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Developing A Measure Assessing Virtual Organizational Citizenship Behaviors

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DEVELOPING A MEASURE FOR ASSESSING VIRTUAL ORGANIZATIONAL
CITIZENSHIP BEHAVIORS

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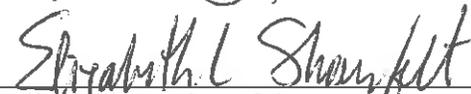
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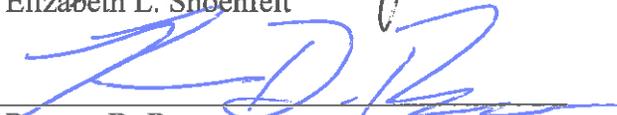
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This thesis is dedicated to my parents, Tim and LuAnn Galbraith, for their continuous

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        In a time when technology is an integral part of life, virtual workplaces are
becoming more of a staple in organizations and will likely continue to do so as
technology use increases (Cascio, 2000). Due to the rise in virtual workplaces, employees
are interacting face-to-face less, and organizations are requiring more from them.
Employees must perform behaviors that are outside of their formal job description. These
positive behaviors are considered to be organizational citizenship behaviors (OCBs),
which are employee behaviors that promote organizational effectiveness that are not part
of an employee's formal job description and are therefore not formally recognized by the
organization's reward system (Organ 1988, 1997). No research to date has examined
whether employees can engage in OCBs through a virtual medium. This study worked to
develop a model for assessing virtual OCBs using a four-factor traditional face-to-face
measure as a starting point. Items were generated, categorized, and then analyzed using a
confirmatory factor analysis. A three-factor model demonstrated the best fit, but because
the items in the fourth factor demonstrated content validity, recommendations regarding
model revisions are provided.

Introduction

In a time when global competition is increasing, and the economy is in an unstable state, many organizations are expecting their employees to go above and beyond what is typically required of them to help the organization reach its main objectives (Halbesleben, Bowler, Bolino, & Turnley, 2010). Global competition has put a great deal of emphasis on employees performing organizational citizenship behaviors (OCBs). The most widely used definition of OCBs was put forth by Organ (1988, 1997), who stated that OCBs are employee behaviors that promote organizational effectiveness that are not part of an employee's formal job description and are therefore not recognized by the organization's reward system. These behaviors are ones employees engage in at their own discretion.

Although the term organizational citizenship behavior is fairly new, research on OCBs has increased dramatically over the years. Podsakoff at al. (2000) reported that from 1983-1988, only 13 papers were published on the topic, compared to the 122 papers published from 1993-1998. This is a large increase in the interest on the topic of OCB in only ten years. Likewise, OCB research has grown dramatically to include a variety of fields, such as industrial and organizational psychology, human resource management, industrial and labor relations, strategic management, international business, and leadership (Podsakoff et al., 2000). As research continues to increase, it is important to understand the types and antecedents of OCBs, as well as the positive and negative consequences for organizations. However, whereas the research on OCBs has increased, there has not been any mention of OCBs pertaining to virtual workplaces. As such, this

paper describes the literature on OCBs and virtual workplaces, and works to develop both

a conceptual model and measurement tool for virtual OCBs.

What is OCB?

There are different types of performance in which employees engage, including

task performance and OCB. Employees engage in task performance, which are tasks that

contribute to the organization's core functions by completing what they are required to

perform as listed in their job description (Borman & Motowildo, 1997). These tasks are

expected of the employee since they are part of their formal job description. OCB, which

has also been called contextual or citizenship performance (Borman, 2004; Scotter &

Motowidlo, 1996), has been defined as behaviors that are not related to an employee's

main tasks but are important because they support different contexts in the organization,

such as the organizational, social, and psychological goals that help accomplish the main

organizational tasks. The practical importance of these extra-role behaviors is that they

improve both organizational efficiency and effectiveness by contributing to resource

alterations, innovativeness, and adaptability (Organ 1988; Williams & Anderson, 1991).

Dunlop and Lee (2004) found that OCBs are not job-specific; that means similar

sets of OCBs can be exhibited in a range of work settings. To further support this point,

Borman (2004) stated that task activities usually differ from job to job, but citizenship

behaviors are the same across all jobs. Whereas some employees perform OCBs to help

their organization and co-workers, others perform them to help them reach their own

personal goals (Halbesleben et al., 2010). As such, OCBs can be broken down into two

subcategories: OCB-O (i.e., organizational citizenship behaviors-organization), which

benefit the organization, and OCB-I (i.e., organizational citizenship behaviors-

individual), which can benefit other individuals in the organization (Turnley, Bolino, Lester, & Bloodgood, 2003; Williams & Anderson, 1991). Lee and Allen (2002) found that OCB-Os are linked to job cognition at work, whereas OCB-I is more related to job affect, so OCB-I can be described as emotional behavior. These results suggest that when an employee is going to engage in OCB-O, it is a result of what they think about their work environment. When employees choose to engage in OCB-I, it is a result of their dispositional state.

Whereas the previous model grouped OCBs in terms of the target of behavior, other models have classified OCBs in terms of the types of behaviors. For instance, Podsakoff et al. (2000) described seven forms of OCBs: (a) helping behavior, which is defined as helping others voluntarily and helping others to prevent work problems, (b) sportsmanship, which has been defined as not complaining when interrupted, staying positive when things are not going smoothly, not becoming offended easily, being concerned with the group performance over individual performance, and not taking the rejection of ideas personally, (c) organizational loyalty, which is defined as endorsing the organization to people on the outside, protecting the organization, and remaining committed even under hostile conditions, (d) organizational compliance, or behavior related to a person's internal feelings and acceptance of an organization's rules, regulations, and procedures, as well as having integrity, (e) individual initiative, or the engagement in task-related behaviors that are above the required minimum, (f) civic virtue, which is defined as taking a deeper interest in the organization, such as through taking an active role in its governance, monitoring one's environment, and looking out for the organization's best interest even at a personal cost, and (g) self-development,

which refers to behaviors employees engage in to improve their knowledge, skills, and abilities voluntarily. In addition to research examining ways to categorize OCBs, other research has focused on the predictors of OCB engagement. This research is summarized below.

Antecedents of OCBs

Research has focused on four major antecedents of OCBs: (a) individual (employee) characteristics, (b) task characteristics, (c) organizational characteristics, and (d) leadership behaviors (Podsakoff et al., 2000).

Employee characteristics encompass employee morale, which Organ and Ryan (1995) view as employee satisfaction, organizational commitment, perceptions of fairness, and perceptions of leadership supportiveness. Williams and Anderson (1991) stated that OCBs are behaviors that occur when there is little or no expectation of a formal reward or praise for engaging in them; therefore, organizational commitment plays a big role. Organ and Ryan also found that all of the variables involved in employee morale appear to be antecedents of OCB, with correlations ranging from $r = .23$ to .31. Also, Organ and Ryan (1995) found that OCBs come from two main motivational bases: (a) job attitudes and/or (b) dispositional traits. Bolino (1999) stated that job attitudes are related to OCBs by way of social exchange theory, which states that employees engage in OCBs to reciprocate the actions of the organization. If the organization helps the employee out, they are more likely to do something in return for the organization. If the employee feels the organization has not done anything for them, the employee will be less likely to engage in any type of OCB. Bolino (1999) stated that the second relationship of OCBs and dispositional traits exists because OCBs could be a result of an

individual's disposition to be helpful or cooperative. This means it is part of the individual's personality to be helpful and considerate of others. Either of these motivational factors could lead to employees engaging in OCBs. There can be antecedents that are negatively linked to employees performing OCBs. The main antecedent, which is performing OCBs for impression management purposes, falls under employee characteristics. Impression management refers to the process by which individuals go about trying to enhance their image to others (Leary & Kowalski, 1990). Bolino (1999) stated that employees engage in OCBs for impression management purposes when (a) the employee believes that engaging in OCBs will present an image of them being a good organizational citizen, (b) the employee really values being seen as a good organizational citizen by their peers, and (c) they think that there is a discrepancy in how they would like to be viewed and how people actually view them. Liden and Mitchell (1988) stated that individuals will benefit less from their from their acts of OCB when they are seen as having impression management as the main motive for engaging in the behaviors. This is due to the fact that their managers or co-workers will think they are performing the OCBs just to get ahead and are not truly sincere when engaging in these behaviors.

In addition, Podsakoff et al. (2000) reviewed the literature and found that three forms of task characteristics (i.e., task feedback, task routinization, and intrinsically satisfying tasks) were significantly related to OCB engagement. Namely, task feedback and intrinsically satisfying tasks were positively related to OCB engagement, whereas task routinization was negatively related to OCB engagement (Podsakoff, MacKenzie, Bommer, 1996). This finding implies that giving employees feedback about their

performance will help encourage employees to perform OCBs because it shows that their manager or organization cares about the employee. It also implies that employees who do the same tasks day in and day out with no variety are less likely to engage in OCBs.

The organizational characteristics that have been identified had mixed results. Organizational formalization, organizational inflexibility, staff support, or spatial distances were not related to OCBs (Podsakoff et al., 1996). The organizational characteristics that have been positively linked to group cohesiveness are altruism, courtesy, conscientiousness, sportsmanship, and civic virtue (Podsakoff et al., 2000). In addition, research has shown that psychological contracts play a major role in whether employees engage in OCBs. Turnley et al. (2003) defined psychological contracts as implicit obligations the employee believes the organization owes to them, as well as what the employee owes to the organization. This is an organizational characteristic because a psychological contract deals with how an employee perceives the organization is treating them. Turnley et al. found that when employees perceive that their organization has lived up to or exceeded their end of the psychological contract, employees were more likely to engage in OCBs that benefit the organization (i.e., OCB-Os). It was found that when employees believe the organization has failed to live up to their end of the contract, they were less likely to engage in OCB-Os, but would still engage in OCB-Is (Turnley et al., 2003).

The last antecedent describe by Podsakoff et al. (2000) was leadership behaviors. Leadership behaviors such as own job attitudes (e.g., job satisfaction), task variables (e.g., task routinization or satisfying tasks), and other types of leadership behaviors (e.g., contingent or non-contingent reward behavior or support of the leader), are more

positively related to OCBs than other antecedents but may not be independent of each other (Podsakoff et al., 1996). Task variables can influence job attitudes, which can then effect OCB engagement. It was illustrated that supportive behavior by the leader was positively related to every form of OCB (Podsakoff et al., 1996).

Outcomes of OCB

As there are many different types of OCBs, research has shown that different types of OCBs can bring about different outcomes for an organization. This section will discuss both the positive and negative outcomes of OCBs.

Positive outcomes. Podsakoff et al. (2003) stated that an employee helping a co-worker may increase productivity in the group or organization; likewise, an employee demonstrating good sportsmanship may increase the morale of the group or organization. Podsakoff et al. (2003) also found that the empirical evidence supports the assumption that OCBs are related to performance, although some types of OCBs are more strongly related than others.

Multiple studies have found that OCBs influence manager evaluations of performance and other related decisions (Borman & Motowidlo, 1997; Podsakoff et al., 2003; Scotter & Motowidlo, 1996). Podsakoff et al. (2003) found that OCBs accounted for at least as much variance in performance evaluations as did in-role performance. This shows that managers take notice of when employees engage in OCBs; therefore, they are not going unnoticed.

Podsakoff et al. (2003) as well as Borman (2004) indicated that OCBs can contribute to success in organizations by (a) enhancing both co-worker and managerial productivity, (b) freeing up additional resources, (c) reducing the devotion of limited

resources to maintenance functions, (d) helping to coordinate activities within as well as across groups, (e) helping to attract and retain the best talent, (f) improving organizational performance, and (g) helping the organization adapt to environmental changes. In addition to these organizational contributions by OCBs, George and Brief (1992) found that employees who are in a positive mood are more likely to engage in OCBs such as protecting the organization, making suggestions, continuous development of oneself, and just helping others out in general.

Hui, Lam, and Law (2000) stated that because altruism and OCBs are strongly linked, employees may help a new hire orient him or herself to the organization which will require less time from the supervisor. This will free up the supervisors time to be able to focus on other tasks. Lapierre and Hackett (2007) state that OCBs are helpful in a good relationship with one's supervisor, which lead to the employee experiencing greater satisfaction at work. If the supervisor notices an employee engaging in an OCB, the supervisor is likely to praise them, which can lead to a good relationship between the employee and their supervisor.

Negative outcomes. Whereas OCBs have a range of positive impacts on organizations, they can have negative consequences. For instance, Lapierre and Hackett (2007) stated that OCBs could lead to employees being inefficient because an employee's time and effort should be devoted to task performance rather than OCBs. Another issue that has been looked at is how managers perceive the action or OCB. Farrell and Finkelstein (2011) found that if OCBs seemed to be self-serving, they resulted in low job satisfaction, whereas if the OCBs had good intentions, job satisfaction was heightened.

Impression management can have negative consequences in an organization. Bolino (1999) stated that some employees might use OCBs as an intimidation strategy. An example of this would be if one employee cannot volunteer to work an organizational function, so another individual volunteers to make the other employee appear less dedicated. These types of impression management can be seen as a threat and cause more tension in the work environment. Hui et al. (2000) stated that if an OCB is performed for the purpose of gaining an advantage or promotion, once that promotion is attained, the employee's OCBs are likely to drop off.

Podsakoff et al. (2003) found that often managers have a hard time making a distinction between in-role behaviors and OCBs. This is a bad thing because employees may see the difference between the two, but their manager does not. This could mean the manager may get mad when he or she thinks an employee does not engage in OCBs but the employee thinks they are performing OCBs. This can in turn hurt the employee's performance evaluation because the manager may think the employee is not performing well.

Despite the abundant research on OCBs, no research has yet investigated how employees engage in these behaviors in a virtual workplace. As virtual workplaces are becoming more popular as new technology is being developed, a review of the research on the positive and negative aspects of virtual workplaces is provided in the next section.

Virtual Workplaces

Technology is growing at an exponential pace. Very similar to the personalized computer revolution in the 1980s and 1990s, new technologies are currently being developed that will change the way employees communicate with one another

(Townsend, DeMarie, & Hendrickson, 1998). New technologies such as Skype, FaceTime, and other video conferencing technologies where the interactions between co-workers do not have to be at a physical workplace are becoming more commonplace. The influence, complexity, and transportability of technology growth have made working in remote locations a realistic option in meeting the changing demands of a normal work environment (Igbaria & Guimaraes, 1999). In fact, according to Igbaria and Guimaraes (1999), there will be an estimated 90 million telecommuters by 2030 in the United States alone. That is a giant increase from the estimated 25 million in the year 2000.

Several studies have examined how workplace communication changes as new technologies become available. Yates and Orlikowski (1992) discussed how "genres of organizational communication" have evolved over time (e.g., from pen and paper to e-mail), thereby changing from a more formal style to a more informal and direct approach. Not only is technology changing the way we communicate, but the people who use the technology are also setting new standards for the way we communicate. For example, emoticons have become a common way for people to communicate because people can add social interpretations to their e-mails through the use of symbols. As such, communication is moving from fewer words to more of a mix of words and symbols, such as emoticons. Walther and D'Addario (2001) noted that the lack of nonverbal cues in e-mails could limit the scope of social exchanges, which could damage an organization's culture because the employees may not have a close relationship with supervisors or co-workers.

A virtual workplace is where the employee works apart from their supervisor, as well as the actual physical organization (Cascio, 2000). Virtual workplaces also partially

or fully remove the commute to and from work due to technology replacing it. Today, there are many ways in which an employee can communicate with managers or co-workers without ever interacting in the same physical location (e.g., via text or Skype). This is changing the cultures of organizations from a baby boomer culture to a more millennial one much more reliant on the use of technology. It is clear that the ways in which we communicate will continue to evolve with technology, but we need to examine both the positive and negative aspects of these changes.

Positive aspects of virtual work. Virtual workplaces are becoming more commonplace because they offer a wide variety of beneficial aspects to both the organization and the employees. In 2003, approximately 55% of organizations in the United States allowed their employees to work from remote locations some of the time (Hill, Ferris, & Martinson, 2003)**.** That number is expected to be higher today. This could be due to the positive aspects of virtual workplaces. For instance, Fulk and DeSanctis (1995) specified five features of new communication technologies that offer significant progress for organizations: (a) speed of communication (e.g., faster decisions), (b) decrease in costs of communication (e.g., less paper, shipping costs), (c) more communication bandwidth (e.g., new technology is integrating text, audio, and visual data into one communication tool), (d) expanded connectivity (e.g., being able to communicate anywhere in the world), and (e) the integration of communication with computing technologies (e.g., being able to share saved information). In addition, organizations can benefit from virtual workplaces because there are reduced real estate expenses, increased productivity, higher profits, improved customer service, access to global markets, and environmental benefits (Cascio 2000).

Igbaria and Guimaraes (1999) found that in a survey of Fortune 500 executives, 63% reported that telecommuting improved employee retention, 63% reported that their employees stress was reduced, and 79% reported improved morale among employees. Another study found that employees who telecommute have better work-family balance while increasing their performance (Hill et al., 2003). In addition, a U.S. government study found that if 20,000 federal workers would telecommute just one day a week, it would save roughly two million miles of commuting, 102,000 gallons of gas, and 81,600 pounds of carbon emissions each week (Cascio, 2000). As such, organizations that implement virtual workplaces could establish a culture of caring about the environment, which could help attract committed employees.

Negative aspects of virtual work. Whereas the positive aspects seem like more than enough for organizations to implement virtual workplaces, there are also several downsides to virtual workplaces. Cascio (2000) brought up five issues that organizations face when implementing a virtual workplace, such as setup and maintenance costs, loss of cost efficiencies, cultural issues, feelings of isolation, and lack of trust. One of the biggest issues is a lack of trust (Akkirman & Harris, 2005; Cascio, 2000). If members of a virtual organization are not authorized to make decisions on their own, then the technology will add little value because the advantage of rapid response to demands will be lost (Cascio, 2000). The organization has to trust that their employees will complete their work in an effective and timely manner. If the organization shows no faith in their employees, this could lead to dissatisfaction with the organization, which could then lead to turnover rates being high. It could also lead to a hostile organizational culture because supervisors do not trust their employees to work effectively if they are not being watched.

The lack of face-to-face, personal interaction in virtual workplaces can make it more difficult for an organization to establish a trusting culture.

Shin (2004) stressed the idea of person-environment fit in the context of virtual workplaces, such that there should be an emphasis on employee knowledge, skills, and abilities (KSAs), meeting those of the job environment. When organizations implement virtual workplaces, if the employees are not a good fit in the virtual environment (e.g., someone who is not self-motivated may have trouble in an unstructured environment), this can lead to an organizational culture that is not conducive for the employee or organization. Not having employees who fit the virtual workplace environment can be detrimental to both the organization and the employees involved.

As mentioned above, there can be negative effects for employees as well as organizations. Cascio (2000) pointed out that a negative aspect of virtual workplaces is feelings of isolation by the employees. Social interactions among employees play a pivotal role in shaping the culture of the organization. By eliminating the frequency of the face-to-face interactions, the employees may lose touch with one another and their supervisor; this could also lead to an organizational culture that is not transparent. Therefore, virtual workplaces can be detrimental to employees because they are not receiving the feedback they need or desire.

Despite the benefits to work-family balance mentioned earlier, other research has shown that telecommuters may also experience a blurred line between their work and family roles (Igbaria & Guimaraes, 1999). This could lead to negative spillover, which is when feelings or behaviors about one role transfer to and have a negative impact on another (Dilworth, 2004). For example, if employees do not have a good day at work, if

they are already at home, they do not have the buffer time to settle down and switch roles.

In order for employees in a virtual workplace to operate effectively, they need to communicate effectively to establish a good knowledge-sharing environment. The need for knowledge sharing is due to the fact that employees in virtual environments do not see their co-workers often, if at all. Not only do they need good communication to establish good knowledge sharing, but several other factors that play a crucial role in creating a knowledge-sharing environment, such as intra-team trust, intra-team bonds, leadership, intercultural communication, and cross-cultural training (Zakaria, Amelinckx, & Wilemon, 2004). Because employees who are working together can be dispersed all around the world, the risk of communication errors and mistrust can be intensified (Zakaria et al., 2004). Because co-workers are being dispersed around the world, the helping behaviors or OCBs will be different in a virtual context than in a traditional work environment.

OCBs in the Virtual Work Context

OCBs may differ in a virtual work context due to the fact the employees are not engaging in face-to-face interaction on a daily basis. Townsend et al. (1998) stated that with virtual organizations, employees might not see the linkage between other employees (e.g., the offices are too far apart to facilitate traditional face-to-face interaction). Having employees spread geographically can make it hard for employees to establish relationships with their co-workers or managers. Townsend et al. stated that with virtual work environments, the more traditional social mechanisms employees use to communicate are gone, so they must find new ways to communicate and interact with

each other. Thus, these mechanisms may make it difficult for employees working virtually to engage in traditional OCBs, and to date, no research has yet examined the forms of virtual OCB engagement.

Many of the OCBs in a traditional face-to-face work environment may not be relevant in a virtual context. For example, items focusing on above par attendance or refraining from spending time on personal conversations, both of which are commonly included in traditional OCB measures may not directly translate to a virtual context. In addition, there may be OCBs unique to virtual contexts that traditional measures do not consider (e.g., application sharing to help a co-worker with a new software). Thus, the purpose of the current study is to combine OCBs and virtual workplaces to develop both a conceptual model and assessment of virtual OCBs. A measure of face-to-face OCBs will also be used to assess the discriminant validity of the measure through a correlation between face-to-face OCBs and virtual OCBs. The hypothesis is that the measure of virtual OCBs will demonstrate discriminant validity when compared to traditional measures of OCBs.

Method

This study consists of a two-stage model and assessment development process. In stage one, the focus was on item generation and categorization. The purpose of stage two was to provide psychometric evidence for the newly developed measurement tool and conceptual model of virtual OCB engagement.

Stage 1

Participants. For stage one, data were collected from 109 participants who were at least 18 years old, worked virtually at least 10 hours per week, resided in the United

States, and used Amazon's Mechanical Turk (MTurk; 52.0% male, mean age = 34.8 [*SD* = 10.8], 77.1% White/Caucasian). The mean amount of work experience was 14.0 years (*SD* = 10.4), 64.2% held a bachelor's or graduate/advanced degree, and participants represented a wide range of industries (i.e., 21.1% retail trade or sales, 13.0% education, 11.0% finance, and 10.1% health care). Participants were compensated $0.50 for their time.

There are multiple advantages to using MTurk. These include: (a) data can be collected faster than a traditional lab setting, (b) the lack of face-to-face interaction ensures anonymity and reduces the chance of the researcher influencing results, (c) it has a relatively low cost compared to other sampling techniques, and (d) the sample is normally more diverse than undergraduate college students (Crump, Mcdonnell, & Gureckis, 2013; Sprouse, 2010). Crump et al. (2013) replicated a number of studies in order to determine whether MTurk is a valid sampling tool in behavioral research. Their results indicated that data collected from MTurk samples were consistent with laboratory data as long as the methods of the experiment were sound. In workplace research, employed samples are often difficult to access, so use of a sampling tool such as MTurk is highly beneficial.

Materials. The materials involved were an eligibility measure (see Appendix A) which ensured the participants were over 18, lived in the United States, spoke English as their first language, and worked at least 10 hours virtually. Next was a demographic measure (see Appendix B). This included the age, gender, race, level of education, industry in which the participant worked, how many hours a week the participant worked, how many hours a week the participant worked remotely, how many hours a week the

participant used a software program to interact with a co-worker, and each participant's years of work experience.

The final item was for the item generation process (see Appendix C). This included a definition of virtual OCBs, as well as an example. Participants each provided five examples of virtual OCBs. This process allowed for the generation of examples reflecting the breadth of virtual OCBs. Traditional OCB measures (see Appendix D) were pulled from multiple sources and used as a starting point for the second part of the study.

Procedure. The procedure used in stage one of the study was modeled after Bennett and Robinson's (2000) approach for model and measure development. The survey generated 539 examples of virtual OCBs. After repetitive or irrelevant items were removed, 79 examples of virtual OCBs were generated. Another 42 items were written by the researcher based on a review of traditional measures of OCB; therefore, the total number of items generated was 121.

A qualitative analysis was conducted to develop a conceptual factor structure for these items. The factors that were used were the same four factors as Moorman and Blakely's (1995) model of OCBs: interpersonal helping (IH), individual initiative (II), personal industry (PI), and loyal boosterism (LB). Interpersonal helping refers to helping a coworker with job-related problems, individual initiative refers to encouraging individuals and groups to express opinions and improve performance, personal industry refers to going above and beyond what is expected of you, and loyal boosterism refers to contributing to the organization by remaining faithful to the organization as well as promoting the organization outside of working hours (Moorman & Blakely, 1995).

This theoretical model was preliminarily tested via a Q-sorting procedure (Nahm, Solis-Galvin, Rao, & Ragu-Nathan, 2002). In this process, three graduate students familiar with the concept of OCB reviewed the items to ensure that (a) they were consistent with the definition of virtual OCBs and (b) they reflected behavior relevant to a wide variety of occupations.

Stage 2

The second stage of the study involved assessing the psychometric properties of the measure that was created in stage one.

Participants. The data analytic approach used for stage two of study (i.e., structural equation modeling) requires larger than typical sample sizes (i.e., research has recommended that there should be at least five times as many participants as study items; Bentler & Chou, 1987). Thus, as the initial measure of virtual OCB contained 121 items, at least 560 participants would be recommended. Data were collected from 668 participants who were at least 18 years old, worked virtually at least 10 hours a week, resided in the United States, and used Amazon's Mechanical Turk (MTurk; 53.0% male, mean age = 33.7 [SD = 10.0], 70.2% White/Caucasian). Sixty-six percent held a bachelor's or graduate/advanced degree, and participants represented a wide range of industries (13.8% education, 12.3% health care, 11.1% public administration, and 8.5% transportation, communications, electric, gas, and sanitary services).

Materials. Study participants provided basic demographic information (see Appendix A), completed both 19 items assessing face-to-face OCB (Moorman & Blakely, 1995; see Appendix E) and the newly developed virtual OCB measure (see Appendix F), and reported whether each of the 112 virtual OCB items met the definition

of an extra-role behavior using a yes/no scale. Responses for the face-to-face and virtual measure were rated on a seven-point Likert scale based on the degree to which each participant engaged in each of the listed behaviors either in a face-to-face context or via a virtual medium (1 = strongly disagree and 7 = strongly agree).

Procedure. A survey was administered online via Amazon Mechanical Turk. Participants were compensated one dollar for their time.

Results

To analyze stage 1 data and assess the content validity of the 112-item virtual OCB measure, Moore and Benbasat's (1991) overall placement ratio (OPR) was used to calculate a percentage of time each item was sorted into its pre-specified dimension. Seven items with less then 66% agreement, as well as two items that were identified as not fitting the definition of virtual OCB were removed (see Table 1). In order to assess rater agreement in the Q-sorting procedure used in stage one, for each item the researcher examined the percentage of interrater agreement into the predefined categories (see Table 2), as well as Cohen's kappa (Cohen, 1960), a more conservative estimate of agreement that takes into account the probability of rater agreement due to chance. The 112 remaining items had a Cohen's kappa ranging from .50 to .62, a level of agreement that is moderate (i.e., between excellent and poor; Cohen, 1960).

For stage two analyses, a confirmatory factor analysis was conducted to examine both the factor structure and item reliability for the virtual OCB measure. The data were analyzed using a confirmatory factor analytic approach using EQS 6 (Bentler, 2005). Model fit was examined using comparative fit index (CFI: Bentler, 1990) and root-mean-square error of approximation (RMSEA: MacCallum, Browne, & Cai, 2006). Byrne

(2006) advocates the examination of CFI values, suggesting that a difference in model fit of more than .01 reflects a meaningful model change. According to Hu and Bentler (1999) CFI values greater than .95 and RMSEA values less than .06 are considered acceptable. Robust estimation was used to prevent undue influence due to departure from normality (Chou, Bentler, & Satorra, 1991). Model misfit was also examined using the LaGrange Multiplier (LM) test to identify whether cross-loadings or additional item covariances provided a meaningful contribution to the model.

During the confirmatory factor analysis, the factor loadings and dimensionality (i.e., cross-loadings) of each of the items were examined. With one exception (i.e., one item within the PI scale, as the limited number of items remaining in this scale necessitated a more conservative approach; see Table 3) items with loadings of less than .65 were removed. After removing those items, the original 112 items was reduced to 33 (i.e., 13 IH, 9 II, 6 LB, and 5 PI items). The theoretical four-factor model demonstrated good fit (S-B χ^2 (489) = 1005.94, CFI= .92, RMSEA= .04); however, the II factor had very high correlations with both the IH and LB factors (r = .98 and r = .95, respectively), indicating a large degree of conceptual overlap. As a result, a two-factor model was examined in which the II, IH, and LB factors were combined into one factor (S-B χ^2 (494) = 1130.55, CFI= .91, RMSEA= .044). The factor correlation in this model was moderate (r = .73); however, because of the reduction in model fit, a one-factor model was also examined (S-B χ^2 (495) = 1326.53, CFI = .88, RMSEA = .05). However, fit for this model was poor. Therefore, the final model examined was a three-factor model in which the II factor and corresponding items were removed (S-B χ^2 (249) = 487.59, CFI= .95, RMSEA = .04). This model demonstrated the best fit, with moderately high factor

correlations (IH and PI $r = .70$, IH and LB $r = .89$, and PI and LB $r = .71$). To determine if model fit significantly differed across models, the fit of the theoretical four-factor model was compared to each of the subsequent models (see Table 4). All changes in model fit (i.e., the change in Satorra-Bentler χ^2) were significant.

To establish discriminant validity across different contexts (i.e., face-to-face and virtual contexts), the correlations between Moorman and Blakely's (1995) face-to-face model and the newly developed virtual OCB model were examined, each of which has the same four dimensions (see Table 5). Across contexts the factor correlations were moderate ($r = .59$ for IH, $r = .67$ for II, $r = .51$ for PI, and $r = .62$ for LB), providing evidence of discriminant validity. In addition, for each virtual OCB item, the percentage of participants who perceived that the behavior listed fit the provided virtual OCB definition was calculated (see Table 6). These percentages ranged from 62% to 80%.

Discussion

The purpose of this study was to develop and validate a measure for assessing virtual OCBs. Using a confirmatory factor analytic approach, a 33-item measure was created. Upon reviewing the factor structure of the measure, contrary to expectations that the construct was comprised of four dimensions, the best fitting model was a three-factor model including three dimensions of virtual OCB (i.e., IH, PI, and LB), however, upon examination of the II items, even though this factor had a large degree of overlap with other model dimensions, the factor loadings were fairly high. In addition, three out of the nine items in the II category had an OPR of 100%, and the remaining six items had an OPR of 66%, which demonstrates high content validity.

After further examination of II item content, it may be the case that item revisions or factor restructuring could address this issue. Some of the items may have seemed ambiguous to the participants or they may have been to broad, which could have led to the high degree of overlap with the II factor. For example "send reminders to coworkers," may be a part of someone's day-to-day job or it could have been too broad in terms of what type of reminders. Revising some of the items could be beneficial to help improve the II factor. In addition, the word "encourage" is used in several items within the II and LB dimensions, so this may help explain some of the overlap between these factors. In addition, item five in the II factor, "send a list to my coworkers of things that we need to accomplish during the week," had a loading of .67. This item may have been too long or somewhat vague. It could be rewritten as "discuss with my coworkers things we need to accomplish" to help make it more clear to the individuals taking the survey.

Notably, an examination of the factor correlations across OCB contexts provided evidence for discriminant validity due to the relatively small degree of overlap in OCB engagement in the face-to-face and virtual contexts. This suggests by engaging in a face-to-face OCB, it does not necessarily mean you will engage in a virtual one. This study was done with the hopes of developing a measure that would be used by organizations that are moving toward having their employees work away from the physical office. Research has indicated managers do take into account OCBs when evaluating employee performance (Podsakoff et al., 2003). Accordingly, organizations could use this measure to assess OCBs by employees who work virtually

Future Research

More research is still needed to further strengthen the virtual OCB measure developed in this study. Future research should further examine the high factor correlations with the II sub-dimension, perhaps through editing the current items so there is less use of similar wording across dimensions or writing new items. A new sample should be collected to test the fit of the three v. four-factor models. This would help to strengthen the model. It also would be interesting to examine the degree of overlap between supervisor- and self-reported virtual OCBs. Having a manager's insight could help increase the measure's strength, as it will highlight the degree of overlap in reports of virtual OCB across data sources.

Study Limitations

One limitation is that the majority (70.7%) of the participants in the second stage of the study were White/Caucasian. A more racially diverse sample would have been beneficial to enhance the generalizability of the measure. A second limitation is the lack of another source of data to compare virtual OCB reporting. For example, if an objective source was available, this would allow for an examination of the comparison in reporting rates. However, as this was the first study of its kind to develop a virtual OCB measure, a comparison across data sources was not conducted.

Conclusion

Virtual workplaces are going to grow as technology increases; research should continue to examine OCBs in a virtual context. Such research is important because, as stated earlier, Podsakoff et al. (2003) found that OCBs accounted for at least as much variance in performance evaluations as did in-role performance. Because managers are

evaluating employee OCBs in the traditional work setting, there needs to be a way to measure these behaviors in a virtual setting as well. The tool developed in the current study is a first step toward meeting this goal.

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APPENDIX A:
Eligibility Questions

<u>Please check one response to each question</u>

Are you 18 years of age or older?   Yes   No

Do you live in the United States?   Yes   No

Is English your first language?   Yes   No

Do you work virtually at least 10 hours per week? (i.e., using online methods to interact with others while being geographically separated from the physical work location)

        Yes   No

APPENDIX B:
Demographic Questions

Age: _____

Gender: (please check one response)   Male   Female

Race: (please check all that apply)

Black/African American   Native American   Hispanic/Latino

Asian American   White/Caucasian   Hawaiian/Pacific Islander

       Other (please specify): _____

Highest level of education: (please check one response)

   a. Some high school (no diploma)
   b. High school diploma or GED
   c. Trade/technical/vocational training
   d. Some college (no diploma)
   e. Associates degree
   f. Bachelors degree
   g. Masters degree
   h. Professional degree
   i. Doctoral degree
   j. Other (please specify): _____

Industry in which you work: (please check one response)

   a. Agriculture or Mining
   b. Construction
   c. Manufacturing
   d. Transportation, Communications, Electric, Gas, and Sanitary Services
   e. Wholesale Trade or Sales
   f. Retail Trade or Sales
   g. Finance
   h. Insurance
   i. Real Estate
   j. Public Administration
   k. Health Care
   l. Education
   m. Other (please specify): _____

How many hours do you work per week: _____

How many hours per week in which you work virtually (using online methods to interact with others while being geographically separated from the physical work location)**:** _____

How many hours per week you use a software program (e.g., WebEx, Skype, email, etc.) to interact with coworkers:

_____

How many years of work experience do you have: _____

APPENDIX C:
Generating Virtual Organizational Citizenship Behaviors

Organizational citizenship behaviors (OCBs) in a virtual context are extra-role behaviors employees engage in using online methods (e.g., Skype, WebEx, FaceTime, etc.) to interact with others while being geographically separated from the physical work location. Extra-role behaviors are behaviors that promote organizational effectiveness that are not part of an employee's formal job description and are therefore not recognized by the organization's reward system.

Example: Helping a coworker via email with an issue they encounter.

Please list **at least 5** examples of virtual organizational citizenship behaviors below.

Moorman and Blakely (1995)

Interpersonal helping items:

1. Goes out of his/her way to help co-workers with work-related problems
2. Voluntarily helps new employees settle into the job
3. Frequently adjusts his/her work schedule to accommodate other employees' requests for time off
4. Always goes out of the way to make newer employees feel welcome in the work group
5. Show genuine concern and courtesy toward co-workers, even under the most trying business or personal situations

Individual initiative items:

6. For issues that may have serious consequences, expresses opinions honestly even when others may disagree
7. Often motivates others to express their ideas and opinions
8. Encourages others to try new and more effective ways of doing their job
9. Encourages hesitant or quiet co-workers to voice their opinions when they otherwise might not speak up
10. Frequently communicates to co-workers suggestions on how the group can improve

Personal industry items:

11. Rarely misses work even when he/she has a legitimate reason for doing so
12. Performs his/her duties with unusually few errors
13. Performs his/her job duties with extra-special care
14. Always meets or beats deadlines for completing work

Loyal boosterism items:

15. Defends the organization when other employees criticize it
16. Encourages friends and family to utilize the organization's products
17. Defends the organization when outsiders criticize it
18. Shows pride when representing the organization in public
19. Actively promotes the organization's products and services to potential users

Williams and Anderson (1991)

Items for OCBI:

1. Helps others who have been absent
2. Helps others who have heavy work loads
3. Assists supervisor with his/her work (when not asked)
4. Takes time to listen to co-workers' problems and worries
5. Goes out of way to help new employees
6. Takes a personal interest in other employees
7. Passes along information to co-workers

Items for OCBO:

1. Attendance at work is above the norm
2. Gives advance notice when unable to come to work
3. Takes undeserved work breaks (R)
4. Great deal of time spent with personal phone conversations (R)
5. Complains about insignificant things at work (R)
6. Conserves and protects organizational property
7. Adheres to informal rules devised to maintain order

Items for IRB:

1. Adequately completes assigned duties
2. Fulfills responsibilities specified in job description
3. Performs tasks that are expected of him/her
4. Meets formal performance requirements of the job
5. Engages in activities that will directly affect his/her performance
6. Neglects aspects of the job he/she is obligated to perform (R)
7. Fails to perform essential duties

Items denoted with (R) are reversed scored

Podsakoff, MacKenzie, Moorman, and Fetter (1990)

Altruism items:

1. Helps others who have heavy workloads
2. Is always ready to lend a helping hand to those around him/her
3. Helps others who have been absent
4. Willingly helps others who have work-related problems
5. Helps orient new people even though it is not required

Conscientiousness items:

1. Is one of my most conscientious employees
2. Believes in giving an honest day's work for an honest day's pay
3. Attendance at work is above the norm
4. Does not take extra breaks
5. Obeys company rules and regulations even when no one is watching

Sportsmanship items:

1. Is the classic "squeaky wheel" that always needs greasing (R)
2. Consumes a lot of time complaining about trivial matters (R)
3. Tends to make "mountains out of molehills" (R)
4. Always focuses on what's wrong, rather than the positive side (R)
5. Always finds fault with what the organization is doing (R)

Courtesy items:

1. Tries to avoid creating problems for co-workers
2. Considers the impact of his/her actions on co-workers
3. Does no abuse the rights of others
4. Takes steps to try to prevent problems with other employees
5. Is mindful of how his/her behavior affects other people's jobs

Civic virtue items:

1. Keeps abreast of changes in the organization
2. Attends meetings that are not mandatory, but are considered important
3. Attends functions that are not required, but help the company
4. Reads and keeps up with organization announcements, memos, and so on

Items denoted with (R) are reversed scored

Smith, Organ, and Near (1983)

Altruism items:

1. Helps others who have been absent
2. Volunteers for things that are not required
3. Orients new people even though it is not required
4. Helps others who have heavy workloads
5. Assists supervisor with his or her work
6. Makes innovative suggestions to improve department
7. Attends functions not required but that help the company image

Generalized compliance items:

8. Punctuality
9. Takes undeserved breaks (R)
10. Attendance at work is above the norm
11. Coasts toward the end of the day (R)
12. Gives advance notice if unable to come to work
13. Great deal of time spent with personal phone conversations (R)
14. Does not take unnecessary time off work
15. Does not take extra breaks
16. Does not spend time in idle conversation

Items denoted with (R) are reversed scored.

APPENDIX E:
Traditional Face-To-Face OCB Items

The following behaviors refer to working in a traditional face-to-face work setting

Instructions: Using the provided scale, please indicate the degree to which you engage in each of the following behaviors in a face-to-face work setting over the past three months

Interpersonal Helping

1. Go out of my way to help co-workers with work-related problems
2. Voluntarily help new employees settle into the job
3. Frequently adjust my work schedule to accommodate other employees' requests for time off
4. Always go out of my way to make newer employees feel welcome in the work group
5. Show genuine concern and courtesy toward co-workers, even under the most trying business or personal situations

Individual Initiative

6. For issues that may have serious consequences, express opinion honestly even when others may disagree
7. I often motivate others to express their ideas and opinions
8. Encourage others to try new and more effective ways of doing their job
9. Encourage hesitant or quiet co-workers to voice their opinions when they otherwise might not speak up
10. Frequently communicate to co-workers suggestions on how the group can improve

Personal Industry

11. Rarely miss work even when I have a legitimate reason for doing so
12. Performs my duties with unusually few errors
13. Performs my job duties with extra-special care
14. Always meet or beat deadlines for completing work

Loyal Boosterism

15. Defend the organization when other employees criticize it
16. Encourage friends and family to utilize the organization's products
17. Defend the organization when outsiders criticize it
18. Show pride when representing the organization in public
19. Actively promote the organization's products and services to potential users

The following behaviors refer to working virtually (i.e., being geographically separated from the physical work location).

Instructions: Using the provided scale, please indicate the degree to which you engage in each of the following behaviors via a virtual medium (e.g., Skype, WebEx, FaceTime, email, etc.) while being geographically separated from the physical work location over the past three months:

* Indicates it was used in the final model

Interpersonal Helping

1. Answer a coworker's questions
2. Help a coworker work through a problem*
3. Teach a coworker a new concept*
4. Give a coworker information that is non-work related
5. Provide a coworker with information they might have missed*
6. Help a coworker review their work before they submit it*
7. Provide a coworker with emotional support
8. Walk a coworker through a software problem
9. Coach/mentor a coworker*
10. Help a coworker get a virus off of their computer
11. Help coworkers develop their managerial skills
12. Help a coworker work on a speech
13. Help coworkers order items
14. Help someone make a career choice
15. Stand up for a coworker
16. Let someone in on the social aspects of a work meeting
17. Offer support for technical issues
18. Give advice to a coworker
19. Help a coworker who is struggling in their personal life
20. Send someone inspiring or motivational messages
21. Make sure I am sensitive of others' time
22. Make myself available to coworkers so they can reach me outside of working hours
23. Help a coworker create a new project*
24. Give directions to a coworker*
25. Cover a shift for a coworker who needs time off
26. Help a new coworker adapt to the job
27. Show courtesy to a coworker
28. Help a coworker who has a heavy workload*
29. Set aside one's own work to help a coworker*
30. Help by distributing a survey a coworker needs filled out

31. Reach out to a new coworker so they feel welcome*
32. Show concern for a coworker when they have been away from work*
33. Talk with a coworker who is going through a stressful time
34. Listen to a coworker's opinion when talking
35. Give a coworker a pep talk
36. Treat everyone with respect
37. Provide additional resources to a coworker*
38. Provide instructions to help a coworker*
39. Help with computer setup
40. Train new associates

Individual Initiative

1. Talk about concerns of the team with a boss or coworker
2. Present new ideas, methods, or approaches
3. Share methods of doing something with coworkers*
4. Give out a cheat sheet to help others solve simple problems
5. Send a list to my coworkers of things that we need to accomplish during the week*
6. Make sure you're in an environment that is amenable for work
7. Upload documents to share with my coworkers
8. Talk with coworkers about work procedures*
9. Communicate with coworkers and supervisors regarding work procedures
10. Offer constructive feedback
11. Discuss the analysis of data
12. Encourage coworkers to voice their opinion about a project*
13. Make sure everyone gets a chance to speak in a meeting*
14. Express your opinion on a topic
15. Constructively debate with a coworker
16. Lead focus groups to generate new ideas
17. Encourage coworkers to think outside the box*
18. Mediate a discussion when people disagree
19. Pass along information a supervisor has given you
20. Communicate expectations to coworkers*
21. Send reminders to coworkers*
22. Make a shareable spreadsheet or document
23. Make sure everyone is properly connected for a meeting*
24. Carefully word all correspondence so that nothing is misunderstood
25. Discuss benefit packages with coworkers

Personal Industry

1. Respond in a timely fashion
2. Put in extra time to get a project done*
3. Prepare materials for a project*
4. Volunteer to assist the company on my own time

5. Send newsletters to coworkers or boss detailing weekly of progress
6. Carefully word all correspondence to ensure that nothing is misinterpreted*
7. Keep a record of documents edited or completed away from work
8. Set up the logistics of a room reservation
9. Get information for a project*
10. Give a lecture/talk
11. Seek information for a coworker outside of your department
12. Communicate with coworkers outside of my department to ask questions outside the scope of my work
13. Participate in training programs
14. Research best practices pertaining to your industry
15. Attend meetings
16. Finish work before a deadline
17. Turn work in without mistakes
18. Stay on the clock after working hours to finish a project
19. Start work early to work on a project*
20. Demonstrate integrity
21. Set up a meeting
22. Give proper notice when can't work certain days
23. Assist your supervisor with work without being asked
24. Lead a training session on a topic on which you are an expert
25. Maintain an archive of online communications for quality assurance
26. Attend work regularly
27. Explain a work policy
28. Explain changes in benefits
29. Make and share a tutorial video
30. Keep a truthful record of hours worked

Loyal Boosterism

1. Talk to potential clients about using your organization's products/services
2. Be a company representative outside of work
3. Read reviews about the organization
4. Give a report on the reviews found
5. Encourage family members or friends to use the organization's products
6. Research current trends in your industry
7. Communicate with company officials concerning product issues
8. Explain how my job contributes to organizational goals
9. Help discuss the goals of the organization with coworkers*
10. Ask questions about current events going on in your organization
11. Coordinate business lunches outside of working hours
12. Organize groups dedicated to the organizational goal
13. Organize webpages dedicated to the organizational goal
14. Organize organizational fundraisers
15. Talk about the organization to friends
16. Share news about the organization*

17. Defend the organization when criticized
18. Promote the organization
19. Attend organizational functions that are not required
20. Offer suggestions about ways to enhance the organization*
21. Stand with the organization in hard times
22. Provide the newest ideas to promote your company*
23. Interact with customers/clients
24. Share industry news with coworkers*
25. Keep people up to date on changes in the organization*
26. Talk with clients about problems

Table 1

Overall Placement Ratios

Item	%	Item	%	Item	%	Item	%
IH-1	66	II-1	66	PI-1	66	LB-1	100
IH-2	100	II-2	100	PI-2	66	LB-2	100
IH-3	66	II-3	66	PI-3	100	LB-3	100
IH-4	100	II-4	66	PI-4	66	LB-4	100
IH-5	66	II-5	100	PI-5	100	LB-5	100
IH-6	66	II-6	100	PI-6	66	LB-6	66
IH-7	100	II-7	66	PI-7	100	LB-7	100
IH-8	66	II-8	66	PI-8	66	LB-8	100
IH-9	66	II-9	66	PI-9	66	LB-9	66
IH-10	100	II-10	66	PI-10	100	LB-10	66
IH-11	66	II-11	66	PI-11	66	LB-11	66
IH-12	100	II-12	100	PI-12	66	LB-12	66
IH-13	66	II-13	66	PI-13	66	LB-13	66
IH-14	100	II-14	100	PI-14	66	LB-14	100
IH-15	100	II-15	100	PI-15	66	LB-15	100
IH-16	66	II-16	66	PI-16	100	LB-16	100
IH-17	66	II-17	66	PI-17	100	LB-17	100
IH-18	100	II-18	66	PI-18	100	LB-18	100
IH-19	100	II-19	100	PI-19	100	LB-19	100
IH-20	100	II-20	100	PI-20	66	LB-20	100
IH-21	100	II-21	66	PI-21	66	LB-21	100
IH-22	100	II-22	66	PI-22	100	LB-22	100
IH-23	66	II-23	66	PI-23	100	LB-23	100
IH-24	66	II-24	66	PI-24	66	LB-24	66
IH-25	100	II-25	0	PI-25	66	LB-25	66
IH-26	100			PI-26	33[a]	LB-26	33
IH-27	100			PI-27	33		
IH-28	100			PI-28	33		
IH-29	100			PI-29	33		
IH-30	66			PI-30	66[a]		
IH-31	100						
IH-32	100						
IH-33	100						
IH-34	100						
IH-35	100						
IH-36	100						
IH-37	66						
IH-38	66						
IH-39	33						
IH-40	33						

Note. "IH" refers to Interpersonal Helping, "II" refers to Individual Initiative, "PI" refers to Personal Industry, and "LB" refers to Loyal Boosterism. [a] indicates it did not fit the definition

Table 2

Comparison of Interrater Reliability

Interrater combination $(C_{a/b})^{1}$	Interrater Agreement %	Cohen's Kappa
$C_{1/2}$	72 (67)	.62 (.56)
$C_{1/3}$	63 (58)	.50 (.46)
$C_{2/3}$	69 (64)	.59 (.53)

Note. Statistics reported in parentheses are based on all 121 original items. [1] Total number of judgments = 112 (121)

Table 3

Measurement Properties of Items

Category and items	Standardized Loading	AVE
Interpersonal Helping		0.557
Item 2	.79	
Item 3	.79	
Item 5	.77	
Item 6	.72	
Item 9	.73	
Item 23	.76	
Item 24	.71	
Item 28	.75	
Item 29	.71	
Item 31	.73	
Item 32	.69	
Item 37	.78	
Item 38	.77	
Individual Initiative		0.504
Item 3	.75	
Item 5	.67	
Item 8	.69	
Item 12	.81	
Item 13	.68	
Item 17	.74	
Item 20	.69	
Item 21	.67	
Item 23	.68	
Personal Industry		0.449
Item 2	.65	
Item 3	.71	
Item 6	.63	
Item 9	.67	
Item 19	.69	
Loyal Boosterism		0.551
Item 9	.79	
Item 16	.71	
Item 20	.79	
Item 22	.70	
Item 24	.76	
Item 25	.70	

Note. AVE = average variance explained

Table 4

Fit Statistics for Hypothesized and Alternative Models

Variable	S-B χ^2	df	CFI	RMSEA	ΔCFI	ΔS-B χ^2
Four-factor model	1005.94	489	.92	.04	.92	
Two-factor model	1130.55	494	.91	.04	-.01	87.94*
One-factor model	1326.53	495	.88	.05	-.04	250.7*
Three-factor model	487.59	249	.95	.04	+.03	517.82*

Note. Reported S-B χ^2, CFI, and RMSEA are based on robust estimates. ΔS-B χ^2 refers to Satorra-Bentler scaled difference from the original four-factor mode. * denotes *p* < .001

Table 5

Correlation Matrix

Factor	1	2	3	4	5	6	7	8
1. Virtual IH	-							
2. Virtual II	.98**	-						
3. Virtual PI	.70*	.75*	-					
4. Virtual LB	.89*	.95**	.71*	-				
5. M&B IH	.59*	.58*	.49*	.54*	-			
6. M&B II	.62*	.67*	.52*	.67*	.82*	-		
7. M&B PI	.30*	.33*	.51*	.31*	.64*	.58*	-	
8. M&B LB	.46*	.50*	.50*	.62*	.67*	.72*	.56*	-

Note. ** $p < .01$, * $p < .05$. M & B = Moorman and Blakely's (1995) face-to-face measure. "IH" refers to Interpersonal Helping, "II" refers to Individual Initiative, "PI" refers to Personal Industry, and "LB" refers to Loyal Boosterism

Table 6

Definitional Fit Percentages

Item	%	Item	%	Item	%	Item	%
IH-1	66.6	II-1	64.8	PI-1	63.3	LB-1	63.3
IH-2	**73.4**	II-2	69.3	**PI-2**	**80.7**	LB-2	75.1
IH-3	**70.7**	**II-3**	**71.5**	PI-3	62.8	LB-3	70.5
IH-4	69.9	II-4	64.8	PI-4	77.4	LB-4	62.4
IH-5	**74.1**	**II-5**	**62.3**	PI-5	65.0	LB-5	74.4
IH-6	**75.4**	II-6	70.2	**PI-6**	**62.4**	LB-6	75.6
IH-7	74.5	II-7	60.2	PI-7	65.0	LB-7	61.5
IH-8	67.4	**II-8**	**64.5**	PI-8	59.4	LB-8	65.4
IH-9	**70.5**	II-9	63.3	**PI-9**	**62.0**	**LB-9**	**68.2**
IH-10	67.8	II-10	72.9	PI-10	62.7	LB-10	67.4
IH-11	71.9	II-11	60.5	PI-11	68.9	LB-11	66.6
IH-12	72.6	**II-12**	**71.6**	PI-12	70.8	LB-12	64.2
IH-13	62.9	**II-13**	**65.5**	PI-13	63.2	LB-13	63.6
IH-14	68.9	II-14	65.1	PI-14	71.7	LB-14	63.8
IH-15	76.0	II-15	68.0	PI-15	60.8	LB-15	75.5
IH-16	70.7	II-16	64.4	PI-16	69.6	**LB-16**	**69.9**
IH-17	68.1	**II-17**	**72.9**	PI-17	58.1	LB-17	69.2
IH-18	74.6	II-18	65.3	PI-18	72.2	LB-18	71.1
IH-19	73.7	II-19	63.3	**PI-19**	**74.0**	LB-19	74.9
IH-20	73.7	**II-20**	**64.3**	PI-20	67.4	**LB-20**	**72.6**
IH-21	69.5	**II-21**	**66.6**	PI-21	55.7	LB-21	75.4
IH-22	77.5	II-22	60.5	PI-22	59.7	**LB-22**	**74.4**
IH-23	**68.4**	**II-23**	**64.3**	PI-23	71.4	LB-23	63.0
IH-24	**66.3**	II-24	62.4	PI-24	63.6	**LB-24**	**72.9**
IH-25	74.0			PI-25	63.8	**LB-25**	**65.3**
IH-26	75.0						
IH-27	68.6						
IH-28	**74.1**						
IH-29	**75.6**						
IH-30	65.0						
IH-31	**72.6**						
IH-32	**79.2**						
IH-33	74.7						
IH-34	69.9						
IH-35	68.9						
IH-36	68.0						
IH-37	**73.4**						
IH-38	**69.0**						

Note. This table contains all 112 items used in the initial measure. Items in **bold** indicate they are the final 33 items retained in the measure.