indicates items are reverse coded.

Scale Distribution. All items below were placed in an electronic format via surveymonkey.com and subjects were asked to indicate their agreement with each item. Responses were on a 7 point Likert scale with strongly agree and strongly disagree as the response anchors. An e-mail from the author asked for participation and gave a link to the electronic questionnaire.

Analytical Procedure. Using data from this sample, I first attempted to perform a confirmatory factory analysis using structural equation modeling, however the LISERL results indicated that the sample size was likely too small for evaluation. Instead, a confirmatory factor analysis was used to re-assess dimensionality of VTCBs as well as show that VTCBs, perceived dissimilarity, and team cohesiveness all load on different factors. First, normality plots will be used to verify the assumption of normality. In addition, kurtosis and skewness were checked to identify items that exceed the standard plus one and minus one range. Cronbach's alpha will be used to assess internal consistency reliability (Price & Mueller, 1986).

Next, to assess the nomological network (Hypotheses 4-5), a correlation table and regression analysis were used to assess relationships. I expected that team cohesiveness to be a positive input to VTCBs and perceived dissimilarity to have a negative influence on VTCBs.

CHAPTER FIVE

RESULTS

In this chapter, the results from the three studies are outlined. The first study outlines results from the item generation portion for virtual team citizenship behaviors (VTCBs). The second study outlines the results that were used to establish convergent and divergent validity between organizational citizenship behaviors (OCB), workplace deviant behavior (WDB), and VTCBs. Finally, the study 3 results outline the final survey results and assess the relationship between team empowerment, cohesiveness, perceived dissimilarity, and VTCBs.

Study 1 Results

The purpose of the first study was to generate new items and ensure that the new items, as well as items on existing scales, were relevant to the virtual team environment. There were two parts to the study. The first portion was item generation, which was a qualitative method where the researcher interviewed 10 subjects about their virtual team experiences. Based on those interview responses, new items were generated to create a VTCB scale.

The second part of this study was a content validation completed through an item sort. The item sort consisted of organizational citizenship behavior (OCB) items from established scales and the newly generated VTCB items. Items were evaluated by 5 experts who had varying degrees of experience on virtual teams. Subjects were asked to indicate which items did not apply in a virtual team environment.

Item Generation

For the item generation portion, 10 interviews were conducted. Subjects were unable to focus on solely positive or negative experiences and therefore, interviews focused on both

positive and negative aspects of working on virtual teams. The demographics of the team members are shown in Table 5.1 below.

Table 5.1 Demographics for Item Generation Interviews

Subject	Ethnic Background	Male / Female	Age	Org. Tenure	Years on virtual		Function	Current Work Situation	Location
					Teams	Teams			
1	American	Male	46	16	9	9	Engineering	Virtual / Office Mix	US
2	American	Female	42	12	10	10	Service	Virtual / Office Mix	US
3	African	Female	27	4	4	4	Sourcing	Virtual / Office Mix	US
4	American	Female	38	12	7	7	Regulatory	Virtual / Office Mix	US
5	Chinese	Male	37	8	6	6	Manufacturing	Virtual / Office Mix	China
6	Indian	Male	31	2	9	9	IT	100% Virtual	India
7	France	Male	28	6	5	5	Service	Virtual / Office Mix	France
8	Colombian	Male	37	5	5	5	Manufacturing	Virtual / Office Mix	US
9	Brazilian	Female	37	9	6	6	Sourcing	Virtual / Office Mix	US
10	American	Female	45	3	10	10	Safety	Mostly Virtual, Some Office	US

The interview group was made up of five men and five women with seven people located in America, one each in China, India and France. Although the majority were located in America, there were interviews with people from the following ethnic backgrounds: African, Chinese, Indian, French, Colombian, Brazilian and American.

The interview process generated 22 statements about virtual team behaviors. Some of the behaviors comprised more than one action. Therefore, those 22 items were translated into 31 survey items. Table 5.2 shows the information collected during the interviews on the left and the survey item(s) generated in the right column.

Table 5.2. Summary of VTCB Behaviors Described and Survey Questions Generated

VTCB Behavior Described	Already on OCB Scale?	Survey Question
I try to make myself available; make an extra effort to communicate throughout the day as necessary, and don't wait until there are issues to reach out		Always available to answer questions from virtual team members
Actively participates in the virtual meetings	Yes	Attends team meetings
Meeting during the evening hours	Yes	Actively participates in team meetings
Team has a clear goal/vision/purpose		Is willing to attend meetings outside of normal work hours
		Clearly understands and engages in achieving
		Engages in achieving the team goals
		Shares the same vision as the rest of the team
Following up on action items		Completes assigned tasks between meetings
Sends out clear meeting minutes		Has status updates for action items at each meeting.
Communicates clearly - ensures understanding between team members		Updates the team by clarifying tasks, sending out meeting minutes,
		Clarifies tasks assigned to others
Involves all people on the team, whether they are local or remote.		Clarifies comments made by others
Makes sure that the level of detail is appropriate		Takes action to encourage all team members participate.
Willing to make compromises to work with all teams		Update team with the appropriate amount of detail
Trusts what the other team members are saying		Compromises to create the best solution for all parties involved.
Tries to communicate in the same language, doesn't put people on mute or speak to other team members in another language		Relies on the other team members and trusts their opinions
Makes an extra effort to communicate throughout the day as necessary, and not waiting until there are issues		Put team members on mute to speak privately with local team members *
Honesty and transparency		Speaks to other team members in a language we don't all understand *
Does not "multitask" and pays attention		Communicates regularly with other team members as necessary
		Is honest and open with the team
		Is engaged throughout the meeting
		Does not work on other tasks during the meeting

Uses the tools appropriately	Appropriately uses the tools provided for virtual teams (e-mail, video-conferencing, screen sharing, etc.)	
Helps others complete tasks when busy	Helps other team members who have heavy work loads	Yes
Understands cultural differences	Is understanding of cultural differences between team members	
Listens to the feedback of others	Solicits input from other team members	
Openly shares information and allows others time to consider what you are saying	Considers input from other team members	
Is accommodating of the schedules of others	Openly shares information with the team	
Let's me know when he or she will be able to make the meeting	Allows others time to process information	
	Compromises on meeting times to reach a time that is workable for all.	
	Informs team members about whether or not they will be able to attend meetings.	

Content Validation

For the content validation, five experts who work on virtual teams were recruited to evaluate items and whether or not they were relevant to the virtual team environment.

The sample consisted of three women and two men, all based in the US with a variety of experience on virtual teams. The demographics are summarized in Table 5.3 below.

Table 5.3 Item Sort Demographics

Subject	Ethnic Background	Male / Female	Age	Org. Tenure	Years on virtual Teams	Function	Current Work Situation	Location
1	American	Female	42	25	7	Engineering	100% Virtual	US
2	Mexican	Female	53	30	5	Administration	Some Virtual, Mostly Office	US
3	American	Female	32	8	11	Finance	100% Virtual	US
4	Indian	Male	31	2	10	IT	Virtual / Office Mix	US
5	Chinese	Male	30	5	5	Manufacturing	Virtual / Office Mix	US

The subjects were given a list of items based on the newly generated VTCB items and the OCB scales. Each subject was asked to group items into categories and indicated which items were irrelevant in a virtual team environment. Each of the subjects felt different items were irrelevant and they did not group items in the same way. There were no conclusions that could be drawn because the categories were all different and the items within each category were different.

Instead of creating classifications, the researcher reviewed the items that were listed as not applicable in the virtual team environment. Even in this task, there was little consistency and no item had a majority of subjects label it as not applicable. Therefore, any item on the scales that was listed by any subject as irrelevant in a virtual team environment was further evaluated by the researcher to determine whether or not it should be removed. Table 5.4 summarizes the questions that the subjects identified as irrelevant and the decisions of the researchers regarding that question. The only items removed were on existing OCB scales, there were no items from the new VTCB scale that were removed.

Table 5.4 Summary of Item Sort Results

Scale	Item	Quantity of N/As	Removed?
OCB Courtesy	Consider the impact of their actions on team members		
	Tend to abuse the rights of other team members		
	Are mindful of how their behavior affects other team members' jobs	1	
	Take steps to prevent problems with other team members	1	
	Try to avoid creating problems for other team members	2	
OCB Helping	"Touch base" with other team members before initiating actions that might affect	1	

	others		
	Encourage each other when someone is down		
	Help each other if someone falls being in his/her work		
	Help orient new people even though it is not required		
	Help others who have been absent	1	
	Help others who have heavy work loads		
	Lend a helping hand to other team members	1	
	Take steps to try to prevent problems with other team members		
	Try to act like peacemakers when other team members have disagreements		
	Willingly help other team members who have work related problems	1	
	Willingly share expertise with other members of the team		
	Willingly give of their time to help team members who have work-related problems		
OCB - Individual Initiative	Are willing to risk disapproval to express their belief about what's best for the team		
	Attends functions that are not required, but help the company image	2	Yes
	Attend meetings that are not mandatory, but are considered important		
	Keep abreast of changes that would affect the team	2	
	Provide constructive suggestions about how the team can improve its effectiveness		
	Read and keep up with team announcements, memos and so on		
	Attend team meetings	1	
	Actively participate in team meetings	1	
VTCB	Allow each other time to process information during meetings	1	
	Are always available to answer questions from virtual team members		
	Appropriately use the tools provided for virtual teams (e-mail, video-conferencing, screen sharing, etc)	1	
	Clarify comments made by others, if necessary	1	
	Clarify tasks assigned to others, if necessary		
	Clearly understand and engage in achieving team goals		
	Communicate regularly with other team		

	members as necessary		
	Complete assigned tasks between meetings		
	Compromise on meeting times to reach a time that is workable for all.		
	Compromise to create the best solution for all parties involved.		
	Consider input from other team members		
	Do not work on other tasks during the meeting		
	Engage in achieving the team goals		
	Have status updates for action items at each meeting.		
	Help other team members who have heavy work loads		
	Inform team members about whether or not they will be able to attend meetings.		
	Are engaged throughout the meeting		
	Are honest and open with the team		
	Are understanding of cultural differences between team members		
	Are willing to attend meetings outside of normal work hours		
	Openly share information with the team		
	Put team members on mute to speak privately with local team members	2	
	Trust the opinions of the other team members		
	Share the same vision as the rest of the team		
	Solicit input from other team members		
	Speak to other team members in a language we don't all understand		
	Take action to encourage all team members to participate.		
	Update the team with the appropriate amount of detail		
	Update the team by clarifying tasks, sending out meeting minutes, etc.		
	Rely on the other team members		
	Leave the meetings to attend to other matters. (e.g. to talk to others in private or to address another issue).		
OCB Organizational Compliance	Have attendance at team meetings that is above the norm	2	
	Believe in giving an honest day's work for an honest day's pay	1	
	Does not take extra breaks	1	Yes
	Are conscientious team members	2	

	Obey team rules and norms	2	
Organizational Loyalty	Actively promotes the organization's products and services to potential users.	1	Yes
	Defend the team when other team members criticize it	1	
	Defend the team when outsiders criticize it	1	
	Encourages friends and family to utilize organization products	2	Yes
	Shows pride when representing the organization in public	1	Yes
OCB Sportsmanship	Find fault with what team members are doing	1	
	Find fault with what the organization is doing	2	
	Focus on what is wrong with our situation rather than the positive side		
	Consume a lot of time complaining about trivial matters		
	Are classic "squeaky wheels" that always needs greasing	1	
	Tend to make "mountains out of molehills"	2	

Study 1 Summary

Study 1 did not test any hypotheses, nevertheless, it has some important outcomes. Thirty new items were identified as relevant to virtual team citizenship behaviors. These items were then evaluated by a panel of five experts, together with OCB items. Based on the experts' inputs, five items were removed by the researcher as not being relevant. The newly generated VTCB items, together with the modified OCB scales, were used in Study 2 to assess convergent and divergent validity.

Study 2 Results

The purpose of study 2 was to establish the internal reliability of VTCB and also to review convergent and divergent validity. Data was collected and analyzed to evaluate VTCBs against the different dimensions of OCB as well workplace deviant behavior (WDB).

Demographic Information

SurveyMonkey was used to collect survey data based on the questions developed in Study 1. A snowball technique was used to recruit subjects. Initial subjects were identified through personal knowledge of the participants. Subjects would forward the same e-mail to others, so response rate is not calculable. One hundred fifty seven people started the survey, and only 87 completed it (55%).

Table 5.5. Demographic Statistics of Study 2 Respondents.

Categories	N	Percent
Gender		
Male	39	44.83%
Female	48	55.17%
Age		
20-30 years old	14	16.09%
31-40 years old	33	37.93%
41-50 years old	25	28.74%
51-60 years old	12	13.79%
61 years +	3	3.45%
Highest Level of Education Achieved		
Less than High School	0	0.00%
High School / GED	1	1.15%
Some college	3	3.45%
2-year college degree (Associate's)	5	5.75%
4 Year college degree (BA, BS, etc.)	41	47.13%
Master's Degree	35	40.23%
Doctoral Degree	2	2.30%

Professional Degree (JD, MD, etc)	0	0.00%
Primary Work Location		
I work Remotely	8	9.20%
Office Site	62	71.26%
A mix of office and remote locations	17	19.54%
Race		
Caucasian	60	68.97%
Black	3	3.45%
Hispanic	4	4.60%
Asian	20	22.99%

The sample consisted of 48 women (55%) and 39 men (45%), with a variety of age ranges shown in the table below. Nearly all respondents had either a four-year or master's degree (76 out of 87). Many different work functions were represented, including engineering, service, sales, manufacturing, marketing, management, technical/professional, administration, supply chain/materials management and quality. A variety of races was represented, although the majority of respondents were either Caucasian or Asian. The majority of team members work at an office site (71.2%), although each person still spends some time on virtual teams.

The average tenure with the current organization was 7.95 years, with 6.68 as the average number of years people have been working on virtual teams. 83.8% of respondents indicated they were currently working on a virtual team and respondents indicated that, on average, they were working on 2.91 virtual teams.

Respondents were asked to focus on specific teams. The average number of hours spent per week on the virtual team is 8.31, and 48.3 % of the teams meet weekly, 21.8% meet daily, 14.9% bi-weekly, 6.9% semi-monthly, 1.1% monthly and 6.9% less often.

Exploratory Factor Analysis

The results from the VTCB scale were first loaded into a factor analysis. Some items did not load onto any factor, and were removed, leaving 18 items that load onto three factors. The 3rd factor consisted of two negative items, so they were removed from the scale for Study 3. The results of the items retained are shown in table 5.6 below.

Table 5.6 Factor Analysis of Only VTCB Items

Item	Factor1	Factor2	Factor3
	.93		
Appropriately use the tools provided for virtual teams (e-mail, video-conferencing, screen sharing, etc			
Clarify comments made by others, if necessary	.89		
Clarify tasks assigned to others, if necessary	.83		
Clearly understand and engage in achieving team goals	.78		
Are always available to answer questions from virtual team members	.77		
Consider input from other team members	.71		
Complete assigned tasks between meetings	.68		
Communicate regularly with other team members as necessary	.67		
Allow each other time to process information during meetings	.66		
Do not work on other tasks during the meeting		.88	
Trust the opinions of the other team members		.74	

	.68
Take action to encourage all team members to participate.	
Are engaged throughout the meeting	.68
Rely on the other team members	.64
Openly share information with the team	.62
Share the same vision as the rest of the team	.61
Put team members on mute to speak privately with local team members	.70
Speak to other team members in a language we don't all understand	.65

From the table above, one can see that the items in factor 1 are all task oriented, while factor 2 items are more interpersonally oriented. In Study 3, there were issues with multicollinearity between these VTCB items and the scales of cohesiveness and perceived dissimilarity. In resolving the multicollinearity issues with those scales, the VTCB scales were further reduced to six total items on two scales. These six items will be used as the scale going forward. They are:

VTCB Task Oriented Scale:

- Appropriately use the tools provided for virtual teams (e-mail, video-conferencing, screen sharing, etc.
- Are always available to answer questions from virtual team members
- Complete assigned tasks between meetings

VTCB Interpersonal Scale

- Allow each other time to process information during meetings

- Rely on the other team members
- Openly share information with the team

Scale Analysis

SAS software was used to assess normality, kurtosis, skewness and Cronbach's alphas for each dimension of OCB, OCBI, WDB and VTCB. Results are summarized in Table 5.7 below.

Kurtosis and skewness were assessed with the SAS software. Most scales were approximately symmetric and only one (WDB) was highly skewed. Again, it is important to note that the newly developed VTCB scale is approximately symmetric. All of the scales met the minimal internal consistency reliability requirement with a Cronbach's alpha of greater than 0.7. Normality plots were generated and p-value was used to determine if the scale can be assumed to be normal.

These results are summarized in Table 5.7 below. It is important to note that the newly developed VTCB scale is non-normal.

Table 5.7 Summary of Variables, with Normality, Skewness, Kurtosis and Cronbach's Alpha

Variable	N	Mean	Std Dev	Skewness	Kurtosis	Alpha	Anderson-Darling P-Value	Normality Conclusion
OCB Courtesy	101	4.50	1.00	-0.63	-0.06	0.83	<.005	Non-Normal
OCB Helping	100	4.62	1.31	-0.34	-0.40	0.81	0.07	Normal
OCB Sportsmanship	99	5.15	1.38	-0.76	0.12	0.84	<.005	Non-Normal
OCB Individual Initiative	97	5.02	1.08	-0.40	-0.29	0.80	0.09	Normal
OCB Organizational Compliance	98	5.20	1.11	-0.35	-0.47	0.80	0.01	Non-Normal
OCB Loyalty	98	4.89	1.31	0.00	-1.01	0.81	<.005	Non-Normal
Virtual Team Citizenship Behavior	87	5.17	1.00	-0.32	-0.57	0.80	0.13	Normal
OCB Internal	97	4.79	1.32	-0.30	-0.74	0.86	0.05	Normal
Workplace Deviant Behaviors	98	1.72	0.72	1.20	0.66	0.88	<.005	Non-Normal

Hypothesis testing

SAS was used to evaluate the correlations between VTCB, control variables, dimensions of OCB, and WDB in order to evaluate convergent and divergent validity. A summary of results is shown in Table 5.8 below.

Table 5.8. Correlation Matrix of VTCB, OCB Dimensions and WDB

Variable	N	Mean	Std Dev	Std													
				1	2	3	4	5	6	7	8						
1 OCB - Courtesy	101	4.50	1.00														
2 OCB - Helping	100	4.62	1.31	.57***													
3 OCB - Sportsmanship	99	5.15	1.38	.34**	.36**												
4 OCB - Individual Initiative	97	5.02	1.08	.53***	.73***	.35**											
5 OCB - Organizational Compliance	98	5.20	1.11	.42***	.67***	.43***	.82***										
6 OCB - Loyalty	98	4.89	1.31	.38**	.59***	.41***	.67***	.72***									
7 OCB - Internal	97	4.79	1.32	.08	.21*	.34**	.25*	.37**	.36**								
8 Workplace Deviant Behaviors	98	1.72	.72	-.01	-.16	-.22*	-.20	-.24*	-.26*	-.29*							
9 VTCB - Task-related Behaviors	99	5.41	1.15	.47***	.62***	.37**	.75***	.74***	.60***	.23*	-.22*						
10 VTCB - Interpersonal Behaviors	96	4.81	.98	.39**	.46***	.23**	.57***	.49***	.49***	.15	-.23*	-.23*					
11 Gender	104	-.08	1.00	-.07	-.18	-.31*	-.15	-.19	-.12	-.025*	.15	.15					
12 Age	103	39.85	10.28	.05	-.06	.17	.01	-.02	.02	-.04	.24	.24					
13 Education	104	4.31	.93	.02	.08	.02	.04	.03	-.01	-.03	-.04	-.04					
14 Number of Children	101	1.19	1.13	.02	.03	.07	.05	-.01	-.07	-.04	.22*	.22*					
15 Hours Spent on Virtual Teams	99	17.15	15.24	.01	.13	-.03	.12	.17	.06	.10	-.16	-.16					
16 Time spent remotely	50	30.00	32.60	.38*	.47**	.42*	.42*	.30*	.24	.34*	-.21	-.21					
17 Organizational Tenure	104	7.57	8.10	.12	-.10	.11	-.03	.02	-.07	-.04	.08	.08					
18 Years of Virtual Team Experience	102	6.61	5.31	.11	.12	-.01	.08	.08	-.06	-.07	-.13	-.13					

Variable	9	10	11	12	13	14	15	16	17	18
1 OCB - Courtesy										
2 OCB - Helping										
3 OCB - Sportsmanship										
4 OCB - Individual Initiative										
5 OCB - Organizational Compliance										
6 OCB - Loyalty										
7 OCB - Internal										
8 Workplace Deviant Behaviors										
9 VTCB - Task-related Behaviors										
10 VTCB - Interpersonal Behaviors	.52***									
11 Gender	-.15	.00								
12 Age	-.04	-.08	.06							
13 Education	.07	.12	-.06	-.05						
14 Number of Children	-.03	-.10	-.04	.49***	.11					
15 Hours Spent on Virtual Teams	.03	.06	.01	-.05	.12	.06				
16 Time spent remotely	.34*	.32*	-.18	-.15	.16	.14	.43*			
17 Organizational Tenure	-.03	-.05	.11	.53***	-.25*	.22*	-.02	-.18		
18 Years of Virtual Team Experience	.15	.09	-.09	.33**	.11	.14	.11	-.02	.43***	

*p<.05, **p<.001, ***p<.0001

As shown in the correlation matrix, the VTCB dimensions show significant correlations with all the scales. The correlations with the OCB dimensions are positive and the relationship with WDB is negative, thus establishing convergent and divergent validity. Hypothesis 2, that the dimensions of VTCB are positively correlated with the dimensions of OCB, is supported.

The correlations among VTCB – task related and OCB individual initiative and, organizational compliance are very high and indicate a potential multi-collinearity issue. An additional factor analysis was run, and the three scales continue to load on the separate factors.

VTCB has a negative, significant correlation with WDB as shown in the correlation matrix presented above. Therefore, Hypothesis 3, that VTCB construct measures will be distinct from WDB measures, is supported and divergent validity is established.

Table 5.9. Factor Analysis of all items in OCB, WDB and VTCB Scales.

Item	Scale	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Disposition of Item
Attend team meetings	VTCB	.92	-.02	.01	-.10	.03	-.14	.08	Factor 1
Clarify comments made by others, if necessary	VTCB	.92	.01	.02	.00	-16.00	-.19	.13	Factor 1
Compromise on meeting times to reach a time that is workable for all.	VTCB	.90	-.02	-.10	.06	-.03	.02	-.14	Factor 1
Have status updates for action items at each meeting.	VTCB	.89	-.16	.01	-.08	.05	.04	.11	Factor 1
Clarify tasks assigned to others, if necessary	VTCB	.88	.09	.01	-.02	-.16	-.18	.08	Factor 1
Actively participate in team meetings	VTCB	.84	.03	.01	-.18	.16	-.10	.07	Factor 1
Appropriately use the tools provided for virtual teams (e-mail, video-conferencing, screen sharing, etc	VTCB	.84	-.07	.09	-.29	.09	-.09	.01	Factor 1
Compromise to create the best solution for all parties involved.	VTCB	.82	.05	-.06	.15	-.04	-.06	.11	Factor 1
Update the team with the appropriate amount of detail	VTCB	.81	.13	.02	.01	-.06	.03	.02	Factor 1
Engage in achieving the team goals	VTCB	.79	-.07	-.13	.09	.23	.11	-.15	Factor 1
Openly share information with the team	VTCB	.79	.14	.04	.07	-.17	.15	-.04	Factor 1
Are honest and open with the team	VTCB	.76	.09	-.01	.05	-.09	.01	.14	Factor 1
Consider input from other team members	VTCB	.75	.09	.01	.06	.03	.08	-.10	Factor 1
Rely on the other team members	VTCB	.75	.07	.09	.13	-.16	-.02	.09	Factor 1
Clearly understand and engage in achieving team goals	VTCB	.73	.13	-.05	-.03	.23	.00	-.07	Factor 1
Are always available to answer questions from virtual team	VTCB	.67	.08	-.02	.06	.04	-.14	.23	Factor 1

Help others who have been absent	OCB - Helping	.01	.82	.01	-.10	.09	-.08	.25	Factor 2
Help others who have heavy work loads	OCB - Helping	-.02	.90	.06	-.09	-.11	.22	.21	Factor 2
Lend a helping hand to other team members	OCB - Helping	.27	.73	-.03	-.09	-.02	.13	-.01	Factor 2
Take steps to try to prevent problems with other team members	OCB - Helping	.03	.72	.03	.28	-.04	-.10	-.11	Factor 2
Try to act like peacemakers when other team members have disagreements	OCB - Helping	.05	.67	.09	.08	.20	-.25	-.26	Factor 2
Help other team members who have heavy work loads	VTCB	.03	.68	.13	.06	-.01	.16	.31	Factor 2
Tend to abuse the rights of other team members	OCB - Courtesy	-.12	-.05	-.59	.09	-.17	-.09	-.20	Item Removed for Study 3 -- Does not exceed Factor Loading of 0.6
Find fault with what team members are doing	OCB - Sportsmanship	.05	.08	.90	.03	-.15	-.19	-.08	Factor 3
Find fault with what the organization is doing	OCB - Sportsmanship	-.01	-.06	.90	.10	-.09	-.10	-.27	Factor 3
Focus on what is wrong with our situation rather than the positive side	OCB - Sportsmanship	-.10	.13	.81	.02	.10	.05	-.20	Factor 3
Consume a lot of time complaining about trivial matters	OCB - Sportsmanship	.04	.01	.86	-.09	.04	.01	-.04	Factor 3
I Are classic "Squeaky Wheels" that always needs greasing	OCB - Sportsmanship	.09	-.03	.85	.08	-.10	-.02	.18	Factor 3
Tend to make "Mountains out of Molehills"	OCB - Sportsmanship	-.03	-.07	.82	.09	.06	.01	.18	Factor 3
Are mindful of how their behavior affects other team members' jobs	OCB - Courtesy	.13	-.14	.00	.75	.08	.13	.06	Factor 4
Take steps to prevent problems with other team members	OCB - Courtesy	-.07	.07	.14	.82	.10	-.05	.10	Factor 4
Try to avoid creating problems for other team members	OCB - Courtesy	.02	.02	.06	.84	.11	-.05	.16	Factor 4

Defend the team when other team members criticize it	OCB - Loyalty	.20	.03	.07	.15	.69	-.05	-.01	Factor 5
Defend the team when outsiders criticize it	OCB - Loyalty	.04	.08	-.02	.14	.80	-.02	.10	Factor 5
Leave the meetings to attend to other matters. (e.g. to talk to others in private or to address another issue).	VTCB	.17	-.12	.25	-.04	.10	.47	-.06	Item Removed for Study 3 -- Does not exceed Factor Loading of 0.6
Put team members on mute to speak privately with local team members	VTCB	-.06	.08	-.20	.05	-.10	.85	.00	Item Removed - There is only 1 item on this factor
Attend meetings that are not mandatory, but are considered important	OCB - Individual Initiative	.34	.12	-.14	.26	.09	-.10	.54	Item Removed for Study 3 -- Does not exceed Factor Loading of 0.6
Have attendance at team meetings that is above the norm	OCB - Organizational Compliance	.16	.24	-.25	.01	.34	-.32	.24	Item Removed for Study 3 -- Does not exceed Factor Loading of 0.6
Obey team rules and norms	OCB - Organizational Compliance	.38	-.05	.32	-.02	.37	.06	.20	Item Removed for Study 3 -- Does not exceed Factor Loading of 0.6

Study 2 Summary

The results in this section provide several key points. First, the expectation was that VTCBs were a multidimensional construct as outlined in Hypothesis 1. This received partial support, as there seem to be two dimensions of VTCB; however, they did not follow the same VTCB dimensions that were expected. Secondly, based on the factor analysis and the correlation table, there are very high correlations between VTCB – task related, individual initiative, and organizational compliance. Individual initiative and organizational compliance loaded on the same factor as well, which could indicate a multicollinearity issue with the VTCB scale and the dimensions of OCB. Lastly, as predicted, this study showed positive correlations between VTCBs and the dimensions of OCB, while showing a negative correlation with WDB. Therefore, convergent and divergent validity are established.

Study 3

The purpose of study 3 is to determine the nomological network for VTCBs. Specifically, this study tests the VTCB scale and its relationship with perceived dissimilarity and team cohesiveness.

Demographics

SurveyMonkey was used to collect survey data based on the questions developed in Study 1. Subjects were recruited via e-mail, and oftentimes one respondent would forward to others, so response rate is not calculable. One hundred sixty one people started the survey, and only 104 completed it (65%). Snowball sampling was used to collect data. An e-mail was sent to the researcher's personal and professional network, asking participants to complete the survey and invite others to complete the survey. This created a more diverse response group than in the previous study in terms of organizations and experience.

Table 5.10 Study 3 Demographic Data of Respondents

Categories	N	Percent
Gender		
Female	56	53.85%
Male	48	46.15%
Age		
20-30 years old	17	16.35%
31-40 years old	43	41.35%
41-50 years old	27	25.96%
51-60 years old	13	12.50%
61 years +	4	3.85%
Highest Level of Education Achieved		
Less than High School	0	0.00%
High School / GED	2	1.92%

Some college	3	2.88%
2-year college degree (Associate's)	7	6.73%
4 Year college degree (BA, BS, etc.)	46	44.23%
Master's Degree	42	40.38%
Doctoral Degree	4	3.85%
Professional Degree (JD, MD, etc.)	0	0.00%
Primary Work Location		
I work Remotely	9	8.65%
Office Site	73	70.19%
A mix of office and remote locations	22	21.15%
Race		
Caucasian	68	65.38%
Black	4	3.85%
Hispanic	5	4.81%
Asian	27	25.96%

The average tenure with the current organization was 9.68 years, with 8.24 as the average number of years people have been working on virtual teams. 67.4% of respondents indicated they were currently working on a virtual team and respondents indicated that on average, they were working on 2.56 virtual teams.

Many different work functions were represented, including engineering, service, sales, manufacturing, marketing, management, technical/professional, administration, supply chain/materials management and quality.

Specific to the teams the respondents focused on for the survey, the average number of hours spent weekly on the virtual team is 8.76, and 45.1 % of the teams meet weekly, 24.0% meet daily, 16.3% bi-weekly, 5.7% semi-monthly, 1% monthly and 7.6% less often.

Two parts to the analysis were called out in the previous chapter. The first part was to perform a confirmatory factor analysis using structural equation modeling to confirm that there are multiple dimensions to VTCB. LISERL showed that the degrees

of freedom are 0, the chi square is 0.0 and the model is a perfect fit. Based on this, it's likely that the sample size is too small for structural equation modeling. Therefore, a regression analysis was used to determine that the relationships were significant.

Therefore, a confirmatory factor analysis was run as shown in Table 5.11 below. The factor structure of the VTCB scale is shown, as the items in the VTCB scale clearly load on two factors. The factor analysis also shows that most items in the VTCB scales are separate from the perceived dissimilarity and cohesiveness scales.

Table 5.11 Factor Analysis of VTCB, Perceived Dissimilarity and Cohesiveness

Scale	Item	Factor1	Factor2	Factor3	Factor4	Item Disposition
VTCB	Appropriately use the tools provided for virtual teams (e-mail, video-conferencing, screen sharing, etc.	-.02	.48	-.11	.40	Factor 2 - VTCB Task Related
VTCB	Clarify comments made by others, if necessary	.06	.70	-.09	.22	Factor 2 - VTCB Task Related
VTCB	Clarify tasks assigned to others, if necessary	-.01	.67	.11	.21	Factor 2 - VTCB Task Related
VTCB	Clearly understand and engage in achieving team goals	-.11	.77	.21	.04	Factor 2 - VTCB Task Related
VTCB	Are always available to answer questions from virtual team members	.11	.74	.06	-.23	Factor 2 - VTCB Task Related
VTCB	Consider input from other team members	-.02	.36	.18	.48	Factor 4 - VTCB Interpersonal
VTCB	Complete assigned tasks between meetings	.00	.65	.19	-.18	Factor 2 - VTCB Task Related
VTCB	Communicate regularly with other team members as necessary	-.13	.59	.25	.21	Factor 2 - VTCB Task Related
VTCB	Allow each other time to process information during meetings	.12	.11	-.38	.73	Factor 4 - VTCB Interpersonal

						Removed from VTCB scales, loads on the same factor as perceived dissimilarity
VTCB	Do not work on other tasks during the meeting	.67	.13	-.38	.25	Factor 4 - VTCB Interpersonal
VTCB	Trust the opinions of the other team members	.04	.10	.31	.60	Factor 4 - VTCB Interpersonal
VTCB	Take action to encourage all team members to participate.	.30	-.22	.20	.62	Factor 4 - VTCB Interpersonal
VTCB	Are engaged throughout the meeting	.27	.14	.00	.50	Factor 4 - VTCB Interpersonal
VTCB	Rely on the other team members	-.31	-.20	.27	.84	Factor 4 - VTCB Interpersonal
VTCB	Openly share information with the team	.23	-.06	.20	.59	Factor 4 - VTCB Interpersonal
VTCB	Share the same vision as the rest of the team	.05	.19	.15	.58	Factor 4 - VTCB Interpersonal
Cohesiveness	Feel that they belong to the virtual team	-.07	.14	.81	.08	Factor 3 -Cohesiveness
Cohesiveness	Are happy to be part of the virtual team	.11	.03	.82	-.05	Factor 3 -Cohesiveness
Cohesiveness	See themselves as part of the virtual team	-.06	.11	.79	.09	Factor 3 -Cohesiveness
Cohesiveness	Believe this team is one of the best anywhere	.32	.11	.55	-.13	Factor 3 -Cohesiveness
Cohesiveness	Feel that they are members of the team	.16	.17	.67	.05	Factor 3 -Cohesiveness
Cohesiveness	Are content to be part of the virtual team	.24	.13	.58	.10	Does not load more than 0.4 on any factor

Perceived Dissimilarity	Are similar in terms of outlook and values	.62	.21	-.02	.19	Factor 1 - Perceived Dissimilarity
Perceived Dissimilarity	See things in much the same way as I do	.84	-.04	.15	.01	Factor 1 - Perceived Dissimilarity
Perceived Dissimilarity	Are like me in a number of areas	.72	-.16	.21	.15	Factor 1 - Perceived Dissimilarity
Perceived Dissimilarity	Handle problems in a similar way to me	.87	-.06	.05	.00	Factor 1 - Perceived Dissimilarity
Perceived Dissimilarity	Think like me in terms of coming up with a similar solution	.87	.00	.14	-.14	Factor 1 - Perceived Dissimilarity
Perceived Dissimilarity	Analyze problems in a similar way as I do	.87	.03	.07	-.11	Factor 1 - Perceived Dissimilarity

Next, the psychometric properties of the scales were assessed. The VTCB scales are both moderately skewed and are non-normal, however, the Alpha is greater than 0.7, and the scales are considered reliable. The Cohesiveness scale was high skewed. The results are summarized in Table 5.12 below.

Table 5.12 Summary of Study 3 Variables with Normality, Skewness, Kurtosis and Cronbach's Alpha

Variable	N	Mean	Std Dev	Skewness	Kurtosis	Alpha	Anderson-Darling P-Value	Normality Conclusion
VTCB - Task Oriented	111	5.66	0.79	-0.82	0.67	0.76	<.005	Non-Normal
VTCB - Interpersonal	107	5.57	0.82	.83	0.73	0.78	<.005	Non-Normal
Perceived Dissimilarity	104	4.71	1.09	-.42	0.24	0.58	<.005	Non-Normal
Cohesiveness	107	5.47	0.86	-1.68	6.19	0.71	0.13	Normal

Next, SAS was used to develop a correlation matrix on perceived dissimilarity, cohesiveness and virtual team citizenship behavior. The correlation between perceived dissimilarity and virtual team citizenship behavior was all greater than 0.7, indicating a multicollinearity problem. Items from the VTCSB scales were removed one at a time in order to resolve the multicollinearity issue. As a result, the following items remain in each scale:

VTCSB Task Oriented Scale:

- Appropriately use the tools provided for virtual teams (e-mail, video-conferencing, screen sharing, etc
- Are always available to answer questions from virtual team members
- Complete assigned tasks between meetings

VTCSB Interpersonal Scale

- Allow each other time to process information during meetings
- Rely on the other team members
- Openly share information with the team

Based on these items, SAS was used to create a correlation matrix. The results all show correlations less than 0.6. These results are summarized in Table 5.13 below.

Table 5.13 Correlation Matrix of Nomological Network

	N	Means	S.D.	1	2	3
VTCB - Task Behaviors	111	5.66	.79			
VTCB - Interpersonal Relations	107	5.57	.82	.51***		
Cohesiveness	104	5.48	.86	.60***	.49***	
Perceived Dissimilarity	107	4.71	1.09	-.42***	-.42***	-.62***

* p<.05 **p<.001 ***p<.0001

These items were then used to generate a linear regression model using SAS. The regression showed similar results and the only significant relationship was team empowerment.

Table 5.14 Summary of Linear Regression Results in SAS.

	<u>VTCB - Task Oriented</u>			<u>VTCB - Interpersonal</u>		
	Beta	s.e.	Pr> t	Beta	s.e.	Pr> t
Perceived Dissimilarity	-.39	.06	<.0001	-.09	.07	.161
Cohesiveness	.32	.05	<.0001	.08	.06	.195
Rsquared	.6775			.0854		
Adjusted R Squared	.6717			.0689		
F-Value	116.6			5.18		
Pr>F	<.0001			.0071		

The linear regression results show that there is a positive, significant relationship between VTCB – Task Oriented and the perceived dissimilarity and cohesiveness scales. The regression does not show a relationship between VTCB - Interpersonal and either perceived dissimilarity or cohesiveness.

Therefore, we can conclude the Hypothesis 4, employees who feel more team cohesiveness are more likely to engage in VTCBs, is partially supported and Hypothesis

5, employees with lower perceived dissimilarity will participate more often in VTCBs, is also partially supported.

Summary of Results

This section resulted in several key findings through the three studies performed. The VTCB scale has been developed and tested.

The results are summarized in Table 5.15 below:

Table 5.15 Summary of All Results

Hypothesis	Result
Hypothesis 1: VTCBs are a multidimensional construct.	Supported
Hypothesis 2: The dimensions of VTCB are positively correlated with the dimensions of OCB.	Supported
Hypothesis 3: The VTCB construct measures will be distinct from WBD Measures	Supported
Hypothesis 4: Employees who feel more team cohesiveness will be more likely to engage in VTCBs	Partially Supported
Hypothesis 5: Employees with lower perceived dissimilarity will participate more often in VTCBs	Partially Supported

CHAPTER SIX

DISCUSSION

In this chapter, I will discuss some of the key findings from the studies performed. Additionally, I will review strengths and limitations, as well as implications for future research, and the contribution that this research makes to the existing literature.

The research on OCBs is rich and diverse (Podsakoff & Mackenzie, 1994), but very little of the research has extended to a virtual team level. Virtual teams require special consideration given the need for different communications and interdependent tasks with lack of face-to-face meeting time (Fiol & O'Connor, 2005). Increasingly, workers are asked to work on virtual co-workers with whom they have never had a face-to-face interaction.

Given this, it is important to integrate the two lines of research creating a concept of virtual team citizenship behavior. The interaction of the team members reflects their dedication to the team, and not necessarily their dedication to the organization. Therefore, the level of analysis focused on a team level, rather than an organizational level.

This study was developed in three parts. The first part consisted of item generation, the second study was focused on dimensionality, psychometric properties and convergent and divergent validity. The purpose of the third study was to provide nomological validity by determining which antecedents contribute to each form of VTCB.

Study 1 Discussion

The purpose of Study 1 was item generation. Through qualitative interviews, 31 items were generated and then evaluated by a panel of five experts. These items were not all behaviors that would be specific for virtual teams. In fact, many items apply to both virtual and collocated teams. However, only 3 overlapped with existing OCB scales. The other 28 items generated were new items not found on any citizenship behavior scale. These 28 items highlight the differences between virtual team requirements and collocated team requirements. There are items that may seem trivial on a collocated team, but are very significant on a virtual team.

All the items generated were reviewed by a panel of five experts. There was very little consensus regarding which items should remain in the scale and which ones should be removed. Perhaps the lack of consensus is due to the difficulty defining the virtual team as the virtual team has different meanings to different people. The definition from Schiller and Mandviwalla (2007), as shown in Chapter 3, is cumbersome and complex. It allows for a variety of functions and roles on virtual teams. In this study, the five experts all worked for different organizations in different capacities, so it's not surprising that each one's perception of a virtual team, as well as what is important to them as a team member, is different.

Study 2 Discussion

Study 2 utilized the results from Study 1 to assess the construct's psychometric properties and establish convergent and divergent validity. The findings showed VTCBs are multidimensional and that there were 2 dimensions – VTCB – interpersonal

and VTCB – task related. These two dimensions both had numerous items that weighted on them, that were later reduced to three items each. Even with the reductions there were still high correlations between both dimensions of VTCBs.

Specifically, the OCB dimensions of individual initiative, organizational compliance and helping had high correlations with both dimensions of VTCBs. VTCBs showed divergent validity with workplace deviant behaviors (WDBs). The correlations between VTCB - task related, individual initiative and organizational compliance were both over 0.7, suggesting that perhaps VTCB – task related is not a separate construct from these dimensions of OCB.

This could be due to several reasons. First, the items on the OCB scales were altered to fit the new context of virtual teams. Items were changed so that they would make sense when asking about virtual teams and a virtual workplace. If the changes had not been made, perhaps the results would have been different because there would be more difference between the OCB and VTCB items.

Secondly, on a virtual team, each person is expected to perform tasks on their own schedule and in accordance with the team requirements, while having minimal day-to-day supervision. This expectation around the virtual team tasks, or VTCB – task related, seems related to individual initiative and also to organizational compliance. Each person must be self-motivated and comply with the team's norms and expectations in order to be successful on a virtual team.

Thirdly, in a virtual team environment, there are very few casual interactions between teammates and the environment is highly task-focused. Interactions between team members often happen in a more formal manner and are centered around meetings.

Due to the limited nature of the interaction, offers to help one another may be the easiest and most impactful interactions between virtual team members. This may be the reason that VTCB – interpersonal and OCB-helping are highly correlated.

Lastly, one of the underlying assumptions of the studies was that the citizenship behaviors would be directed to the team rather than the organization. Although a theoretical case was built for this, it wasn't tested in any of the studies. Since there were some multicollinearity issues, this may be another area to build upon. Factors that can influence this are the amount of time that each person spends virtually as well as the level of involvement in the virtual teams. If the studies could help determine the level at which someone is performing citizenship behaviors (organization or team level), then perhaps the multicollinearity issues could have been resolved.

Study 3 Discussion

Study 3 utilized the results from Study 2 to test whether or not team cohesiveness and perceived dissimilarity were antecedents to VTCBs. The initial results showed multicollinearity issues with team cohesion and perceived dissimilarity. Items were reduced from the initial list of items from Study 2 to the final list of 3 items each for VTCB – interpersonal and VTCB – task related.

The VTCB constructs are highly related to OCBs and also team cohesion and perceived dissimilarity. By reducing the items, the multicollinearity was resolved, but it couldn't be resolved to the OCB scales of organizational compliance and individual initiative.

Using the finalized VTCB scales, the analysis showed positive and significant relationship between both cohesiveness and perceived dissimilarity with VTCB – task related, and no significant relationship between VTCB – interpersonal, perceived dissimilarity or cohesiveness.

Although there are challenges to team development on virtual teams (Salisbury et al., 2006), it is important to note that team cohesion is an important factor for VTCBs. In this study, the perception of team cohesion was measured. That is, how much a team member believes that they belongs to a particular team and feel morale from being associated with the group (Bollen & Hoyle, 1990). Since cohesiveness is important in creating an environment where positive behaviors are encouraged, it follows that those teams that are more cohesive have greater likelihood of experiencing task related VTCBs.

Perceived dissimilarity research has primarily focused on what Tsui and O'Reilly (1989) define as “the comparative demographic characteristics of members of dyads or groups who are in a position to engage in regular interactions.” Much of the perceived dissimilarity research focuses on areas that are less important on virtual teams, such as race/ethnicity and gender because virtual teams provide no visual cues. However, some research has indicated that deeper value fits were more important than surface demographic fits, indicating that there may be an opportunity for evaluation of perceived dissimilarity with VTCBs (Elfenbein and O'Reilly, 2007).

It is interesting that neither cohesiveness nor perceived dissimilarity were found to be antecedents to interpersonal VTCBs. Virtual teams are task-focused, and there may not be time for interpersonal interactions, especially if the interactions are limited to more

formal interactions like team meetings. Antecedents for interpersonal VTCBs may be based on opportunity for interaction.

Implications for the Practice of Management

Organizational citizenship behaviors are often relied upon in organizational settings for increased performance (Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Studying and understanding these behaviors in a virtual context is increasingly important as the workplace evolves. Since the virtual context leads to different types of communications and interactions, it is important to understand how citizenship behaviors can be utilized in a virtual environment.

The first study highlighted that there are many different tasks or actions that people notice in a virtual environment. The items identified can be utilized in practice as a list of items to train team leaders on positive and non-positive behaviors on virtual teams. Certainly, some of the items could be set as “ground rules” that each team member should adhere to in order to increase citizenship behavior and, presumably, the general effectiveness of the team.

Team cohesiveness and perceived dissimilarity are both antecedents of task related VTCBs. Team leaders should be able to affect team cohesiveness and create more VTCBs within the organization. Team leaders can also work to minimize perceived dissimilarity in order to increase VTCBs.

Although no antecedents studied predicted interpersonal VTCBs, practitioners can try to determine if more personal interactions between team members will increase interpersonal OCBs. This may mean creation of virtual teambuilding activities and

working with team members to ensure that they are connected on a more personal level with their virtual team members.

Implications for Theory

Study 1 also highlighted the fact that when talking with practitioners about “working on a virtual team,” it can bring to mind many different definitions. Perhaps another study could focus on specific team members and their interactions, rather than on individuals who work on virtual teams. A more consistent definition and qualification of test subjects may have produced different results.

The dimensions of VTCB are highly correlated with some of the dimensions of OCB, and discriminant validity was not established. However, this could be due to the adjustments made to the OCB scales and the small sample size. Future research with larger sample sizes can help determine if the dimensions of VTCB are truly distinct from OCB or if they are an extension of the existing OCB dimensions. The theory certainly indicates that they are distinct and the fact that each of the VTCB dimensions (interpersonal and task related) correlate with different types of OCB shows that there are differences. It is also possible that the team level and organizational level were not clearly outlined in the study. In future studies, there should be a distinction between behaviors that are done for the benefit of the team and those that aim to benefit the organization.

It also appears that team cohesiveness and perceived dissimilarity play a role in task related VTCBs. Future research can focus on continuing to develop a model of VTCBs and to determine what types of antecedents lead to interpersonal VTCBs.

Examples of future studies could include items such as team empowerment may be an antecedent for task-related OCBs, while more interactive antecedents, such as type of meetings or time spent discussing personal issues may be indicators of interpersonal VTCBs.

Another type of antecedent could be the type and quantity of time spent communicating or interacting. More media richness or interaction time may also be an antecedent to interpersonal VTCBs and perhaps even task-related VTCBs. Media richness and interaction may lead to stronger interpersonal interactions and a better understanding between team members. This could lead to a willingness to perform VTCBs for the team.

The context of the virtual team is different than that of an organization. Different issues are important to team members and their interactions. As the workplace evolves, the literature needs to include the virtual team and its special considerations.

Strengths and Limitations

While this study yields some important results, it has both strengths and limitations. Many of the limitations deal with the sample collected. Most subjects were taken from the same large, multinational organization. Participants were recruited via snowball sampling and the sample size was smaller than anticipated. While snowball sampling helped achieve the quantity of results, it is also inaccurate due to sampling bias. As a researcher, I was unable to determine the total number of people who were asked to complete the survey and with snowball sampling, there is always a risk that the survey was filled out by a population that may not be representative of typical virtual team

members. However, the strengths of the sample are that it was made up of a diverse group, subjects were real-world professionals, and each one had virtual team experience.

Additionally, there were some issues with multicollinearity between some of the OCB dimensions and VTCBs. The OCB dimensions with the strongest potential for multicollinearity (organizational compliance and individual initiative) are key aspects of working well on a virtual team. I was not able to establish that VTCBs are separate and distinct from the OCB dimensions due to this issue.

Additionally, items were reduced in Study 3 to resolve multicollinearity issues. The items that remained weren't those that loaded best on each factor, or the ones that had the most difference with the VTCB dimension, but they were the items that reduced the correlation with the dimensions of VTCB.

This study also did not take into account the vast differences between types of virtual teams and experiences. As indicated in the literature and in the diversity of responses during the item generation and content validation phase, the definition of a virtual team varies, even though they share some key characteristics. A focused effort on groups that are engineering based or project based may yield different results than those that are based operationally or on supplier/customer relationships. Even though each team could still exhibit VTCBs, the teams are different and, as such, the different behaviors may be valued differently on each type of team.

The study was also set up to rely on input from practitioners, and included both qualitative and quantitative portions. There was little decision-making necessary by the researcher, as most of the information was determined by the outcome of interviews or

surveys. In this way, the new tool developed is very objective and reflects the types of issues that are important to working professionals.

Conclusion

The study presented has accomplished the objectives listed in Chapter 1:

1. To integrate the organizational citizenship behavior and virtual team literatures to introduce a new concept - virtual team citizenship behavior (VTCB).
2. Develop and validate a scale that can be used to test VTCBs.
3. Discuss the implications of these findings for both future researchers and management practitioners.

First, I performed a review of extant literature and introduced a new concept, virtual team citizenship behavior. This moves citizenship behavior from the organizational level to the team level and addresses the evolution of the workplace by examining virtual teams rather than the traditional, collocated teams. In the case of virtual workers, the team is the primary interaction with the organization, and therefore, it follows that citizenship behavior is demonstrated on a team level rather than an organizational level. Additionally, the context of the virtual team provides a different type of opportunity and different types of interactions than traditional collocated teams. This leads to a different type or expression of citizenship behavior.

Secondly, I performed a series of field studies, both qualitative and quantitative, to develop a scale to measure virtual team citizenship behaviors. There were 31 different

behaviors identified in the qualitative portion of the study. These 31 items were subsequently placed in a survey and compared with the dimensions of workplace deviant behavior (WDB) and the various dimensions of OCB (organizational citizenship behavior). The results showed that the VTCBs were multidimensional – there are interpersonal VTCBs and task-related VTCBs. Divergent validity of the new scales was determined by comparing both dimensions of VTCBs and WDB. VTCB interpersonal showed a high correlation with OCB – helping, and VTCB – task related showed high correlations with OCB organizational compliance and individual initiative dimensions. These high correlations indicate a potential issue with multicollinearity; however, some of this may be explained by the changes made to the OCB scales to fit the virtual team context. This can be reviewed in future studies. The last part of the study shows that cohesiveness and perceived dissimilarity have a significant, positive relationships with task related VTCBs. Neither one was indicated to be an antecedent for interpersonal VTCBs.

The final section discussed the implications of my research. The data shows that there are differences between the virtual and traditional working environments. Therefore, it is important for research to continue in this area as more workers become virtual and more workers interact with others who are not collocated. There are opportunities to study additional antecedents such as team empowerment or even leadership and tool-related antecedents that can help aid in the creation of VTCBs.

My dissertation makes the following contributions:

First, I was able to study team citizenship behavior, working with the team level rather than the organizational level, as this is the level that most virtual workers identify with, since their interactions are with the team rather than the organization.

Secondly, I was able to develop a new construct – virtual team citizenship behavior that introduces citizenship behaviors in the virtual team environment. Organizational citizenship behaviors often depend on being collocated and working together, so developing a construct around the virtual team environment is important for the changing workplace.

Thirdly, I gathered field data to create and test a scale for measuring virtual team citizenship behavior. I found that VTCB is made up of two dimensions – one that is task related and one that is interpersonally related. This information was then used to see if either team cohesiveness or perceived dissimilarity was an antecedent to VTCB. Both cohesiveness and perceived dissimilarity are antecedents for the task related dimension of VTCBs, but there was no significant relationship between interpersonal VTCBs and either cohesiveness or perceived dissimilarity.

This analysis can be used going forward in order to better study the changing work environment. As workplaces and teams become more virtual and less collocated, it is increasingly important to understand citizenship behaviors and virtual teams.

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