

**Journal of
Organizational Psychology**

**North American Business Press
Atlanta – Seattle – South Florida - Toronto**

Journal of Organizational Psychology

Dr. Michael Friedman
Editor

Dr. David Smith
Editor-In-Chief

NORTH AMERICAN BUSINESS PRESS EDITORIAL ADVISORY BOARD

Dr. Andy Bertsch - MINOT STATE UNIVERSITY
Dr. Jacob Bikker - UTRECHT UNIVERSITY, NETHERLANDS
Dr. Bill Bommer - CALIFORNIA STATE UNIVERSITY, FRESNO
Dr. Michael Bond - UNIVERSITY OF ARIZONA
Dr. Charles Butler - COLORADO STATE UNIVERSITY
Dr. Jon Carrick - STETSON UNIVERSITY
Dr. Mondher Cherif - REIMS, FRANCE
Dr. Daniel Condon - DOMINICAN UNIVERSITY, CHICAGO
Dr. Bahram Dadgostar - LAKEHEAD UNIVERSITY, CANADA
Dr. Deborah Erdos-Knapp - KENT STATE UNIVERSITY
Dr. Bruce Forster - UNIVERSITY OF NEBRASKA, KEARNEY
Dr. Nancy Furlow - MARYMOUNT UNIVERSITY
Dr. Mark Gershon - TEMPLE UNIVERSITY
Dr. Philippe Gregoire - UNIVERSITY OF LAVAL, CANADA
Dr. Donald Grunewald - IONA COLLEGE
Dr. Samantha Hettihewa - UNIVERSITY OF BALLARAT, AUSTRALIA
Dr. Russell Kashian - UNIVERSITY OF WISCONSIN, WHITEWATER
Dr. Jeffrey Kennedy - PALM BEACH ATLANTIC UNIVERSITY
Dr. Jerry Knutson - AG EDWARDS
Dr. Dean Koutramanis - UNIVERSITY OF TAMPA
Dr. Malek Lashgari - UNIVERSITY OF HARTFORD
Dr. Priscilla Liang - CALIFORNIA STATE UNIVERSITY, CHANNEL ISLANDS
Dr. Tony Matias - MATIAS AND ASSOCIATES
Dr. Patti Meglich - UNIVERSITY OF NEBRASKA, OMAHA
Dr. Robert Metts - UNIVERSITY OF NEVADA, RENO
Dr. Adil Mouhammed - UNIVERSITY OF ILLINOIS, SPRINGFIELD
Dr. Roy Pearson - COLLEGE OF WILLIAM AND MARY
Dr. Sergiy Rakhmayil - RYERSON UNIVERSITY, CANADA
Dr. Robert Scherer - CLEVELAND STATE UNIVERSITY
Dr. Ira Sohn - MONTCLAIR STATE UNIVERSITY
Dr. Reginal Sheppard - UNIVERSITY OF NEW BRUNSWICK, CANADA
Dr. Carlos Spaht - LOUISIANA STATE UNIVERSITY, SHREVEPORT
Dr. Ken Thorpe - EMORY UNIVERSITY
Dr. Robert Tian - MEDIALLE COLLEGE
Dr. Calin Valsan - BISHOP'S UNIVERSITY, CANADA
Dr. Anne Walsh - LA SALLE UNIVERSITY
Dr. Thomas Verney - SHIPPENSBURG STATE UNIVERSITY
Dr. Christopher Wright - UNIVERSITY OF ADELAIDE, AUSTRALIA

Volume – 12(3/4)
ISSN 2158-3609

Authors have granted copyright consent to allow that copies of their article may be made for personal or internal use. This does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Any consent for republication, other than noted, must be granted through the publisher:



North American Business Press, Inc.
Atlanta - Seattle – South Florida - Toronto

©Journal of Organizational Psychology 2012

For submission, subscription or copyright information, contact the editor at:

jop@na-businesspress.com or
customerservice@na-businesspress.com

Subscription Price: US\$ 300 per year

Our journals are indexed by UMI-Proquest-ABI Inform, EBSCOHost, GoogleScholar, and listed with Cabell's Directory of Periodicals, Ulrich's Listing of Periodicals, Bowkers Publishing Resources, the Library of Congress, the National Library of Canada, and Australia's Department of Education Science and Training. Furthermore, our journals have been used to support the Academically Qualified (AQ) faculty classification by all recognized business school accrediting bodies.

This Issue

An Examination of Employee Layoffs and Organizational Justice Perceptions..... 11
Jayme Sobieralski (Todd), Cynthia R. Nordstrom

Employee layoffs are sadly both prevalent and yet underresearched. How a layoff situation is handled can profoundly impact victims' reactions as well as the subsequent behavior of layoff survivors. Using vignettes, we examined how the presence of a third party, employees' seniority level and the provision of a severance package influenced organizational justice perceptions. Results indicated that when a senior employee was laid off, both procedural and interactional justice norms appeared violated. Additionally, the provision of a severance package lead to more positive distributive justice perceptions. We discuss how companies can minimize negative layoff reactions during these difficult economic times.

Communication in Virtual Teams: The Role of Emotional Intelligence..... 21
Virginia E. Pitts, Natalie A. Wright, Lindsey C. Harkabus

Emotional intelligence (EI) has received increasing attention in recent years as a driver of team effectiveness. However, research has yet to address EI in virtual teams (VT). The purpose of our study was to examine EI as a predictor of VT effectiveness. Further, we investigated quality of communication as a mediator of the EI-team viability relationship. We employed a work simulation using 228 undergraduate students (57 teams). Multilevel modeling was used to test our hypotheses. Our results support that EI is a driver of team viability, and that quality of communication serves as one mechanism through which this influence exists.

Measuring Cross-Cultural Orientation: Development of a New Instrument..... 35
Rakesh Mittal

In this study I design and present a new instrument, Cross-Cultural Orientation Inventory (CCOI), to measure the cross cultural orientation of a person. I define cross-cultural orientation as the readiness of a person to interact with, and form a sustainable relationship with a person from a different culture. I posit that CCOI would be a valid measure of cross-cultural orientation of a person, which in turn, would be related to the cross cultural behavioral competence of that person. I design a questionnaire to represent CCOI, and assess its reliability and validity empirically. I discuss my results and the utility of the new measure for HR practitioners in recruitment and selection processes.

Systemic Coaching: An OD Strategy Applied to Mergers and Acquisitions..... 47
Serena Hsia, Daniel Molvik, Sarah Lambie

The traditional concept of executive coaching is expanded to make the case for systemic coaching (SC)—organizationally focused coaching of key influential leaders throughout an organization. Executive coaching has been purported to provide organizational impact by accelerating the development of leaders. We suggest that coaching pivotal leaders throughout an organization can facilitate organizational development, specifically during times of change. We apply SC to the context of mergers and acquisitions (M&As) and discuss difficulties of M&As that can be addressed by systemic coaching.

Complementary Mentor Motivations and Protégé Characteristics: Determinants of Mentoring.....	56
Kimberly A. Smith-Jentsch, Julia M. Fullick, Nicholas A. Bencaz	

We investigated supervisors' mentoring motivations as a moderator of the relationship between protégé characteristics and mentoring experiences. Participants were employees of a marketing communications company. Results indicated that protégé advancement potential was more positively associated with psychosocial support from supervisors who were strongly motivated to mentor for intrinsic satisfaction. Potential for advancement was less positively associated with career support provided by supervisors who were motivated to mentor for the benefit of others. Protégé ingratiation was associated with greater psychosocial support from supervisors strongly motivated to mentor for their own self-enhancement but negatively related for those not strongly motivated by self-enhancement.

Team Learning and Creativity: the Roles of Exploitation and Team Cohesiveness	70
Semin Park, Won-Woo Park, Sangyun Kim, Cheol Young Kim	

Exploitation, as a means of achieving team creativity, has been thought to be limited compared with exploration. In an empirical study, we investigated the potential value of team exploitation as a strong independent initiator of team creativity, considering team cohesiveness as a moderator of that relationship. Our results support our hypothesis that when team cohesiveness is high, team exploitation exhibits a U-shaped relationship with creativity, whereas when team cohesiveness is low, the relationship is inverted-U-shaped.

When Broken Promises Threaten One's Identity: The Impact of Psychological Contract Breach on Self-Identity Threat.....	81
Kevin E Henderson, Anne M. O'Leary-Kelly	

Research on psychological contracts has not been clear on how and why psychological contract breach (PCB) has the effect it does on employee attitudes and behaviors. In this study, we suggest that self-identity threat provides a lens through which to better understand PCB. Specifically, PCB is expected to convey information that threatens an employee's sense of value or worth in the organization. In a study of 386 university employees, we found that: 1) PCB results in self-identity threat, which 2) elicits strong negative affect, and 3) results in the use of coping strategies, including seeking social support and organizational retaliation.

The Use of Psychological Capital, Humility, and Discrepancy Theory as Inputs for Strategy and Sociotechnical Systems: Phase One of an Action Research Case Study	99
Lachlan R. Whatley	

This Action Research, Phase I, case study describes one of the first efforts to use Psychological Capital and Humility surveys in a Top Management Team (TMT) to assess an appropriate intervention method for making changes to an organization's strategic direction. These surveys, together with Discrepancy Theory, led to a superior understanding of the dynamics within the TMT and the importance of context, thus greatly aiding further investigations of learning within the organization. This journey led to an ideal environment for considering the organization's future strategy and Sociotechnical Systems, and for understanding how to aid in the development of the individuals.

Person-Environment Fit in Non Standard Work: Insights from Workers with Limited Expectations of Continued Employment..... 115
Kang Yang Trevor Yu

This study investigates nonstandard work through the lens of person-environment (PE) fit theory. Based on a sample of employees with limited expectations of continued employment in Singapore, PE fit is observed to be an important component of these individuals' work experiences. Findings suggest that demands-abilities fit was strongly associated with the organizational commitment and job satisfaction of nonstandard workers. Furthermore, needs-supplies fit was also associated with commitment but not satisfaction. In contrast, value congruence was only weakly associated with commitment and not at all related to satisfaction. Implications of applying PE fit to the study of nonstandard work are discussed.

The Influence of Facebook Usage on Perceptions of Social Support, Personal Efficacy, and Life Satisfaction..... 133
Deborah A. Olson, Jeanny Liu, Kenneth S. Shultz

This research focused on: 1) The impact of Facebook usage on perceptions of social support, and 2) the relationship between Facebook usage, social support, and efficacy in predicting life satisfaction. Our findings showed that social support as perceived by Facebook users was significantly higher for face-to-face friends, for three types of social support (emotional, informational, and instrumental). Also, the greater the number of hours spent on Facebook, the more social support was perceived from both face-to-face and Facebook friends. Only goal efficacy and interpersonal control had a significant relationship with life satisfaction. Implications for organizational leaders are discussed.

Simulate the Job: Predicting Accidents Using a Work Sample..... 145
Mei-Chuan Kung, Matthew S. O'Connell, Esteban Tristan, Brian Dishman

This study examined the construct and criterion-related validity of a psychomotor work sample in predicting safety incidents in addition to job performance for entry-level manufacturing jobs. Results shed light to the underlying constructs measured in the work sample and demonstrated usefulness of a pre-employment work sample in improving workplace safety.

GUIDELINES FOR SUBMISSION

Journal of Organizational Psychology (JOP)

Domain Statement

The *Journal of Organizational Psychology* (JOP) aims to publish empirical reports and theoretical reviews of research in the field of organizational psychology. The journal will focus on research and theory in all topics associated with organizational psychology within and across individual, group and organizational levels of analysis, including but not limited to: personnel selection and training; organizational assessment and development; risk management and loss control leadership development, marketing and consumer behavior research, organizational culture, organizational justice, organizational performance, performance appraisal, feedback, staffing and selection. It is also the aim of JOP for all research to have an end benefit to practitioners and policy makers. All empirical methods-including, but not limited to, qualitative, quantitative, field, laboratory, meta-analytic, and combination methods-are welcome. Accepted manuscripts must make strong empirical and/or theoretical contributions and highlight the significance of those contributions to the organizational psychology field. JOP is not tied to any particular discipline, level of analysis, or national context.

Submission Format

Articles should be submitted following the American Psychological Association format. Articles should not be more than 30 double-spaced, typed pages in length including all figures, graphs, references, and appendices. Submit two hard copies of manuscript along with a disk typed in MS-Word (preferably).

Make main sections and subsections easily identifiable by inserting appropriate headings and sub-headings. Type all first-level headings flush with the left margin, bold and capitalized. Second-level headings are also typed flush with the left margin but should only be bold. Third-level headings, if any, should also be flush with the left margin and italicized.

Include a title page with manuscript which includes the full names, affiliations, address, phone, fax, and e-mail addresses of all authors and identifies one person as the Primary Contact. Put the submission date on the bottom of the title page. On a separate sheet, include the title and an abstract of 100 words or less. Do not include authors' names on this sheet. A final page, "About the authors," should include a brief biographical sketch of 100 words or less on each author. Include current place of employment and degrees held.

References must be written in APA style. It is the responsibility of the author(s) to ensure that the paper is thoroughly and accurately reviewed for spelling, grammar and referencing.

Review Procedure

Authors will receive an acknowledgement by e-mail including a reference number shortly after receipt of the manuscript. All manuscripts within the general domain of the journal will be sent for at least two reviews, using a double blind format, from members of our Editorial Board or their designated reviewers. In the majority of cases, authors will be notified within 60 days of the result of the review. If reviewers recommend changes, authors will receive a copy of the reviews and a timetable for submitting revisions. Papers and disks will not be returned to authors.

Accepted Manuscripts

When a manuscript is accepted for publication, author(s) must provide format-ready copy of the manuscripts including all graphs, charts, and tables. Specific formatting instructions will be provided to accepted authors along with copyright information. Each author will receive two copies of the issue in which his or her article is published without charge. All articles printed by *JOP* are copyright protected by the *Journal*. Permission requests for reprints should be addressed to the Editor. Questions and submissions should be addressed to:

**North American Business Press
301 Clematis Street #3000
West Palm Beach, Florida 33401
jop@na-businesspress.com
866-624-2458**

An Examination of Employee Layoffs and Organizational Justice Perceptions

Jayme Sobieralski (Todd)
Agrium, Inc.

Cynthia R. Nordstrom
Southern Illinois University Edwardsville

Employee layoffs are sadly both prevalent and yet underresearched. How a layoff situation is handled can profoundly impact victims' reactions as well as the subsequent behavior of layoff survivors. Using vignettes, we examined how the presence of a third party, employees' seniority level and the provision of a severance package influenced organizational justice perceptions. Results indicated that when a senior employee was laid off, both procedural and interactional justice norms appeared violated. Additionally, the provision of a severance package lead to more positive distributive justice perceptions. We discuss how companies can minimize negative layoff reactions during these difficult economic times.

Over the past decade, employee downsizing has become an unfortunate aspect of organizational life—a reality only exacerbated by the current recession. Managers faced with an economic downturn intuitively believe that one way to minimize losses is to cut back on personnel costs. While some research evidence, (e.g., Cascio & Young, 2003) challenges this notion finding no consistent evidence that downsizing leads to long term improved financial performance, there is no denying that many company use employee layoffs as a “quick fix” strategy to improve company profitability. In the first quarter of 2009, for example, the Bureau of Labor Statistics reported over 558,000 workers being laid off. “Layoff” is a term used to describe job loss due to downsizing (Hemingway & Conte, 2003). Despite the prevalence of layoffs, research on this topic is relatively scarce, leading Datta, Guthrie, Basuil and Pandey in their 2010 review to conclude, “Although research on downsizing is growing, it is still dwarfed by the magnitude of the phenomenon in the marketplace” (p. 343).

Obviously, layoffs are a difficult event in employees' lives with laid off employees reporting psychological depression, life dissatisfaction, and physical, social, and economical problems (Ahlberg, 1986; Gilliland & Schepers, 2003). In some cases, layoffs have even triggered workplace violence (Karl & Hancock, 1999). Survivors can also experience negative effects including decreases in productivity, job satisfaction, and organizational commitment. Additionally, an increase in turnover, sabotage, resistance to change, absenteeism, and lateness are seen in survivors (Armstrong-Stassen, 1994; Gilliland & Schepers, 2003).

Given these outcomes, it is not surprising that managers do not enjoy the prospect of having to lay off employees (Fulmer, 1986). Additionally, managers must contend with legal issues ensuring they are in compliance with Equal Employment Opportunity laws (EEO), the Worker Adjustment and Retraining Notification Act (WARN), and the Age Discrimination in Employment Act (ADEA). Moreover, managers also have a number of practical issues to consider when attempting to minimize negative

employee reactions. Some pragmatic issues are a) should there be a third party present when notifying the employee, b) should employee seniority influence the decision process, and c) will the organization offer a severance package to the employee?

The effect these variables have on employee reactions is of considerable importance. First, laid off employees may decide to sue the company arguing they did not operate in good faith. Second, an organization will want to minimize negative reactions to maintain morale among layoff survivors. Third, an organization's reputation among customers may be affected by how employees are treated. Finally, laid off employees may later be considered for rehiring should the organization's financial status improve. To this point, a survey conducted by Right Management found that 18 percent of laid off individuals are rehired by the organization who laid them off initially (www.cnn.com).

Employee reactions to layoffs likely depend on whether they perceive they were treated fairly. Shah (2000) argues that employees' fairness perceptions will be affected by whether they viewed the layoffs as necessary, the criteria used to identify whom to layoff and whether employees were sufficiently provided for after the layoff. When considering fairness, the issue of organizational "justice" is applicable -- a multifaceted construct involving distributive, procedural, and interactional justice concerns (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). Distributive justice has been defined as a concern with organizational outcomes such as pay, benefits, status, (de)promotions, etc. (Holtz & Harold, 2009; Mishra & Spretizer, 1998; Saunders & Thornhill, 2003). In the current study, distributive justice may be reflected in whether the organization distributes a severance package, generous benefits, or outplacement services to laid off employees.

Procedural justice deals with whether employees perceive that the process used to determine outcomes is fair (such as the system used to determine whom to layoff) (Holtz & Harold, 2009; Mishra & Spretizer, 1998; Saunders & Thornhill, 2003). Are the layoff decisions based on tenure, performance, absence record, merit, etc. or is the procedure perceived to be biased in some way? In the current study, procedural justice may be reflected in whether the supervisor uses a systematic procedure to determine which employees are laid off, such as how long the employee has been with the organization.

Finally, interactional justice focuses on how the rationale for decisions is conveyed to employees or the interpersonal communication used (Pinder, 2008). Was the employee treated with respect and dignity (Holtz & Harold, 2009)? In the current study, interactional justice can be reflected in whether a third party is present when the manager communicates the layoff decision.

Previous research (Bies, Martin, & Brockner, 1993) has looked at the connection between justice perceptions and layoff victims' reaction manipulating outcome fairness, procedural fairness, mood state, and the expectation of being rehired. Organizational citizenship behaviors (OCBs) served as the dependent variable assessing if victims still acted like "good" citizens even after they knew of the layoff. Results suggested that procedural fairness perceptions had a significant influence on OCBs.

Whether an employee perceives the organization operated justly when implementing layoffs is likely affected by a number of variables. Consistent with this, Karl and Hancock (1999) reviewed professional guidelines associated with "good practice". First, they suggest it is important to consider who should conduct the layoff session. Usually this is the immediate supervisor although some managers elect to have a third party present. Next, consideration about when the layoff session should occur should be given. Karl and Hancock (1999) suggest the beginning of the week because employees have more time to search for other opportunities and at the end of the day to allow for privacy. Third, guidelines suggest holding the meeting in a private setting. Finally, the authors recommend training to help managers cope with the discomfort associated with employee layoffs.

A question arises though as to whether organizations actually follow these "good practice" tips when conducting layoffs. Karl and Hancock (1999) surveyed HR professionals asking them who was present at the layoff session, the meeting location, time of day, day of the week, and whether the supervisor received training. They also questioned if employees reacted in a hostile fashion. Interestingly, the authors found contrary evidence to many of the literature recommendations. For example, employees were actually more hostile when let go early in the week because of possible disruptions to their work week and

managerial training seemed to make little difference in how smoothly the session went. Employees also were less hostile when only the manager was present as opposed to having a third party present.

Given these contradictions, the current study examined three common issues discussed in the layoff literature that are believed to influence employee reactions including third party presence, employees' seniority levels, and whether a severance package is provided.

Having a third party present during the layoff session is typically viewed as good managerial practice as he/she can serve as a witness, provide managerial support and prevent emotions from boiling over (Karl & Hancock, 1999). However, some research has shown when a third party is present (an HR representative or security guard) there is **more** hostility compared to the manager solely delivering the bad news (Karl & Hancock, 1999). A third person may lead laid off employees to feel humiliated or embarrassed. It has been speculated that employees may feel distrusted when a third party is asked to be a witness (i.e., a lack of interactional justice) (Holtz & Harold, 2009).

Examining this issue, Wood and Karau (2008) used scenarios that either depicted an HR representative, security guard, or no one else present during the session. Additionally, either positive or negative elements of performance were mentioned, and finally they manipulated whether the employee was escorted off the premises or was free to leave on his or her own. Having a third party present resulted in employees reporting lower perceptions of respect and being valued. Also, in the security guard condition, employees' feelings of anger were the highest. Clearly, there are mixed views about having a third party present, but for this study when a third party is present it is believed that people will perceive that the employee getting laid off is being treated in a disrespectful way by management.

H₁: Having a third party present during layoffs will result in lower perceptions of interactional justice as opposed to when there is no third party present.

A second variable examined is how the employees' seniority level affects layoff reactions. Some organizations use seniority to determine whom to let go when downsizing --employees with the least amount of seniority are typically the first to be laid off. Seniority is often used because it is both easy for management to implement and for employees to understand (Engelstad, 1998). There are drawbacks to using a seniority system though as the strategy clearly rewards years of service and not performance. The organization may also end up retaining employees who will be leaving (e.g., retiring) which could limit new talent or expertise being brought into the workforce. A seniority approach can also have adverse impact on minorities and women (Engelstad, 1998). When organizations lay off low seniority employees, often they are disproportionately minorities and/or women (Armstrong-Stassen, 1994).

The current research suggests that layoff reactions will be more negative when the organization lays off senior employees because the process does not reward organizational loyalty (Armstrong-Stassen, 1994; Engelstad, 1998). People may view senior employees as having persevered with the organization, and now the organization is unfairly abandoning them. Consistent with this logic, Cascio and Wynn (2004), suggest that laying off senior employees may be perceived as a violation of the unwritten "psychological contract" between the employer and employee.

H₂: When senior employees are laid off, procedural justice perceptions will be lower than when less senior employees are laid off.

A third variable examined is the provision of a severance package. Severance packages are basically pay and/or benefits (e.g., an extension of health insurance and/or assistance finding a new job) that an employee receives. Severance packages may allow laid off employees more of a financial cushion. For example, Kodrzycki (1998) found that employees receiving severance packages were unemployed a longer time than employees not receiving severance packages. Severance packages may also provide employees the financial wherewithal to retool by undergoing technical training and educational classes. Thus from a purely distributive justice perspective, laid off employees who receive severance packages are obtaining more outcomes than those who do not. Consistent with this, Deutsch (1985) found that

layoff victims reacted more negatively when there were fewer severance benefits offered compared to survivors and lame ducks (i.e., employees still waiting to hear their fate).

H₃: When employees are offered severance packages when being laid off there will be more positive perceptions of distributive justice compared to when employees do not receive severance packages.

METHOD

Participants

Participants were 148 undergraduate students (101 females and 47 males) at a Midwestern university of various ethnic groups whose mean age was 19.97 ($SD = 3.53$). Additionally, 79 participants had a part time job, 4 a full time job, and 65 were currently unemployed. Three participants held positions where they conducted layoffs while 16 had been layoff victims. Finally, 132 participants personally knew someone who had been laid off.

Design and Procedure

This study represented a 2 (third party presence) x 2 (seniority) x 2 (severance package) between subjects factorial design. Because being laid off is a very personal issue and not all companies disclose layoff information, a scenario approach was used which has been utilized to examine other sensitive organizational issues including sexual harassment, gender differences, etc. (Bowles, Babcock, & Lai, 2007; Pesta, Dunegan, & Hrivnak, 2007). In this research, scenarios were adapted from Wood and Karau (2008). Participants were placed into the role of an employee working for an automobile company who had been brought into the office for a layoff meeting. To manipulate third party presence, the scenarios either described the layoff meeting as involving just the boss conveying the decision or the boss plus the HR director. To manipulate employee's seniority level, the scenarios described the participant as an entry level manager having worked for the company for three years or a manager who had worked for the company for fifteen years. Lastly, to manipulate the severance package variable, the scenarios either described the boss saying "I know times are tough but if we can help you in any way with your transition, please let us know" or saying "I know times are tough but if we can help you in any way with your transition, please let us know and here is a packet containing information about a severance package". The severance package included additional pay, assistance in finding a new job, and continuation of health benefits.

Using Survey Monkey, participants were randomly assigned to one of the eight possible scenarios. Once participants read the scenario, they completed the organizational justice scales, manipulation check and demographic questions.

Justice Survey

A 15 item survey was created combining modified items from previous questionnaires related to distributive, procedural, and interactional justice (Daley & Geyer, 1994; Folger & Konovsky, 1989; Greenberg, 1993; Niehoff & Moorman, 1993, Price & Mueller, 1986; Sweeney & McFarlin, 1997). Responses were made on a five-point Likert scale with 1=Strongly Disagree to 5=Strongly Agree. The distributive subscale (5 items) assessed participant's perceptions of how fair organizational allocations were-- "The outcome of the layoff decision was fair to me". The coefficient alpha was .64 and the mean item rating was 2.87 ($SD = .64$). The procedural subscale (5 items) measured perceptions of how fair participants perceived the procedures used to conduct the layoffs -- "My boss showed a real interest in trying to be fair in determining whom to layoff". The coefficient alpha was .76. and the mean item rating was 3.17 ($SD = .66$). Lastly, the interactional subscale (5 items) measured whether participants perceived they were treated respectfully by their managers -- "My boss treated me with kindness and consideration during the layoff meeting." The coefficient alpha was .73 and the mean item rating was 3.36 ($SD = .67$).

Manipulation Check

Participants filled out a seven item manipulation check to ensure the independent variables were successfully manipulated. Two items assessed each independent variable. The researchers eliminated data that reflected participants had not successfully identified the independent variable manipulations. The seventh item asked whether participants were able to put themselves into the role of a laid off employee. With a mean of 3.93 ($SD = .87$) on a five point scale, data indicated that participants actively put themselves into the role of employees about to get laid off.

Demographics

Demographic questions solicited participants' gender, age, race, and employment status. Participants were also asked if they have ever held a management position and their experience with layoff situations either laying off others or being laid off themselves.

RESULTS

After examining the manipulation check, the intercorrelations among the study variables were investigated prior to hypothesis testing (See Appendix 1). Because the three justice subscales were significantly correlated, data were analyzed using a MANOVA approach.

MANOVA results revealed significant differences between the severance pay conditions on the dependent variables, Wilks' $\Lambda = .84$, $F(3,138) = 8.89$, $p < .001$, multivariate $\eta^2 = .16$. Univariate tests were then conducted on each dependent variable. In the interest of brevity, only hypothesized and/or significant relationships will be reported. The complete set of multivariate and univariate results can be found in Table 1 and the means and standard deviations associated with the independent/dependent variables are available in Table 2.

TABLE 1
MULTIVARIATE AND UNIVARIATE ANALYSES OF VARIANCE FOR JUSTICE RATINGS

Source	<u>Multivariate</u>		<u>Univariate</u>		
			Procedural Justice	Distributive Justice	Interactional Justice
Third Party (TP)	3	.69	1.78	.76	1.72
Seniority (SEN)	3	2.11	4.05*	1.13	6.21*
Severance Pkg (SP)	3	8.89*	.88	20.56**	2.83
TP x SEN	3	1.14	.33	1.15	.45
SEN x SP	3	.56	.39	.12	.01
TP x SP	3	.10	.17	.01	.28
TP x SEN x SP	3	1.26	.02	1.56	1.12
MSE			.43	.26	.43

Note: Multivariate F ratios were generated from Wilk's statistic. Multivariate $df = 3,138$. Univariate $df = 1, 140$.
* $p < .05$. ** $p < .01$.

TABLE 2
MEANS AND STANDARD DEVIATIONS FOR THE EFFECT OF THREE
INDEPENDENT VARIABLES ON JUSTICE RATINGS

Dependent Variable		Independent Variable							
		Third Party		Seniority		Severance Package			
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Distributive Justice	No	2.91	.52	Low	3.00	.60	No	2.76	.53
	Yes	2.99	.57	High	2.91	.49	Yes	3.14	.49
Procedural Justice	No	3.10	.61	Low	3.28	.66	No	3.12	.67
	Yes	3.24	.69	High	3.10	.64	Yes	3.21	.64
Interactional Justice	No	3.28	.58	Low	3.50	.61	No	3.28	.69
	Yes	3.44	.74	High	3.23	.70	Yes	3.45	.64

Contrary to hypothesis one, third party presence did not exert a significant effect on interactional justice perceptions, $F(1,140) = 1.72$, ns. However, consistent with hypothesis two, the laid off employee's level of seniority had a significant effect on procedural justice perceptions, $F(1, 140) = 4.05$, $p < .05$, $\eta^2 = .03$. Participants had more negative views of procedural justice ($M = 3.10$, $SD = .64$) when a senior level employee was laid off compared to a less senior employee ($M = 3.28$, $SD = .66$). Although not hypothesized, employee seniority level also had a significant effect on interactional justice perceptions, $F(1,140) = 6.21$, $p < .05$, $\eta^2 = .04$. Participants had less favorable views of interactional justice ($M = 3.23$, $SD = .70$) when a senior level employee was laid off relative to a newer employee ($M = 3.50$, $SD = .61$). Finally, hypothesis three was supported; there was a significant effect for the provision of a severance package on distributive justice ratings, $F(1,140) = 20.56$, $p < .0001$, $\eta^2 = .13$. When the organization offered a severance package, participants had more favorable views of distributive justice ($M = 3.14$, $SD = .49$) than when a severance package was not extended to the laid off employee ($M = 2.76$, $SD = .53$).

DISCUSSION

Given the prevalence of layoffs due to current economic conditions (Bureau of Labor Statistics, 2009) this study examined how negative employee reactions might be minimized. In terms of hypotheses, the presence of an HR representative did not affect participants' perceptions of interactional justice. Perhaps the type of third party matters – an HR representative is usually present to provide support or to serve as a witness. However, a security guard might also be present to diffuse anger and escort individuals off the premise – serving a policing function (Wood & Karau, 2008). Participants may have had stronger interactional justice reactions if the third party were a security guard.

While the presence of an HR representative did not affect interactional justice perceptions, the laid off employees' level of seniority did. The more seniority the laid off employee possessed, the lower the perceptions of interactional justice. Participants may view it as disrespectful or an insult to an employee's company loyalty to be laid off relative to a less senior employee (Mir, Mir, & Mosca, 2002). The laid off employee's seniority level also affected procedural justice perceptions (Hypothesis two). As mentioned earlier, senior employees may be perceived as more loyal than their entry level counterparts. People might reasonably think that organizations should take into account employee's years of service when determining whom to lay off (Engelstad, 1998).

Hypothesis three was also supported. When a severance package was offered, participants had a more positive view of the outcomes distributed by the organization. Employees receiving a severance package

may perceive a greater sense of financial security and additional time to retool and update their skills set allowing them to secure a new position (Kodrzycki, 1998). Employees receiving severance packages may also feel the organization is at least providing some additional outcomes, however temporary in nature.

Correlational results also indicated that those who had been layoff victims themselves had lower perceptions of procedural justice compared to non-layoff victims. Participants may have reacted more negatively because the scenario brought up bad memories which in return affected their procedural justice ratings. This suggests that employees who have been prior layoff victims of layoffs may bring “emotional baggage” to their new employer. Along these lines, Pugh, Skarlicki, and Passell (2003) found a negative relationship between previous layoffs and trust with a new employer and a positive relationship between previous layoffs and employee cynicism directed toward the new employer.

These results have implications for managers and organizations alike. The presence of an HR representative did not affect participants’ perceptions of any organizational justice type. Instead the independent variable that seemed to have the widest impact was the employee’s seniority level. When a senior employee was laid off, participants perceived that both procedural and interactional justice expectations had been somehow violated. Given the “graying” of the workforce and that many of the more experienced employees are likely to be older; this could lead to more older workers being targeted for layoffs given the need for considerable downsizing (Toossi, 2004). Organizations might benefit from using different criteria to justify layoffs such as performance indicators, where low performing employees are the first to be let go and the highest performers retained . Or, when determining whom to lay off, organizations might consider the difficulty involved in replacing a given employee (Cascio & Wynn, 2004).

Additionally, results suggest that if layoffs have to occur, the provision of a severance package makes the decision less negative. The problematic issue is whether a financially strapped organization can afford to provide severance packages? However, Parsons (2005) found offering a “one-time” severance package is less costly than keeping unnecessary employees. Moreover, offering severance packages may be advantageous in the long run –helping with the eventual recruitment of new employees and promoting more positive reactions with layoff survivors.

With all studies there are strengths and weaknesses. The use of scenarios made it possible to manipulate the independent variables and simulate a real situation without the risks involved (Ross & Wright, 2000). However, scenarios also raise external validity issues. Although participants were working and had experience with layoffs, future research could improve upon external validity by using samples with a greater range of work experience and conducting field studies.

Along these lines, it would be interesting to explore layoffs from the managerial perspective. Do managers and non-managers differ in their perceptions of the level of interactional, procedural, and distributive justice evidenced in the layoff situation? Also, are there industry differences? Employees working in manufacturing may perceive layoffs differently from those working white collar jobs. It seems that blue collar job layoffs are more common and seen as an industry expectation as opposed to white collar jobs.

In conclusion, the recent economic downturn coupled with the significant negative outcomes for those laid off makes conducting research of this sort critical. Although employee layoffs are perhaps inevitable, our findings suggest that not all layoffs are perceived similarly. There may well be ways for organizations to minimize negative employee reactions.

REFERENCES

- Ahlberg, D. A. (1986). The social costs of unemployment. In R. Castle & D. E. Lewis (Eds.), *Work, leisure, and technology* (pp. 19-29). Melbourne, Victoria, Australia: Longman Cheshire.
- Armstrong-Stassen, M. (1994). Coping with transition: A study of layoff survivors. *Journal of Organizational Behavior*, 15(7), 597-621.

- Bies, R. J., Martin, C. L., & Brockner, J. (1993). Just laid off, but still a “good citizen”? Only if the process is fair. *Employee Responsibilities and Rights Journal*, 6(3), 227-238.
- Bowles, H. R., Babcock, L., & Lai, L. (2007). Social incentives for gender differences in the propensity to initiate negotiations: Sometimes it does hurt to ask. *Organizational Behavior and Human Decision Processes*, 103(1), 84-103.
- Bureau of Labor Statistics. (2009). *Economic News Release*. Retrieved July 20, 2009, from Bureau of Labor Statistics Web site: <http://www.bls.gov/news.release/mslo.nr0.htm>.
- Cascio, W., & Wynn, P. (2004). Managing a downsizing process. *Human Resource Management*, 43, 425-436.
- Cascio, W., & Young, C. (2003). Financial consequences of employment-change decisions in major U.S. corporations: 1982-2000. In K. P. De Meuse & M. L. Marks (Eds.), *Resizing the organization* (pp. 131-156). San Francisco: Jossey-Bass.
- Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O. L. H., & Ng, K. Y. (2001). Justice at the millennium: A meta-analytic review of 25 years of organizational justice research. *Journal of Applied Psychology*, 86(3), 425-445.
- Daly, J. P. & Geyer, P. D. (1994). The role of fairness in implementing large-scale change: Employee evaluations of process and outcome in seven facility relocations. *Journal of Organizational Behavior*, 15(7), 623-638.
- Datta, D., Guthrie, J., Basuil, D., & Pandey, A. (2010). Causes and effects of employee downsizing: A review and synthesis. *Journal of Management*, 36, 281-348.
- Deutsch, M. (1985). *Distributive justice: A social-psychological perspective*. New Haven: Yale University Press.
- Engelstad, F. (1998). The significance of seniority in layoffs: A comparative analysis. *Social Justice Research*, 11(2), 103-119.
- Folger, R. & Konovsky, M. A. (1989). Effects of procedural and distributive justice on reactions to pay raise deductions. *Academy of Management Journal*, 32(1), 115-130.
- Fulmer, W. E. (1986). How do you say “you’re fired”? *Business Horizons*, 31-38.
- Gilliland, S. W. & Schepers, D. H. (2003). Why we do the things we do: A discussion and analysis of determinants of just treatment in layoff implementation decisions. *Human Resource Management Review*, 13, 59-83.
- Greenberg, J. (1993). The social side of fairness: Interpersonal and informational classes of organizational justice. In R. Cropanzano (Ed.), *Justice in the workplace: Approaching fairness in human resource management* (pp. 79-103). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Hemingway, M. A. & Conte, J. M. (2003). The perceived fairness of layoff practices. *Journal of Applied Social Psychology*, 33(8), 1588-1617.

- Holtz, B. C. & Harold, C. M. (2009). Fair today, fair tomorrow? A longitudinal investigation of overall justice perceptions. *Journal of Applied Psychology, 94*(5), 1185-1199.
- Karl, K. A. & Hancock, B. W. (1999). Expert advice on employment termination practices: How expert is it? *Public Personnel Management, 28*(1), 51-62.
- Kodrzycki, Y. K. (1998). The effects of employer- provided severance benefits on reemployment outcomes. *New England Economic Review, 41*-68.
- Mir, A., Mir, R. & Mosca, J. B. (2002). The new age employee: An exploration of changing employee-organization relations. *Public Personnel Management, 31*(2), 187-200.
- Mishra, A. K. & Spretizer, G. M. (1998). Explaining how survivors respond to downsizing: The roles of trust, empowerment, justice, and work redesign. *Academy of Management Review, 23*(3), 567-588.
- Niehoff, B. P. & Moorman, R. H. (1993). Justice as a mediator of the relationship between methods of monitoring and organizational citizenship behavior. *Academy of Management Journal, 36*(3), 527-556.
- Parsons, D. (2005). *Benefit generosity in voluntary severance plans: The U.S. experience*. Washington, D.C.: George Washington University, Center for Economic Research.
- Pesta, B., J., Dunegan, K., J., & Hrivnak, M., W. (2007). Contrast and rater-perspective effects on judgments of sexual harassment severity: What he thinks she thinks, and vice versa. *Journal of Business and Psychology, 22*(2), 155-165.
- Pinder, C. C. (2008). *Work motivation in organizational behavior*. New York: Psychology Press.
- Price, J. & Mueller, C. (1986). *Handbook of organizational measurement*. Marshfield, MA: Pittman Publishing.
- Pugh, S. D., Skarlicki, D. P., & Passell, B. S. (2003). After the fall: Layoff victims' trust and cynicism in re-employment. *Journal of Occupational and Organizational Psychology, 76*, 201-212.
- Right Management (2009). *Laid off workers get their jobs back*. Retrieved July 20, 2009, from Cable News Network Web site: http://money.cnn.com/2009/07/28/news/economy/rehire_survey/index.htm.
- Ross, J. W. & Wright, L. (2000). Participant created case studies in professional training. *Journal of Workplace Learning, 12*(1), 23-28.
- Saunders, M. N. K. & Thornhill, A. (2003). Organizational justice, trust and the management of change: An exploration. *Personnel Review, 32*(3), 360-375.
- Shah, P. (2000). Network destruction: The structural implications of downsizing. *Academy of Management Journal, 43*, 101-112.
- Sweeney, P. D. & McFarlin, D. B. (1997). Process and outcome: Gender differences in the assessment of justice. *Journal of Organizational Behavior, 18*(1), 83-98.
- Toossi, M. (2004). Labor force projections to 2012: The graying of the U.S. workforce. *Monthly Labor Review, 127*(2), 37-57.

Wood, M. S. & Karau, S. J. (2008). Preserving employee dignity during the termination interview: An empirical examination. *Journal of Business Ethics*, 86(2), 519-534.

APPENDIX 1

CORRELATIONS, MEANS, AND STANDARD DEVIATIONS

	1	2	3	4	5	6	7	8	9	10	<i>M</i>	<i>SD</i>
1. Gender ^a	---	-.08	.08	-.06	.10	-.09	.14	-.03	.06	.07	.68	.47
2. Age ^b		---	.02	.43**	.27**	.18*	-.06	-.14	-.05	-.08	19.97	3.53
3. Employment Status ^c			---	.13	.03	-.03	.12	-.04	.20*	.10	.55	.50
4. Manager Position ^d				---	.43**	.17*	.05	-.08	-.03	-.08	.10	.30
5. Laid off Someone Else ^e					---	.10	.05	.01	.04	.07	.02	.14
6. Laid off Yourself ^f						---	.05	-.10	-.21*	-.09	.11	.31
7. Know Someone Laid off ^g							---	-.12	.02	.03	.89	.31
8. Distributive Justice ^h								(.64)	.57**	.42**	2.95	.55
9. Procedural Justice ^h									(.76)	.69**	3.17	.66
10. Interactional Justice ^h										(.73)	3.36	.67

^a Gender was coded so that 0 = Male and 1 = Female; ^b Age was coded so that participants indicated their age in years; ^c Employment status was coded so that 0 = No, the participant is unemployed and 1 = Yes, the participant is currently employed; ^d Manager position was coded so that 0 = No, the participant was never employed as a manager and 1 = Yes, the participant has held a managerial position before; ^e Laid off someone else was coded so that 0 = No, the participant has never laid off another individual and 1 = Yes, the participant has laid off another individual before; ^f Laid off yourself was coded so that 0 = No, the participant has not been laid off and 1 = Yes, the participant has been laid off before; ^g Know someone laid off was coded so that 0 = No, the participant does not know someone who has been laid off and 1 = Yes, the participant knows someone who has been laid off before; ^h Distributive, Procedural, and Interactional justice used a five-point Likert type scale with 1 = Strongly disagree to 5 = Strongly agree

* $p < .05$; ** $p < .01$; Coefficient alphas are reported on the diagonal in parentheses

Communication in Virtual Teams: The Role of Emotional Intelligence

Virginia E. Pitts
Shippensburg University

Natalie A. Wright
North Carolina State University

Lindsey C. Harkabus
Troy University

Emotional intelligence (EI) has received increasing attention in recent years as a driver of team effectiveness. However, research has yet to address EI in virtual teams (VT). The purpose of our study was to examine EI as a predictor of VT effectiveness. Further, we investigated quality of communication as a mediator of the EI-team viability relationship. We employed a work simulation using 228 undergraduate students (57 teams). Multilevel modeling was used to test our hypotheses. Our results support that EI is a driver of team viability, and that quality of communication serves as one mechanism through which this influence exists.

INTRODUCTION

Growing attention has been given to the role that emotions play in driving organizational effectiveness (i.e., Ashkanasy, 2003; Barsade, Brief, & Spataro, 2003; Nelis, Quoidbach, Mikolajczak, & Hansenne, 2009). The construct of emotional intelligence, in particular, has gained momentum in both research (e.g., Mayer, Roberts, & Barsade, 2008) and popular (e.g., Goleman, 1995) literatures in recent decades. Empirical research has shown that emotional intelligence, a person's ability to detect, understand, and manage the emotions of others (Mayer et al., 2008), is a significant predictor of team effectiveness in face-to-face teams (George, 2002). However, research has yet to address the role of emotional intelligence in one of the most prevalent work units of the 21st century (Lepsinger & DeRosa, 2010): virtual teams, which are comprised of geographically-dispersed employees who use technology to accomplish organizational tasks (Martins, Gilson, & Maynard, 2004).

Because they lack verbal and nonverbal cues which naturally exist in face-to-face teams, virtual teams are faced with unique obstacles toward effective communication (Martins et al., 2004). For example, compared to face-to-face teams, virtual teams demonstrate decreased social interaction, communication, and emotional expression (Jarvenpaa & Leidner, 1999). Research suggests that individuals high on emotional intelligence are effective at detecting and managing emotions (Mayer, Salovey, & Caruso, 2000), which are reduced in a virtual environment. Thus, emotional intelligence holds promise as a critical driver of effective communication and subsequent effectiveness outcomes (e.g., team performance, team members' attitudes) in virtual teams. Therefore, the purpose of our study was to

investigate the role of emotional intelligence as a driver of virtual team effectiveness. Specifically, we make a unique contribution to the literature by examining the extent to which emotional intelligence is a driver of team viability, defined as team members' assessments of their ability to work together as a unit in the future (Barrick, Stewart, Neubert, & Mount, 1998; Hackman, 1987), as an indicator of virtual team effectiveness. Additionally, we expand extant knowledge regarding virtual team effectiveness by exploring the extent that quality of team communication in virtual teams serves as a mechanism through which emotional intelligence facilitates team viability. Given the proliferation of virtual work in 21st century organizations, the need to identify employee attributes that drive effective performance is of paramount importance. To this end, we contribute to both practice and research by shedding light on emotional intelligence as a potential key factor in understanding virtual team effectiveness.

Communication in Virtual Teams

Virtual teams are comprised of individuals who work interdependently using computer-mediated communication technology to accomplish a shared organizational objective (Martins et al., 2004). Virtual teams may interact using a variety of computer-mediated communication mechanisms, including teleconferencing, instant messaging, and e-mail (Bell & Kozlowski, 2002). Although virtual teams offer numerous benefits to organizations (i.e., reduced travel costs, increased worker flexibility), they face obstacles toward effective communication due to the reduced or completely lacking face-to-face cues, which are inherent in traditional team interactions (Jarvenpaa & Leidner, 1999; Martins et al., 2004). In face-to-face communication, verbal cues (i.e., tone of voice, voice inflections, verbal hesitations, and volume), as well as nonverbal cues (i.e., facial expressions and body movements), are important sources of both task and social information (Walther, 1997). In the virtual environment, these cues are reduced or even completely absent.

According to media richness theory (Daft & Lengel, 1986), this reduction or absence of social information (compared to traditional face-to-face teams) ultimately reduces the quality of communication among virtual team members. Consistent with media richness theory, empirical research investigating team functioning within virtual teams has shown that the lack of verbal and nonverbal cues in virtual teams results in reduced quality of communication, compared to traditional teams (Chidambaram, 1996; Martins et al., 2004), and subsequently hinders effective virtual team performance (Baltes, Dixon, Sherman, Bauer, & LaGanke, 2002). Additionally, research has shown that virtual teams communicate less information as compared to face-to-face teams (Martins et al., 2004), and that relationship development in virtual teams occurs at a slower rate (Chidambaram, 1996; Johnson, Bettenhausen, & Gibbons, 2009). Further, extent of virtual communication has been shown to be negatively related to both positive affect and affective commitment to the team (Johnson et al., 2009). Taken together, these findings suggest that communication in virtual teams is more difficult than in traditional teams.

Given evidence that effective communication is a critical element of team effectiveness, both in traditional and virtual teams (Furst, Blackburn, & Rosen, 1999; Mathieu, Maynard, Rapp, & Gilson, 2008; Jarvenpaa & Leidner, 1999), understanding drivers of communication quality in virtual teams is of great importance for 21st century organizations. Thus, additional exploration of the mechanisms that drive effective communication, and subsequent team effectiveness, is needed. To this end, we argue that individual differences in team members' emotional intelligence may serve as one of these mechanisms that facilitates successful virtual team communication and effectiveness.

Emotional Intelligence

Attention to the construct of emotional intelligence has burgeoned since the mid-1990s (i.e., Goleman, 1995; Graves, 1999; Jordan, Ashkanasy, Härtel, & Hooper, 2002; Mayer, Salovey, & Caruso, 2000). Since its inception, scholars have subscribed to differing conceptualizations of the emotional intelligence construct, although the majority of research supports the validity of integrative-models, in which emotional intelligence is regarded as an amalgam of several specific abilities (Mayer et al., 2008). The four-branch model of emotional intelligence (Salovey & Mayer, 1990; Mayer & Salovey, 1997) is arguably the most comprehensive and widely supported integrative model of emotional intelligence

(Mayer et al., 2008; Schutte, Malouff, Hall, Hagerly, Cooper, Golden, & Dornheim, 1998). According to this model, there are four main components of emotional intelligence, each of which reflects an aspect of one's ability to detect and manage emotions in self and others. The first component, perceiving and appraising emotions, refers to reflects one's ability to interpret the facial expressions and non-verbal cues that convey the emotional experiences of others (Mayer et al., 2000). The second branch of emotional intelligence, facilitation of emotions, refers to one's ability to utilize emotions to promote rational thinking (Mayer et al., 2000). For example, an individual who is high on emotion facilitation is able to use their emotions and/or the emotions of others to direct planning or problem-solving.

The third component of Mayer and Salovey's (1997) model of emotional intelligence, understanding emotions, reflects the ability of an individual to analyze emotions, and to understand the ramifications of changes in emotional states. The last branch, managing emotions, is characterized by the ability to monitor emotions in self and others, and to regulate these emotions in order to promote positive interpersonal relationships and personal goals. Thus, according to Salovey and Mayer (1990), emotion management reflects the ability to avoid negative feelings, in part through reappraising a situation to promote positive affective experiences. Importantly, this emotion management occurs both within the self, and also extends to others, such that individuals high on emotional intelligence are more adept at facilitating positive emotional experiences in others (see Askanasy, Zerbe, & Härtel 2005; Jordan et al., 2002; Lopes, Salovey, & Straus, 2003). For example, emotion management enables an individual to assist others in reappraising a negative situation to acknowledge positive outcomes of the circumstances.

In addition to being related to a variety of important interpersonal and life outcomes, including physical and psychological well-being (see Mayer et al., 2008), research has shown that emotional intelligence is positively related to effective team functioning in face-to-face teams. For example, emotional intelligence has been shown to facilitate team communication and cooperation in traditional teams (Jordan et al., 2002; Prati, Douglas, Ferris, Ammeter, & Buckley, 2003). Additionally, emotional intelligence is positively related to the quality and effectiveness of interpersonal interactions (Lopes et al., 2003; Schutte, Malouff, Bobik, Coston, Greeson, Jedelicka et al., 2001). Further, a meta-analysis conducted by Bell (2007) revealed that emotional intelligence in face-to-face teams has a positive relationship with team performance. Overall, this research demonstrates that emotional intelligence facilitates team effectiveness in traditional teams.

Given that emotional intelligence is related to team effectiveness in face-to-face teams, it is important to investigate whether the importance of emotional intelligence generalizes to virtual teams, one of the most common forms of workplace communication in the 21st century (Cascio, 2003). We argue that emotional intelligence is particularly important in virtual teams because members have fewer verbal and nonverbal cues with which to gather both task and social information. For example, individuals high on emotional intelligence are likely to be particularly effective at de-escalating conflict because they are able to perceive and manage the emotional experiences of self and others despite the reduced cues. Although research has demonstrated this relationship between emotional intelligence and effective communication in face-to-face teams (Jordan et al., 2002), to date no study has examined whether the role of emotional intelligence generalizes to virtual teams. Thus, we contribute to both research and practice on virtual teams by investigating emotional intelligence as a driver of team effectiveness.

Emotional Intelligence, Communication & Virtual Team Effectiveness

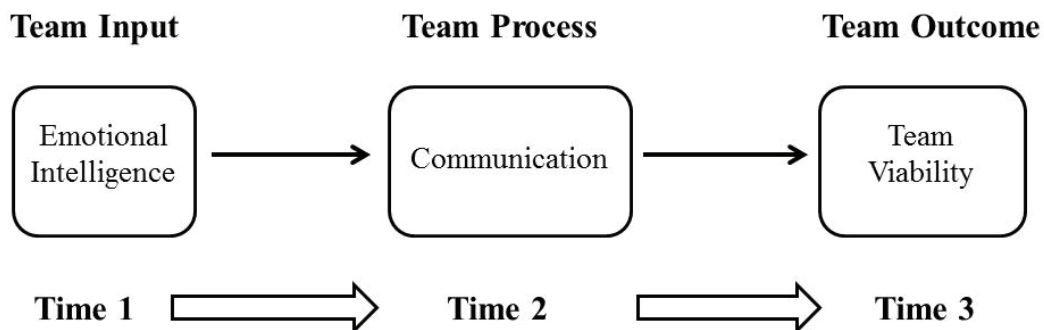
Models of team effectiveness generally adopt an input-process-output (IPO) framework (e.g., McGrath, 1991; Gladstein, 1984), in which inputs include individual team member attributes (e.g., expertise, demographics, personality), as well as aspects of the task itself (e.g., degree of interdependence required). Team inputs are proposed to be drivers of team processes, which reflect members' interactions directed towards goal accomplishment (Marks, Mathieu, & Zaccaro, 2001). Team processes, including open communication, coordination, and conflict management, all aspects of high quality communication, are proposed to drive team outputs, which include objective (e.g., profit; task-related performance) and subjective (e.g., collective efficacy, team viability) measures of team effectiveness outcomes (Gladstein, 1984; Hackman, 1987; Marks et al., 2001; Mathieu et al., 2008). In this way, team processes are

hypothesized to mediate the relationship between team inputs and team outputs. Extensive research on traditional face-to-face teams has substantiated IPO models of team effectiveness (i.e., Barrick et al., 1998; Fleming & Monda-Amaya, 2001; Foo, Sin, & Yiong, 2006). For example, Foo and colleagues demonstrated that open communication, a process variable reflecting team members' perceptions of equal opportunities to exchange information and the degree to which team members encourage and engage in genuine expression of their opinions, mediated the relationship between educational diversity, as an team member input variable, and team viability, an output variable defined as team members' assessments of their ability to work together as a unit in the future (Barrick et al., 1998).

Recent empirical evidence, although limited, suggests that the input-process-output (IPO) framework generalizes to virtual teams (Johnson et al., 2009; Martins et al., 2004). Consistent with research on traditional teams, the body of research on virtual teams suggests that effective communication, as a team process, is a key driver of both objective and subjective measures of virtual team effectiveness (Martins et al., 2004). In light of research highlighting the importance of communication in virtual team effectiveness, and given studies showing that virtual team members experience reduced communication compared to face-to-face teams, additional research on the mechanisms that generate effective communication in virtual teams is needed. We argue that emotional intelligence may serve as one of these mechanisms. Because individuals with high levels of emotional intelligence are likely attuned to the emotions of others, they are able to enhance the quality of communication among team members by picking up on nonverbal cues. For example, when nonverbal messages (i.e., e-mail) convey potential conflict, individuals high on emotional intelligence may be able to promote positive emotions within the workgroup, which promote effectiveness.

Consistent with the team literature, we invoke the IPO framework in the current study and conceptualize team members' emotional intelligence as a team input variable, and team viability, as an outcome variable. Team viability is a particularly important indicator of team effectiveness since team members' perceptions of their team's collective effectiveness have implications for their future performance within that group (Mathieu et al., 2008). Based on the IPO framework, we hypothesize that emotional intelligence will be a significant predictor of team viability, and that quality of communication, as a team process, will mediate the relationship between emotional intelligence and team viability (see Figure 1).

**FIGURE 1
HYPOTHESIZED MODEL**



Notably, our study also addresses calls to consider the role of time in the study of teams. Specifically, scholars have argued that researchers should abandon cross-sectional research, particularly when testing mediational hypotheses (Mathieu et al., 2008). In order to more accurately model the temporal nature of teams, it is most appropriate to measure predictor, mediator, and outcome variables consistent with the hypothesized temporal sequence (Mathieu & Taylor, 2007). That is, mediational inferences are strengthened when predictor, mediator, and outcome variables are measured at different time points,

consistent with the researcher's proposed mediational sequence. Thus, we follow these recommendations by assessing each of our focal variables at different time points, consistent with our directional hypotheses (see Figure 1).

METHOD

Participants

Participants were 228 undergraduate students, who comprised 57 four-person virtual teams. Subjects were recruited from introductory psychology courses at a large Midwestern university, and received course credit for participating in the research project. Participants were 18 to 31 years old, with a mean age of 19. Sixty percent of the participants reported themselves as female (60%). Eighty-three percent of the participants reported themselves as Caucasian, 7% as Hispanic, 3% as African American, 3% as Asian/Pacific Islanders, and the remaining 4% reported their ethnicity as "Other".

Procedure

Subjects, who received course credit for their participation in the research project, signed up to participate via a secured website that allowed them to read a description of the study and its requirements, which included: 1) an initial meeting with the researcher to provide informed consent; 2) attendance at three online team meetings, hereafter referred to as Task 1, Task 2, and Task 3 (see below for task descriptions); and 3) responding to three online surveys, hereafter labeled Time 1, Time 2, and Time 3 surveys. Participants were instructed to arrive at a designated location on the university's campus for the first day of their participation. At the initial meeting, which was conducted by undergraduate students trained by the first author, participants were told that they would serve as one member of a four-person team, and that henceforth they would only need Internet access to complete the study. Participants were then asked to provide a pen name (which they would use to log into the chat room and would provide at the beginning of each survey) and their e-mail address (so that instructions could be sent to them). Importantly, team members never interacted with one another face-to-face prior to working online together.

Following the initial meeting with the researcher, participants were e-mailed a link to the Time 1 survey, which included a measure of emotional intelligence and demographic items. Once completed, participants were e-mailed information regarding Task 1 with their fellow team members. At their assigned times, team members logged on to a secure website chat room, in which they communicated using instant messaging. Approximately two days after completion of Task 1, team members were sent information about completing Task 2. Immediately following their completion of Task 2, team members were e-mailed a link to the Time 2 survey, which included a measure of their perceptions of quality of communication. Approximately two days after completion of Task 2, team members were sent information about completing Task 3, their final task. Immediately following completion of Task 3, team members were e-mailed a link to the Time 3 survey, which included a measure of team viability.

The Simulation. The Tinsel Town Simulation, a top management team activity comprising three tasks (Devine, Habig, Martin, Bott, & Grayson, 2004), was used for Task 1, Task 2, and Task 3 for the current study. Simulation materials were adapted so that they could be e-mailed to participants. Each of the tasks required participants to act as a vice president of a fictional Hollywood movie studio. The four team members in each team were assigned to different vice president roles (i.e., Vice President of Marketing, Vice President of Talent Appraisal), and each received different information specific to their specialization. Thus, the simulation required that team members exchange information with one another using instant messaging in order to achieve a common goal, creating a high degree of interdependence. The goal of each task, which was to decide on which movies the fictional studio should produce the following year, was the same for each task (although different movie descriptions were used so that each task was unique).

Measures

Emotional Intelligence. Emotional intelligence was measured at Time 1 (prior to Task 1) using 33 items by Schutte et al. (1998), which were developed based on Salovey and Mayer's (1990) conceptualization of emotional intelligence. Participants were asked to rate the extent they agreed with each statement using a five-point Likert scale. A sample item is: "I am aware of the non-verbal messages I send to others". In developing their measure, Schutte and colleagues maximized content validity by representing all four aspects of emotional intelligence proportionately in their item development.

Quality of team communication. Quality of team communication was measured at Time 2 (following Task 2) using eight items by Lester, Meglino, and Korsgaard (2002) to measure the quality of group communication and cooperation. We chose to measure this construct following Task 2 in order to allow teams enough time to establish a norm of virtual communication. Participants were asked to rate the extent that they agreed with each statement using a 5-point Likert scale. A sample item is: "We are very willing to share information with each other".

Team viability. Team viability was measured at Time 3 (following Task 3) using nine items from Barrick et al. (1998). Using a 5-point Likert scale, participants were asked to rate the extent that they agreed with statements regarding their team's ability to work together in the future. A sample item is: "This team accomplished what it set out to do".

Data Analyses

Due to the nested nature of the data (individuals within teams), multilevel modeling was used to test our hypotheses. Multilevel modeling allows the researcher to simultaneously examine effects at multiple levels of analysis (e.g., individual and team levels) resulting in a more accurate model of the true multilevel phenomena (Krull & MacKinnon, 2001). To examine whether quality of team communication mediated the relationship between emotional intelligence and team viability, a multilevel mediation analysis was conducted. All variables included in our analyses were measured at the individual, rather than the team, level. As described by Kenny, Korchmaros, and Bolger (2003), the process of testing for lower-level mediation involves three steps: 1) demonstrating a significant relationship between the predictor and the criterion, 2) demonstrating a significant relationship between the predictor and the mediator, and 3) demonstrating a reduction in the relationship between the predictor and the criterion when the mediator is added to the model. Accordingly, we tested three models: emotional intelligence as a predictor of team viability, emotional intelligence as a predictor of quality of communication, and emotional intelligence and communication as predictors of team viability. Slopes in all models were constrained to be equal across teams because there was little between-team variance in team viability, indicating that there would be little information gained by allowing the slopes to be freely estimated between teams.

RESULTS

Prior to conducting multilevel analyses, it is necessary to determine that there is sufficient variance in the criterion at all levels of analysis (Raudenbush & Byrk, 2002). Thus, a fully unconditional model was used to determine the proportion of variance in team viability that existed at Level 1 (within teams) and Level 2 (between teams). The intraclass correlation (ICC) was .08, indicating that 92% of the variability in team viability was within teams ($\sigma^2 = 0.23$, $z = 7.90$, $p < .001$), and 8% of the variability in team viability was between teams ($\tau_{00} = 0.02$, $z = 1.02$, $p = 0.15$). Although the amount of team-level variance in team viability was small, the existence of some variance at the team level was sufficient to justify multilevel analysis, since failing to account for this variance could potentially bias results (Roberts, 2007).

TABLE 1
DESCRIPTIVE STATISTICS, ALPHAS, AND ZERO ORDER CORRELATIONS FOR
INDIVIDUAL LEVEL VARIABLES

Variable	Mean	SD	1	2	3
1. Emotional intelligence	3.77	0.38	(.90)		
2. Team communication	4.01	0.51	.38*	(.91)	
3. Team viability	3.74	0.52	.21*	.69*	(.81)

Note. Listwise $N = 163$. * $p < .01$; Alphas are listed along the diagonal

Means, standard deviations, alphas and zero-order correlations at the individual level of analysis for all variables are shown in Table 1. Note that the sample size for the correlations is 163 because this is the number of participants who completed all three surveys. However, because multilevel-modeling is robust with regards to missing data (Quene & Van den Berghe, 2004), we were able to include data from all 228 participants in testing our multi-level models. The first model investigated the relationship between emotional intelligence and team viability (see Table 2).

TABLE 2
RESULTS FOR GROUP COMMUNICATION AS MEDIATOR OF EMOTIONAL
INTELLIGENCE TEAM VIABILITY RELATIONSHIP

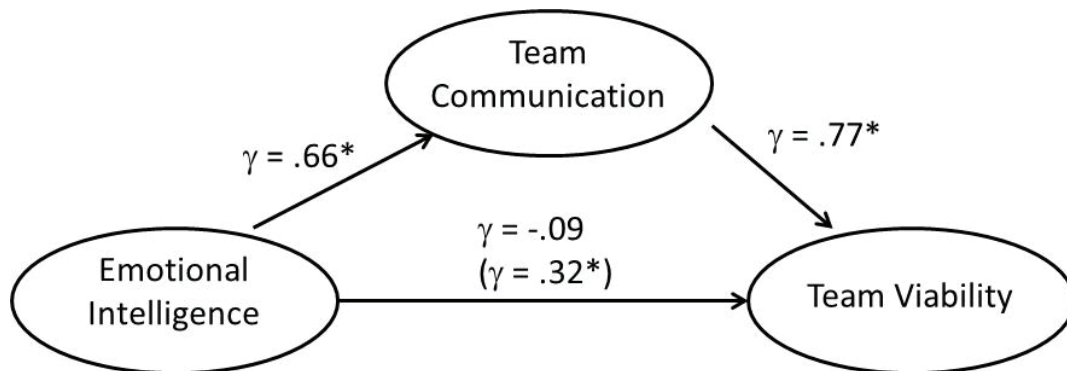
Variable	Coefficient	SE	t
Model 1			
Fixed effects			
Intercept (γ_{00})	0.02	0.04	0.40
Emotional intelligence (γ_{01})	0.32**	0.11	2.97
Random effects			
Level 1 variance (σ^2)	0.23**	0.03	
Level 2 variance (τ_{00})	0.02	0.02	
Model 2			
Fixed effects			
Intercept (γ_{00})	0.03	0.04	0.72
Emotional intelligence (γ_{01})	0.66**	0.08	7.68
Random effects			
Level 1 variance (σ^2)	0.18**	0.02	
Level 2 variance (τ_{00})	0.02	0.01	
Model 3			
Fixed effects			
Intercept (γ_{00})	-0.01	0.03	-0.46
Emotional intelligence (γ_{01})	-0.09	0.09	-0.98
Team communication (γ_{02})	0.77**	0.07	11.53
Random effects			
Level 1 variance (σ^2)	0.14**	0.02	
Level 2 variance (τ_{00})	0	0	

Note. Model 1 = Emotional intelligence predicts team viability; Model 2 = Emotional intelligence predicts team communication; Model 3 = Team communication mediates emotional intelligence-team viability

There was a significant relationship between emotional intelligence and team viability ($\gamma = 0.32, p < .01$), supporting our hypothesis that emotional intelligence would predict team viability, and justifying moving forward with testing our mediational hypothesis. The second model assessed the relationship between emotional intelligence and quality of team communication. There was a significant relationship between emotional intelligence and team communication ($\gamma = 0.66, p < .001$), justifying the continuation of mediation analyses.

The third and final model included both emotional intelligence and quality of team communication as predictors of team viability. Quality of team communication was significantly related to team viability ($\gamma = 0.77, p < .001$). However, with the addition of communication to the model, emotional intelligence ceased to be a significant predictor of team viability. The reduction of the emotional intelligence-team viability relationship to non-significance with the addition of team communication to the model provides evidence that communication functions as a mediator of the emotional intelligence-team viability relationship. Consistent with the recommendation of Sobel (1982), a Sobel test was used to determine whether the indirect effect of emotional intelligence on team viability via team communication was significantly different from zero. The Sobel test revealed a significant indirect effect of emotional intelligence on team viability via team communication ($z = 6.39, p < .001$), indicating that quality of team communication fully mediated the relationship between emotional intelligence and team viability. The final model accounted for 42% of the within-team variance in team viability; however, the final model did not account for any additional between-team variance in team viability. Figure 2 provides our hypothesized model with parameter estimates.

FIGURE 2
HYPOTHESIZED MODEL WITH PARAMETER ESTIMATES



DISCUSSION

The purpose of our study was to examine the role of emotional intelligence in virtual teams. Specifically, we investigated the extent that emotional intelligence predicted team viability in virtual teams. Further, we examined quality of team communication as a mediator of the relationship between emotional intelligence and team viability. Our results support that emotional intelligence in virtual teams is a significant predictor of team viability, and that team communication serves as one mechanism through which emotional intelligence influences team viability in virtual teams. Consistent with research on emotional intelligence in face-to-face teams (Jordan et al., 2002), our findings suggest that emotional intelligence is a critical success factor for virtual team effectiveness because high levels of emotional intelligence facilitate effective communication among team members. Importantly, recent evidence suggests that emotional intelligence explains incremental variance beyond general mental ability in predicting job performance (Graves, 1999). Given organizations' increasing use of electronic communication, which has reduced verbal and nonverbal cues compared to face-to-face communication,

it is arguable that emotional intelligence reflects a critical element in predicting job performance in 21st century organizations.

The increasing use of virtual teams presents a unique challenge for managing human resources (Harvey, Novicevic, & Garrison, 2004). Thus, our findings have several practical implications for organizations as they revisit their human resource practices in light of the virtual nature of 21st century work. First, from a staffing perspective, organizations that rely on virtual teams should consider integrating emotional intelligence into their current selection system. Although emotional intelligence is frequently conceptualized as an innate ability, recent research suggests that emotional intelligence can be developed over time, meaning that it is trainable skill upon which organizations can capitalize (Ashkanasy et al., 2005). Thus, in addition to employee selection using emotional intelligence assessments, organizations should invest resources in emotional intelligence training for virtual team members to enhance their current workforce. Organizations that offer emotional intelligence training may be able to increase self-awareness, self-management, and social awareness among employees, and ultimately develop virtual team members who can more effectively handle the challenges created by the virtual environment.

Strengths & Limitations

Our study has several notable strengths. First, following recommendations for reducing common method variance (see Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), we measured our focal constructs (emotional intelligence, quality of team communication, and team viability) at different time points consistent with our mediational hypotheses. Because cross-sectional data fail to adequately model the dynamic and changing nature of teams, studies that measure focal variables across the team's lifespan provide a richer understanding of the dynamics of team interaction (Kozlowski & Bell, 2003; Mathieu et al., 2008). A second strength of our study was our use of multilevel modeling to analyze our data. Although some researchers use methods of aggregation in team research, the nested nature of teams obviates the use of advanced statistics, which more accurately model team phenomena (Raudenbush & Byrk, 2002). Further, our use of multi-level modeling enabled us to account for missing data, which allowed us to include all participants in our analyses. A final strength of our study was the use of a real-world business simulation, which provides us more confidence that our results generalize to real-world virtual teams.

As with all research, our study has several limitations. First, the lifespan of teams in the current study was relatively short (less than 2 weeks). Thus, although the findings of the current study are generalizable to temporary virtual teams, the duration of the study limits the extent that the results generalize to long-term teams. A second limitation is that only one type of computer-mediated communication, synchronous communication (aka. instant messaging), in which participants communicated with one another in real time, was studied. Because multiple modalities of communication are available for virtual interaction (i.e., e-mail, videoconferencing), the findings of the current study are only generalizable to virtual teams who utilize synchronous communication. As well, the use of undergraduate students precludes generalization of our finding to the broader demographics that make up real-world virtual teams (i.e., age, comfortability with virtual communication). Additionally, the undergraduate students that comprised our sample were prominently Caucasian and were all from the same Midwestern university, which may limit the generalizability of our findings. Third, some may consider our treatment of emotional intelligence as a unidimensional construct to be problematic, given that since its publication, some researchers have found the Schutte et al. (1998) scale to be multidimensional (see Petrides & Furnham, 2000). However, because emotional intelligence has not been studied in the context of virtual teams, we were interested in whether overall emotional intelligence contributed to team communication, and subsequent team viability. Lastly, we did not utilize an objective measure of team effectiveness (e.g., performance), focusing only on team members' perceptions of effectiveness.

Future Research

Much of the research on virtual team communication has focused on the negative effects that computer-mediated communication has on trust, and how to promote relationship development among team members as a means of facilitating team effectiveness (Jarvenpaa & Leidner, 1999; Martins et al., 2004). Our results suggest that emotional intelligence in virtual teams is another key driver of virtual team effectiveness. Additional research should consider the different factors of emotional intelligence, in order to assess the extent to which individual dimensions of emotional intelligence contribute to explaining effective communication in virtual teams. Further, we encourage scholars to examine the extent that emotional intelligence is related to emergent leadership in virtual teams, which has been shown to be a critical success factor toward team effectiveness in face-to-face teams (Pescosolido, 2005). Although emergent leaders are not formally appointed by organizations, and thus have no legitimate power, their informal authority over the team, which develops over time, means that they serve as role models in establishing normative behavior and emotions for the group (Dasborough, Ashkanasy, Tee, & Tse, 2009). Further, additional research investigating the role of emotional intelligence in virtual teams should be conducted on non-student samples to determine the generalizability of our findings.

Conclusion

In conclusion, the purpose of our study was to investigate uncharted territory by exploring emotional intelligence in virtual teams. Although researchers have unequivocally demonstrated that emotional intelligence plays a unique role in driving various organizational outcomes, including effectiveness in face-to-face teams, scholars have to date neglected to investigate implications for emotional intelligence in virtual teams, despite their ever increasing use in 21st century organizations. As modern organizations harness technological advancements to enhance their bottom line, consideration must be given to the means through which individual differences interact with modern forms of human communication.

REFERENCES

- Ashkanasy, N. M. (2003). Emotions in organizations: A multi-level perspective. In F. Dansereau, & F. J. Yanmariano (Eds.), *Research and multi-level issues, Volume 2: Multi-level issues in organizational behavior and strategy* (pp. 9-54). Oxford: Elsevier Science. doi: 10.1016/S1475-144(03)02002-2
- Ashkanasy, N.M., Zerbe, W.J. and Härtel, C.E.J. (2005). Overview: The effect of affect in organizational settings. In Ashkanasy, N.M., Zerbe, W.J. and Härtel, C.E.J. (Eds.), *Research in Emotions in Organizations: The Effect of Affect in Organizational Settings* (pp. xiii-xix). Oxford, UK: Elsevier JAI.
- Baltes, B. B., Dickson, M. W., Sherman, M. P., Bauer, C. C., & LaGanke, J. S. (2002). Computer-mediated communication and group decision making: A meta-analysis. *Organizational Behavior and Human Decision Processes*, 87(1), 156-179. doi: 10.1006/obhd.2001.2961
- Barrick, M., Stewart, G., Neubert, M. J., & Mount, M. (1998). Relating member ability and personality to work-team processes and team effectiveness. *Journal of Applied Psychology*, 83, 377–391. doi: 10.1037/0021-9010.83.3.377
- Barsade, S. G., Brief, A. P., & Spataro, S. E. (2003). The affective revolution in organizational behavior: The emergence of a paradigm. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* (pp. 3-52). Hillsdale, NJ: Lawrence Erlbaum.
- Bell, S. T. (2007). Deep-level composition variables as predictors of team performance: A meta-analysis. *Journal of Applied Psychology*, 92(3), 595-615. doi: 10.1037/0021-9010.92.3.595

- Bell, B., & Kozlowski, S. J. (2002). A typology of virtual teams: Implications for effective leadership. *Group and Organization Management, 27*(1), 14-49. doi: 10.1177/1059601102027001003.
- Cascio, W. F. (2003). Changes in work, workers, and organizations. In W. C. Borman, R. J. Klimoski, & D. R. Ilgen (Eds.), *Handbook of psychology: Industrial and organizational psychology, Vol. 12* (pp. 401-422). Hoboken, NJ: John Wiley & Sons, Inc.
- Chidambaram, L. (1996). Relational development in computer-supported groups. *MIS Quarterly, 20*, 143-165. doi: 10.2307/249476
- Daft, R.L., & Lengel, R.H. (1986). Organizational information requirements, media richness, and structural design. *Management Science, 32*, 554-571.
- Dasborough, M. T., Ashkanasy, N. M., Tee, Y. J., & Tse, H. M. (2009). What goes around comes around: How meso-level negative emotional contagion can ultimately determine organizational attitudes toward leaders. *The Leadership Quarterly, 20*, 571-585. doi: 10.1016/j.leaqua.2009.04.009
- Devine, D. J., Habig, J. K., Martin, K. E., Bott, J. P., & Grayson, A. L. (2004). Tinsel Town: A top management simulation involving distributed expertise. *Simulation & Gaming, 35*(1), 94-134. doi: 10.1177/104687810003100401
- Fleming, J.L., & Monda-Amaya, L.E. (2001). Process variables critical for team effectiveness: A Delphi study of wraparound team members. *Remedial and Special Education, 22*, 158-171. doi: 10.1177/074193250102200304
- Foo, M.D. Sin, H.S., & Yiong, L.P. (2006). Effects of team inputs and intrateam processes on perceptions of team viability and member satisfaction in nascent ventures. *Strategic Management Journal, 27*, 389-399. doi: 10.1002/smj.514
- Furst, S., Blackburn, R., & Rosen, B. (1999). Virtual team effectiveness: A proposed research agenda. *Information Systems Journal, 9*, 249-269. doi: 10.1046/j.1365-2575.1999.00064.x
- George, J. M. (2002). Affect regulation in groups and teams. In R. G. Lord, R. J. Klimoski, & R. Kanfer (Eds.), *Emotions in the workplace: Understanding the structure and role of emotions in organizational behavior* (pp. 183-217). San Francisco, CA: Jossey-Bass.
- Gladstein, D. (1984). Groups in context: A model of task group effectiveness. *Administrative Science Quarterly, 29*, 499-517.
- Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. New York, NY: Bantam Books.
- Graves, J.G. (1999). Emotional intelligence and cognitive ability: predicting performance in job-simulated activities. Unpublished doctoral dissertation, California School of Professional Psychology, San Diego, CA.
- Hackman, J. R. (1987). The design of work teams. In J. W. Lorsch (Ed.), *Handbook of organizational behavior* (pp. 315-342). Englewood Cliffs, NJ: Prentice-Hall.
- Harvey, M., Novicevic, M. M., & Garrison, G. (2004). Challenges to staffing global virtual teams. *Human Resource Management Review, 14*, 275-294. doi: 10.1016/j.hrmr.2004.06.005

Jarvenpaa, S. L., & Leidner, D. E. (1999). Communication and trust in global virtual teams. *Organization Science*, 10 (6), 791-815. doi: 10.1287/orsc.10.6.791

Johnson, S.K., Bettenhausen, K., & Gibbons, E. (2009). Realities of working in virtual teams: Affective and attitudinal outcomes of using computer-mediated communication. *Small Group Research*, 42, 595-634. doi: 10.1177/1046496409346448

Jordan, P. J., Ashkanasy, N. M., Härtel, C. E. J., & Hooper, G. S. (2002). Workgroup emotional intelligence: Scale development and relationship to team process effectiveness and goal focus. *Human Resource Management Review*, 12(2), 195-214. doi: 10.1016/S1053-4822(2)00046-3

Kenny, D. A., Korchmaros, J. D., & Bolger, N. (2003). Lower-level mediation in multilevel models. *Psychological Methods*, 8(2), 115-128. doi: 10.1037/1082-989X.8.2.115

Kozlowski, S. W. J., & Bell, B. S. (2003). Work groups and teams in organizations. In W. C. Borman, R. J. Klimoski, & D. R. Ilgen (Eds.), *Handbook of psychology, Industrial and organizational psychology, Vol. 12* (pp. 333-375). Hoboken, NJ: John Wiley & Sons, Inc.

Krull, J. L., & MacKinnon, D. P. (2001). Multilevel modeling of individual and group level mediated effects. *Multivariate Behavioral Research*, 36(2), 249-277. doi: 10.1207/S15327906MBR3602_06

Lepsinger, R., & DeRosa, D. (2010). *Virtual teams success: A practical guide for working and leading from a distance*. Josey-Bass: San Francisco, CA.

Lester, S.W., Meglino, B.M., & Korsgaard, MA. (2002). The antecedents and consequences of group potency: A longitudinal investigation of newly formed work groups. *Academy of Management Journal* 45, 352-368.

Lopes, P. N., Salovey, P., & Straus, R. (2003). Emotional intelligence, personality, and the perceived quality of social relationships. *Personality & Individual Differences*, 35, 641-658. doi: 10.1177/0146167204264762

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of Management Review*, 26, 356-376.

Martins, L. L., Gilson, L. L., & Maynard, M. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management*, 30(6), 805-835. doi:10.1016/j.jm.2004.05.002

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, 34, 410-476. doi: 10.1177/0149206308316061

Mathieu, J.E., & Taylor, S.R. (2007). A framework for testing meso-mediational relationships in organizational behavior. *Journal of Organizational Behavior*, 28(2), 141-172. doi: 10.1002/job.436

Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, 59, 507-536. doi:0.1146/annurev.psych.59.103006.093646

- Mayer, J. D. & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds). *Emotional development and emotional intelligence: Implications for educators* (pp. 3-31). New York, NY: Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. (2000). Models of emotional intelligence. In R. J Sternberg (Ed.), *The handbook of intelligence* (pp. 396-420). New York, NY: Cambridge University Press.
- McGrath, J.E. (1991). Time, interaction, and performance (TIP): A theory of groups. *Small Group Research*, 22, 147-174. doi: 10.1177/1046496491222001
- Nelis, D., Quoidbach, J., Mikolajczak, M., & Hansenne, M. (2009). Increasing emotional intelligence: (How) is it possible? *Personality and Individual Differences*, 47, 36-41. doi: 10.1016/j.paid.2009.01.046
- Petrides, K. V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences*, 29, 313-320. doi: 10.1016/S0191-8869(99)00195-6
- Pescosolido, A. T. (2005). Managing emotion: A new role for emergent group leaders. In C. E. J. Härtel, W. J. Zerbe, & N. M. Ashkanasy, *Emotions in organizational behavior* (pp. 317-334). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. & Podsakoff, N. P. (2003). Common method biases and behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879-903. doi: 10.1037/0021-9010.88.5.879
- Prati, L.M., Douglas, C., Ferris, G.R., Ammeter, A.P., & Buckley, M.R. (2003). Emotional intelligence, leadership effectiveness, and team outcomes. *The International Journal of Organizational Analysis*, 11, 21-40.
- Quene, H., & van den Berghe, H. (2004). On multi-level modeling of data from repeated measures designs: A tutorial. *Speech Communication*, 43, 103-121.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd edition). Thousand Oaks, CA: Sage Publications.
- Roberts, J. K. (2007, April). Group dependency in the presence of small intraclass correlation coefficients: An argument in favor of not interpreting the ICC. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9, 185-211.
- Schutte, N. S., Malouff, J. M., Bobik, C., Coston, T. D., Greeson, C., Jedelicka, C., Rhodes, E., & Wendorf, G. (2001). Emotional intelligence and interpersonal relations. *The Journal of Social Psychology*, 141, 523-536.
- Schutte, N. S., Malouff, J. M., Hall, L. E., Hagerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, 25, 167-177. doi: 10.1016/S0191-8869(98)00001-4

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological Methodology 1982* (pp. 290-312). Washington DC: American Sociological Association.

Walther, J. B. (1997). Group and interpersonal effects in international computer-mediated collaboration. *Human Communication Research*, 23(3), 342-369. doi: 10.1111/j.1468-2958.1997.tb00400.x

Measuring Cross-Cultural Orientation: Development of a New Instrument

Rakesh Mittal
New Mexico State University

In this study I design and present a new instrument, Cross-Cultural Orientation Inventory (CCOI), to measure the cross cultural orientation of a person. I define cross-cultural orientation as the readiness of a person to interact with, and form a sustainable relationship with a person from a different culture. I posit that CCOI would be a valid measure of cross-cultural orientation of a person, which in turn, would be related to the cross cultural behavioral competence of that person. I design a questionnaire to represent CCOI, and assess its reliability and validity empirically. I discuss my results and the utility of the new measure for HR practitioners in recruitment and selection processes.

INTRODUCTION

In today's globalizing world, there is an acute need of cross-culturally competent managers. Treatments of intercultural sensitivity have played an important role in the scholarly literature. Research has been designed to explain and predict successful intercultural encounters (Gudykunst & Nishida, 1989; Searle & Ward, 1990). This concept also has an important place in the work of practitioners who work closely with people who engage in extensive intercultural encounters. Lack of intercultural competence has the potential to adversely impact the professional progression of people. Even academic careers are not immune from cross-cultural requirements. For example, foreign students may be forced to spend one or more extra years to attain their degrees if they are not sensitive to culturally different academic climate in different countries (Klineberg & Hull, 1979).

Researchers have investigated a number of personal characteristics and skills hypothesized to be predictive of competent interaction with culturally different others (Abe & Wiseman, 1983; Dinges & Baldwin, 1996; Hammer, Nishida & Wiseman, 1996 etc.), resulting in a list of potentially useful factors. Generally, the ability to interact is given more emphasis in the majority of studies on cross-cultural competence, with a view to delineate a valid and accurate measurement of such ability (Chen & Starosta, 2000). However, much less work seems to have been done in examining the antecedents of intercultural competent behavior, and in understanding the psycho-social processes resulting in the desired behavior. Even on the behavioral side, there seems to be a conceptual overlap between cross-cultural competence and interpersonal competence, both of which seem to emphasize the fundamental ability to show consideration for others' needs while also fulfilling one's own satisfaction and obligations to a reasonable degree (Chen & Starosta, 1996).

Although some measures have been developed to measure the behavioral competence of a person in cross-cultural settings, there is no consensus in the extant literature about the antecedents of cross-cultural competence. This study is an attempt to bring more clarity to this field. I believe that a salient antecedent of cross-cultural behavior is the mindset of a person in a cross-cultural setting. When a person is well

disposed towards a cross-cultural interaction, his responses in a cross-cultural interaction are likely to be more receptive and positive. On the other hand, if the person's mindset is not suitable for a cross-cultural encounter, he or she may not exhibit the desired behavior in the interaction. I use the term "Cross-cultural Orientation" (CCO) to describe the mindset of a person that governs his cross-cultural behavior.

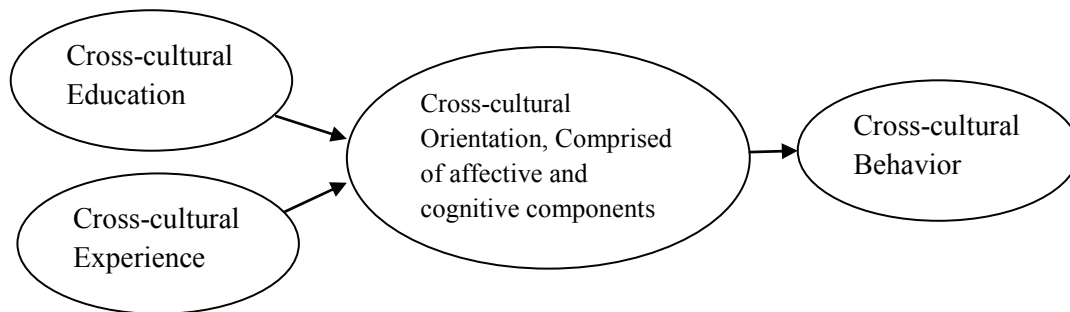
Theoretical Background

CCO, as conceptualized by me, is a new construct in the field of cross-cultural management. I define CCO as the "readiness of a person to interact with and form a relationship with a person from a different culture". CCO is conceptualized as having two dimensions; *cognitive* – which refers to the awareness and knowledge about other cultures, and *affective* – which captures the attitudinal orientation towards other cultures. In essence, a person's CCO would be a measure of the extent to which a person seems ready to interact with people from other cultures on a sustainable basis. I should clarify that CCO is concerned with long-term intercultural interaction rather than one-time encounters. When a person is in a cross-cultural situation temporarily, on a non-repeatable basis, he or she can handle that situation by projecting a behavior that seems appropriate to the occasion. However, such a situation does not speak to the propensity of the person to form a cross-cultural relationship with the interactants. But when a person needs to function in an intercultural environment for a longer term, his or her cross-cultural orientation becomes particularly salient to the exhibited behavior. Put simply, CCO refers to a person's affective and cognitive preparedness to deal with intercultural encounters on a maintainable basis.

Although the extant literature has described a number of other constructs to capture the various facets of cross-cultural manifestation, these differ from CCO in their nuances. For example, a similar construct is *cross-cultural experience* (Olson, 2009) that seeks to represent the degree of interaction a person has with people from other cultures. Conceivably, each episode of interaction with a person from other culture builds on prior experience and prepares a person for future interactions. Thus, it is somewhat similar to CCO but differs from CCO in the sense that it focuses only on prior experience. Another construct is *Intercultural competence* (Buhrmester, Furman, Wittenberg & Reis, 1988) which refers to the competence of a person in dealing with people from other cultures. It is a wider construct, which takes into account the totality of cross-cultural competence of a person in a cross-cultural setting. Thus, it would seem to partially overlap with CCO but is distinguished from the latter in terms of its focus on the behavioral skill rather on awareness or attitude.

Since the behavior of a person is primarily governed by his cognitive and affective frame of mind (Luthans & Davis, 1980), I submit that Cross-cultural orientation, which captures both attitudinal and affective dimensions of a person's mindset, is likely to be a good predictor of the behavior of a person in a cross-cultural setting. Carrying this chain of thought further, I posit that the cross-cultural orientation, in turn, is likely to be affected by the kind of education a person has received, as well as his prior experience of cross-cultural encounters. I base my logic on the fact that attitudes get formed since childhood, in which the educative years play a great role. If the instructors in a person's high school/college exhibit sensitivity towards cross-cultural issues, this is bound to develop a positive attitude in the student towards culturally different others. Similarly, opportunities for cross-cultural interaction in school and participation in multi-cultural events also shape the intercultural attitude of a person. An equally important role in developing the cross-cultural orientation of a person is played by his cross-cultural experiences. While his initial behavior might be governed by his cognitive store and current attitude, each cross-cultural experiential event serves to further develop and shape his orientation towards future events. I therefore conceptualize cross-cultural orientation in a nomological network, where education and experience of a person are antecedents of his or her cross-cultural orientation, while behavioral competence is a consequent of the cross-cultural orientation. This conceptualization is visually depicted in figure 1.

FIGURE 1
NOMOLOGICAL NETWORK OF CROSS-CULTURAL ORIENTATION (CCO)



Because the new construct defined by me is different from the constructs existing in the literature, none of the existing measuring instruments, such as the Behavioral Assessment Scale for Intercultural Communication Effectiveness (BASIC) (Koester & Oebele, 1988), Interpersonal Competence Questionnaire (ICQ) (Buhrmester et al, 1988), or the Intercultural Sensitivity Scale (ISS) (Chen & Starosta, 2000), can be used to measure Cross-cultural Orientation (CCO). To fill this void, I developed a new instrument, termed as Cross-Cultural Orientation Inventory (CCOI), to measure the cross-cultural orientation of a person. Moreover, since I conceptualized CCO as a two-dimensional construct, comprising attitudinal and awareness components, I needed to develop and validate two sub-scales to represent these two components of CCO.

DEVELOPMENT OF THE MEASURE

Based on the conceptualization and components previously discussed, I developed items to measure cross-cultural orientation. A five-point Likert scale was used to respond to each item: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. Items were written to capture both the affective and cognitive dimensions of the construct. Sample items are: “I am happy to interact with people from different cultures” (affective) and “I know the cultural values and beliefs of other culture (s)” (cognitive). 49 items were initially developed for the full scale. These were made available to a group of 9 experts who had been briefed about the definition of the hypothesized construct and similar constructs. The experts were asked to select items which they thought captured cross-cultural orientation, and if so, categorize them in Attitude (affective) and Awareness (cognitive) categories. Items which were not agreed upon by 5 experts were eliminated, leaving 22 items. These items were further scrutinized and discussed in the group of experts. Finally, 17 items were shortlisted, 9 for cross-cultural Attitude, and 8 for cross-cultural Awareness dimensions of CCO, for incorporating in the questionnaire.

In line with my conceptual model, I searched for valid measures for other variables in my study. I used a 5-item scale for measuring Cross-cultural Education (adapted from Olson, 2009). Similarly a 5-item scale was used for measuring Cross-cultural Experience (adapted from Rew, 2003), and a 9-item scale for measuring Cross-cultural Behavior (Chen & Starosta, 2000). Thus a total of 36 items were included in the questionnaire, to measure the new construct as well as other, established constructs. Questions were also included for ascertaining demographic information of the respondents.

Questionnaire Administration and Sample

Undergraduate students in the colleges of Business and Engineering in a South-West University in U.S.A. comprised the sample population for the study. It was felt that these students, having been exposed to some cross-cultural education and activities, would be fairly representative of the general population.

The questionnaire was made available to students through SurveyMonkey web site, and also manually in some classes. The responses were completely voluntary and anonymous. A total of 233 students were targeted for completing the survey, of which 88 responded. The survey responses were entered into an excel sheet. Since three responses contained no demographic information, these were removed from the data set, leaving a total of 85 responses, denoting a response rate of 36.5%. 54 % of the respondents were male and the rest female. 48.2% belonged to White Caucasian ethnic group while the rest were from other ethnic groups. 17.6% of the respondents were full-time students while the rest were also holding part-time or full-time jobs.

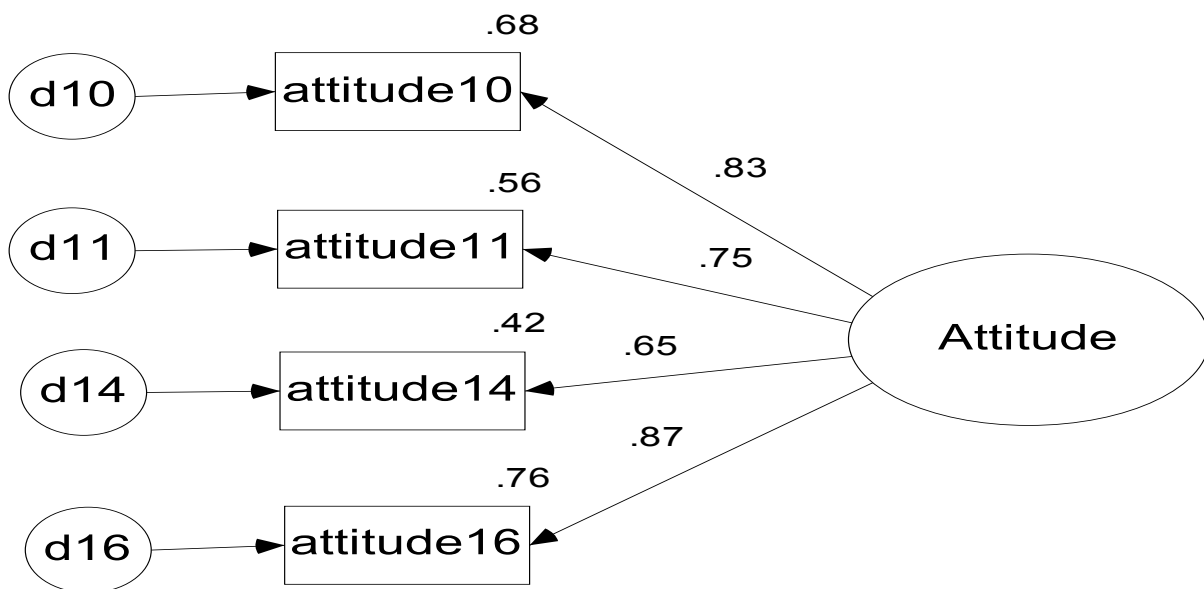
Validation of the Measure

Structural Equation Modeling (SEM), AMOS 16.0 and SPSS was employed to carry out statistical analyses of the data. When developing a new scale, researchers have recommended using a two-step approach in which the measurement models are run first to establish the unidimensionality of the scale (s) and its discriminant validity. Thereafter the structural model is analyzed to examine the relationship among various constructs (see Anderson & Gerbing, 1988). In accordance with this approach, I carried out confirmatory factor analysis of the two sub-scales of CCO in the first stage of analyses.

Confirmatory Factor Analysis (CFA)

As indicated earlier, I had incorporated 9 items for the Attitude dimension of CCO and 8 items for the Awareness dimension of CCO. Following the procedure recommended by Gerbing & Anderson (1988) for scale development, I carried out separate CFAs for the two sub-scales. Firstly, I ran the measurement model for the Attitude dimension, using AMOS 16.0. I found that some item loadings were not very high and the fit indices showed a poor fit of the model. I eliminated two items that had low loadings; this improved the model fit somewhat. However some of the residual variances were still quite high. After continuing with this iterative process, I finally ended up with 4 items (Qs 10, 11, 14 and 16 of the questionnaire) which seemed to capture the construct well. This is shown in figure 2.

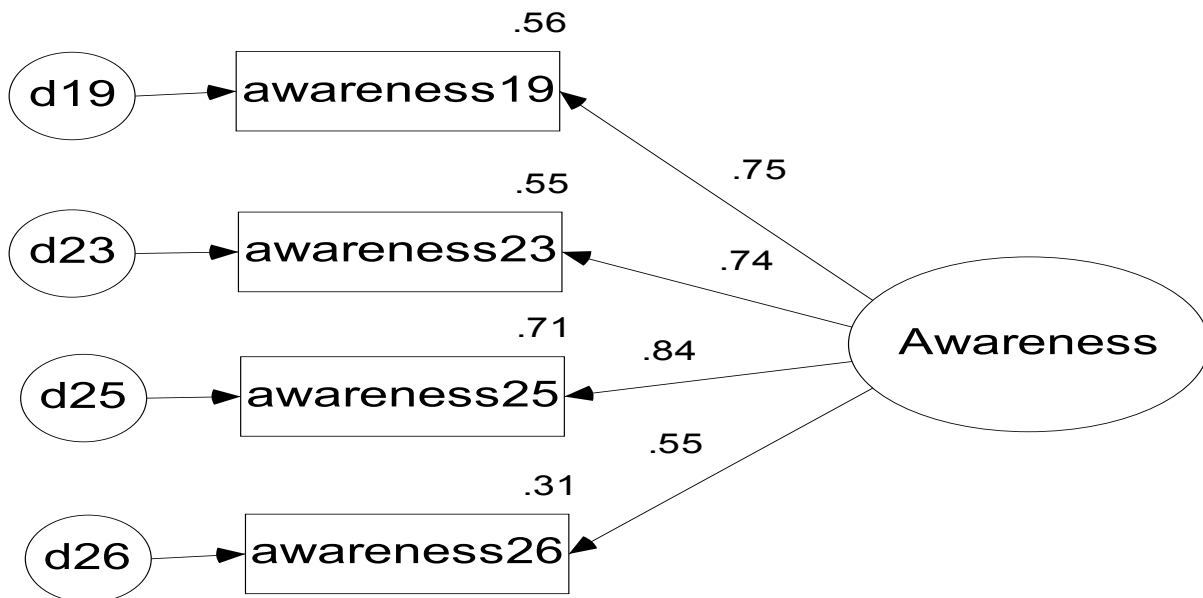
FIGURE 2
CFA – ATTITUDE DIMENSION OF CCO



As may be seen in the figure, the standardized factor loadings are much higher than 0.5. The Chi-square value for the model was 4.37, $df = 2$, $p = 0.11$ (not significant). The fitness indices were: CFI = 0.98, GFI = 0.98, RMSEA = 0.11. There is a broad consensus in the extant literature that values of CFI and GFI greater than 0.90 indicate a good fit, whereas the RMSEA is recommended to be less than .05. In my sample, the RMSEA was 0.11. However, the PCLOSE value for RMSEA was 0.16. Since PCLOSE tests the null hypothesis that RMSEA is not greater than .05, a non-significant PCLOSE indicates a close-fitting model (Kenny, 2011). Furthermore, as pointed out by Bollen & Long (1993), a number of fitness indices should be seen rather than relying on a single index. From these results therefore, I concluded that my modified sub-scale of 4 items for the attitude dimension of CCO exhibits unidimensionality and internal consistency. The coefficient Alpha for this scale was 0.85, which is well above the recommended cutoff of 0.70 (Nunnally & Bernstein, 1994).

After finalizing the sub-scale of attitude, I carried out CFA for the second sub-scale, that of Awareness dimension of CCO with 8 items that had been used in the questionnaire. Again, I found that some item loadings were not high and that some of the residual covariances were very high. I examined the items and dropped those items that seemed ambiguous since this could be a reason for low loadings. The iterative process finally culminated by cutting down the items to 4 (Qs 19, 23, 25 and 26 of the questionnaire), that had high factor loadings and the fitness indices showed every good model fit. The four-item model is shown in figure 3.

FIGURE 3
CFA – AWARENESS DIMENSION OF CCO



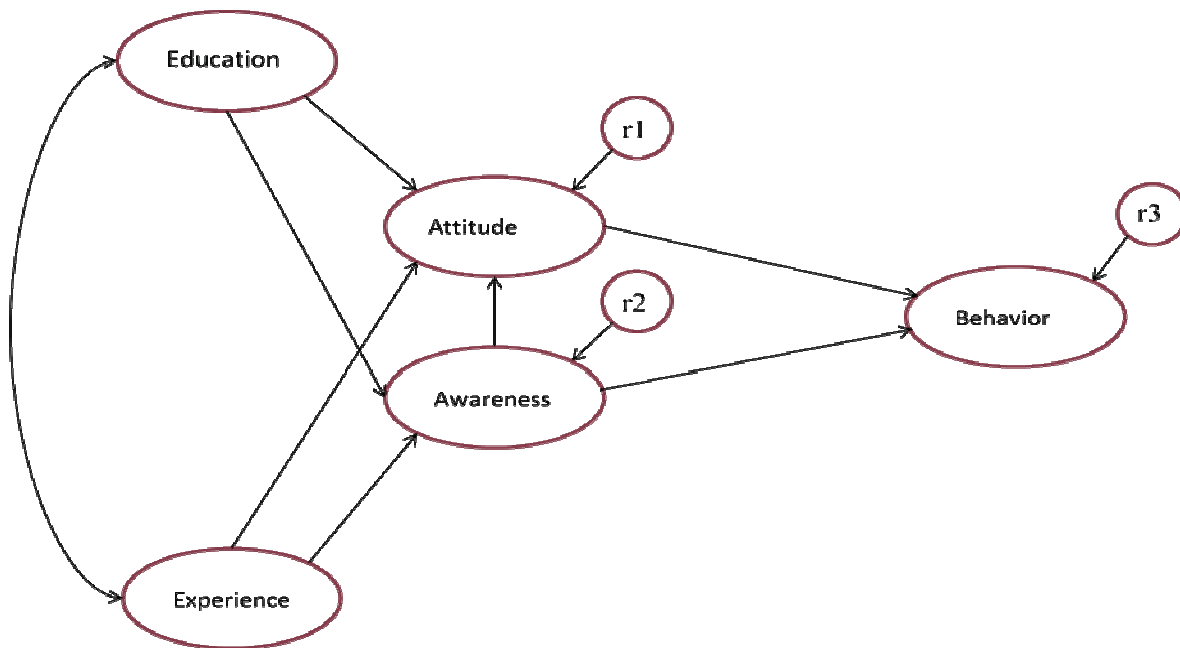
The Chi-square value for the model was 2.10, $df = 2$, $p = 0.35$ (not significant). The fitness indices were: CFI = 0.99, GFI = 0.99, RMSEA = 0.02. In accordance with the norms prevalent in the field, as also quoted earlier, these values indicate excellent fit of the model to the data. From these results therefore, I concluded that my modified sub-scale of 4 items for the awareness dimension of CCO exhibits unidimensionality and internal consistency. The coefficient Alpha for this scale was 0.81, which is also quite reasonable.

Discriminant Validity

After satisfying myself about the unidimensionality and convergent validity of each of my two sub-scales, I proceeded to examine the discriminant validity of my sub-scales. Conceptually, a measure can be said to be discriminant valid if it is able to explain more than half of the variance in the focal construct, and if this variance explained is more than what can be explained due to correlation of the construct with another construct. In practical terms, discriminant validity can be assessed for two estimated constructs by comparing the Average Variance Extracted (AVE) for each of the constructs with the Squared Inter-Construct Correlation (SIC). AVE for each construct should be greater than 0.5 (Bagozzi and Yi, 1988) and AVE of each construct should be greater than the SIC between them.

According to my conceptualization, the focal construct, Cross-cultural Orientation construct, consists of two dimensions of Attitude and Awareness, and is part of a nomological network where in Cross-cultural Education and Cross-cultural Experience function as antecedents to the focal construct and the focal construct serves as an antecedent to Cross-cultural behavior. My structural model may be seen in figure 4.

**FIGURE 4
STRUCTURAL MODEL**



As per this structural model, I needed to test for discriminant validity of each of my sub-scale by pairwise comparisons of each focal construct with all other constructs. Therefore I calculated the AVE for each construct and compared it to the SIC for each pair of constructs. My calculations show that AVE of my focal constructs is in the range of 0.53 to 0.67, and that AVE is more than SIC for each pair of constructs. Thus I can conclude that my sub-scales for Attitude and Awareness dimensions of CCO exhibit good discriminant validity.

Nomological Validity

In order to establish the nomological validity of my new sub-scales, I needed to carry out path analysis of my structural model, to confirm that the model fits the data well. This would be an indication that my measures behave as expected. I carried out path analysis with a number of methods, to examine the fit of my model to the data

Path Analysis with Observed Variables

In this mode of path analysis, I treated the constructs as observed variables. As indicated earlier, each construct had been measured with a number of items. I computed variables *cross-cultural education*, *cross-cultural experience*, *cross-cultural orientation-attitude*, *cross-cultural orientation-awareness*, and *cross-cultural behavior*, by summing the items. The descriptive statistics of these five variables in my model are given in table 1. The coefficient alpha values are shown in parentheses along the diagonal.

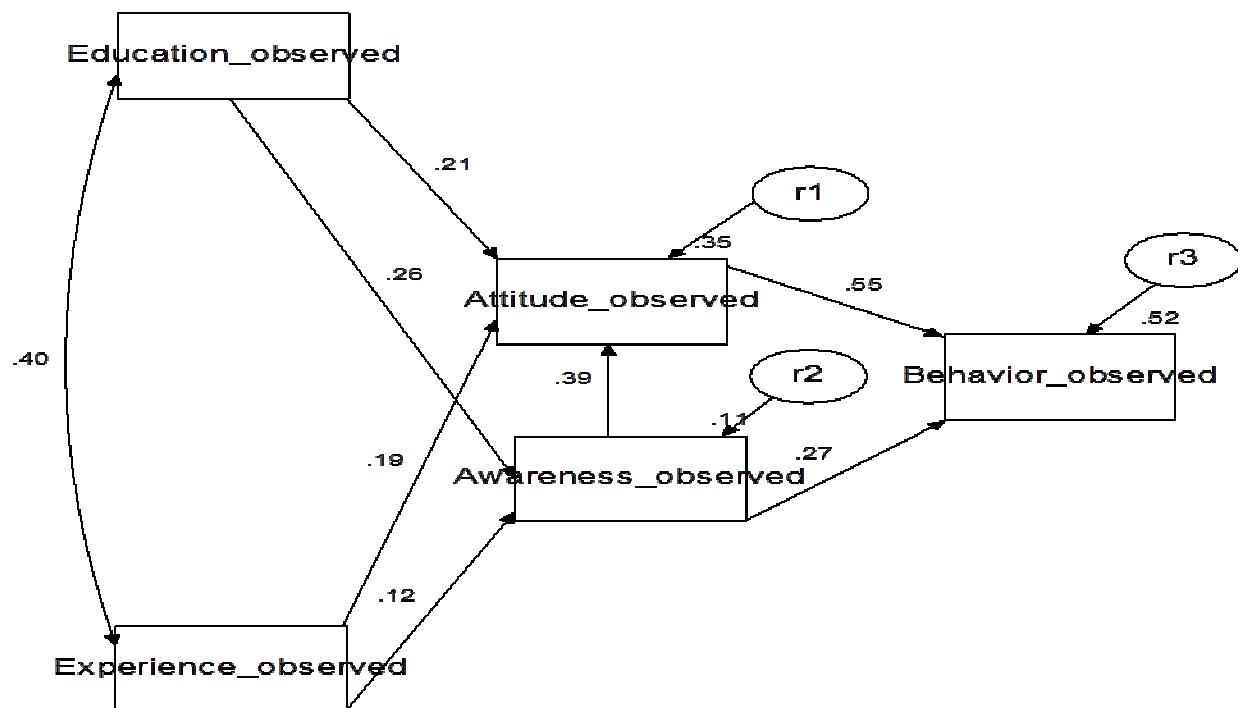
TABLE 1
DESCRIPTIVE STATISTICS

	Mean	SD	1	2	3	4	5
1. Education	3.62	0.51	(.60)				
2. Experience	3.21	0.72	0.40**	(.82)			
3. Attitude	4.01	0.59	0.41**	0.37**	(.85)		
4. Awareness	3.14	0.71	0.31**	0.23*	0.50**	(.81)	
5. Behavior	3.61	0.56	0.41**	0.28*	0.68**	0.55**	(.81)

** $p \leq .01$ (2-tailed), * $p \leq .05$ (2-tailed), $N = 85$

Treating latent constructs as observed variables is tantamount to assuming that the constructs have been measured without any error. Based on this assumption, I ran the path analysis in AMOs 16.0. The standardized path coefficients are shown in figure 5.

FIGURE 5
PATH ANALYSIS WITH OBSERVED VARIABLES
STANDARDIZED ESTIMATES

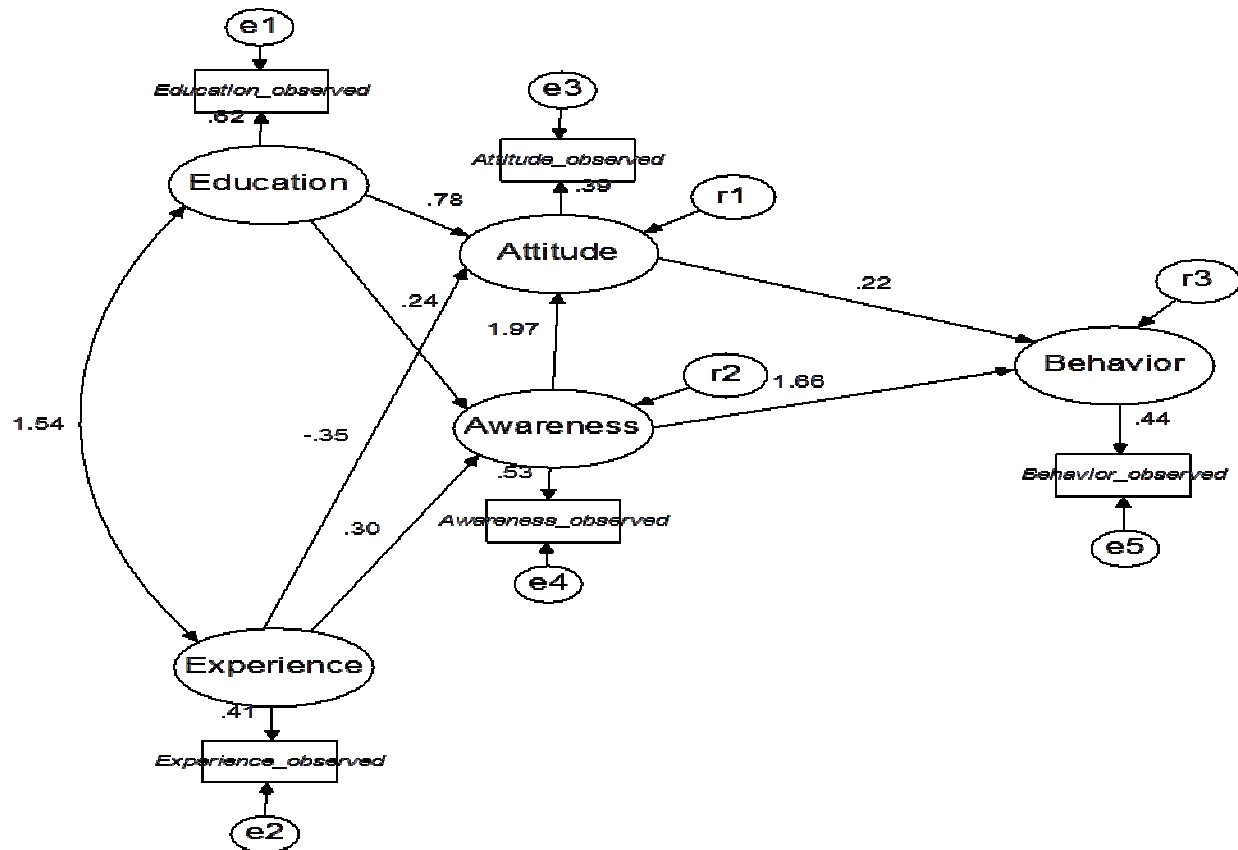


The SEM analysis provided good evidence of a well-fitting model. The chi-square for this model was 2.16, $df = 2$, $p = 0.34$. Furthermore, other fitness indices were within acceptable limits: RMSEA = .03, CFI = .99, GFI = .99. All the paths in the model were significant except the path Experience \rightarrow Awareness. However, there is adequate theoretical justification to reason that cross-cultural experience of a person contributes to his cross-cultural awareness. Therefore, it is justifiable to retain this path in the model.

Path Analysis with Reliabilities

Since treating constructs as observed variables ignores measurement error, I ran a more exact analysis of my model by taking the errors into account. This procedure involves calculating and fixing the measurement error of each observed variable. This procedure ensures that the measurement error at the observed variable stage is not allowed to spread throughout the structural model. So this procedure is expected to yield a better estimate of path coefficients. I calculated the error for each observed variable as per the formula; $\text{Error} = (1 - \text{cronbach Alpha}) \times \text{Variance}$. The resulting values were used to fix the error parameter values of observed variables in AMOS 16.0 and the model was run. Figure 6 shows the standardized estimates for this model.

FIGURE 6
PATH ANALYSIS WITH RELIABILITIES
STANDARDIZED ESTIMATES



The fitness indices for this model were: Chi-square = 2.47, $df = 2$, $p = 0.29$. RMSEA = .05, CFI = .99, GFI = .99. These results indicate a good fit of the model with data. Some path coefficients were observed to be greater than one. This could be an artifact of low sample size.

Based on the above path analyses, I conclude that the structural model specified by me fits the data well. This means that the new sub-scaled developed by me for the Attitude and Awareness dimensions of Cross Cultural Orientation (CCO) behave as expected in a specified nomological network.

Multi-Group Path Analysis

As a final step in my examination of the construct validity of my measures, I carried out a multi-group analysis of the configural model, to assess invariance across multiple groups. Since I had gender information available for 83 responses, I split the sample in males (n=46) and females (n=37). I ran the configural model (shown in figure 7) across both groups simultaneously, as recommended by Byrne (2009 p. 209). A baseline model was computed and compared to more constrained models by specifying Measurement weights to be equal, and then by specifying both measurement weights and structural covariances to be equal across groups. The results indicate that the models fit the data well. The fitness indices for these models are shown in table 2.

FIGURE 7
CONFIGURAL MODEL FOR MULTI-GROUP ANALYSIS

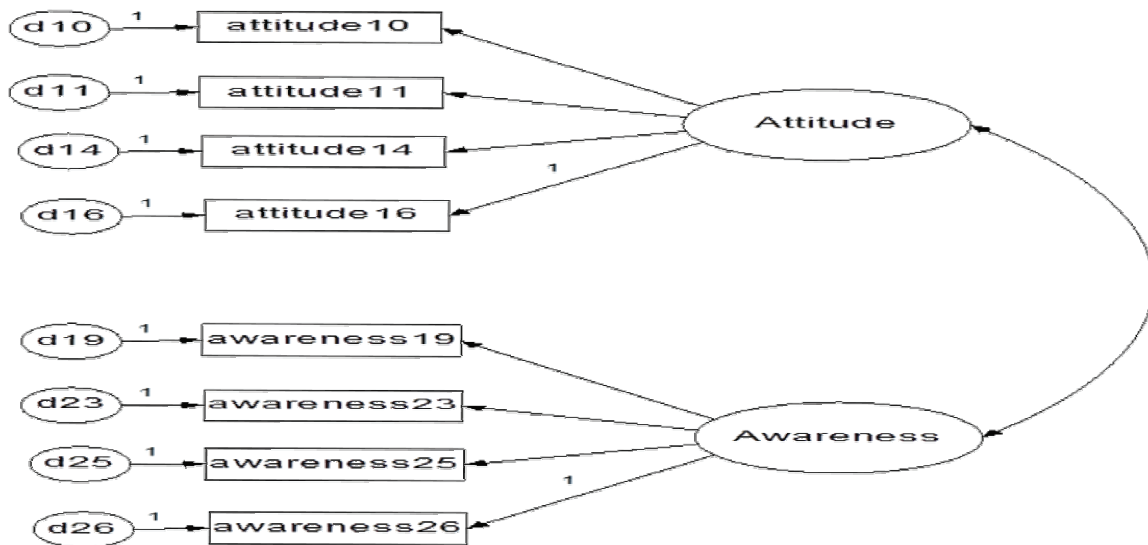


TABLE 2
FITNESS INDICES OF MULTI-GROUP ANALYSIS

Model	Chi-square	Df	P-level	RMSEA	CFI	GFI
Unconstrained model	41.60	38	.32	.03	.98	.90
Measurement weights	43.09	44	.51	.00	1.00	.90
Structural covariances	45.30	47	.54	.00	1.00	.89
Independence model	240.20	56	.00	.20	0.00	.51

CONCLUSION

On the basis of results presented in foregoing paragraphs, I established that the scale developed by me to measure Cross Cultural Orientation (CCO) has two dimensions, cross-cultural attitude, and cross-cultural awareness, each of which is measurable by a four-item scale. The sub-scales exhibit excellent internal and external consistency and nomological validity. Further, the scales developed by me seem invariant across multiple groups. The final scale, Cross-Cultural Orientation Inventory (CCOI) is given in the Appendix.

PRACTICAL IMPLICATIONS

Increasing globalization of business has highlighted the need of managers who have cross-cultural competence and are thus able to function effectively across cultures and also deal with a culturally diverse work force. It is therefore imperative that recruiters are equipped to adequately assess the suitability of persons they are hiring, for functioning in a cross-cultural environment. As I discussed in earlier paragraphs, cross-cultural orientation (CCO) is an antecedent of cross-cultural behavior of a person. Thus, an assessment of a person's cross-cultural orientation is useful in predicting his or her behavior in cross-cultural scenarios. The measure developed by me is parsimonious and simple to administer. It can be used at the time of initial recruitment, and also while selecting existing employees for assignments that might require cross cultural adaptation and competence. Thus, the new instrument would be a useful addition to the toolkit of HR practitioners as they grapple with the challenges of shaping the work force to meet the needs of globalization.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Although my analysis has developed reasonable confidence in the construct validity of my scale, it must be pointed out that construct validity is an ongoing process (see J Paul Peter, 1981). A number of studies, at different times may be needed to fully validate these scales. My study is not without limitations. One limitation is small sample size, which can lead to fluctuation in the estimations at times. It is therefore recommended to validate the scales using a larger sample size.

REFERENCES

- Abe, H., & Wiseman, R. (1983). A cross-cultural confirmation of the dimensions of intercultural effectiveness. *International Journal of Intercultural Relations*, 7, 53-67.
- Anderson, J. C. & Gerbing, D. W. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. *Psychological Bulletin*, 103(3), 411-423
- Bagozzi, R. P. & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16, 74-94.
- Bollen, K. A. & Long, J. S. (1993). Introduction, In Kenneth A Bollen & J Soctt Long (eds), *Testing Structural Equation Models*. Newbury Park. CA. Sage, 1-9.
- Buhrmester, D., Furman, D., Wittenberg, M., & Reis, H. (1988). Five domains of interpersonal competence in peer relationships. *Journal of Personality and Social Psychology*, 55(6), 991-1008.
- Byrne, Barbara M. (2009). *Structural Equation Modeling with AMOS – Basic Concepts, Applications, and Programming*, second edition, New York: Routledge.

- Chen, G. & Starosta, W. (1996). Intercultural communication competence: A synthesis. In B. Burleson (ed), *Communication yearbook 19*, Thousand Oaks: Sage.
- Chen, G. & Starosta, W. (2000). The development and validation of the Intercultural communication sensitivity scale. *Human Communication*, 3, 1-15.
- Dinges, N., & Bladwin, K. (1996). Intercultural competence: A research perspective. In D. Landis, & R. Bhagat (eds), *Handbook of intercultural training*. Thousand Oaks, CA: Sage.
- Gerbing, D. W. & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, 25, 186-192.
- Gudykunst, W., & Nishida, T. (1989). Theoretical perspectives for studying intercultural communication. In M. Asante & W. Gudykunst (Eds.), *Handbook of international and intercultural communication* (pp. 17-46). Newbury Park, CA: Sage Publications.
- Hammer, M., Nishida, H., & Wiseman, R. (1996). The influence of situational prototypes on dimensions of intercultural communication competence. *Journal of cross-cultural Psychology*, 27(3), 267-282.
- Kenny, D. (2011). Measuring Model Fit. URL: <http://www.davidakenny.net/cm/fit.htm>. Retrieved 11/26/2011.
- Klineberg, O., & Hull, F. (1979). *At a foreign university*. New York: Praeger.
- Koester, J., & Olebe, M. (1988). The behavioral assessment scale for intercultural communication effectiveness. *International Journal of Intercultural Relations*, 12 233-246.
- Luthans, F. & Davis, T. (1980). A social learning approach to organizational behavior. *Academy of Management Review*, 7, 281-290.
- Nunnally, J. C. & Bernstein, I.H. (1994). *Psychometric Theory*, third edition, New York: McGraw-Hill.
- Olson, s., Reed, K., & Schweinle, A. (2009). Human Relations: Assessing the affect of cultural awareness curriculum on preservice teachers. *Journal of Inquiry & Action in Education*, 2(2), 120-139.
- Peter, J. Paul. (1981). Construct Validity: A review of basic issues and Marketing Practices. *Journal of Marketing Research*, 18, 133-135.
- Searle, W., & Ward, C. (1990). The prediction of psychological and sociocultural adjustment during cross-cultural transitions. *International Journal of Intercultural Relations*, 14, 449-464.

APPENDIX

CROSS-CULTURAL ORIENTATION INVENTORY (CCOI)

A scale to measure cross-cultural orientation of a person

(Attitude dimension)

1. I am happy to interact with people from different cultures
2. I feel I should make friends with people from diverse cultures
3. I think my beliefs and attitudes are shaped by my culture
4. I should know about other cultures to be fair to people from different cultures

(Awareness dimension)

5. I know the cultural values and beliefs of other culture (s)
6. I know about body language practices of cultures other than mine
7. I am open-minded to people from other cultures
8. People from some cultures avoid eye contact while talking

Note: Response to each item is to be obtained on a Likert-type 5-point scale; strongly agree, agree, neutral, disagree, and strongly disagree

Systemic Coaching: An OD Strategy Applied to Mergers and Acquisitions

Serena Hsia
Seattle Pacific University

Daniel Molvik
Seattle Pacific University

Sarah Lambie
Seattle Pacific University

The traditional concept of executive coaching is expanded to make the case for systemic coaching (SC)—organizationally focused coaching of key influential leaders throughout an organization. Executive coaching has been purported to provide organizational impact by accelerating the development of leaders. We suggest that coaching pivotal leaders throughout an organization can facilitate organizational development, specifically during times of change. We apply SC to the context of mergers and acquisitions (M&As) and discuss difficulties of M&As that can be addressed by systemic coaching.

INTRODUCTION

Leaders are facing increasing demands of a rapidly growing global economy that is both dynamic and expansive. One way organizations are addressing this concern is bringing in executive coaches to help leaders deal with the ambiguity created by the complexity of these ever changing business demands. Coaching leaders has become a means of evolving management as quickly as the business environment. Traditionally, the nature of coaching is an individually focused effort toward the development of the leader. In this paper, we argue that an organizationally focused coaching effort that equips key influential leaders throughout the organization with coaches, what we will term as systemic coaching (SC), can increase the impact of leaders as an organizational development tool during change initiatives.

Coaching has been purported to have a positive impact on organizational outcomes (Kampa-Kokesch & Anderson, 2001; Moen & Skaalvik, 2009). In this paper, we will highlight how SC can have a strong impact on the organization using the business context of a merger and acquisition (M&A). We begin by outlining the effectiveness of coaching leaders and the resulting organizational impact. Then we discuss areas of an M&A that are rich in developmental opportunities and challenges for leaders. We propose areas of executive coaching that can address these concerns and potentially provide resources for leaders to navigate through the transition of a M&A. Finally, we make the case that SC, as applied in this case to an M&A, can be an organizational development intervention.

LITERATURE REVIEW

Executive Coaching

One method available to executives and business leaders dealing with the need to develop on the job is to seek out or be assigned executive coaches (Kampa-Kokesch & Anderson, 2001). Kampa-Kokesch and Anderson (2001) provided one of the most succinct definitions of the executive coaches' role when working with senior leadership:

Executive coaching is a facilitative one-to-one, mutually designed relationship between a professional coach and a key contributor who has a powerful position in the organization. This relationship occurs in areas of business, government not-for-profit, and educational organizations where there are multiple stakeholders and organizational sponsorship for the coach or coaching group. The coaching is contracted for the benefit of a client who is accountable for highly complex decision with [a] wide scope of impact on the organization and industry as a whole. The focus of the coaching is usually focused on organizational performance or development, but may also have a personal component as well. The results produced from this relationship are observable and measureable. (International Coaching Federation Conference [ICF], 2000, p. 208)

As described by ICF, one of the key roles of executive coaches is to serve as an independent feedback sounding board (2000). In addition, coaches are able to provide insight into developmental tools and techniques that address the challenges the leaders face (Kampa-Kokesch & Anderson, 2001). Executive coaching can potentially have the greatest organizational impact when targeting decision makers with the greatest influence. Kombarakaran, Yang, Baker, and Fernandes (2008) suggested that coaching can result in five areas of executive change: (a) effective people management, (b) better relationships with managers, (c) improved goal-setting and prioritization, (d) increased engagement and productivity, and (e) more effective dialogue and communication. Given these potential outcomes, coaching can be leveraged as an organizationally focused intervention when targeting key individual leaders throughout the organization and aligning their coaching outcomes with an organizational initiative.

At the heart of the coaching experience is the alliance, or relationship, between the executive and the coach which is built on trust and mutual respect, and is an important factor in order for coaching to have a positive impact (Jones & Spooner, 2006). This alliance is based on a mutual understanding that the goals of coaching are in the best interest of both the leader and the organization. This understanding could be more easily established with an internal coach and issues of confidentiality and familiarity may persuade organizations to use internal coaches. However, the advantage of external coaches is their independence from the organization's political dynamics (Frisch, 2001). This debate will not be addressed in this article, but is a practical dilemma worth further discussion. Regardless of the coach's affiliation, the percentage of outcome variance accounted for by relationships comparable to those between a client and coach is 30% (McKenna & Davis, 2009). This suggests that regardless of the background between coaches and their clients, a strong alliance is crucial for coaches to challenge and support the leader's personal and career development by providing the five necessary conditions for development: insight, motivation, capabilities, real-world practice, and accountability (Peterson, 2002). Given the unique relationship formed by the alliance, coaches are in a position to address these five conditions to facilitate leader development.

While there is little empirical evidence directly linking executive coaching and organizational performance, there is considerable circumstantial evidence regarding the impact of executive coaching on managerial behaviors (Levenson, 2009; Peterson, 2009; Kombarakaran et al., 2008; Kampa-Kokesch & Anderson, 2001). Managers tend to show improvements in their leadership skills as identified using surveys, 360-degree reviews, interview data, and other organizational measures. These results are still extremely valuable, as some suggest that multi-rater feedback has higher criterion validity than self-report (Seifert, Yukl, & McDonald, 2003). In addition to reports from leaders who have received coaching,

coaches have also documented their positive impact on the organization (Levenson, 2009). A review of outcomes from executive coaching suggested that executive coaches influence the improvement of managerial skill and performance, as well as their retention over time (Peterson, 2002). Among others, these areas included positive changes in working relationships, efficient teamwork, organizational commitment, organizational outcomes and productivity (Kampa-Kokesch & Anderson, 2001; Peterson, 2002). These outcomes are beneficial not only to the individual being coached, but also to the organization that is attempting to retain or obtain key management, expertise, and human capital.

Despite the professed benefits of executive coaching, the actual impact on the organization depends on a variety of factors. These factors include how much the leader is dependent on others to accomplish their goals and responsibilities—the degree of interdependence of the leader’s role (Levenson, 2009), developmental readiness (Avolio & Hannah, 2009), and effective utilization of job appropriate skills and knowledge (Levenson, 2009). If task responsibilities are highly interdependent and the individual is a significant contributor, mistakes can result in significant roadblocks for the organization’s overall goals (Levenson, 2009). Providing coaching may help reduce the likelihood of mistakes and obstructions as leaders continue to develop.

A second factor impacting executive coaching is the level of developmental readiness of the leader, which refers to the ability and motivation of the individual to learn new information and apply new skills (Avolio & Hannah, 2009; Kampa-Kokesch & Anderson, 2001). The individual’s readiness for change can either impede or accelerate the collaborative process between coach and client, ultimately impacting the degree of value derived from coaching (Avolio & Hannah, 2009). These elements can be taken into consideration when deciding which leaders will impact the organization most strongly through coaching.

Who Receives Coaching?

The application of executive coaching within an organization has traditionally focused solely on developing high level executives. Coaching has since expanded to include additional influential leaders, from managers through the top management team (Kampa-Kokesch & Anderson, 2001). These leaders of influence can be an incredible resource for implementing change given their earned credibility and respect within organizations. Influence can be described as the ability of leaders or individuals to elicit support and compliance from others (Yukl et al., 2008). Hogan, Curphy, and Hogan (1994) provided a view on leadership that entails influencing other people and setting aside individual concerns to pursue common goals that are important for the welfare of a group. This is a critical component of the concept of systemic coaching given its general applicability as a change management tool. Organizational changes and the method of execution are not always perceived to be in favor of the individual employee; therefore, the ability to see beyond personal outcomes to the needs of the organization and employees can help transcend the obstacles and carry out the new initiatives.

In addition to assessing task interdependence and developmental readiness, methods for identifying prominent individuals of influence (Yukl, Seifert, & Chavez, 2008; Peters, 2001) throughout the organization are vital to obtain the strongest impact from SC. While traditional coaching efforts are individual-focused, the organization’s business needs lie at the heart of SC due to the focus on multiple influential leaders across levels and departments of the organization who are provided with the benefits of coaching. Systemic coaching helps to mobilize leaders and their followers toward a consistent organizational goal by accelerating both leader and organizational development.

Why Organizational Change Initiatives?

Situational factors where leadership development becomes even more crucial for organizations include highly stressful and novel circumstances. In fact, leaders themselves often identify key developmental events in their career as stressful, trial by fire, or virgin experiences (McCall, 1998; McCauley, Ruderman, Ohlott, & Morrow, 1994). Supporters of on-the-job development suggest that actively seeking stretch assignments are essential to advancing career development (McCall, 1998; Yost & Plunkett, 2009). These types of situations hold the potential for strong leadership development, as the leader is forced out of their comfort zone and required to grow and learn on the job in order to be

successful. These seminal points in leaders' careers are a great opportunity for coaching to have a significant impact on their development. Specifically, we suggest that the use of SC can capitalize on the developmental opportunities implicit in the challenges provided by an M&A.

APPLICATION TO M&As

By focusing SC in critical areas that are naturally rich developmental opportunities, an organization can potentially optimize not only the development of great leaders, but also positively impact organizational development. M&As largely aim to increase economies of scale, which require the consolidation of resources as well as knowledge sharing (Hitt, Ireland, & Harrison, 2001). Despite the economical motives of M&As, the best way to “unlock the synergistic potential” is embedded in the integration/restructuring stage of an M&A (Barkema & Schijven, 2008, p.696). Given the myriad of additional complexities that leaders face as a result of organizational change, M&As offer a perfect case study for SC. These complexities include various aspects of change management such as: downsizing, acculturation, and re-organization, along with their combined impact on the survivors' ability to work productively (De Meuse, Marks, & Dai, 2011; Fugate, Kinicki, & Scheck, 2002; Hogg & Terry, 2000; Marks & Mirvis, 1992). Employee productivity concerns can also stem from the *social identity theory* of M&As which suggests that individuals tend to categorize themselves and others into in- and out-groups (Hogg & Terry, 2000). This can complicate the collaboration between individuals from different companies of origin, reduce the effectiveness and retention of leadership, and disrupt the structures of work groups (Hogg & Terry, 2000).

In addition to pre-existing assumptions, the most challenging situation presented by M&As is a high degree of ambiguity, which is experienced by everyone (Marks & Mirvis, 1992). This ambiguity can result in undesirable outcomes, such as rumors that instill panic and deviance (Schweiger & Denisi, 1991). More generally speaking, SC can be most useful as a change management tool to address the complications that arise as a result of ambiguity and cultural adjustments. Research has supported the implementation of transitional structures—tools that guide the change processes of M&As (DeMeuse et al., 2011; Marks & Mirvis, 2000). Systemic coaching, as a scaffold for leader development through a period of high ambiguity, can serve as a form of transitional structure for pivotal leaders. Leaders and leadership practices have been implicated as a critical component of attempts to provide direction, facilitate understanding of the process, and motivate performance during M&As (Schweiger & Denisi, 1991; DeMeuse et al., 2011). Leaders stationed along the sutures of the two organizations may be the most critical individuals of influence.

Ambiguity

One of the hazards of M&As is uncertainty in terms of its success, acculturation, integration of key talent, layoffs, policy changes, and task reorganization (Seo & Hill, 2005). This uncertainty can result in undesirable outcomes such as negative emotions, decreased perception of control, decreased social support, and disruptive behaviors that impede productivity (Fugate et al., 2002). One way to address the above issues is to provide clear communication regarding merger related decisions and processes to all members of the organization through the key leaders. Clear and honest information that is timely, easily accessible, and accurate can provide a transitional structure that reduces negative side effects of M&As and helps to reestablish pre-merger productivity (Schweiger & Denisi, 1991). While transparency about these decisions may be difficult, research suggests that disclosure from the leadership team is ultimately more practical for all parties involved (Marks & Mirvis, 2000; Schweiger & Denisi, 1991).

In addition to the ambiguity inherent in a reorganizational attempt, *causal ambiguity*—lack of clarity between decisions and outcomes—can exacerbate the obstacles found while accomplishing M&A goals (King & Force, 2008). *Linkage ambiguity* describes an obscured understanding of how integration decisions affect organizational performance outcomes due to the amount of time that elapses before outcomes are clear (King & Force, 2008). This means that the actual impact of decisions is not clear, which can result in poor decisions, communications, and/or situations that negatively impact the

organizational outcomes. Coaches with experience in M&As and organizational change can help shed some light on potential hazards and decrease the level of ambiguity leaders are facing.

Another form of ambiguity stems from the merging of two cultures. Individual organizations tend to have their own unique cultural fingerprint. However, in M&As, merged functional teams can consist of survivors of both companies. These survivors tend to draw in-group/out-group lines determined by the company of origin. Research by Hogg & Terry (2007) suggests that some complications in merged teams are due to issues that stem from identification with the prior organization and its culture. Additional research implicates cultural differences as a potential source of friction when integrating teams and organizations (Nahavandi & Malekzadeh, 1988; Seo & Hill, 2005). Systemic coaching can prepare pivotal leaders for *cultural leadership*—the ability to reconcile cultural differences and establishing a new culture (Bligh, 2006). These efforts can facilitate the socio-cultural integration of employees, increase the realization of M&A potential, and potentially reduce the amount of employee casualties.

COACHING THROUGH AMBIGUITY

This portion of the paper will suggest three areas where SC can help leadership throughout the organization deal with the ambiguity inherent in M&As. These consist of accountability, communication, and intergroup leadership. Firstly, coaching leaders in goal setting can help hold leaders accountable to their goals and positively impact the productivity of their unit (King & Force, 2008; Locke & Latham, 2002; Peterson, 2002). Secondly, the accuracy, accessibility, and timeliness of communication regarding the M&A process have been suggested components of a key transitional structure that can bring productivity back to pre-merger levels (Schweiger & Denisi, 1991). Coaches can encourage and support leaders through the disclosure of some difficult organizational decisions. Thirdly, ambiguity regarding organizational commitment and cultural identity can potentially be alleviated through strong intergroup leadership (Hogg & Terry, 2000; Pittinsky & Simon, 2007), a competency that leaders may not have previously developed. Coaches can be a resource for these individuals to develop these skills. Systemic coaching can help leaders throughout the organization manage through M&As by addressing these key issues.

Accountability

Equipping critical leaders engaged in M&As with coaches can strengthen the links between departmental and organizational goals by holding leaders accountable for goals that are consistent with the broader business initiative. In an M&A, leaders tend to look for the most immediate solutions to problems (Barkema & Schijven, 2008). Because these “scans” for issues are relatively local, the needs of other departments and/or the organization are not accounted for. In contrast, having coaches strategically placed throughout the organization at key groups equips leaders with a resource that can constantly hold their decisions accountable to the organizational goals and needs of other departments. This can prevent leaders from ignoring their impact on the organizational system and guard against decisions that will have a negative impact during this critical time period.

Breaking down a complex goal into proximal, small wins, can facilitate goal achievement (Locke & Latham, 2002). We suggest that coach supervised proximal goals are potentially more effective due to increased opportunities to assess the alignment between leader, department, and organizational goals. Furthermore, coaches can help to ensure that these goals are not only aligned with the organization, but also effective. Key components of effective goals are specificity, measurability, and difficulty (Locke & Latham, 2002). Similarly, intermediate goals can reduce causal ambiguity to result in more efficient M&A performance (Cording, Christmann, & King, 2008). Research by King and Force (2008) found that intermediate goal achievement mediates the relationship between decisions and performance. Through the emphasis of clear goal setting, SC can influence organization wide development by holding key leaders and their goals accountable to the objectives of the M&A.

Communication

Due to the difficulty of communicating business decision, which may or may not have a negative impact on employees, transparency is useful to avoid the ambiguity of employee reactions (Fugate et al., 2002). Coaches can offer support and advice about how to relay the most pertinent information in a timely manner without divulging proprietary information. Clear and accessible communication of critical information has been related to the reduction of disruptive employee behavior and the return of pre-merger productivity (Schweiger & Denisi, 1991). Because coaches are in a unique position to challenge and advise leaders, they can also screen what the leader wants to disclose and identify where communication may be unclear or have potentially more negative than positive effects. For example, leaders can practice the delivery of sensitive information through role-playing exercises with their coach. The coach's alliance with leaders can offer a sounding board regarding the clarity of communication as well as provide support when the leader needs to disclose unpleasant information.

Intergroup Leadership

Traditionally, intergroup leadership focuses on the dynamics between two different teams (Pittinsky & Simon, 2007). A crucial role of SC is to help leaders redirect allegiances from their company of origin toward their functional role (job) in support of the organizational goals. While the key leaders may be effective at managing their traditional teams, they may not have experience melding two distinct social groups. Leaders may need guidance regarding tools to manage the dynamics of in-groups and out-groups within their own teams.

Systemic coaching can help leaders manage their own transition, and/or the transition of their team members from previously held social identities to their new organizational role. This transition is important as social identity, social categorization, and organizational culture boundaries can result in a sort of social segregation in M&A's (Hogg & Terry, 2007; Stahl & Voight, 2008). Effective intergroup leadership reduces ambiguity that stems from social identity and belonging by managing interdependencies (shared roles, goals, and rewards), promoting superordinate and dual identities, a positive intergroup attitude, and focusing on procedure (Day & Zaccaro, 2007; Marks, DeChurch, Mathieu, & Panzer, 2005; Kozlowski & Ilgen, 2006; Pittinsky & Simon, 2007). Systemic coaches can provide the framework through which leaders can develop skills in the areas we mention below.

Leaders are potent influences on the functionality of the team because they provide structure as well as foster relationships (Day & Zaccaro, 2007). Firstly, leaders are responsible for the organization of tasks and the motivation of team members. Arranging interdependent roles, setting goals, structuring feedback and rewards can all increase the effectiveness of one's team (Cohen & Bailey, 1997; Kozlowski & Ilgen, 2006; Pearsall, Christian, & Ellis, 2010). A second method for leaders to resolve intergroup hostility is the establishment of superordinate identities (Pittinsky, 2010; Pittinsky & Simon, 2007). These superordinate identities can be dual—for example professional and organizational—to avoid the turmoil that can result from being forced to abandon an identity during the M&A (Pittinsky & Simon, 2007). Additionally, those who identify with both a subgroup and a superordinate group tend to be less biased. Third, leaders can reduce in-group bias by exhibiting a positive intergroup attitude (Pittinsky & Simon, 2007) that can be contagious to team members (Cohen & Bailey, 1997). Leader behavior affects the unit's team climate and can inform members of norms and expectations (Kozlowski & Ilgen, 2006). Lastly, focusing on procedural fairness can trigger internal motivations to behave in the interest of the group (Pittinsky & Simon, 2007). Using SC to scaffold learning in these areas throughout the organization can not only reduce the ambiguity leaders face when confronted with intergroup conflict within their team, but also reduce the ambiguity team members cope with regarding their social identity. In the context of an M&A, coaches can provide insight, advice, and model aspects of what may be a new competency, intergroup leadership. Strong management of M&A survivors can increase productivity, motivation, and allegiance to the new organization.

CONCLUSION

This theoretical paper re-conceptualized traditional individual focused executive coaching as SC, an organizationally focused change management tool. We hypothesized that identifying key influential leaders and equipping them with coaches can increase the organizational impact of coaching and facilitate the achievement of organizational goals through attending to the developmental needs of individual pivotal leaders. Specifically, in the context of an M&A, SC can function as a structural resource to reduce ambiguity and increase the productivity and efficiency of M&A efforts.

Additional Considerations

This paper mostly focused on how coaching could affect the successful integration phase of an M&A. In addition to integration, M&A's have various stages with fluctuating employee coping behaviors that may have different emphases of concern for leadership (Fugate et al., 2002). Additionally, different types of teams—project versus management—(Cohen & Bailey, 1997) and their respective life cycle stages (Hackman & Wageman, 2005) may require different foci for coaching. The customizability of coaching to the individual as well as the organizational needs provides an additional strategic advantage for SC in the case of M&As—the ability to guide leaders through the various stages of an M&A. It would be advantageous for SC in M&As to identify these fluctuating needs and identify how to best address them through the different stages and types of an M&A.

The application of SC suggested in this paper could also be useful in corporate restructuring and corporate change initiatives. This paper grounded the concept of SC in the context of an M&A, limiting our ability to generalize these suggestions to other business cases. However, there may be other situations where SC can be a strong OD intervention. Another area that needs more research is how using internal, external, or some combination of coaches to meet the SC needs will impact the process. We encourage any additional research that can further our understanding of how SC can be used in various settings and applications to positively impact organizations.

REFERENCES

- Avolio, B. J., & Hannah, S. T. (2009). Leader developmental readiness. *Industrial and Organizational Psychology*, 2(3), 284-287. doi:10.1111/j.1754-9434.2009.01150.x
- Barkema, H. G., & Schijven, M. (2008). Toward unlocking the full potential of acquisitions: The role of organizational restructuring. *Academy of Management Journal*, 51, 696-722. doi:10.5465/AMJ.2008.33665204
- Bligh, M.C. (2006). Surviving post-merger 'culture clash': Can cultural leadership lessen the casualties? *Leadership*, 2(4), 395-426.
- Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23 (3), 239-290.
- Coutu, D., Kauffman, C., Charan, R., Peterson, D. B., Maccoby, M., Scoular, P. A., & Grant, A. M. (2009). What can coaches do for you? *Harvard Business Review*, 87(1), 91-97.
- Day, D. V., & Zaccaro, S. J. (2007). A critical historical analysis of the influence of leader traits. In L. L. Koppes (Ed.), *Historical perspectives in Industrial and Organizational Psychology* (pp. 383-406). Mahwah, NJ: Lawrence Erlbaum.
- De Meuse, K. P., Marks, M., & Dai, G. (2011). Organizational downsizing, mergers and acquisitions, and strategic alliances: Using theory and research to enhance practice. In S. Zedeck, S. Zedeck (Eds.), *APA*

handbook of industrial and organizational psychology, Vol 3: Maintaining, expanding, and contracting the organization (pp. 729-768).

Frisch, M. (2001). The emerging role of the internal coach. *Consulting Psychology Journal: Practice and Research*, 53(4), 240-250.

Fugate, M., Kinicki, A. J., & Scheck, C. L. (2002). Coping with an organizational merger over four stages. *Personnel Psychology*, 55(4), 905-928. doi:10.1111/j.1744-6570.2002.tb00134.x

Hackman, J. R., & Wageman, R. (2005). A theory of team coaching. *Academy of Management Review*, 30(2), 269-287. doi:10.5465/AMR.2005.16387885

Hogan, R., Curphy, G. J., & Hogan, J. (1994). What we know about leadership. *American Psychologist*, 48, 493-504. doi:10.1037/0003-066X.49.6.493

Hogg, M. A., & Terry, D. J. (2000). Social identity and self-categorization processes in organizational contexts. *The Academy of Management Review*, 25(1), 121-140. doi:10.2307/259266

Jones, G. & Spooner, K. (2006). Coaching high achievers. *Consulting Psychology Journal: Practices and Research*, 58(1), 40-50.

Kampa-Kokesch, S., & Anderson, M. Z. (2001). Executive coaching a comprehensive review of the literature. *Consulting Psychology Journal: Practice and Research*, 53(4), 205-228. doi:10.1037//1061-4087.53.4.205

King, D. R., & Force, U. S. A. (2008). Reducing causal ambiguity in acquisition integration: Intermediate goals as mediators of integration decisions and acquisition performance. *Academy of Management Journal*, 51(4), 744-767.

Kombarakaran, F. A, Yang, J. A, Baker, M. N., & Fernandes, P. B. (2008). Executive coaching: It works! *Consulting Psychology Journal: Practice and Research*, 60(1), 78-90. doi:10.1037/1065-9293.60.1.78

Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest*, 7(3), 77-124. doi:10.1111/j.1529-1006.2006.00030.x

Larsson, R., & Lubatkin, M. (2001). Achieving acculturation in mergers and acquisitions: An international case survey. *Human Relations*, 54(12), 1573-1607. doi:10.1177/00187267015412002

Levenson, A. (2009). Measuring and maximizing the business impact of executive coaching. *Consulting Psychology Journal: Practice and Research*, 61(2), 103-121. doi:10.1037/a0015438

Locke, E. A., Latham, G. P., & A, E. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist*, 57(9), 705-717. doi:10.1037//0003-066X.57.9.705

Marks, M. A., DeChurch, L. A., Mathieu, J. E., Panzer, F. J., & Alonso, A. (2005). Teamwork in multiteam systems. *The Journal of applied psychology*, 90(5), 964-71. doi:10.1037/0021-9010.90.5.964

Marks, M. L., Mirvis, P. H. (1992). Rebuilding after the merger: Dealing with "survivor sickness." *Organizational Dynamics*, 21, 18-32. doi: 10.1016/0090-2616(92)90061-Q

- Marks, M., & Mirvis, P. H. (2000). Managing mergers, acquisitions, and alliances: Creating an effective transition structure. *Organizational Dynamics*, 28, 35-47. doi:10.1016/S0090-2616(00)88448-X
- McCall, M. W., Jr. (1998). *High flyers: Developing the next generation of leaders*. Boston, MA: Harvard Business School Publishing.
- McCauley, C. D., Ruderman, M. N., Ohlott, P. J., & Morrow, J. E. (1994). Assessing the developmental components of managerial jobs. *Journal of Applied Psychology*, 79(4), 544-560. doi:10.1037//0021-9010.79.4.544
- Nahavandi, A. & Maleksadeh, A. R. (1988). Acculturation in mergers and acquisitions. *The Academy of Management Review*, 13(1), 79-90. Retrieved from <http://www.jstor.org/stable/258356>
- Pearsall, M. J., Christian, M. S., & Ellis, A. P. J. (2010). Motivating interdependent teams: Individual rewards, shared rewards, or something in between? *The Journal of Applied Psychology*, 95(1), 183-91. doi:10.1037/a0017593
- Peterson, D. (2002). Management development: Coaching and mentoring programs. In K. K. (Ed.) *Creating, implementing, and managing effective training and development: State-of-the-art lessons for practice*. San Francisco, CA: Jossey-Bass.
- Pittinsky, T. L. (2010). A two-dimensional model of intergroup leadership: The case of national diversity. *The American psychologist*, 65(3), 194-200. doi:10.1037/a0017329
- Seo, M., & Hill, N. S. (2005). Understanding the human side of merger and acquisition: An integrative framework. *The Journal of Applied Behavioral Science*, 41(4), 422-443. Retrieved from <http://ezproxy.spu.edu/login?url=http://search.proquest.com/docview/236325036?accountid=2202>
- Schweiger, D. M., & Denisi, A. S. (1991). Communication with employees following a merger: A longitudinal field experiment. *Academy of Management Journal*, 34, 110-135. doi:10.2307/256304
- Stahl, G. K., & Voigt, A. (2008). Do cultural differences matter in mergers and acquisitions? A tentative model and examination. *Organization Science*, 19(1), 160-176. doi:10.1287/orsc.1070.0270
- Yost, P. R. & Plunkett, M. M. (2009). *Real time leadership development*. Oxford: Wiley-Blackwell.
- Yukl, G., Seifert, C. F., & Chavez, C. (2008). Validation of the extended Influence Behavior Questionnaire. *The Leadership Quarterly*, 19, 609-621. doi:10.1016/j.leaqua.2008.07.006

Complementary Mentor Motivations and Protégé Characteristics: Determinants of Mentoring

Kimberly A. Smith-Jentsch
University of Central Florida

Julia M. Fullick
University of Central Florida

Nicholas A. Bencaz
APTIMA, Inc.

We investigated supervisors' mentoring motivations as a moderator of the relationship between protégé characteristics and mentoring experiences. Participants were employees of a marketing communications company. Results indicated that protégé advancement potential was more positively associated with psychosocial support from supervisors who were strongly motivated to mentor for intrinsic satisfaction. Potential for advancement was less positively associated with career support provided by supervisors who were motivated to mentor for the benefit of others. Protégé ingratiation was associated with greater psychosocial support from supervisors strongly motivated to mentor for their own self-enhancement but negatively related for those not strongly motivated by self-enhancement.

INTRODUCTION

Mentoring involves an experienced individual developing a novice individual and engaging in various types of support (e.g., career, psychosocial, role modeling) that can have benefits for mentors, protégés, and organizations (e.g., Allen, Eby, Poteet, Lentz, & Lima, 2004). It has been suggested that mentorships are most successful when mentors and protégés are *complementary* (e.g., Kram, 1985; Wanberg, Welsh, & Hezlett, 2003) meaning the mentorship is molded by what each offers and seeks. However, few empirical studies have tested this notion (e.g., Chun, Litzky, Sosik, Bechtold, & Godshalk, 2010; Eby, Butts, Lockwood, & Simon, 2004).

Our study addresses calls for research on deeper level mentor-protégé characteristics by investigating match in terms of complementary mentor motives and protégé characteristics. Social exchange theory suggests that mentors reciprocate with greater mentoring to protégés who meet their needs (Cropanzano & Mitchell, 2005; Eby et al., 2004). Mentor-perceived benefits and protégé-reported support received have been shown to be positively related (Eby, Durley, Evans, & Ragins, 2008). In this regard, mentors should provide the greatest support to protégés whose characteristics enable them to reap the benefits they are most motivated to obtain.

Allen (2003) identified three primary mentor motivations. First, an individual may mentor for the *intrinsic satisfaction* of contributing to another's growth. These mentors seek to experience the pride and

gratification associated with the act of mentoring itself. Second, an individual may choose to mentor to *benefit others*. These mentors seek the satisfaction of knowing that they helped another to be successful and/or benefited their organization as a whole. Third, an individual may choose to mentor for *self-enhancement* reasons. Meaning, one might seek to improve his/her reputation through the status of being a mentor and/or may see the mentorship as a means of career promotion.

It is important to note that the three motivations to mentor are not mutually exclusive. Each can influence mentors to varying degrees. It has been speculated that the three types of motivations may be associated with differing levels of career and psychosocial support. However, study findings have varied (e.g., Allen, 2003; Allen, 2004; Allen, Poteet, & Russell, 2000; Lankau, Hirschfeld, & Thomas, 2005; Lima, 2004). Most motivational theories emphasize the need to prioritize and allocate resources (see Diefendorff & Chandler, 2011; Naylor, Pritchard, & Ilgen, 1980). Mentoring requires the allocation of time and energy, often extra-role. This can be of particular issue to those with multiple protégés (Allen, 2003; Allen, Poteet, & Burroughs, 1997). Thus, supervisors' mentoring motivations should predict the type of subordinates who report greater or lesser mentoring from those supervisors.

THEORY AND HYPOTHESES

Mentoring

Mentoring functions are typically grouped into career (e.g., protection, exposure, sponsorship) and psychosocial (e.g., counseling, confirmation, friendship) functions (Kram, 1983; Noe, 1988). Although the two functions tend to be strongly correlated, they have also been shown to be more strongly related to different outcomes.

Career Support

Career support such as advice and coaching requires the mentor to have the opportunity to observe and provide feedback to a protégé. Supervisory mentors differ from non-supervisory mentors in that they have regular opportunities to observe their protégés and are in an organizationally sanctioned position to protect and provide exposure to them. However, supervisors with multiple subordinate protégés must allocate their time, and their mentoring motivations may explain the manner in which they do so. Specifically, mentors are more likely to provide career support to protégés whose characteristics enable them to fulfill their motivations for mentoring.

Motivation to benefit others. Prior research has found that mentors prefer protégés with greater ability or potential (Allen, 2004; Allen et al., 1997; Allen et al., 2000). Mentoring these individuals is likely to be less effortful than mentoring low potential individuals. For a supervisory mentor, the reward for doing so is likely to be greater as the high potential subordinate may later be more productive and take on greater responsibility. By contrast, providing career support to a low potential subordinate may be seen as an inefficient use of time. However, supervisors with a strong mentor motivation for the benefit of others may allocate career support to low potential subordinates and view their efforts to improve the 'weakest link' as being valuable for the organization. It follows that our first hypothesis stated:

Hypothesis 1. Supervisors who are more motivated to mentor for the benefit of others will provide greater career support to subordinates low in potential for advancement than will supervisors who are less motivated to mentor for the benefit of others.

Motivation for self-enhancement. *Ingratiation* involves flattering others with the goal of gaining acceptance or approval (Brodsky, 2004). Research has found that protégés use ingratiation to influence mentors (Scandura, 1998). Aryee, Wyatt, and Stone (1996) reported that protégés who ingratiated their mentor more felt they had received greater career support from those mentors. This is most likely to be the case when the mentor's motivation to provide such support is primarily for his or her own self-enhancement. Providing career support is not seen as useful unless mentors receive credit for the success of their protégés. An ingratiating protégé is more likely to publically attribute their success to their

mentor's effort to ensure the mentor continues to provide them with such support. Thus, a high ingratiating protégé is likely to receive greater career support than a low ingratiating protégé if their mentor is self-enhancement motivated. Thus, our second hypothesis stated:

Hypothesis 2. Protégés' attempts to ingratiate a supervisory mentor will be positively associated with reported career support for supervisors highly motivated to mentor for self-enhancement and negatively associated with career support for supervisors not highly motivated to mentor for self-enhancement.

Psychosocial Support

In contrast to career support, psychosocial support tends to more strongly associated with liking (Ensher & Murphy, 1997) and with mentor-protégé similarity (Ensher & Murphy, 1997; Koberg, Boss, & Goodman; 1998; Ragins & McFarlin, 1990; Thomas, 1990; Turban, Dougherty, & Lee, 2002). Mentor motivations are likely to be associated with protégés they like and thus those who report receiving greater psychosocial support from them.

Intrinsic satisfaction motivation. Individuals in a supervisory role have achieved some level of organizational success. Thus, supervisory mentors are more likely to see high potential protégés as younger versions of themselves than they are low potential protégés. Accordingly, high potential protégés are more likely to provide mentors with a sense of generativity. Mentors derive intrinsic satisfaction from passing on their wisdom and experience to protégés (Levinson et al., 1978). Serving as a role model to a high potential protégé is likely to be more intrinsically satisfying. Mentoring can help alleviate feelings of reaching a career plateau and reignite their sense of purpose. "Although, in one sense, intrinsic motivation exists within individuals, in another sense intrinsic motivation exists in the relation between individuals and activities" (Ryan & Deci, 2000, p. 56). Supervisors motivated by intrinsic satisfaction should seek to optimize such experiences. Thus, the bias to provide greater psychosocial support to high potential protégés should be particularly apparent for supervisors strongly motivated to mentor for intrinsic satisfaction.

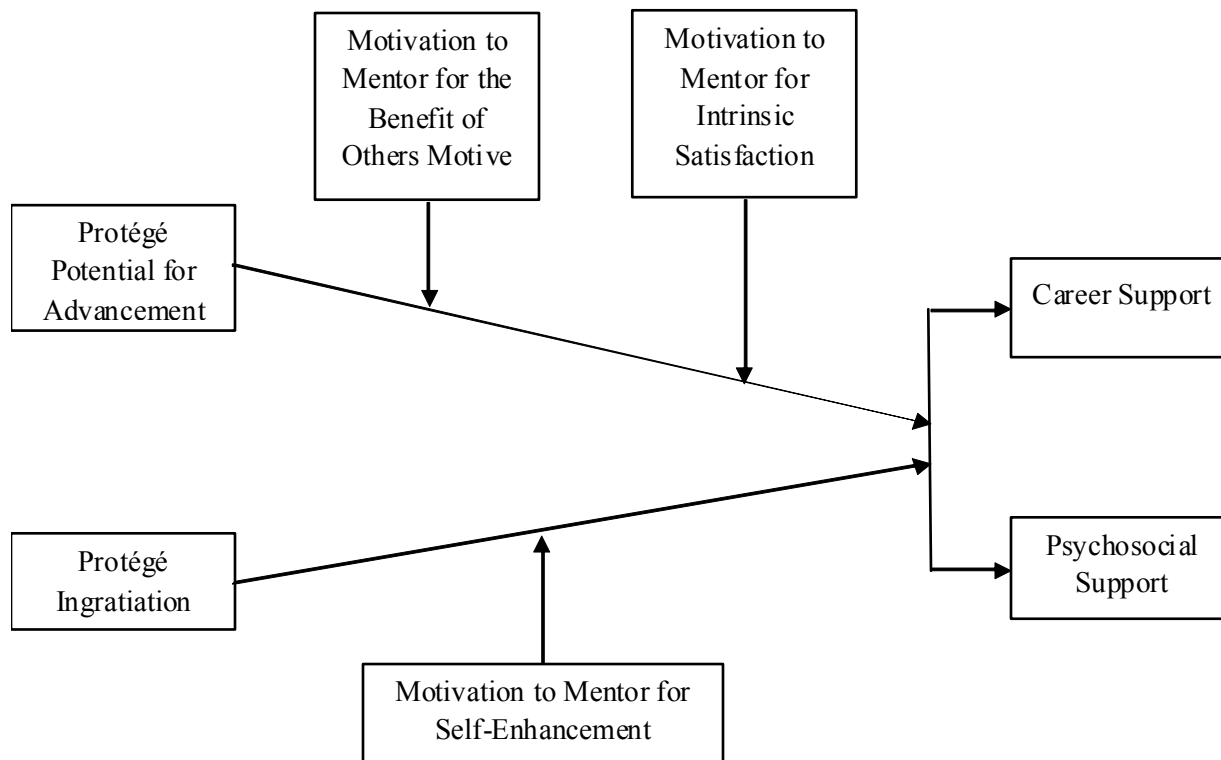
Hypothesis 3. Protégés' potential for advancement will be more positively associated with the psychosocial support they report receiving when their supervisor is highly motivated to mentor for his/her own intrinsic satisfaction than when the mentor is less motivated to mentor for his/her own intrinsic satisfaction.

Self-enhancement motivation. Ingratiation has been positively associated with interpersonal liking and positive affect (Gordon, 1996; Wayne & Ferris, 1990). Protégés who ingratiate their mentors may become better liked by those mentors. In turn, the mentors may provide greater support to protégés they like (Ensher & Murphy, 1997). Therefore, a supervisory mentor may be motivated to reciprocate the praise from a protégé by reinforcing that protégé. Providing psychosocial support to a high ingratiating protégé should strengthen ingratiation behavior, which should be most desirable for a supervisor who is strongly motivated by self-enhancement. However, for supervisory mentors in particular, protégé ingratiation can also have costs if other subordinate protégés perceive favoritism. For those not motivated to mentor for self-enhancement, these costs may outweigh the potential benefits of protégé ingratiation. Based on these arguments, our next hypothesis stated:

Hypothesis 4. Protégés who ingratiate their supervisory mentors will report receiving greater psychosocial support if their supervisor is highly motivated to mentor for self-enhancement but will report receiving lesser psychosocial support if their supervisor is not highly motivated by self-enhancement.

The full conceptual model of our hypothesized relationships is presented in Figure 1.

FIGURE 1
CONCEPTUAL MODEL OF HYPOTHESIZED RELATIONSHIPS



METHOD

Participants

Eighty-six individuals (36 male, 48 female, 2 gender not reported) who reported having a *current* supervisory mentor participated in the present study as protégés. The protégés’ age ranged from 20 to 68 years ($M = 36.39$ years). Protégés consisted of 64 Caucasians, 11 African Americans, 4 Hispanics, 4 Asians, and 3 “Other.” Protégés ranged in their tenure with the company from 2 to 230 months ($M = 40.62$ months) and job tenure from 1 to 123 months ($M = 27.34$ months). These participants were employees from five locations, across the United States, of a Marketing Communications business sector (associated with a large national corporation) and were recruited by way of a personalized e-mail sent by the head of Human Relations. The e-mail informed employees of the purpose of the study, the principal investigator’s third-party affiliation, and supplied employees with a link to complete the proposed survey. The preliminary survey for protégés was sent to 470 employees stationed at five locations. Sixty-five supervisors (36 male, 27 female, 2 gender not reported) who were identified as a mentor by their direct reports participated in the present study (85.9% response rate). The mentors’ age ranged from 24 to 67 years ($M = 42.50$ years). Mentors consisted of 60 Caucasians, 2 Hispanics, 1 African American, 1 Asian American, and 1 “Other.” Mentors ranged in organizational tenure from 7 to 252 months ($M = 81.51$ months) and job tenure from 1 to 135 months ($M = 36.89$ months). *Twenty-two* of these supervisory mentors provided data regarding more than one subordinate protégé.

Job types for mentors and protégés ranged from company president (led all client relationships and business development opportunities for the company and responsible for all profitability in the company) to Account Managers (managed the client relationship and lead generation on behalf of client strategies), IT Team (ensured data integrity and provided data consultation to clients), Administration (provided

accounting deliverables and human resources support to employees), Operations Manager (provided operations support for the entire organization), and Creative Department (provided production and creative deliverables to support client marketing efforts).

Measures

Mentor motives. 11-items (Allen, 2003) were used to assess mentor motivations on a 6-point scale (1 = *no extent*, 6 = *great extent*). Mentors completed this measure for each of their individual protégé separately. Alphas for the three subscales ranged from 0.73 to 0.93.

Functional mentoring. Twenty-one items (14 psychosocial items, $\alpha = 0.94$; 7 career development items, $\alpha = 0.89$) from Noe's (1988 see Table 1 page 468 for full scale) Mentor Function Scale assessed protégé-perceived functional mentoring. Items were measured using a six-point Likert scale (1 = *no extent*, 6 = *great extent*).

Protégé ingratiation. Protégé ingratiation was assessed using a modified version (applying to a mentoring context) of Bolino and Turnley's (1999) 4-item scale ($\alpha = 0.95$). Items were measured on a 6-point Likert scale (1 = *never*, 6 = *often*).

Protégé potential for advancement. Protégé potential for advancement was rated by each protégé's supervisory mentor with a single item ("How would you rate this individual's overall potential for advancement?") using a 6-point Likert scale (1 = *poor* to 6 = *excellent*).

Procedure

Participants were given the following definition of a mentor,

"A mentor is a person of greater experience who is committed to the personal and professional development and support of a less experienced individual (i.e. "protégé"). These relationships can be informal or formal (i.e. protégé is assigned to a mentor by the organization), and you may have more than one mentor at a time. Furthermore, mentoring relationships are not always 100% positive. Like other types of relationships, they can have their ups and downs."

Prospective participants were then asked if their current supervisor fit the mentoring definition. If so, they were asked to complete the ingratiation and functional mentoring measures with that supervisory mentor as a referent. Supervisory mentors were asked to complete the measures indicating their mentor motivations as well as a rating of advancement potential for the subordinate protégés.

RESULTS

Correlation and descriptive statistics are reported in Table 1. An alpha level of .05 was used for all analyses.

Tests of Hypotheses

Career support. In order to test Hypotheses 1 and 2, protégé reports of the career support they received from their supervisory mentors were regressed on protégé potential for advancement, protégé ingratiation, mentor benefit others motivation, self-enhancement motivation, intrinsic motivation, and three product terms representing the interaction of benefit others motivation and protégé potential for advancement, intrinsic motivation to mentor and protégé potential for advancement, and self-enhancement motivation to mentor and protégé ingratiation. As shown in Table 2, this equation was significant.

TABLE 1
INTERCORRELATIONS, MEANS, AND STANDARD DEVIATIONS

Variable	1	2	3	4	5	6	7
1. Motivation to mentor for SE ^a	1.00						
2. Motivation to mentor for BO ^a	.10	1.00					
3. Motivation to mentor for IS ^a	.28*	.54**	1.00				
4. CS ^b	-.18	.24	-.01	1.00			
5. PS ^b	.09	.20	.08	.70**	1.00		
6. PPA ^a	-.22	.38**	.25	.59**	.34**	1.00	
7. PI ^b	-.11	.08	-.01	-.25*	-.27*	.12	1.00
<i>M</i>	2.04	5.44	4.38	4.54	4.74	1.51	4.45
<i>SD</i>	0.96	0.88	1.17	1.00	1.01	0.67	1.21

* $p < .05$. ** $p < .01$. $N = 55$.

Note. SE = self-enhancement; BO = benefit others; IS = intrinsic satisfaction; CS = career support; PS = psychosocial support; PPA = Protégé Potential for Advancement; Protégé Ingratiation = PI.

^a Report provided by the mentor. ^b Report provided by the protégé.

TABLE 2
PREDICTORS OF PROTÉGÉ-PERCEIVED CAREER SUPPORT

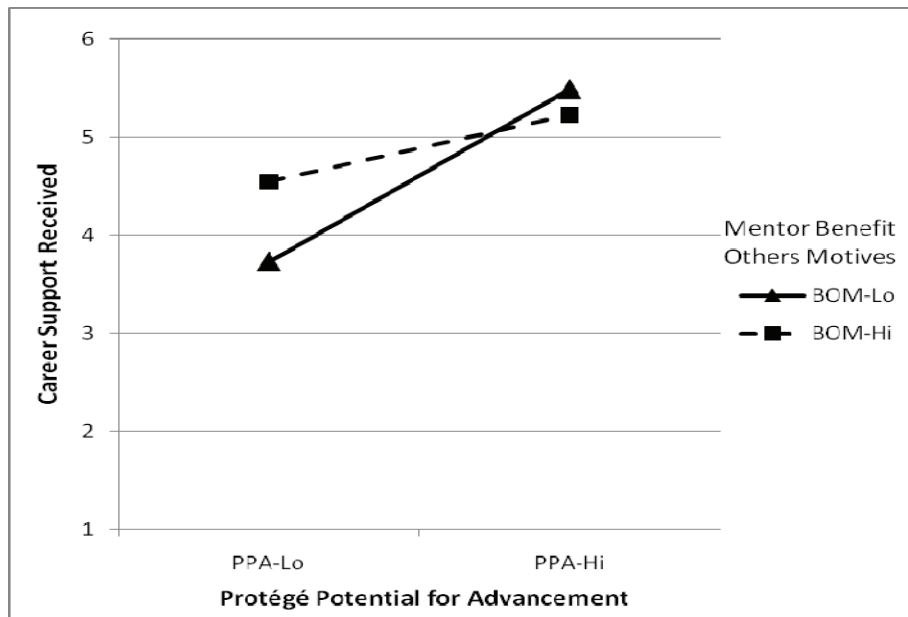
Variable	Protégé-perceived career support			
	<i>B</i>	<i>SE B</i>	β	95% CI for <i>B</i>
Constant	.15	3.14		[-5.13, 5.42]
Motivation to mentor for SE ^a	-.30	.23	-.30	[-0.69, 0.09]
Motivation to mentor for BO ^a	1.57	.73	1.45	[0.34, 2.79]
Motivation to mentor for IS ^a	-1.15	.51	-1.41	[-2.01, -0.30]
Protégé Potential for Advancement (PPA) ^a	1.19	.77	1.45	[-0.10, 2.48]
Protégé Ingratiation (PI) ^b	-0.42	.22	-.52	[-0.79, -0.04]
Motivation to mentor for SE ^a x PI	0.16	.11	.46	[-0.03, 0.34]
Motivation to mentor for BO ^a x PPA	-0.31*	.17	-2.72	[-0.60, -0.03]
Motivation to mentor for IS ^a x PPA	0.21	.11	1.81	[0.03, 0.40]
R^2	.49			
<i>F</i>	5.49**			

* $p < .05$ one-tailed. ** $p < .05$ two-tailed.

Note. SE = self-enhancement; BO = benefit others; IS = intrinsic satisfaction; PPA = Protégé Potential for Advancement; Protégé Ingratiation = PI. ^a Report provided by the mentor; ^b Report provided by the protégé.

Hypothesis 1 stated that low potential protégés would receive more career support from supervisors higher in motivation to mentor for the benefit of others than from supervisors low in this motivation. In support of this hypothesis, the interaction of protégé potential and benefit others motivation to mentor did account for unique variance in career support received ($\beta = -2.72, p = .04$ one-tailed) and the pattern of relations (see Figure 2) was as expected.

FIGURE 2
RELATIONSHIP BETWEEN PROTÉGÉ POTENTIAL FOR ADVANCEMENT (PPA) AND CAREER SUPPORT RECEIVED AS MODERATED BY SUPERVISOR MOTIVATION TO MENTOR FOR THE BENEFIT OTHERS (BOM)



Note: Levels “Lo” and “Hi” represent -1 SD and +1 SD on the respective variable.

The interaction between protégé ingratiation behavior and supervisor motivation to mentor for self-enhancement was not a significant determinant of career support received ($\beta = .46, p = .08$ one-tailed). Thus, Hypothesis 2 was not supported.

Psychosocial support. In order to test Hypotheses 3 and 4, protégé reports of the psychosocial support they received from their supervisory mentors were regressed on protégé potential for advancement, protégé ingratiation, mentor benefit others motivation, self-enhancement motivation, intrinsic motivation, and three product terms representing the interaction of benefit others motivation and protégé potential for advancement, intrinsic motivation to mentor and protégé potential for advancement, and self-enhancement motivation to mentor and protégé ingratiation. As shown in Table 3, this equation was significant.

TABLE 3
PREDICTORS OF PROTÉGÉ-PERCEIVED PSYCHOSOCIAL SUPPORT

<i>Variable</i>	<i>Protégé-perceived Psychosocial Support</i>			
	<i>B</i>	<i>SE B</i>	β	95% CI
Constant	6.75*	2.99		[1.72, 11.77]
Motivation to mentor for SE ^a	-0.28	.22	-.31	[-0.65, 0.09]
Motivation to mentor for BO ^a	0.90	.70	.94	[-0.27, 2.07]
Motivation to mentor for IS ^a	-1.63**	.49	-2.23	[-2.45, -0.82]
Protégé potential for advancement (PPA) ^a	-0.46	.73	-.63	[-1.70, 0.77]
Protégé ingratiation (PI) ^b	-0.50	.21	-.70	[-0.85, -0.14]
Motivation to mentor for SE x PI	0.22*	.11	.72	[0.04, 0.40]
Motivation to mentor for BO x PPA	-0.14	.16	-1.42	[-0.42, 0.13]
Motivation to mentor for IS x PPA	0.36**	.11	3.22	[0.16, 0.51]
<i>R</i> ²	.42			
<i>F</i>	4.08**			

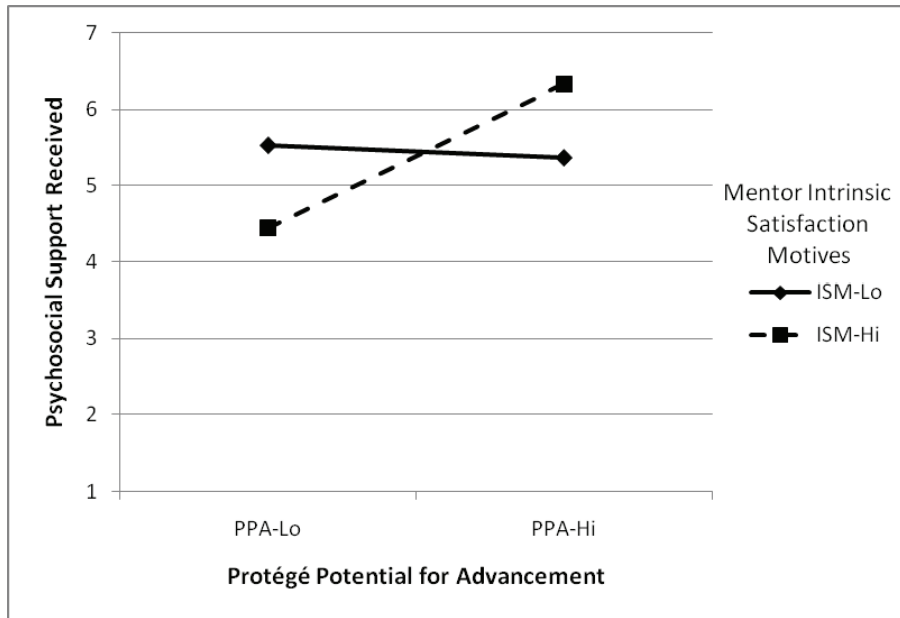
* $p < .05$ one-tailed. ** $p < .05$ two-tailed.

Note. SE = self-enhancement; BO = benefit others; IS = intrinsic satisfaction. ^a Report provided by the mentor. ^b Report provided by the protégé.

In support of Hypothesis 3 (see Figure 3), the relationship between supervisory mentors' belief in a protégé's potential for advancement and the psychosocial support that protégé felt they received from that mentor was more strongly positive when the mentor was more motivated to mentor for his/her own intrinsic satisfaction than when the mentor was less motivated to mentor for his/her own intrinsic satisfaction ($\beta = 3.22, p = .002$ one-tailed).

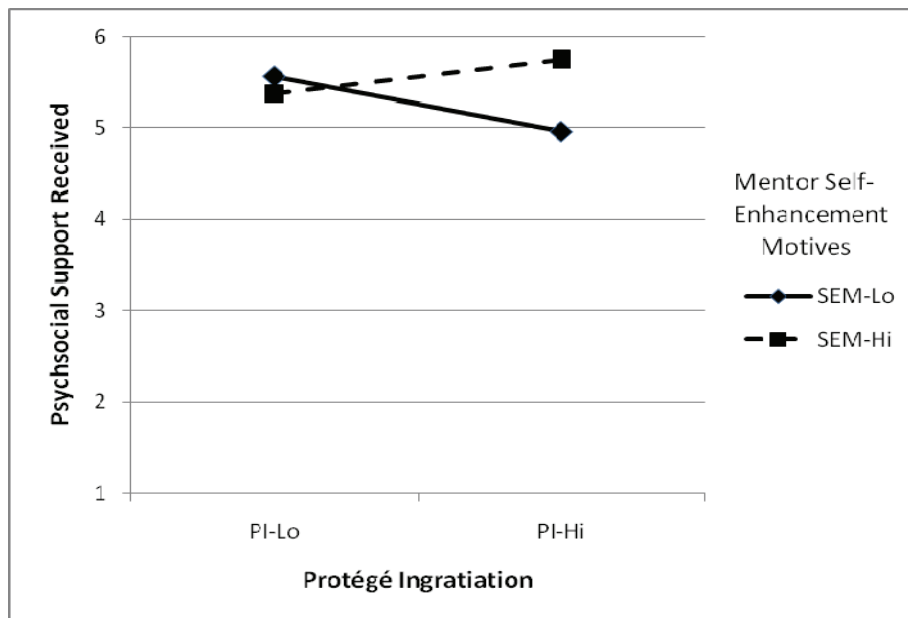
In support of Hypothesis 4 (see Figure 4), protégé ingratiation was positively related to psychosocial support when the mentor was highly motivated to mentor for their own self-enhancement and negatively related to psychosocial support when the mentor was not highly motivated to mentor for their own self-enhancement ($\beta = .72, p = .02$ one-tailed).

FIGURE 3
RELATIONSHIP BETWEEN PROTÉGÉ POTENTIAL FOR ADVANCEMENT (PPA) AND PSYCHOSOCIAL SUPPORT RECEIVED AS MODERATED BY SUPERVISOR MOTIVATION TO MENTOR FOR INTRINSIC SATISFACTION (ISM)



Note: Levels “Lo” and “Hi” represent -1 *SD* and +1 *SD* on the respective variable.

FIGURE 4
RELATIONSHIP BETWEEN PROTÉGÉ INGRATIATION (PI) AND PSYCHOSOCIAL SUPPORT RECEIVED AS MODERATED BY SUPERVISOR MOTIVATION TO MENTOR FOR SELF-ENHANCEMENT (SEM)



Note: Levels “Lo” and “Hi” represent -1 *SD* and +1 *SD* on the respective variable.

DISCUSSION

Consistent with social exchange theory, prior research (e.g., Eby et al., 2008) has demonstrated that mentors who report greater mentoring benefits provide greater support to protégés (from the protégé's perspective). The present study extends this theory by showing that mentors vary in the degree to which they value various benefits (e.g., intrinsic satisfaction). This appears to motivate them to provide greater support to protégés, allowing them to maximize those benefits. Our findings indicated that supervisors' mentoring motivations moderated the relationships between protégé potential for advancement and protégé-reported psychosocial and career support. Specifically, the more a supervisor was motivated to mentor for intrinsic satisfaction, the stronger the positive relationship was between protégés' potential for advancement and the psychosocial support they reported receiving. Further, protégés' potential for advancement was less positively associated with career support provided the more a supervisor was motivated for the benefit of others. Finally, if a supervisor was strongly motivated for self-enhancement, protégés who made greater attempts to ingratiate themselves reported receiving greater psychosocial support. However, if a supervisor was *not* strongly motivated to mentor for self-enhancement, protégé ingratiation attempts were negatively associated with psychosocial support.

Practical Implications

Results from this study have multiple practical implications. First, protégés should be trained to be aware of the potential negative effects of ingratiating their supervisory mentors. Supervisory mentors who do not wish their protégés to engage in ingratiation could also be trained to communicate their concerns and desires regarding public (or private) displays of ingratiation and to provide feedback to them regarding appropriate methods for demonstrating their appreciation to the mentor. In terms of matching, when possible, the highest potential protégés will receive the greatest mentoring if they are assigned to a supervisor highly motivated to mentor for intrinsic satisfaction; whereas lowest potential protégés will benefit more if assigned to a supervisor highly motivated to mentor for the benefit of others. Supervisory rewards and sanctions may be used to increase particular motivations to mentor based on organizational priorities.

Theoretical Implications

Past research on mentor motives has investigated direct effects on mentors' preferences for protégés (e.g., Allen, 2003; Allen, 2004). The relatively few studies that have examined relations between mentor motives and protégé reports of the mentoring they actually received have found mixed results (e.g., Allen, 2003; Allen, 2004; Allen et al., 2000; Lankau, Hirschfeld, & Thomas, 2005; Lima, 2004). Results from the present study suggest that this may be in part due to the presence of complementary interactions between mentor motives and protégé characteristics.

Consistent with social exchange theory, prior research (e.g., Eby et al., 2008) has demonstrated that mentors who report greater mentoring benefits provide greater support to protégés (from the protégé's perspective). The present study extends this theory by showing that mentors vary in the degree to which they value various benefits (e.g., intrinsic satisfaction). This appears to motivate them to provide greater support in situations where they can maximize those benefits. Based on protégé reports, supervisors who were more strongly motivated to mentor for intrinsic satisfaction appear to have provided greater support to protégés they felt had growth potential. Observing such growth should have provided these mentors with the opportunity to meet their needs for intrinsic satisfaction. Conversely, those more strongly motivated to mentor for the benefit of others appeared to differentiate less in the support they provided to high and low potential protégés. This may be because such supervisors viewed their efforts to mentor both types of individuals as contributing to the organization's overall performance, and thus a means to benefit others in a broad sense. Finally, supervisors more strongly motivated to mentor for self-enhancement appear to have provided more support to protégés whose ingratiation would increase the likelihood that the mentor would receive credit for their efforts.

Protégés may not be able to affect supervisory mentors' perceptions of their advancement potential. However, the findings reported here suggest that protégés can affect the level of psychosocial support they receive by engaging in a level of ingratiation appropriate given the degree to which their supervisor is motivated to mentor for their own self-enhancement. Although Aryee et al. (1996) reported a positive correlation between protégé ingratiation and reports of career support, research outside the mentoring literature has shown that ingratiation can backfire (Jones & Pittman, 1982; Thacker & Wayne, 1995). Specifically, ingratiation that appears disingenuous tends to elicit negative reactions (Bolino, 1999; Ferris, Bhawuk, Fedor, & Judge, 1995). Whereas prior research has focused on the skill of the ingratiator (e.g., Ferris, Treadway, Kolodinsky, Hochwarter, & Frink, 2005), our research shows that the interpersonal motivations of the target can also dictate when ingratiation elicits positive or negative reactions. A supervisor who is highly motivated to mentor for self-enhancement may want to positively reinforce subordinate protégés who publically flatter them or give them credit for the protégé's growth by reciprocating with extra psychosocial support. Alternatively, a supervisor who is not strongly motivated to mentor his/her subordinates for his/her own self-enhancement may intentionally hold back psychosocial support from high ingratiating protégés so as not to reinforce such behavior. These mentors may be more concerned about the appearance of favoritism that could result from a protégé's public flattery.

Alternatively, this finding may be because protégés who put a great deal of effort into ingratiating their supervisory mentors expect those mentors to reciprocate by providing them with greater support. These expectations may be fulfilled if the supervisor is highly motivated to mentor for self-enhancement. However, these expectations may not be fulfilled if the supervisor is not motivated by self-enhancement. It is possible that highly ingratiating protégés perceive that they are receiving less psychosocial support because their extraordinary efforts at stroking their mentors' ego are not reciprocated by the mentor. Thus, it may be that mentors low in self-enhancement motivation are simply perceived to provide less psychosocial support by their protégés due to the fact that they do not respond as those protégés expect them to. Additional research is needed to explore this possibility.

Limitations and Future Research

This study had a number of methodological strengths such as the use of multi-source data. However, limitations should also be noted. First, the data reported were collected at the same point in time. Thus, the directionality of the relationships found cannot be determined with certainty. Additional longitudinal research is needed. Second, relationships between mentor motivations, protégé characteristics, and mentoring received were tested in the context of supervisory relationships. It is possible that they are most pronounced in a supervisory context given the visibility of such relationships. Thus, future research is needed to determine whether these relationships hold in other types of mentorships that cross departmental boundaries. Finally, we investigated two particular protégé characteristics (i.e., potential for advancement, ingratiation). Additional research is needed to explore the manner in which other characteristics may interact with mentor motivations.

Conclusion

Our research demonstrated support for the notion that supervisors' motivations to mentor determine, in part, the type of protégés that are most likely to receive mentoring from them. This research contributes to our understanding of what makes for an effective mentor-protégé match. Future research should continue to explore the manner in which mentor motives interact with other protégé characteristics beyond potential and ingratiation and should do so in the context of different types of mentorships (e.g., informal, peer).

REFERENCES

- Allen, T. D. (2004). Protégé selection by mentors: Contributing individual and organizational factors. *Journal of Vocational Behavior, 65*(3), 469-483.
- Allen, T. D. (2003). Mentoring others: A dispositional and motivational approach. *Journal of Vocational Behavior, 62*(1), 134-154.
- Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégés: A meta-analysis. *Journal of Applied Psychology, 89*, 127- 136.
- Allen, T., Poteet, M. L., & Burroughs, S. M. (1997). The mentor's perspective: A qualitative inquiry and future research agenda. *Journal of Vocational Behavior, 51*(1), 70-89.
- Allen, T. D., Poteet, M. L., & Russell, J. E. A. (2000). Protégé selection by mentors: What makes the difference? *Journal of Organizational Behavior, 21*(3), 271-282.
- Aryee, S., Wyatt, T., & Stone, R. (1996). Early career outcomes of graduate employees: The effect of mentoring and ingratiation. *Journal of Management Studies, 33*, 95-118.
- Bolino, M. C. (1999). Citizenship and impression management: Good soldiers or good actors? *Academy of Management Review, 24*(1), 82-98.
- Bolino, M. C., & Turnley, W. H. (1999). Measuring impression management in organizations: A scale development based on the Jones and Pittman taxonomy. *Organizational Research Methods, 2*(2), 187-207.
- Brodsky, S. L. (2004). Ingratiation. In S. L. Brodsky (Ed.), *Coping with cross-examination and other pathways to effective testimony* (pp. 134-137). American Psychological Association.
- Chun, J., Litzky, B. E., Sosik, J. J., Bechtold, D. C., & Godshalk, V. M. (2010). Emotional intelligence and trust in formal mentoring programs. *Group & Organization Management, 35*(4), 421-455.
- Cropanzano, R., & Mitchell, M. S. (2005). Social Exchange Theory: An interdisciplinary review. *Journal of Management, 31*, 874-900.
- Diefendorff, J. M., & Chandler, M. M. (2011). Motivating employees. In S. Zedeck, S. Zedeck (Eds.), *APA handbook of industrial and organizational psychology, Vol 3: Maintaining, expanding, and contracting the organization* (pp. 65-135). Washington, DC US: American Psychological Association.
- Eby, L. T., Allen, T. D., Evans, S. C., Ng, T., & DuBois, D. L. (2008). Does mentoring matter? A multidisciplinary meta-analysis comparing mentored and non-mentored individuals. *Journal of Vocational Behavior, 72*, 254-267.
- Eby, L. T., Butts, M., Lockwood, A., & Simon, S. A. (2004). Protégés' negative mentoring experiences: Construct development and nomological validation. *Personnel Psychology, 57*, 411-447.
- Eby, L. T., Durley, J. R., Evans, S. C., & Ragins, B. R. (2008). Mentors' perceptions of negative mentoring experiences: Scale development and nomological validation. *Journal of Applied Psychology, 93*, 358-373.

- Ensher, E. A., & Murphy, S. E. (1997). Effects of race, gender, perceived similarity, and contact on mentor relationships. *Journal of Vocational Behavior*, 50(3), 460-481.
- Ferris, G. R., Bhawuk, D. P. S., Fedor, D. B., & Judge, T. A. (1995). Organizational politics and citizenship: Attributions of intentionality and construct definition. In M. J. Martinko (Ed.), *Advances in attribution theory: An organizational perspective* (pp. 231-252). Delray Beach, FL: St. Lucie Press.
- Ferris, G. R., Treadway, D. C., Kolodinsky, R. W., Hochwarter, W. A., & Frink, D. D. (2005). Development and validation of the political skill inventory. *Journal of Management*, 31(1), 126-152.
- Gordon, R. A. (1996). Impact of ingratiation on judgments and evaluations: A meta-analytic investigation. *Journal of personality and social psychology*, 71(1), 54-70.
- Jones, E., & Pitman, T. (1982). Toward a general theory of strategic self-presentation. In J. Suls (Ed.), *Psychological perspectives on the self* (pp. 231-263). Hillsdale, NJ: Lawrence Erlbaum Association, Inc.
- Koberg, C. S., Boss, R. W., & Goodman, E. (1998). Factors and outcomes associated with mentoring among health-care professionals. *Journal of Vocational Behavior*, 53, 58-72.
- Kram, K. E. (1983). Phases of the mentor relationship. *Academy of Management Journal*, 26, 608-626.
- Kram K. E. (1985). *Mentoring at work*. Glenview, IL: Scott, Foresman and Co.
- Lankau, M., Hirschfeld, R., & Thomas, C. (2005). Mentors' motivations at work as predictors of protégés' experiences in a formal mentoring program. *Academy of Management Proceedings*, E1-E6.
- Levinson, D. J., Darrow, C. N., Klein, E. B., Levinson, M. H., & McKee, B. (1978). *The seasons of a man's life*. New York: Knopf.
- Lima, L. (2004). Personality and motivational characteristics of the successful mentor. (Doctoral dissertation). Retrieved from Dissertations & Theses: Full Text. (Publication No. AAT 3132445).
- Naylor, J. C., Pritchard, R. D., & Ilgen, D. R. (1980). *A theory of behavior in organizations*. New York: Academic Press.
- Noe, R. A. (1988). An investigation of the determinants of successful assigned mentoring relationships. *Personnel Psychology*, 41(3), 457-479.
- Ragins, B. R., & McFarlin, D. B. (1990). Perceptions of mentor roles in cross-gender mentoring relationships. *Journal of Vocational Behavior*, 37, 321-339.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- Scandura, T. A. (1998). Dysfunctional mentoring relationships and outcomes. *Journal of Management*, 24, 449-467.
- Thacker, R. A., & Wayne, S. J. (1995). An examination of the relationship between upward influence tactics and assessments of promotability. *Journal of Management*, 21(4), 739-756.

Thomas, D. (1990). The impact of race on managers' experiences of developmental relationships (mentoring and sponsorship): An intra-organizational study. *Journal of Organizational Behavior*, 11, 479-492.

Turban D. B., Dougherty, T. W., & Lee, F. K. (2002). Gender, race, and perceived similarity effects in developmental relationships: The moderating role of relationship duration. *Journal of Vocational Behavior*, 61(2), 240-262.

Wanberg, C. R., Welsh, E. T., & Hezlett, S. A. (2003). Mentoring research: A review and dynamic process model. In J. J. Martocchio & G. R. Ferris (Eds.), *Research in personnel and human resources management* (Vol. 22, pp. 39-124). Oxford, England: Elsevier.

Wayne, S. J., & Ferris, G. R. (1990). Influence tactics, affect, and exchange quality in supervisor-subordinate interactions: A laboratory experiment and field study. *Journal of Applied Psychology*, 75(5), 487-499.

Team Learning and Creativity: the Roles of Exploitation and Team Cohesiveness

Semin Park
Seoul National University

Won-Woo Park
Seoul National University

Sangyun Kim
Seoul National University

Cheol Young Kim
Seoul National University

Exploitation, as a means of achieving team creativity, has been thought to be limited compared with exploration. In an empirical study, we investigated the potential value of team exploitation as a strong independent initiator of team creativity, considering team cohesiveness as a moderator of that relationship. Our results support our hypothesis that when team cohesiveness is high, team exploitation exhibits a U-shaped relationship with creativity, whereas when team cohesiveness is low, the relationship is inverted-U-shaped.

INTRODUCTION

It is widely accepted that creativity is key to organizations' competitiveness and survival (Nonaka, 1991). At the same time, firms are increasingly reliant on teams to carry out work. Creativity within the team context, then, has been a further, specific focus of research (Shalley, Zhou, & Oldham, 2004).

For a team, learning plays a large role in achieving creativity (Edmondson, 2001; Ghoshal & Bartlett, 1994). March (1991) suggested two broad types of learning activities between which firms divide attention and resources: exploration and exploitation. Exploration consists of "activities that search for unfamiliar, distant, and remote knowledge"; exploitation, by contrast, includes "activities that search for existing, familiar, mature, current knowledge" (Ahuja & Lampert, 2001; Benner & Tushman, 2003). Since March (1991) linked innovation and knowledge management to exploration and exploitation, the effects of these two activities as well as the challenges inherent in their respective pursuits have been widely studied (Atuahene-Gima, 2005).

Even so, the existing literature has given but little consideration to exploration and exploitation as independent constructs (Li, Vanhaverbeke & Schoenmakers, 2008). Given the limitations of organizations' attention and resources, pursuing both directions has, at least to date, seemed impractical.

The characteristics of team tasks in given situations need to be considered as well. Hackman and Morris (1975) argued that group tasks determine the substantive contents of group activities. For instance, if the characteristics of a team task require exploitation rather than exploration, members on a team are more likely to work exploitatively. Teams charged with tasks that require exploitative activities need to find effective processes by which creativity can be enhanced in given situations. Because exploitation improves a firm's ability to isolate cause-effect relationships within a particular knowledge domain, prior success tends to reinforce the belief that leveraging experience and expertise will lead to future success as well. In this light, firms are likely to continue working in areas that are familiar and proximate to existing solutions, rather than pursue novel, emerging, pioneering knowledge (Ahuja & Lampert, 2001; Argyris & Schon, 1978; Levinthal & March, 1993; McGrath, 2001). Accordingly, individual team units are likely to exploit their experience and knowledge in a given context.

Furthermore, exploitation is superior to exploration in the aspect of efficiency, because "the certainty, speed, proximity, and clarity of feedback ties exploitation to its consequences more quickly and more precisely than is the case with exploration" (March, 1991, p. 73). Over-reliance on exploratory learning typically causes units to operate less efficiently, thereby preventing them from gaining full returns on their capabilities (Levinthal & March, 1993). As Nonaka noted (1991), diffusing and developing an extant-knowledge stock is a critical mode of team learning. Iterative cooperation and mutual refinement can spur knowledge transfer among team members and, in turn, enhance team creativity. In this sense, team-level exploitation can be a crucial factor for team creativity because, as implied above, each team member can make his or her unique contribution to the knowledge stock, and frequent interaction among team members can stimulate mutual transaction and refinement of such individual knowledge. Nonetheless, the issue of exploitation as a booster of team creativity has been relatively neglected in the literature.

Better understanding of the dynamics of team-level creativity process requires consideration of the relevant contextual factors that either enhance or stifle creativity (Amabile, 1996; Woodman, Sawyer, & Griffin, 1993). In the present study, we considered team cohesiveness as contextual factor moderating the relation between exploitation and creativity. Team cohesiveness is the degree of attraction the group holds for individualist members and the corresponding desire of those members to remain in the group (Beal, Cohen, Burke, & McLendon, 2003). Certainly, in an exploitative team activity, high team cohesiveness can enhance the effectiveness of team exploitation and, thus, creativity. Specifically, team cohesiveness helps teams manage conflicts among members, enhance idea generation through knowledge exchange, and foster a supportive climate for creative behavior.

Our research aimed (1) to examine the exploration and exploitation literature in the team context, (2) to extend the team creativity literature by reinvestigating exploitation as an effective antecedent of team creativity, and (3) to determine the contextual factors that can complement the effect of exploitation on creativity.

THEORY AND HYPOTHESES

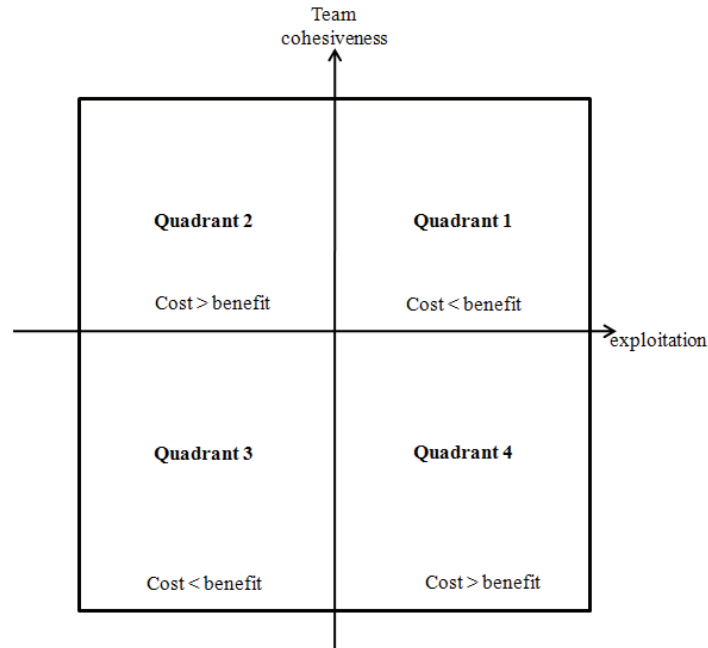
Cost and Benefit Approach

Creativity can be considered a cognitive production activity. Like other production activities, creativity, in its development and expression, has costs and benefits. As noted above, exploitation contributes to team creativity in two ways. First, it aggregates the knowledge stock, and facilitates its flow, by drawing upon the unique ideas of each individual member (Nonaka, 1991). Second, it develops each member's own knowledge. This latter process, however, entails a relatively high level of exploitation. It is quite obvious that mastering existing technology and knowledge (e.g., in the case of artists or master craftsmen) is tedious and time-consuming. Team-knowledge diffusion, therefore, contributes to the benefit in the early stage of exploitation, while each member's self-development of possessed knowledge adds to the benefit as the level of exploitation increases.

Meanwhile, exploitation can be the opportunity cost of other activities such as exploration. All things being equal, enhancing exploitation sacrifices exploration, which is another (and sometimes more important) factor affecting creativity. This trade-off relation regards exploitation as an aspect of cost.

Hence, the level of exploitation for team creativity is determined by whether this cost be exceeded by the benefit (see Figure 1).

FIGURE 1
QUADRANTS OF TEAM EXPLOITATION AND TEAM COHESIVENESS



We posit team cohesiveness as a contextual input and moderator between team exploitation and team creativity. Indeed, team cohesiveness, which, as already mentioned, is the degree of attraction the group holds for the individual members and the resulting desire of those members to remain in the group, is associated positively with team-level outcomes (Cartwright, 1968).

High Team Cohesiveness

When the level of team cohesiveness is high, the frequency and quality of interaction among teammates also will be high (Cartwright, 1968). Under high cohesiveness, the incremental effect of exploitation on the spread of knowledge will be small, because there is already a great potentiality for knowledge sharing among team members (Rulke & Rau, 2000). Therefore, we expect that as exploitation increases, creativity decreases. However, as noted above, when exploitation is applied beyond a certain extent, qualitative changes in individuals' knowledge, effected by self-development, can occur. Furthermore, the free flow and exchange of unique information among individuals should ultimately result in an expanded knowledge base that can generate a greater number of alternatives (Csikszentmihalyi & Sawyer, 1995). This, in turn, can stimulate team creativity. Hence, it is expected that the benefit of team cohesiveness will grow and overtake the cost. Two possible scenarios attendant on high team cohesiveness can be inferred: (1) increasing exploitation will negatively affect team creativity to a certain extent, but, (2) beyond that point, the effect will be positive.

Low Team Cohesiveness

When team cohesiveness is low, knowledge sharing among members cannot easily be achieved. In this situation, raising the level of official interaction by means of exploitative tasks, and facilitating communication through routinization, can be beneficial to creativity. As for exploration, integration of the various forms of externally obtained knowledge is the critical prerequisite for team creativity (Bolinger, Bonner & Okhuysen, 2009). Integration, however, is unlikely to occur under low cohesiveness. In this

case, as the level of exploitation goes beyond a certain extent, the effect on creativity becomes negative. That is, under low cohesiveness, the resultant formalization of individual members' respective roles sacrifices the flexibility necessary for creativity. And under low cohesiveness, the exploitative process, as it fosters interdependence among team members, can result in conflict, which, in most cases negatively affects team creativity. Two possible scenarios linked to low cohesiveness can now be inferred as well: (1) increasing exploitation will be positively affect team creativity to a certain extent, but, (2) beyond that point, the effect will be negative.

Hypothesis. Team cohesiveness will moderate between team exploitation and team creativity such that, when team cohesiveness is high, team exploitation will exhibit a U-shaped relationship with creativity, whereas when team cohesiveness is low, the relationship will be inverted-U-shaped.

METHODS

Participants

Using an e-mail-based on-line survey, data were collected from 332 employees working on 48 teams in a South Korean engineering company. The survey was conducted for three weeks, from the end of February until the middle of March, 2011. The average response rate was 87.64%. Two teams were excluded because, in both cases, only one member responded to the questionnaire. The remaining sample consisted of 330 employees on 46 teams. The number of respondents per team ranged from two to 29, for a mean of 7.17 (SD=5.69). The teams did not differ significantly with respect to average age or tenure. Most respondents were male (96%), and the average age was 34.65 years (SD= 7.10). In terms of functional roles, the current sample included R&D (23%), sales (14%), planning (11%), production technology (38%), and support (14%) personnel.

Measures

All of the measures were translated into Korean by two organizational behavior professors, including the first author. To verify the validity of the translated measures, the factor structure of each variable were checked by confirmatory factor analysis. The results revealed that all of the translated measures had the same factor structure as the original ones. Each item was followed by a seven-point Likert-type scale. Each scale exhibited $r_{wg(j)}$ values (James et al., 1993) for within-group-agreement computation, the results of which suggested that the individual-level data was sufficient and reliable enough to justify the group-level aggregation of variables in the present study.

Team Creativity

A four-item scale team-creativity measurement scale, adapted from Scott and Bruce (1994) and Zhou and George (2001), was constructed: (1) "suggests new ways to achieve goals or objectives"; (2) "comes up with new and practical ideas to improve performance"; (3) "often has new and innovative ideas"; (4) "often has a fresh approach to problems" ($\alpha = .97$, $r_{wg}(4) = .71$).

Team Exploitation and Team Exploration

Team exploitation was measured using four items (e.g., "The tasks of your team consist of activities that you can properly conduct using your present knowledge"; $\alpha = .78$, $r_{wg}(4) = .77$) adapted from Mom, Bosch, and Volberda (2009). Team exploration was measured using four items (e.g., "The task of your team consists of activities requiring you to learn new skills or knowledge"; $\alpha = .87$, $r_{wg}(4) = .71$) also adapted from Mom, Bosch, and Volberda (2009).

Team Cohesiveness

Team cohesiveness was measured on a five-item scale adopted from Lee and Farh (2004). Sample items included: "How well do members of your group stick together?", "How well do members of your

group stick together (i.e. remain close to each other)?”, “Would you socialize with the members of your group outside the class?” ($\alpha = .92, r_{wg}(5) = .69$)

Control Variables

To examine the independent effect of exploitation on team creativity, our analyses controlled for team exploration. For the same reason, when we conducted a further analysis on exploration, exploitation was introduced to the model as a control variable. Since all of the variables in this study were measured from self-reports, we needed to control for a variable indicating a team’s general confidence in order to minimize the possibility of common methods bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Group efficacy was measured on a seven-item scale adapted from Riggs and Knight (1994). We changed “this department” to “my team” for referent accuracy. A sample item is “My team is not able [is able] to perform as well as it should.” ($\alpha = .86, r_{wg}(7) = .79$)

RESULTS

Since, as above-noted, we measured all of the variables using self-reports, we first conducted a confirmatory factor analysis to test for common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We allowed all of the items to load on their respective constructs and a common method factor. The variance explained by the common method factor was 6.16%, which is smaller than the 25% average reported in two previous studies (Perry, Witt, Penny, & Atwater, 2010; Williams, Cote, & Buckley, 1989). Thus, we determined to proceed with hypothesis testing.

As shown in Table 1, team creativity was positively correlated with all of the study variables: team exploration ($r = .713, p < .01$), team exploitation ($r = .365, p < .05$), and team cohesiveness ($r = .774, p < .01$). Team cohesiveness was positively correlated with team exploration ($r = .696, p < .01$) but not with team exploitation. Team exploration and team exploitation, it was found, were not significantly related.

**TABLE 1
DESCRIPTIVE STATISTICS AND INTER-CORRELATIONS OF VARIABLES IN STUDY**

	<i>M</i>	<i>SD</i>	1	2	3	4
1. Team Creativity	4.51	1.08	--			
2. Team Cohesiveness	4.82	1.12	.77 **	--		
3. Team Exploration	4.01	1.08	.71 **	.70 **	--	
4. Team Exploitation	4.30	0.96	.37 *	.25	.21	--

Note. Sample size is 330. All variables were measured on a 7-point scale.

* $p < .05$, ** $p < .01$.

Following Aiken and West (1991), we mean-centered the variables (transforming the data into deviation score form with means equal to zero). By so doing, we were able to minimize the distortion due to high correlations between the interaction term and its component variables. We introduced the control and main-effect variables into a regression equation (steps 1 and 2, respectively); to control for potential linear trends, linear two-way interaction was introduced (step 3); and finally, to test our hypothesis that team exploitation would have a curvilinear relation to team creativity, we introduced quadratic team exploitation as well (step 4). Table 2 lists the results of a hierarchical regression analysis performed to test our hypothesis.

We predicted, further, that team cohesiveness would moderate the curvilinear relation between team exploitation and team creativity. To test this hypothesis, we introduced the relevant interaction term (team exploitation² × team cohesiveness: step 5). The results showed that the coefficient associated with this term was statistically significant ($\beta = .67, p < .05$), thereby supporting the hypothesis. An interaction plot (see Figure 2) revealed, as expected, that for a team with high cohesiveness, the relation between team

exploitation and team creativity followed a U-shaped function whereas, under the low-cohesiveness condition, the function was inverted-U-shaped.

TABLE 2
RESULTS OF HIERARCHICAL REGRESSION ANALYSIS (EXPLOITATION)

Predictor	β	ΔR^2	ΔF	
Step 1		.63	36.21	**
Group Efficacy	.39	**		
Team Exploration	.53	**		
Step 2		.07	5.09	*
Team Exploitation	.09			
Team Cohesiveness	.42	**		
Step 3		.01	1.94	
Team Exploitation \times Team Cohesiveness	.14			
Step 4		.02	2.20	
Team Exploitation ²	-.15			
Step 5		.05	9.27	*
Team Exploitation ² \times Team Cohesiveness	.67	*		

Note. N=46 after listwise deletion. Standardized regression coefficients are reported for the step indicated. R^2 and F for the full model are .78 and 19.63, respectively. * $p < .05$, ** $p < .01$ (two-tailed).

FIGURE 2
CURVILINEAR INTERACTION OF TEAM EXPLOITATION, TEAM COHESIVENESS AND TEAM CREATIVITY

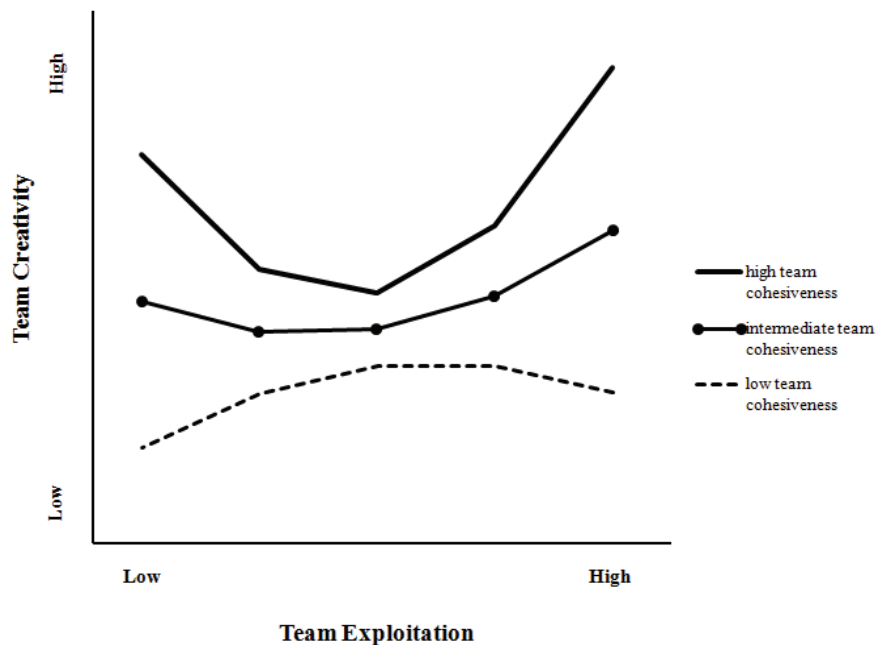


TABLE 3
RESULTS OF HIERARCHICAL REGRESSION ANALYSIS (EXPLORATION)

Predictor	β		ΔR^2	ΔF	
Step 1			.42	15.24	**
Group Efficacy	.64	**			
Team Exploitation	.01				
Step 2			.29	19.70	**
Team Exploration	.31	*			
Team Cohesiveness	.42	*			
Step 3			.08	13.82	**
Team Exploration \times Team Cohesiveness	-.28	*			
Step 4			.01	2.03	
Team Exploration ²	.20				
Step 5			.01	1.14	
Team Exploration ² \times Team Cohesiveness	-.15				

Note. N=46 after listwise deletion. Standardized regression coefficients are reported for the step indicated. R^2 and F for the full model are .80 and 21.09, respectively. * $p < .05$, ** $p < .01$ (two-tailed).

Further Analysis

The correlation between team exploration and team creativity, and the moderating effect of team cohesiveness on it, were analyzed following the same steps as for team exploitation.

As shown in Table 3, team exploration had a statistically significant main effect on team creativity ($\beta = .31, p < .05$). Interestingly, the results also revealed a negative linear two-way interaction, between team exploration and team cohesiveness, with team creativity ($\beta = -.28, p < .05$). Team exploration, unlike team exploitation, did not have a statistically significant curvilinear relation with team creativity ($\beta = .20, p > .05$).

DISCUSSION

In contrast to the existing studies on exploration and exploitation, the present study has investigated the independent group-level effects of those on creativity. Specifically, we identified exploitation as a limited but potentially strong antecedent of team creativity. For managerial considerations, team cohesiveness was adapted to our study. Through our comprehensive analysis, we found that team cohesiveness moderated the curvilinear relation between team exploitation and team creativity. Specifically, under the high-cohesiveness condition, the exploitative team exhibited a U-shaped relation with creativity, whereas under the low-cohesiveness condition, the relation was inverted-U-shaped.

In the light of costs and benefits, we could build on our case findings and the existing literature to theorize how firms might manage teams to maximize efficacious creativity in the performance of tasks (see Figure 1). In this framework, team cohesiveness plays a key role in determining the extent to which teams should exploit their existing knowledge and resources.

Additionally, we found that team exploration has only a linear relation with team creativity and that this relation changed its direction when a team had high cohesiveness. This result constitutes further evidence that exploration and exploitation have different and separate effects on creativity. According to

the unique nature of exploration relative to exploitation, team cohesiveness was not a strong moderator or interacting variable in that case.

IMPLICATIONS

The present findings offer valuable insights on how team learning theory, focusing more on exploitation as a factor independent from exploration, might be integrated into the team creativity research. Taking into consideration the significance of team creativity as a critical group behaviour that stems from both explorative and exploitative activities, this team-level approach, by expanding consideration to a costs and benefits analysis, provides for a better understanding of exploitative tasks. Our results carry some interesting practical implications as well. First, if management is interested in boosting creativity by means of their existing organizational knowledge and resources, supervisors might firstly identify the aspect of team cohesiveness that generates a positive effect on creativity. A highly cohesive team can access its own knowledge and resources (exploitation) more effectively. This benefit can exceed the opportunity cost of long-term creativity that has been considered as being achieved only by exploration. The present study also suggests that managers adjust the level of exploitation to a given team's cohesiveness. As one team's cohesiveness is not interchangeable with that of another team, managers should maximize a team's creativity by determining the precise point at which exploitation positively affects it.

STUDY LIMITATIONS AND FUTURE RESEARCH

Notwithstanding the present study's contributions, some methodological limitations need to be discussed. First, given that the data were collected from a Korean engineering company, some of the findings (e.g., the positive effects of team cohesiveness on team creativity) might reflect the strong collectivistic culture characteristic of typical Korean organizations.

Second, although a confirmatory factor analysis revealed that common method bias accounted for only 6.0% of the total variance (which indeed is relatively low: see Perry, Witt, Penny, & Atwater, 2010 and Williams et al., 1989), the data were still cross-sectional. Cross-sectional data not only incur risks of common method bias, but also renders causal directions ambiguous. Longitudinal designs are still generally lacking from much of the research on learning and teamwork (Mathieu et al., 2008). Utilization of such designs would contribute to a more accurate understanding of how, for instance, exploratory and exploitative team behaviours are linked to team creativity.

Third, even though the existing literature (e.g., Raisch et al., 2009) conceives of team exploration and exploitation explicitly as critical group processes, the present study measured both based on team tasks. This approach inevitably invites the serious criticism that the meanings of exploration and exploitation at the group level do not reflect individual task characteristics or the tendency of serving task in a team. Also useful would be an exploration of the potential multilevel and cross-level mechanisms by which both individual and group-level tendencies explore or exploit each other over time.

REFERENCES

- Ahuja, G. & Lampert, C. M. (2001). Entrepreneurship in The Large Corporation: A Longitudinal Study of How Established Firms Create Breakthrough Inventions. *Strategic Management Journal*, 22, 521– 43.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage Publications.
- Amabile, T. M. (1996). *Creativity in context: Update to "The Social Psychology of Creativity."* CO: Westview Press.

- Argyris, C. & Schon, D. (1978). *Organizational Learning*, MA: Addison-Wesley.
- Atuahene-Gima, K. (2005). Resolving the Capability: Rigidity Paradox in New Product Innovation. *The Journal of Marketing*, 69, (4), 61-83.
- Benner M. J. & Tushman M. L. (2003). Exploitation, Exploration, and Process Management: The Productivity Dilemma Revisited. *The Academy of Management Review*, 28, (2), 238-256.
- Beal, D. J., Cohen, R., Burke, M. J. & McLendon, C. L. (2003). Cohesiveness and Performance in Groups: A Meta-Analytic Clarification of Construct Relation. *Journal of Applied Psychology*, 88, 989-1004.
- Bolinger, A. R., Bonner, B. L. & Okhuysen, G. A. (2009). Sticking Together: The Glue Role and Group Creativity. In E. A. Mannix, M. A. Neale, and J. A. Concalo (Eds.), *Research on Managing Groups and Teams*, UK: Emerald Group Publishing Limited.
- Burningham, C., & West, M. A. (1995). Individual, Climate, and Group Interaction Processes as Predictors of Work Team Innovation. *Small Group Research*, 26, 106–117.
- Cartwright, D. (1968). The Nature of Group Cohesiveness. In D. Cartwright, A. Zander(Eds.) *Group Dynamics: Research and Theory*, London: Tavistock.
- Csikszentmihalyi, M. & Sawyer, K., (1995). Shifting the Focus from Individual to Organizational Creativity. In Ford, C. M., & Gioia, D. A.(Eds.) *Creative Action in Organizations: Ivory tower visions and real world voices*, London, Thousand Oaks & New Delhi: Sage.
- Chen, M.H. (2006). Understanding The Benefits and Detriments of Conflict on Team Creativity Process. *Creativity and Innovation Management*, 15, 105–115.
- Choi, J. N. (2004). Individual and Contextual Dynamics of Innovation-Use Behavior in Organizations. *Human Performance*, 17, 397–414.
- Drach-Zahavy, A., & Somech, A. (2001). Understanding Team Innovation: The Role of Team Processes and Structures. *Group Dynamics: Theory, Research, and Practice*, 5, 111–123.
- Eddy, W.B. (1985). *The Manager and the Working Group*, NY: Prager.
- Edmondson, A. (2001). Disrupted routines: Team learning and new technology implementation in hospitals. *Administrative Science Quarterly*, 46, 685–716.
- Friedkin, N. E. (2004). Social Cohesion. *Annual Review of Sociology*, 30, 409-425.
- Ghoshal, S., & Bartlett, C. A. (1994). Linking Organizational Context and Managerial Action: The Dimensions of Quality of Management. *Strategic Management Journal*, 15, 91–112.
- Gully, S. M., Devine, D. J., & Whitney, D. J. (1995). A Meta-Analysis of Cohesion and Performance: Effects of Level of Analysis and Task Interdependence. *Small Group Research*, 26, 497–520.
- Hackman, J. R. & Morris, C. G.(1976). Group Tasks, Group Interaction Process, and Group Performance Effectiveness: A Review and Proposed Integration. *Advances in Experimental Social Psychology*, 8, 45-99.

- Hackman, J. R. (1976). Group influences on individuals. In M. D. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology*, Chicago: Rand McNally.
- Hackman, J. R. (1980). Changing Views of Motivation in Workgroups. In K. D. Duncan, M. M. Gruneberg & D. Wallis (Eds.), *Changes in working life*, New York: Wiley.
- King, N., Anderson, N., & West, M. A. (1991). Organizational Innovation: A Case Study into Perceptions and Processes. *Work and Stress*, 5, 331–339.
- Lee, C., & Farh, J. L. (2004). Joint Effects of Group Efficacy and Gender Diversity on Group Cohesiveness and Performance. *Applied Psychology: an International Review*, 53, 136-154.
- Levinthal, B. & March, J. G. (1993). The Myopia of Learning. *Strategic Management Journal*, 14, 95–112.
- Li, Y., Vanhaverbeke, W., & Schoenmakers, W. (2008). Exploration and Exploitation in Innovation: Reframing the Interpretation. *Creativity and Innovation Management*, 17, (2), 107–126.
- March, J. G. (1991). Exploration and Exploitation in Organizational Learning. *Organizational Science*, 2, 71-87.
- Mathieu, J.E., Gilson, L.L., Ruddy, T.R. (2006). Empowerment and Team Effectiveness: An Empirical Test of An Integrated Model. *Journal of Applied Psychology*, 91, 97–108.
- McGrath, R. G. (2001). Exploratory Learning, Innovative Capacity, and Managerial Oversight. *Academy of Management Journal*, 44, 118–32.
- Mom, T. J. M., Van den Bosch, F. A. J., & Volberda, H. W. (2009). Understanding Variation in Managers' Ambidexterity: Investigating Direct and Interaction Effects of Formal Structural and Personal Coordination Mechanisms. *Organization Science*, 20, 812-828.
- Mumford, M. D., Scott, G. M., Gaddis, B., & Strange, J. M. (2002). Leading Creative People: Orchestrating Expertise and Relationships. *The Leadership Quarterly*, 13, 705–750.
- Nonaka, I. (1991). The Knowledge Creating Company. *Harvard Business Review*, November-December, 96-104.
- Oldham, G. R., & Cummings, A. (1996). Employee Creativity: Personal and Contextual Factors at Work. *Academy of Management Journal*, 39, 607–634.
- Perry, S. J., Witt, L. A., Penny, L. M., & Atwater, L. (2010). The Downside of Goal-Focused Leadership: The Role of Personality in Subordinate Exhaustion. *Journal of Applied Psychology*, 95, 1145-1153.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of The Literature and Recommended Remedies. *Journal of Applied Psychology*, 88, 879-903.
- Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance. *Organizational Science*, 20, (4), 685–695.

- Riggs & Knight (1994). The Impact of Perceived Group Success-Failure on Motivational Beliefs and Attitudes: A Causal Model. *Journal of Applied Psychology*, 79, 755-766.
- Rulke, D. L. & Rau, D. (2000). Investigating The Encoding Process of Transactive Memory Development in Group Training. *Group Organization Management*, 25, (4), 373-396.
- Scott, S. G. & Bruce, R. A. (1994). Determinants of Innovative Behavior: A Path Model of Individual Innovation in the Workplace. *The Academy of Management Journal*, 37, (3), 580-607.
- Shalley, C. E., Gilson, L. L., & Blum, T. C. (2000). Matching Creativity Requirements and The Work Environment: Effects On Satisfaction And Intentions To Leave. *Academy of Management Journal*, 43, 215–223.
- Shalley, S. E., Zhou, J., & Oldham, G. R. (2004). The Effects of Personal and Contextual Characteristics on Creativity: Where Should We Go from Here? *Journal of Management*, 30, 933-958.
- Tsai, W. P. (2001). Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance. *Academy of Management Journal*, 44, 996–1004.
- Van der Vegt, G., & Van de Vliert, E. (2002). Intragroup Interdependence and Effectiveness: Review and Proposed Directions for Theory And Practice. *Journal of Managerial Psychology*, 17, 50–67.
- Williams, L. J., Cote, J. A., & Buckley, M. R. (1989). Lack of Method Variance in Self-Reported Affect and Perceptions at Work: Reality or Artifact? *Journal of Applied Psychology*, 74, 462–468.
- Woodman, R. W., Sawyer J. E., & Griffin, R. W. (1993). Toward A Theory of Organizational Creativity. *The Academy of Management Review*, 18, (2), 293-321.
- Zhou, J., & George, J. M. (2001). When Job Dissatisfaction Leads to Creativity: Encouraging the Expression of Voice. *Academy of Management Journal*, 44, (4), 682-696.

When Broken Promises Threaten One's Identity: The Impact of Psychological Contract Breach on Self-Identity Threat

Kevin E Henderson
University of St. Thomas

Anne M. O'Leary-Kelly
University of Arkansas

Research on psychological contracts has not been clear on how and why psychological contract breach (PCB) has the effect it does on employee attitudes and behaviors. In this study, we suggest that self-identity threat provides a lens through which to better understand PCB. Specifically, PCB is expected to convey information that threatens an employee's sense of value or worth in the organization. In a study of 386 university employees, we found that: 1) PCB results in self-identity threat, which 2) elicits strong negative affect, and 3) results in the use of coping strategies, including seeking social support and organizational retaliation.

INTRODUCTION

Psychological contracts represent employees' perceptions of what they owe their organization and what their organization owes them in return (Rousseau, 1989). A vast amount of research has focused on the negative consequences of breaching these psychological contracts (i.e. PCB), which include lower commitment, job satisfaction, performance, and organizational citizenship behavior (Zhao, Wayne, Glibkowski, & Bravo, 2007). Unfortunately, we still know very little about precisely *how and why* failing to fulfill psychological contracts has the negative effects it does on employee attitudes and behaviors (Conway & Briner, 2002; 2005). For example, it is not clear why employees have lower organizational commitment following breach or why their performance suffers. What cognitive and affective states are prompted by PCB such that these negative outcomes follow? Without knowing the mechanism(s) behind the negative consequences of PCB, researchers can offer little advice to managers in terms of what to do following its occurrence. Considering the prevalence of PCB in organizations (Robinson & Rousseau, 1994), this seems to be a serious omission in the literature.

The purpose of this paper is to examine one such mechanism through which we believe PCB creates negative outcomes: self-identity threat (SIT). We define SIT as the extent to which people perceive that the relational information they have received signifies that they are not valued or respected by the organization and have low status or standing in the organization (Lind & Tyler, 1988; Smith, Tyler, Huo, Ortiz, & Lind, 1998). In introducing SIT as a potential mechanism, we hope to advance research on psychological contracts in three ways.

First, consideration of SIT directs attention to identity, an issue that has not often been associated with PCB research. Several researchers have suggested a link between the two (e.g. Sims, 1994; Kickul,

2001); however, there is little empirical support for this connection. Our study hopes to add to this limited research by showing that PCB can indeed threaten employees' identity. Second, this study examines a potential mediating mechanism that has not been previously considered in the psychological contract literature. While our study is the first to examine SIT, few studies have examined any potential mediating mechanisms between PCB and outcomes (Othman, Arshad, Hashim, & Isa, 2005; Montes & Irving, 2008; Guerrero & Herrbach, 2008). This study will add to this limited research and provide an explanation for how and why PCB influences employee attitudes and behaviors. Third, when SIT is examined as a mediating mechanism, it raises several questions about likely criterion variables that have not been given much attention in the psychological contract literature. More specifically, we believe that employees might not only react negatively to PCB (as evident in existing research), but could engage in the use of coping strategies to deal with the negative affect (i.e. psychological contract violation or PCV) associated with PCB (Breakwell, 1986; Lazarus, 1991). Finding these additional outcomes would imply that we have yet to uncover all of the effects PCB can have. In summary, we present in this paper a model for explaining how PCB, through its impact on SIT, can influence PCV, and, thus, result in the use of coping strategies.

THEORY

Psychological Contract Breach

Psychological contract breach (PCB) is the *cognition* that the employer has failed to meet one or more obligations within one's psychological contract commensurate with one's contributions (Morrison & Robinson, 1997). Due to the changing nature of employment relationships within organizations (Morrison, 1994; Lo & Aryee, 2003), the occurrence of PCB is prevalent within organizations (Turnley and Feldman, 2000). Most research on psychological contracts, as a result, tends to focus on the consequences associated with PCB (Conway & Briner, 2005). Research has consistently shown that PCB is associated with a variety of negative employee attitudes and behaviors (Zhao et al, 2007).

One consequence of PCB that has received quite a bit of attention in the psychological contract literature is psychological contract violation (or PCV). PCV refers to the *emotional and affective state* that may follow from the belief that the employer has failed to adequately maintain the psychological contract (Morrison & Robinson, 1997). In other words, while PCB reflects the *cognition* that one's organization has failed to meet one or more of its obligations, PCV reflects how strong the *emotional reaction* is to the PCB. PCV represents a mental state of readiness for action that can include feelings such as disappointment, frustration, distress, anger, resentment, bitterness, indignation, and even outrage (Morrison & Robinson, 1997).

Since a recent meta-analysis found that PCV mediates the relationship between PCB and a variety of outcomes (Zhao et al, 2007), an investigation of mediators of the PCB-outcomes relationship (such as this one) means addressing the PCB-PCV relationship. Most previous research has examined the consequences of PCB, while some studies have examined PCV in relation to negative outcomes. However, very little research has examined the relationship between PCB and PCV. One key work that has addressed the connection between PCB and PCV is Morrison and Robinson's (1997) discussion of the sense-making process that takes place following PCB. They argued that employees would determine whether they should be upset by the PCB based on a number of different factors, such as attributions for why the PCB occurred and judgments about how fairly they were treated (Morrison & Robinson, 1997). While several studies have found support for their model (Robinson & Morrison, 2000; Dulac, Coyle-Shapiro, Henderson, & Wayne, 2008), they focus on the moderators of the PCB-PCV relationship (i.e. the conditions under which PCB may lead to PCV), not the mediators (i.e. why PCB leads to PCV).

As a result, we are still left with the question of what it is about the PCB experience that gets people upset. We think a key answer to this question is that PCB is threatening to one's identity. Research on identity threats can not only provide an explanation for how and why PCB has the impact that it does, but can also suggest alternative outcomes that have not yet been considered.

Self-Identity Threat

The notion of an identity threat stems primarily from research on the group value model. The group value model (Lind & Tyler, 1988; Tyler & Lind, 1992) suggests that: 1) people derive a sense of self-worth from the groups they belong to (Tyler, 1989), 2) people care about fair treatment because it provides relational information (i.e. information that is communicated regarding an employee's position, status, or standing within a valued group), (Tyler et al, 1996), and, thus, 3) the treatment a person receives in the group impacts his or her self-concept (Smith & Tyler, 1997; Smith et al, 1998). Several empirical studies have supported the model's primary assertions. For example, Smith and Tyler (1997) found that feeling that one is respected by important groups is positively related to one's self-esteem, as did Smith et al (1998) who found that fair procedures were positively correlated with feelings of respect and positive self-esteem. It appears then that the way people are treated within a group can indeed impact their self-concept.

While group memberships are typically formed in order to enhance people's feelings of self-worth and self-esteem (Ashforth & Mael, 1989), it seems likely that situations may arise where these are threatened. Based on the group-value model, a threat to one's identity would involve receiving relational information that results in people questioning whether or not they are respected and valued members of a social group (Tyler et al, 1996; Smith et al, 1998). Although research on the group-value model does not use the term identity threat, there is evidence that the relational information one receives is connected to one's self-esteem (Smith & Tyler, 1997; Smith et al, 1998). Therefore, using the group-value model (Tyler et al, 1996; Smith et al, 1998), we define *self-identity threat* (or *SIT*) as the extent to which people perceive that the relational information they have received signifies that they are not valued or respected by some valued social group and have low status or standing in that group.

In order to clarify the meaning of the term SIT, it is important to highlight four of its key characteristics. First, since some people are more likely than others to base their self-concept on the groups to which they belong (Tajfel & Turner, 1985; Ashforth & Mael, 1989), people will differ in terms of whether or not an event is perceived to be an identity threat. Those individuals who base an especially large part of their self-esteem on their group membership will be more likely to perceive an identity threat following unfair treatment within that group (Tyler et al, 1996). Second, SIT occurs when some event impacts an individual's self-identity through a relevant social identity, such as organizational membership (Hogg & Abrams, 1988; Sedikides & Brewer, 2001). In other words, SIT occurs because of a social identity threat (i.e. a threat to one's membership in a specific group); however, it is interpreted in terms of its impact on a person's self-identity or self-concept (Tyler et al, 1996; Smith et al, 1998). The focus that we take when we consider PCB then is on *intragroup* relations, not *intergroup* relations (Tajfel & Turner, 1985; Sousa & Vala, 2002). Third, SIT is a response to a specific event (which may potentially impact one's self-esteem), not a personality variable. As a result, it is distinct from other constructs out there that are related to self-esteem, such as core-self evaluations (Judge, Locke, & Durham, 1997). Finally, the group-value model can be applied to any number of groups, ranging from the very small, such as one's family, to the very large, such as a political party (Tyler, 1989). Considering this, the group-value model can easily be extended to the context of the organization and frequently is in research (e.g. Sousa & Vala, 2002; Restubog, Hornsey, Bordia, & Esposito, 2008). In addition, considering the fact that the workplace is an achievement setting in which people strive to look good, it seems that social identities will be especially salient within the work context.

SIT seems likely to occur when a person perceives PCB, since PCB is likely to be construed as a negative workplace event that communicates information related to one's status or standing in the organization (Tyler & Lind, 1992). Since PCB signifies that the employee is aware of a broken promise by the organization, PCB could communicate to the employee that the organization does not respect the employee or feel that he or she is a valued member of the organization (Tyler & Lind, 1992; Sousa & Vala, 2002). For example, when an organization fails to promote an employee as promised, it seems likely to result in the employee questioning whether or not he or she is an important organizational member. This uncertainty will result in the employee undergoing a sensemaking process (Weick, 1995).

The meaning an employee ascribes to the PCB following this sensemaking process will determine whether or not it is viewed as a threat to one's self-identity (Tyler et al, 1996). Although there is very limited research on the connection between PCB and identity threats, Sims (1994) argued that PCB violates the basic tenets employees have about their employment relationship in that it destroys their sense of security and threatens their identity. Kickul (2001) argued that PCB is likely to indicate to the employee that they are not worthy of respect. These arguments coincide with the group value model, in that PCB implies marginality and disrespect, which can diminish an employee's sense of self-worth (Lind & Tyler, 1988; Tyler & Lind, 1992; Sousa & Vala, 2002). PCB seems likely then to be viewed as a threat to one's self-identity. Thus, we expect there to be a positive relationship between PCB and SIT.

H1: There will be a positive relationship between an employee's perception regarding the degree of PCB and SIT.

Psychological Contract Violation

Research on identity threat and emotions suggests there should be a positive relationship between SIT and PCV (Breakwell, 1986; Fridja, 1986; Tedeschi & Felson, 1994; Bies, 1999). Identity threat research suggests that SIT is likely to result in a strong emotional response. Several authors have argued that identity threats will be associated with a variety of negative emotions, especially anger (Steele, 1988; Tedeschi & Felson, 1994; Bies, 1999; Aquino & Douglas, 2003). For example, Geddes and Konrad (2003) argued that the receipt of negative feedback from a member of one's group (i.e. unfavorable relational information) is likely to result in strong negative emotions. As another example, Crocker and Wolfe (2001) argued that affective reactions to events relevant to one's contingencies of self-worth (such as PCB within an organization) are particularly intense.

Research on emotions (Fridja, 1986) suggests that the experience of emotion depends on two factors. First, negative emotions are likely to result when there is mismatch or discrepancy between a person's desired end-state and the current state (Fridja, 1986). SIT represents such a mismatch or discrepancy for employees in that employees perceive that their standing in the organization is not commensurate with what they would like it to be (Lind & Tyler, 1988; Tyler et al, 1996). Second, the seriousness of the event also plays a key role in determining the intensity of the emotions elicited by the event, such that the more serious an event is perceived to be, the more intense the emotional reaction (Fridja, 1986). Considering the importance of positive self-worth to the majority of people (Crocker & Park, 2004), SIT is likely to be construed as a very serious event for most employees. As a result, we expect there to be a positive relationship between SIT and PCV.

H2: There will be a positive relationship between an employee's perception regarding the degree of SIT and PCV.

SIT as a Mediator Between PCB and PCV

As noted earlier, only a few studies have examined potential mediators of the PCB-PCV relationship (e.g. Othman et al, 2005; Montes & Irving, 2008; Guerrero & Herrbach, 2008). For example, Montes & Irving (2008) found that trust mediated the relationship between promised and delivered inducements (i.e. the opposite of PCB) and feelings of violation (PCV) but only with respect to relational contracts. While the focus of this study was not to determine all of the potential mediators between PCB and PCV, we did seek to add to this limited research by examining SIT as another potential mediating mechanism. Based on the last two hypotheses, it appears that SIT could be a potential mediator of the PCB-PCV relationship. We believe that PCB will impact PCV to a large extent only when it makes the employee believe that he or she is not valued or respected and has low status or standing. If an employee does not interpret the broken promise as signifying unfavorable relational information, then he or she is not as likely to experience negative affect.

It is important for researchers to start differentiating between possible mediators. For example, if PCB leads to feelings of mistrust in the employer, this seems quite different from feeling that the organization

is signaling to employees that they are worthless. If the seriousness of an event plays a key role in determining the intensity of emotions elicited (Fridja, 1986), then feeling worthless suggests a much more intense emotional reaction than feeling distrustful. Since our study does not investigate multiple mediators, we cannot be certain at this point whether SIT will fully mediate the PCB-PCV relationship. However, it does seem likely that SIT will at least partially mediate this relationship. Therefore, we hypothesize that SIT will partially mediate the relationship between PCB and PCV.

H3: The positive relationship between an employee's perception of psychological contract breach and psychological contract violation will be partially mediated by his/her perceptions of self-identity threat.

Outcomes of PCV (or Coping Strategies)

A key benefit to considering SIT as a potential mediating mechanism of the PCB-PCV relationship is that it encourages us to consider what outcomes are likely when an identity is threatened. Past research has clearly associated PCB with a variety of negative attitudes and behaviors (Zhao et al, 2007). In considering SIT as a key mediator though, we were led to several consequences that have not yet been examined in prior PCB research. The research on identity threats has been quite clear in its suggestion that people will need to cope with the emotions that result from SIT (Breakwell, 1986; Steele, 1988; Major & O'Brien, 2005). There is also considerable theoretical support for the link between negative emotions and the use of coping strategies (Lazarus & Folkman, 1984; Lazarus, 1991, 1999, 2001; Fugate, Kinicki, & Prussia, 2008). It appears then that employees are likely to engage in coping strategies to reduce the negative emotions associated with PCV following SIT.

There are several ways in which people can cope with the emotional reaction of PCV. In this study, we will examine PCV's influence on two: seeking social support and retaliation. It is important to note that employees are likely to use a variety of coping strategies (e.g., denial, deflection). However, these two seem especially likely to be the key coping strategies employees will use as research has found that they are frequently used by people to cope with the emotions that result from identity threats (Breakwell, 1986; Crocker & Wolfe, 2001; Crocker & Park, 2004).

Seeking Social Support

The seeking of social support as a coping strategy suggests a more relational reaction to the experience of PCV. It suggests that some employees will cope with the negative emotion they experience by talking to other people, rather than trying to deal with it on their own (Breakwell, 1986). Since people belong to a myriad of social groups, the seeking of social support is likely to cross boundaries between different groups. As a result, people may seek social support from a variety of sources, such as family members, friends, church members, co-workers, and even strangers.

According to Folkman and Lazarus (1980, 1985), there are two primary ways people attempt to cope with emotions; problem-focused or emotion-focused coping. Problem-focused coping is aimed at trying to do something to alter the situation that caused the stress, whereas emotion-focused coping is aimed at trying to manage the emotional distress itself (Folkman & Lazarus, 1980, 1985). In the case of seeking social support then, problem-focused coping would be where the employee tries to get advice about the situation from other people, while emotion-focused coping would be where the employee tries to talk about their feelings with other people. Both types of seeking social support seem plausible in this context. Seeking problem-focused social support to some extent is a form of sensemaking (Weick, 1995) whereby the employee is attempting to make sense of what happened and fix it, while seeking emotion-focused social support serves as a "therapy session" whereby an employee can unload some of his or her negative feelings by talking with others. Employees seem likely to seek social support for both reasons in order to cope with the PCV they experience. Based on this, we hypothesize that one way employees will cope with PCV is to seek social support.

H4a: There will be a positive relationship between an employee's perception regarding the degree of PCV and the seeking of social support on the part of the employee.

Retaliation

As previously suggested, anger is one of the primary emotions generated by an identity threat (Bies, 1999; Steele, 1988; Aquino & Douglas, 2003). It has been well-established that anger frequently results in retaliation against the perceived source of threat (e.g. Aquino & Douglas, 2003). In addition, Breakwell (1986) suggested that one interpersonal coping strategy people use to deal with negative affect following an identity threat is negativism, or outright conflict with anyone who would challenge the identity structure. Tedeschi and Felson (1994) suggested that one of the primary motives for using coercion is to assert or defend identities. They further argued that perceived intentional attack is the most reliable elicitor of coercive action. The goal of retaliation appears to be to nullify the negative identity, reduce humiliation, and "save face" (Schlenker, 1980).

The literature on emotions further supports the likely link between PCV and retaliation. Anger (which is an emotion often associated with PCV) is the passion evoked by perceiving to be slighted or hurt, which directs behavior toward punishing the true or perceived attacker (Fridja, 1986). An angering event is one in which someone or something challenges what "ought" to happen (De Rivera, 1977). Anger implies non-acceptance of the event as necessary or inevitable and implies that the event is amenable to being changed (Fridja, 1986). To some degree then, retaliation represents an attempt by the employee to regain control of the situation. Therefore, PCV, as an emotional experience, instigates a readiness for action that could potentially result in the employee retaliating against the organization or its agent(s). This is especially likely when the primary feeling associated with PCV is extreme anger. Finally, a recent study found that PCV is positively associated with revenge cognitions, which then predicts workplace deviance (Bordia et al, 2008). Based on all this, we hypothesize that a second way employees will cope with PCV is to retaliate against the perceived source of the threat.

H4b: There will be a positive relationship between an employee's perception regarding the degree of PCV and the engagement in retaliation by that employee.

METHODS

Data and Sample

Data were collected from 386 employees at two universities: 195 from a large, Southeastern public university and 191 from a medium-sized, Midwestern private university. Subjects filled out an online Qualtrics survey that was both e-mailed across several different listservs and announced in the daily news e-mail each university sent out to all employees. We sent several reminders while the survey was open and offered participation in cash drawings (i.e. \$25, \$50, and \$100) to give employees an incentive to fill out the survey. Subjects were assured confidentiality prior to taking the survey.

In terms of demographic characteristics, 78.65% of the subjects were women, 60.62% were married, and 95.84% were university staff, while the remaining 4.16% were doctoral students employed by the university. Doctoral students have been used in prior psychological contract studies and this research has shown that they do form psychological contracts given that they are employees of the university (e.g., Wade-Benzoni, Rousseau, & Li, 2006). As a result, they were included in all analyses. The average age was 44.55 years old (s.d. = 11.97), the average length of tenure was 9.80 years (s.d. = 8.26), and the average number of positions held at the university was 2.32 (s.d. = 1.62).

It is difficult to determine the precise response rate since we do not know exactly how many employees saw our request for participation and opted in or out. However, a conservative estimate of the response rate would consist of comparing the number who responded to our survey to the number of total university employees who subscribe to the listserv, which technically includes all university employees. Based on the statistics provided by both universities, the overall response rate was 14% (approximately 9.20% for the public university and 18.04% for the private university). Again, because the number of

employees who read about the survey opportunity is likely to be lower than the number of employees who work for the university, the actual response rate is likely to be higher than 14%.

An attempt was made to determine whether there were any significant differences between respondents (i.e. our sample) and non-respondents (i.e. the population). For the public university, we were able to compare our sample to the population on the basis of gender. This comparison indicated that the sample contained substantially more women than the population, such that 14.50% of women responded to the survey compared to 3.00% of men. For the private university, several comparisons could be made, which included gender, exempt vs. non-exempt status, and full-time vs. part-time status. The gender comparison indicated that 23.10% of women responded to the survey compared to 11.63% of men. Considering these differences across both universities, gender was controlled for in all analyses. Other than gender, the sample from the private university tended to match up with the population as 19.22% of exempt staff completed the survey compared to 16.30% of non-exempt staff and 18.37% of full-time staff completed the survey compared to 15.09% of part-time staff.

Measures

Participants shared their responses on all of the following scales. Unless otherwise noted, all measures were based on a seven-point Likert scale ranging from “Strongly Disagree” (1) to “Strongly Agree” (7). Scale scores were created by averaging responses on the associated items. High scale scores indicate high levels of the construct in question (i.e. high PCB or high SIT).

Independent Variables

Psychological contract breach was assessed using two different measures. The first measure (PCB1) used the 5-item scale from Robinson and Morrison (2000). This was the measure used to test all of the hypotheses that included PCB. This scale captures a global assessment on the part of employees regarding how well the university has fulfilled its obligations to them. Sample items include “I have not received everything promised to me in exchange for my contributions” and “So far my employer has done an excellent job of fulfilling its promises to me (reversed).” The reliability of this measure (or Cronbach’s alpha) was .88.

The second measure (PCB2) used the single item, “When was the last time you had an employment-related promise broken to you by the [University]?” This measure was used to determine the existence of PCB. Subjects responded on a six-point scale where 1 was “a week ago,” 2 was “a month ago,” 3 was “last semester,” 4 was “last year,” 5 was “more than a year ago,” and 6 was “never.” This item was used because if employees did not report a broken promise, there is no reason to include them on the questions pertaining to what type of coping strategies they used after experiencing PCB.

Self-identity threat (SIT) was assessed using a 7-item measure that was created for this study, since no suitable measure of SIT was found that had been derived from the group-value model. In order to develop this measure, items were created based on identity-threat research, specifically the group-value model and its focus on how the treatment an employee receives from the organization impacts his or her self-concept. To do this, we used the stem “The way I’m treated by the University makes me feel...” and then included a variety of identity-relevant adjectives, including disrespected (or respected), devalued (or valued), and marginal (or important). The original measure included 15 items and was first assessed in a pilot test of 106 employees in the College of Business at a large, public Southeastern university. Following data collection, a principal component factor analysis with direct oblimin rotation was conducted to determine which of the 15 items should be retained for the final measure.

The exploratory factor analysis (EFA) with all 15 items resulted in the items loading on two factors with the first factor explaining 69.70% of the variance, which had strong factor loadings with all 15 items (all above .66), and the second factor explaining 7.58% of the variance, which had the strongest factor loadings with all of the reversed items (all less than .49). In order to reduce the number of items to a more manageable number, items were removed one-by-one following recommended guidelines for scale development and EFAs (Nunnally & Bernstein, 1994; Hinkin, 1998). In doing this, the item with the lowest factor loading and item-total correlation was removed and then the analysis was re-run until all

items loaded on one factor with factor loadings and item-total correlations greater than .70. This resulted in the final measure containing 7 items, which all loaded on one factor that explained 79.73% of the variance. All factor loadings were greater than .86 and reliability (or Cronbach's alpha) was .96.

This newly created 7-item measure was used to test all hypotheses involving SIT. The seven items contained the stem "The way I'm treated by this organization makes me feel ____" and included the following adjectives: devalued, appreciated (reversed), respected (reversed), valued (reversed), insignificant, important (reversed), and disrespected. The reliability of this measure (or Cronbach's alpha) was .96.

Psychological contract violation was assessed using the 4-item measure from Robinson and Morrison (2000). Sample items include "I feel a great deal of anger toward the University" and "I feel betrayed by the University." The reliability of this measure (or Cronbach's alpha) was .88.

Dependent Variables

To assess coping strategies, subjects were asked to indicate on a 5-point scale, ranging from "Used Not at All" (1) to "Used Very Much" (5), the extent to which they used a variety of strategies to cope with the negative emotions they experienced following a broken promise.

Seeking social support was assessed using both social support COPE measures from Carver, Scheier, and Weintraub (1989). The first 4-item scale assessed seeking social support for instrumental reasons (also referred to as problem-focused coping), while the second 4-item scale assessed seeking social support for emotional reasons (also referred to as emotion-focused coping). Sample items for the former scale include "I asked people who have had similar experiences what they did" and "I talked to someone to find out more about the situation," while sample items for the latter scale include "I talked to someone about how I felt" and "I discussed my feelings with someone." Given that we were not concerned with the reasons for seeking social support but with whether or not it occurred, we combined both 4-item measures into one 8-item measure. The reliability of this measure (or Cronbach's alpha) was .89.

Organizational retaliation was assessed using the 17-item organizational retaliatory behavior measure from Skarlicki and Folger (1997). Sample items include "I took supplies home without permission" and "I called in sick when not ill." The reliability of this measure (or Cronbach's alpha) was .82.

Control Variables

Several demographic characteristics were collected as control variables. More specifically, subjects were asked to provide their gender, age, and tenure at the University. Controlling for these three demographic characteristics is consistent with past research on PCB (Rousseau, 1995; Lo & Aryee, 2003; Restubog et al, 2008). Gender was controlled because 1) as noted earlier, there were gender differences between respondents and non-respondents and 2) several studies have found a relationship between gender and PCB, such that men are more likely to perceive PCB than women (Deery, Iverson, & Walsh, 2006). Age was controlled because some research has shown that younger employees are more likely to perceive PCB than older employees (Bordia, Restubog, & Tang, 2008). Tenure was controlled because the longer an employee is at an organization, the more likely it is that he or she will experience PCB (Restubog et al, 2008). Gender was assessed as 1 for male and 2 for female, while age and tenure were both assessed in terms of years. Finally, considering that there could be differences between the two universities, a dummy variable ("institution") was created based on whether the university was public (coded as 1) or private (coded as 2).

Analyses

Before running any analyses, a confirmatory factor analysis was conducted using AMOS 16.0 on the three independent variables: PCB1, SIT, and PCV. The CFA resulted in the following fit statistics: χ^2 of 370.26 (101 df), $\chi^2/df = 3.67$, CFI of .95, and RMSEA of .08. Based on the recommendations of multiple researchers (Bentler, 1992; Hu & Bentler, 1999), these statistics indicate good fit. In addition, all factor loadings are significant ($p < .001$) and over .67. Even more importantly, the three factor model fits the

data best in comparison to all possible two-factor models ($\Delta X^2 = 153.54$, $\Delta X^2 = 391.49$, and $\Delta X^2 = 538.66$; $p < .001$ for all three) and the general one-factor model ($\Delta X^2 = 666.21$, $p < .001$). Therefore, these measures appear psychometrically sound and can be used to test the hypothesized model.

Hypotheses 1, 2, and 3 were all examined using the SPSS macro application produced by Preacher and Hayes (2004, 2008) that allows estimation of the indirect effect using both the Sobel test (Sobel, 1982) and bootstrap approach to obtain confidence intervals. Bootstrapping generates an empirical approximation of the sampling distribution by selecting subsamples of the full data set with replacement to create point estimates and percentile confidence intervals for indirect and total effects. In this study, bias-correction and acceleration were also utilized to further improve the bootstrap confidence intervals based on the recommendation of Preacher and Hayes (2008). The independent variable was PCB and the dependent variable was PCV. The mediating variable was SIT, while gender, age, tenure, and institution were all used as control variables.

Hypotheses 4a and 4b were examined using hierarchical regression analysis in SPSS 17.0. Gender, age, tenure, and institution were entered in step 1 and then PCV was entered in step 2. The dependent variable was the appropriate coping strategy. Again, only subjects who reported experiencing PCB in the PCB2 measure were included in these analyses, which reduced the sample size for these hypotheses to 135-137 (due to some loss of data due to non-responses). Based on the recommendation of Cohen, Cohen, West, and Aiken (2003), all predictor variables were centered prior to analysis.

RESULTS

Table 1 reports the means and standard deviations of all of the variables, while Table 2 shows the correlation coefficients. Based on responses to the PCB2 measure, 146 subjects (or 37.82%) reported having experienced a broken employment-related promise. This percentage is in the range of percentages that have been reported in past research (e.g. from a low of 32% in Sutton and Griffin, 2004, to a high of 55% in Robinson & Rousseau, 1994). In terms of demographic differences, the only significant correlation was between age and PCV, such that older employees were more likely to report a higher degree of PCV ($r = .13$, $p < .05$).

TABLE 1
MEANS AND STANDARD DEVIATIONS OF VARIABLES

Variable	N	Mean	SD
1. Gender	384	1.79	.41
2. Age	378	44.55	11.97
3. Tenure	386	9.80	8.26
4. Institution	386	1.49	0.50
5. Psychological Contract Breach	386	2.69	1.35
6. Self-Identity Threat	386	2.80	1.52
7. Psychological Contract Violation	386	2.01	1.29
8. Seeking Social Support	141	3.00	1.01
9. Organizational Retaliation	138	1.25	0.34

TABLE 2
CORRELATION COEFFICIENTS

Variable	1	2	3	4	5	6	7	8
1. Gender								
2. Age	.06							
3. Tenure	-.01	.59***						
4. Institution	-.14**	.05	-.05					
5. Psychological Contract Breach	-.08	.03	.02	-.02				
6. Self-Identity Threat	-.06	.09	.01	-.03	.66***			
7. Psychological Contract violation	-.09	.13*	.03	-.01	.66***	.83***		
8. Seeking Social Support	.09	.03	.03	.16	.15	.08	.14	
9. Organizational Retaliation	-.01	-.02	-.04	.07	.25**	.12	.19*	.41***

*p < .05, **p < .01, ***p < .001

In order to check that there were significant differences on the three independent variables (i.e. PCB1, SIT, and PCV) between those who experienced a broken promise and those who did not, the sample was split into one group of subjects who experienced at least one broken organizational promise (i.e. they did *not* respond “never” on PCB2) and another group of subjects who did not experience any broken promise (i.e. they responded “never” on PCB2). ANOVAs were conducted to determine whether there were any significant differences. As expected, the group of subjects who reported having a promise broken to them reported higher PCB (3.51 vs. 2.19, $F = 113.01$, $p < .001$), SIT (3.52 vs. 2.36, $F = 60.72$, $p < .001$) and PCV (2.67 vs. 1.61, $F = 73.41$, $p < .001$) than the group who did not report a broken promise.

Table 3 shows the results of Hypotheses 1-3. Hypothesis 1 predicted a positive relationship between PCB and SIT. Given that PCB was positively associated with SIT in the model ($\beta = .66$, $p < .001$), Hypothesis 1 is supported. This indicates that university employees do indeed perceive SIT following PCB, such that as the degree of PCB increases, so does the degree of SIT.

Hypothesis 2 predicted a positive relationship between SIT and PCV. Given that SIT was positively associated with PCV in the model ($\beta = .91$, $p < .001$), Hypothesis 2 is supported. This indicates that university employees do indeed perceive PCV following SIT, such that as SIT increases, so does PCV.

Hypothesis 3 predicted that SIT would partially mediate the relationship between PCB and PCV. The model shows that PCB has an indirect effect on PCV through SIT ($\beta = .60$, $p < .001$). The formal two-tailed significance test demonstrated that this indirect effect was significant (Sobel $z = 10.81$, $p < .001$). Bootstrap results confirmed the Sobel test since the bootstrapped 95% confidence interval for the indirect effect did not contain zero (i.e. .49-.71). Since the direct effect between PCB and PCV is still significant ($\beta = .24$, $p < .001$), this means that SIT only partially mediates the relationship between PCB and PCV. These results provide support for Hypothesis 3.

Hypothesis 4a predicted a positive relationship between PCV and seeking social support. Based on the significant regression weight for PCV ($\beta = .19$, $p < .05$), hypothesis 4a is supported. Hypothesis 4b predicted a positive relationship between PCV and organizational retaliation. Based on the significant regression weights for PCV ($\beta = .21$, $p < .05$), hypothesis 4b is supported. Table 4 shows the results from these analyses.

TABLE 3
REGRESSION RESULTS FOR SIMPLE MEDIATION FOR HYPOTHESES 1-3

Predictor	B	SE	T	
PCB to Mediator				
SIT	.66***	.04	17.15***	
Direct Effect of Mediators on PCV				
SIT	.91***	.05	18.47***	
Gender	-.04	.04	-1.21	
Age	.09	.05	1.92	
Tenure	-.01	.05	-0.29	
Institution	.00	.04	0.05	
Indirect Effect of Mediator on PCV				
SIT	.60***	.05	10.81***	.49-.71
Direct Effect of PCB on PCV				
	B	SE	Z	R ²
Direct Effect of PCB on PCV	0.24***	0.06	5.00***	.71

* p < .05, ** p < .01, *** p < .001

TABLE 4
REGRESSION ANALYSIS RESULTS FOR HYPOTHESES 4A AND 4B

Variable	Seeking Social Support		Organizational Retaliation	
	Step 1	Step 2	Step 1	Step 2
Control Variables				
Gender	.09	.12	-.02	.01
Age	.00	-.05	.02	-.04
Tenure	.06	.10	-.06	-.01
Institution	.16+	.17*	.07	.09
Main Effect				
PCV		.19*		.21*
F	1.19	1.87	0.27	1.36
ΔF	1.19	4.46*	0.27	5.70*
R ²	.03	.07	.01	.05
ΔR ²	.03	.03*	.01	.04*
Adjusted R ²	.01	.03	-.02	.01

+ p < .10, * p < .05, ** p < .01, *** p < .001

DISCUSSION

The purpose of this paper was to examine one mechanism, SIT, through which we believe PCB creates negative outcomes. In doing this, we sought to advance research on psychological contracts in three ways. First, we wanted to direct attention to identity issues, which have not often been associated with PCB research. Second, we wanted to examine a potential mediator, SIT, of the PCB-PCV relationship that has not been previously considered in the literature. Third, we wanted to examine additional outcomes of PCB that have not been given prior attention in the literature. To address these research questions, we introduced the construct of SIT by discussing the group-value model from which it stems. We then brought in research on identity threats and emotions to hypothesize that 1) PCB would be related to SIT, 2) SIT would be related to PCV, 3) SIT would partially mediate the relationship between PCB and PCV, and 4) PCV would result in the use of two coping strategies. We collected data from 386 university staff to test these predictions and found support for all of our hypotheses.

Research Implications

Our results highlight four important points for future psychological contract research. First, the fact that SIT was a mediator of the PCB-PCV relationship is interesting in a couple of ways. One, it links identity issues to psychological contracts, which has not often been done in prior research. This means that PCB can communicate to the employee that he or she is not respected, has low standing, and is not a valued member of the organization and thus damage an employee's sense of self-worth. Two, it gives us clues about what employees are upset about when they experience PCB, which is necessary to understanding how to manage around PCB. Given that we know PCB is inevitable, we will highlight these practical implications below. However, PCB researchers should definitely consider identity issues in their future research.

Second, SIT gives us clues about what type of negative emotions employees experience within PCV. PCV is a negative affective reaction, but there is little information about what discrete emotions are involved despite the fact that several researchers have noted the importance of emotions in psychological contract research (Zhao et al, 2007; Conway & Briner, 2002; Morrison & Robinson, 1997). It seems likely that the emotions employees experience will depend on why they are upset about PCB. For example, if they are upset about PCB for SIT reasons, then we would expect emotions like anger and betrayal (much like we found in this study). At some point, a greater understanding of the mediators may help us predict the discrete emotions that will follow PCB, which will help us better predict which outcomes will occur. This study serves as one step in this direction, but more research is needed.

Third, our study is among the few to have examined potential mediating mechanisms of the PCB-PCV relationship. Our results show that SIT partially mediates this relationship, rather than fully mediates it. This suggests that SIT is part of the answer to the question, "why do people get upset about PCB," but clearly there are others. Given how little we know about the mechanisms of the PCB-PCV relationship, this study is the first step to better understanding why some employees have an emotional reaction to PCB and others do not. Future research is needed in order to examine whether SIT is a key mechanism even when other mediators are included. It would be especially interesting to see which mechanism emerges as the strongest, as well as under which conditions each mechanism is most often triggered.

Fourth, the results show that viewing PCB through the SIT "lens" suggests additional outcomes of PCB that have not yet been considered. More specifically, the results provide some evidence that employees deal with PCV in a variety of productive and non-productive ways, such as seeking social support and organizational retaliation. More interesting is the fact that employees are likely to seek social support in order to deal with the negative affect associated with a broken promise, whether it is for instrumental or emotional reasons. This suggests the possibility of a "contagion" effect whereby other employees hear about the organization breaking promises to co-workers, which could result in them wondering whether the same fate awaits them and thus adjust their psychological contracts. Additional research is needed to examine whether this occurs for other types of employees following PCB, as well as which employees are more likely to seek social support and which are more likely to be influenced by

hearing about PCB from a co-worker. In terms of the other coping strategy we examined in this study, while the occurrence of retaliation was relatively low in our sample (i.e. only a 1.25 mean on a scale of 1-5), we still found a significant relationship between PCV and retaliation. It is important to be aware then that some employees will react to PCB by retaliating against their employer. Future research should examine the conditions under which one coping strategy is more likely to be used by an employee than another. It seems likely that personality traits could play a key role in determining this. For example, extraversion and neuroticism could play a role in predicting seeking social support, while negative affectivity and attitudes towards revenge could play a role in predicting retaliation.

Managerial Implications

These results also have important implications for managers. First, since SIT occurs when employees feel devalued, unappreciated, and insignificant, it is important for managers to communicate the opposite to employees on a regular basis. A formal reward and recognition program could help achieve this, as could informal positive feedback (e.g. a thank you, a “pat on the back,” etc.) when employees do a good job on a project or task. A positive HR philosophy and effective HR systems can go a long way in proving to employees that they are indeed valued by the organization.

Second, this study showed that not all PCB results in PCV. Therefore, when PCB occurs, managers have an opportunity to intervene prior to employees having a negative emotional reaction that may lead to negative attitudes and behaviors. Knowing that SIT is an important mediator of the PCB-PCV relationship, there are some things managers can do to influence employees’ attitudes and behaviors following PCB, such that they may be able to prevent both SIT and its consequences (e.g. PCV). For example, the group-value model (Lind & Tyler, 1988; Tyler & Lind, 1992; Tyler, 1994) would suggest that, in order to avoid SIT, managers need to communicate to their employees how important and valuable they are to the organization. In addition, managers who must deliver bad news about a broken promise to employees should try to reassure them that it is not a reflection on their worth or value.

Finally, given that employees were found to seek social support from their co-workers, it would be smart for managers to pay attention to the climate of PCB within their department in order to nip any possible contagion effect in the bud.

Limitations

Despite these significant findings, there are several limitations to this study that need to be noted. First, this study utilized a cross-sectional survey, which raises the potential for common-method bias. However, this limitation should be balanced against the benefit that this study is one of the first to test a potential mediator of the PCB-PCV relationship, as well as the first to test SIT as a mediator. In addition, given that psychological contracts are inherently individualistic, it is reasonable to expect that the employee that has lived through the experience is best equipped to describe what that process was like. Finally, our strong reliabilities and CFA results provide evidence for construct validity, which helps to mitigate these common-method concerns (Conway & Lance, 2010).

Second, despite the variety of respondents we had across the university, there is the question of the generalizability of the results. Although we have no reason to expect that university employees will react differently than other types of employees, additional studies may be necessary to see if these effects replicate to other employees in other contexts.

Finally, our response rate is a potential limitation in that there is a chance that our sample does not accurately represent the population. To protect against this, we did control for potential differences between the sample and population (e.g. gender). Furthermore, our response rate is not unusually low in the psychological contract literature, given that several past studies have reported response rates below 50% (e.g. Restubog et al, 2008; Guerrero & Herrbach, 2008; Lo & Aryee, 2003).

Conclusion

Overall, our results suggest that SIT plays a key role in the effects of PCB in organizations, which opens up a whole new arena of research for psychological contracts. It stresses the role that identity issues

play in psychological contract processes. It highlights the importance of emotions in better understanding how PCB will influence employee attitudes and behaviors, which was supported by a recent meta-analysis (Zhao et al, 2007). It also highlights how people must cope with these emotions in some manner, which suggests additional outcomes that have not yet been considered in the literature. Therefore, more research on psychological contracts needs to examine the role of SIT and PCV, as they appear fruitful for better understanding PCB in the workplace.

REFERENCES

- Aquino, K., & Douglas, S. (2003). Identity threat and antisocial behavior in organizations: The moderating effects of individual differences, aggressive modeling, and hierarchical status. *Organizational Behavior and Human Decision Processes*, 90: 195-208.
- Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review*, 14: 20-39.
- Bentler, P.M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin*, 112: 400-404.
- Bies, R. J. (1999). Interactional (in)justice: The sacred and the profane. In J. Greenberg & R. Cropanzano (Eds.), *Advances in organizational behavior*. San Francisco: The New Lexington Press.
- Bordia, P., Restubog, S.L., & Tang, R.L. (2008). When employees strike back: Investigating mediating mechanisms between psychological contract breach and workplace deviance. *Journal of Applied Psychology*, 93: 1104-1117.
- Breakwell, G. M. (1986). *Coping with threatened identities*. London: Methuen.
- Carver, C.S., Scheier, M.F., & Weintraub, J.K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56: 267-283.
- Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences, 3rd edition*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Conway, J.M., & Lance, C.E. (2010). What reviewers should expect from authors regarding common method bias in organizational research. *Journal of Business and Psychology*, 25: 325-334.
- Conway, N., & Briner, R. B. (2002). A daily diary study of affective responses to psychological contract breach and exceeded promises. *Journal of Organizational Behavior*, 23: 287-302.
- Conway, N., & Briner, R. B. (2005). *Understanding psychological contracts at work: A critical evaluation of theory and research*. New York: Oxford University Press, Inc.
- Crocker, J., & Park, L. E. (2004). The costly pursuit of self-esteem. *Psychological Bulletin*, 130: 392-414.
- Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review*, 108: 593-623.
- De Rivera, J. (1977). *A structural theory of the emotions*. New York: International University Press.
- Deery, S. J., Iverson, R. D., & Walsh, J. T. (2006). Toward a better understanding of psychological contract breach : A study of customer service employees. *Journal of Applied Psychology*, 91: 166-175.

- Dulac, T, Coyle-Shapiro, J.A-M, Henderson, D.J., & Wayne, S.J. (2008). Not all responses to breach are the same: The interconnection of social exchange and psychological contract processes in organizations. *Academy of Management Journal*, 51: 1079-1098.
- Folkman, S., & Lazarus, R.S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21: 219-239.
- Folkman, S., & Lazarus, R.S. (1985). If it changes it must be a process: A study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 48: 150-170.
- Fridja, N. H. (1986). *The emotions*. New York: Cambridge University Press.
- Fugate, M., Kinicki, A. J., & Prussia, G. E. (2008). Employee coping with organizational change: An examination of alternative theoretical perspectives and models. *Personnel Psychology*, 61: 1 -36.
- Geddes, D., & Konrad, A. M. (2003). Demographic differences and reactions to performance feedback. *Human Relations*, 56: 1485-1513.
- Guerrero, S., & Herrbach, O. (2008). The affective underpinnings of psychological contract fulfillment. *Journal of Managerial Psychology*, 23: 4-17
- Hinkin, T.R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, 1: 104-121.
- Hogg, M. A., & Abrams, D. (1988). *Social identifications*. London: Routledge.
- Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6: 1-55.
- Judge, T.A., Locke, E.A., & Durham, C.C. (1997). The dispositional causes of job satisfaction: A core-self evaluations approach. *Research in Organizational Behavior*, 19: 151-188.
- Kickul, J. (2001). When organizations break their promises: Employee reactions to unfair processes and treatment. *Journal of Business Ethics*, 29: 289-307.
- Lazarus, R.S. (1991). *Emotion and adaptation*. New York: Oxford Press.
- Lazarus, R.S. (1999). *Stress and emotion: A new synthesis*. New York: Springer Publishing.
- Lazarus, R. S. (2001). Relational meaning and discrete emotions. In K. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research*: 37-67. London: Oxford Press.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lester, S. W., Turnley, W. H., Bloodgood, J. M., & Bolino, M. C. (2002). Not seeing eye to eye: Differences in supervisor and subordinate perceptions of and attributions for psychological contract breach. *Journal of Organizational Behavior*, 23: 39-56.
- Lind, E. A., & Tyler, T. R. (1988). *The social psychology of procedural justice*. New York: Plenum.

- Lo, S., & Aryee, S. (2003). Psychological contract breach in a Chinese context: An integrative approach. *Journal of Management Studies*, 30: 1005-1020.
- Major, B., & O'Brien, L. T. (2005). The social psychology of stigma. *Annual Review of Psychology*, 56: 393-421.
- Montes, S.D., & Irving, P.G. (2008). Disentangling the effects of promised and delivered inducements: Relational and transactional contract elements and the mediating role of trust. *Journal of Applied Psychology*, 93: 1367-1381.
- Morrison, D. E. (1994). Psychological contracts and change. *Human Resource Management*, 33:353-372.
- Morrison, E. W., & Robinson, S. L. (1997). When employees feel betrayed: A model of how psychological contract violation develops. *Academy of Management Review*, 22: 226-256.
- Nunnally, J.C., & Bertstein, I.H. (1994). *Psychometric theory*, 3rd edition. New York: McGraw-Hill
- Othman, R., Arshad, R., Hashim, N.A., & Isa, R.M. (2005). Psychological contract violation and organizational citizenship behavior. *Gadjah Mada International Journal of Business*, 7: 325-349.
- Preacher, K.J., & Hayes, A.F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36: 717-731.
- Preacher, K.J., & Hayes, A.F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40: 879-891.
- Restubog, S.L.D., Hornsey, M.J., Bordia, P., & Esposito, S.R. (2008). Effects of psychological contract breach on organizational citizenship behaviour: Insights from the group value model. *Journal of Management Studies*, 45: 1377-1400.
- Robinson, S. L., & Morrison, E. W. (2000). The development of psychological contract breach and violation: A longitudinal study. *Journal of Organizational Behavior*, 21: 525-546.
- Robinson, S. L., & Rousseau, D. M. (1994). Violating the psychological contract: Not the exception but the norm. *Journal of Organizational Behavior*, 15: 245-259.
- Rousseau, D. M. (1989). Psychological and implied contracts in organizations. *Employee Responsibilities and Rights Journal*, 2: 121-139.
- Rousseau, D. M. (1995). *Psychological contracts in organizations: Understanding written and unwritten agreements*. Thousand Oaks, CA: Sage Publications, Inc.
- Schlenker, B. R. (1980). *Impression management: The self-concept, social identity, and interpersonal relations*. Monterey, CA: Brooks/Cole.
- Sedikides, C., & Brewer, M. B. (2001). *Individual self, relational self, collective self*. Philadelphia: Psychology Press.
- Sims, R. R. (1994). Human resource management's role in clarifying the new psychological contract. *Human Resource Management*, 33: 373-382.

- Skarlicki, D.P., & Folger, R. (1997). Retaliation in the workplace: The roles of distributive, procedural, and interactional justice. *Journal of Applied Psychology*, 82: 434-443.
- Smith, H. J., & Tyler, T. R. (1997). Choosing the right pond: The impact of group membership on self-esteem and group-oriented behavior. *Journal of Experimental Social Psychology*, 33: 146-170.
- Smith, H. J., Tyler, T. R., Huo, Y. J., Ortiz, D. J., & Lind, E. A. (1998). The self-relevant implications of the group-value model: Group membership, self-worth, and treatment quality. *Journal of Experimental Social Psychology*, 34: 470-493.
- Sobel, M.E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological Methodology*, 290-312. Washington DC: American Sociological Association.
- Sousa, F. H., & Vala, J. (2002). Relational justice in organizations: The group-value model and support for change. *Social Justice Research*, 15: 99-121.
- Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, vol. 21: 261-302. San Diego: Academic Press.
- Sutton, G., & Griffin, M. A. (2004). Integrating expectations, experiences, and psychological contract violations: A longitudinal study of new professionals. *Journal of Occupational and Organizational Psychology*, 77: 493-514.
- Tajfel, H., & Turner, J. C. (1985). The social identity theory of intergroup behavior. In S. Worchel & W.G. Austin (Eds.), *Psychology of intergroup relations*, vol. 2: 7-24. Chicago: Nelson-Hall.
- Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, and coercive actions*. Washington, D.C.: American Psychological Association.
- Turnley, W. H., & Feldman, D. C. (2000). Re-examining the effects of psychological contract violations: Unmet expectations and job dissatisfaction as mediators. *Journal of Organizational Behavior*, 21: 25-42.
- Tyler, T. R. (1989). The psychology of procedural justice: A test of the group-value model. *Journal of Personality and Social Psychology*, 57: 830-838.
- Tyler, T. R. (1994). Psychological models of the justice motive: Antecedents of distributive and procedural justice. *Journal of Personality and Social Psychology*, 67: 850-863.
- Tyler, T. R., & Blader, S. L. (2003). The group engagement model: Procedural justice, social identity, and cooperative behavior. *Personality and Social Psychology Review*, 7: 349-361.
- Tyler, T. R., DeGoey, P., & Smith, H. (1996). Understanding why the justice of group procedures matters: A test of the psychological dynamics of the group-value model. *Journal of Personality and Social Psychology*, 70: 913-930.
- Tyler, T. R., & Lind, E. A. (1992). A relational model of authority in groups. In M. Zanna (Ed.), *Advances in experimental social psychology*, vol. 25: 115-191. New York: Academic Press.

Wade-Benzoni, K.A., Rousseau, D.M., Li, M. (2006). Managing relationships across generations of academics: Psychological contracts in faculty-doctoral student collaborations. *International Journal of Conflict Management*, 17: 4-33.

Weick, K.E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.

Zhao, H., Wayne, S. J., Glibkowski, B. C., & Bravo, J. (2007). The impact of psychological contract breach on work-related outcomes: A meta-analysis. *Personnel Psychology*, 60: 647-680.

The Use of Psychological Capital, Humility, and Discrepancy Theory as Inputs for Strategy and Sociotechnical Systems: Phase One of an Action Research Case Study

**Lachlan R. Whatley
Benedictine University
Trinity Western University**

This Action Research, Phase I, case study describes one of the first efforts to use Psychological Capital and Humility surveys in a Top Management Team (TMT) to assess an appropriate intervention method for making changes to an organization's strategic direction. These surveys, together with Discrepancy Theory, led to a superior understanding of the dynamics within the TMT and the importance of context, thus greatly aiding further investigations of learning within the organization. This journey led to an ideal environment for considering the organization's future strategy and Sociotechnical Systems, and for understanding how to aid in the development of the individuals.

PROLOGUE

Weisbord (2004) asserted that one of the characteristics of Lewin's "Practical Theories" was that you can only understand human behavior in relation to all forces acting on a person at a given point in time, which is consistent with Lewin's commonly cited phrase, "If you want to know the system you must first seek to change it." Lewin also asserted that, ideally, "[n]ot only could you solve the problem, you could simultaneously study your own process and thereby refine the theory and practice of change" (Weisbord, p. 77). These two notions are the essential tenets of both Action Research (AR) and Sociotechnical Technical Systems (STS).

Coghlan and Brannick (2010) and Coghlan (2011) suggested that AR change efforts occur from philosophical perspectives that differ from those of the traditional, third person social sciences. Coghlan alluded to AR being a new research method — a third method — as an alternative to quantitative and qualitative methods where the very nature of the inquiry is "action" and the outcome is "research." Cummings and Worley (2009) placed STS as a specific method of AR by stating that STS "techniques and design principles [were] derived from extensive AR in both public and private organizations across national cultures" (p. 386). Cummings and Worley stated that STS has two foundational principles underlying its approach: firstly, the sociotechnical element — the belief that all organizing is a combination of a social element (the human side) and a technical part (task performance); and secondly, the environmental element — the belief that systems are open to their environments. These two principles create the essence of all "self-managed teams." Although Lewin was the first to discuss the relationship between the environment/context and individual behavior, the work of Fred Emery and Eric Trist at the Tavistock Institute is, without question, viewed as the birthplace of STS.

Currently, we are experiencing unprecedented, non-stop environmental turbulence accompanied with a progressively accelerating rate of change. Emery and Trist (1965) stressed the importance for organizations to understand and not miss the importance of their environments. Over time, Clarke (1994) and others (Mirvis, 1988, 1990; Van De Ven & Poole, 1995; Nadler & Tushman, 1999; Pettigrew, Woodman, & Cameron, 2001; Morgan, 2006) have reaffirmed these observations. Weisbord (2004) borrowed the term “permanent whitewater” (p. 185) from Vaill (1996) to depict a world of “accelerated change, growing uncertainty, [and] increasingly unpredictable global connections of economics, technology, and people ... producing [relentless and often unfathomable] ‘irreversible general change’” (p. 186). Pettigrew, Woodman, and Cameron suggested that our understanding of change is changing, while Morgan suggested that the very idea of change as manageable should be questioned, or “[i]s it part of our psychic prison? If so, the ultimate challenge of this chapter [of his book], a new seed, may be to recognize the emergent nature of change” (p. 290). Perhaps the most important aspect of change — how we interpret and view it — shapes more of our organizations than we realize, thus the assertion by Whatley and Kliever (2012) that “change is social construction in flight” (p. 2) is all the more important within AR and STS as a lens for a change intervention. It is exactly because of this change in our understanding — the move toward change being viewed as socially constructed — that the role of the first person and the second person, as suggested by Coghlan (2011), is even more important within all change interventions.

In light of the two observations above that 1) there is an increase in the role and importance of context; and 2) our understanding of the nature of change itself is changing, the purpose of this paper is to focus on using reliable and valid measurement tools, such as Psychological Capital (PsyCap) and a Healthy Humility Index (HHI), combined with discrepancy theory to determine the appropriate intervention method within the “context and purpose” pre-step stage of AR. To this end, this paper: firstly, provides a brief description of the company and the context of the case study; secondly, reviews the theoretical background of the constructs — AR, STS, PsyCap, HHI, and discrepancy theory — used within the case study; and finally, by reflecting on the process, identifies possible contributions to the literature that may have implications for research and the tools and techniques that may aid the practice of OD.

THE COMPANY AND THE CONTEXT

In this particular study, commencing October 2011, the owners wanted to implement a strategic plan to position the company for the future. The owners of the company consisted of five individuals and were made up as follows: 1) one silent partner (30%); 2) the retiring president and previous owner of 19 years (25%); 3) one of the senior manufacturing managers with 31 years of experience in the company (15%); and two up-and-coming managers (15% each). The top management team (TMT) consists of all the owners, all of whom were involved in the pre-step stage, although the silent partner was not involved in the day-to-day operations of the business.

This ownership structure came into place after the president decided that he wanted less time in the “main chair” and wanted to transition to the next generation. The desire to venture into a strategy session or the development of a strategic plan came after 18 months of this significant change in ownership, combined with an outstandingly successful year, and yet, an organization that seemed to be out of “sync” (President, personal communication, Oct 2011). Previously, the company had undertaken a strategy planning activity in 2003 that was described by the TMT as “only mildly successful.”

The TMT had identified a few firms that might be able to aid them in a strategic planning exercise, one of which was the writer’s firm. During exploratory discussions with the TMT, the writer stressed that they needed to appreciate that strategy is not really a document but more about a way of thinking, and that the outcome may or may not be what they expect. In these preliminary discussions, the writer also stressed that change is difficult, and strategy only works when it moves all the way to job design, because this is where, according to an STS philosophy, the behaviors occur and stem from. Additionally, it was emphasized that the process would, in order to be done well, take at least 18 months. This was important

to this writer, since the firm had already undertaken a strategy exercise without much success and this experience was now a hurdle to future success. Secondly, the writer also wanted to ensure that the TMT had the “staying power” to stick it out when the intervention got difficult, knowing that it would.

After a couple of discussions, the TMT engaged the writer to facilitate a two-day “strategy session.” The objectives of this strategy session were to attain clarity and understanding of the “current state” of the company and to discuss potential directions for moving forward. In order to do this, the two-day session addressed what strategy, change, and leadership are and are not, combined with reviewing the entire company’s results over the previous two years — everything from the financials, employee turnover, job descriptions, and planning documents to procedures. In addition, the results of some preliminary surveys (including PsyCap and HHI) of the TMT were discussed and reviewed at the strategy session, while, at the same time, the writer introduced the TMT to the known theories and their implications, a form of Action Learning (AL). This strategy session was critical in the process, as it enabled the parties — the writer, and the owners of the company — to experience each other prior to making a longer-term commitment to any change intervention, which is consistent with Whatley and Kliever’s (2012) assertion that it is essential for the consultant to ensure there is congruence between the context, the intervention method, and the consultant’s identity.

It is against this background or “stage” that the remainder of this paper links the existing research and application of that research to the identification of new research and implications for both practitioner and scholar.

THE PRACTICE OF GOOD THEORY

Nothing is as practical as good theory and all action should be based on theory.
Lewin (1947)

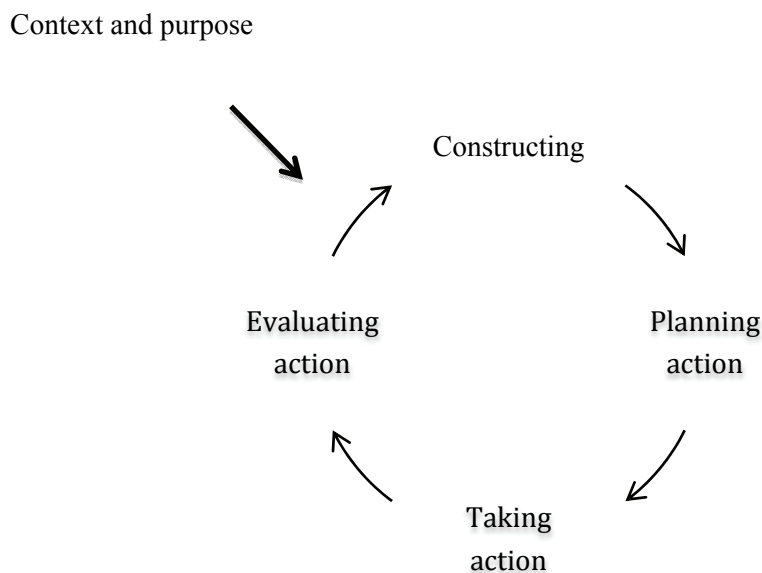
Cummings and Worley (2009) defined “classic” AR as a tool for focused, planned change: ... a cyclical process in which initial research about the organization provides information to guide subsequent action. Then the results of the action are assessed to provide further information to guide further action, and so on. This iterative cycle of research and action involves considerable collaboration among organization members and OD [Organizational Development] practitioners. It places heavy emphasis on data gathering and diagnosis¹ prior to action planning and implementation, as well as careful evaluation of results after action is taken. (p. 24)

In addition, Cummings and Worley detailed a nine-step process (consisting of problem identification, consultation with a behavioral science expert, data gathering and preliminary diagnosis, feedback, joint diagnosis of the problem, joint action planning, action, and data gathering after action) that underscores most “planned change.” Shani and Pasmore (1985) developed a somewhat more pragmatic definition where they highlighted the importance of “real world problems” and the need to develop “self-help” competencies within the organization’s members, while, at the same time adding to “scientific” knowledge. Shani and Pasmore suggested that there are four unique phases of AR. Firstly, there are the contextual factors that involve individual goals of the actors, their motivations, organizational culture/climate, and capability to participate in AR, in addition to the current economic and industry influences. Secondly, there is the quality of the relationships between the various actors, where they suggest trust needs to be the foundational tenet. Thirdly, there should be concern for the quality of the AR itself. Quality within AR, according to Shani and Pasmore, is predicated on ensuring there is equal focus on inquiry and implementation. And, finally, the outcomes, the final results, are: 1) some level of improved sustainability for the organization; and 2) the development of competencies out of the action, which leads to the creation of new knowledge. Clearly, Shani and Pasmore went through a process of condensing and combining Cummings and Worley’s (2009) nine elements into four.

Coghlan and Brannick (2010) built on Shani and Pasmore’s (1985) definition and showcased four broad characteristics that encompass AR. They strongly asserted that the main focus of AR is “research in action” and, thus, “inquiry in action,” which they asserted is foundational, while “collaboration” is a value

of the process. They asserted that “inquiry in action” leads to the critical characteristics of planning, taking action, and evaluating action, all of which leads to further planning, and so the cycle continues (see Figure 1). This results in a continuous spiral, similar to the notion of double loop learning coined by Argyris (2002). As a result, AR is closely aligned with AL; however, not only is AL concerned with this idea of the core cycle of construction, planning, taking action, and evaluating action, but it is also concerned with a second cycle of reflection on the process of AR itself — a notion that is supported by the works of Zuber-Skerritt and Perry (2002) and Argyris (2003). This observation is particularly relevant, given that with the last strategic planning endeavor done by the company there was little to no learning achieved since the members of the TMT felt they were back to the same point — although not exactly the same point — and had little appreciation for what strategy is and is not, and a general sense that the previous intervention had not been “successful.” There was also the general sense that something was missing; however, the learning had not occurred to specifically articulate what was missing. This is what AL within AR should resolve.

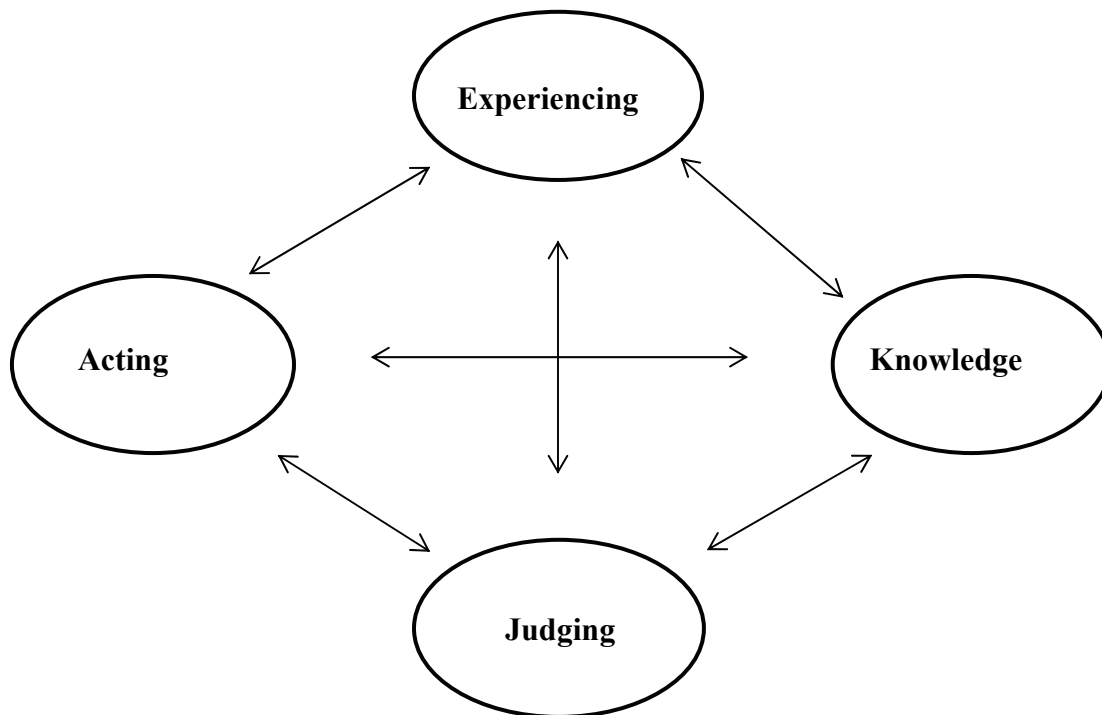
FIGURE 1
THE ACTION RESEARCH CYCLE



Coghlan and Brannick (2010)

The key to having a comprehensive understanding of AR is to appreciate how meta-learning occurs and/or should occur within the process, both inwardly (for the individuals within the organization) and outwardly (for the entire organization). If that learning had occurred among the TMT in the first strategic planning experience, there would have been no need to have an external person facilitate the “strategy” process a second time. And, since that was not the case, the writer determined that the TMT needed to review the concepts of strategy in order to ensure there was unity of understanding. The learning aspects of AL within AR were addressed by Coghlan and Brannick (2010) by masterfully integrating Lonergan’s (1971) dynamic cognition model and its four frames — experiencing, understanding, judging, and decision/action — to explain the learning process occurring for the individual (see Figure 2). While, for organizational learning, Coghlan and Brannick suggested the works of Burke (2008), Senge (2006), and or Schein (1996) as sources for explaining the ideal learning environment.

FIGURE 2
VISUAL REPRESENTATION OF LONERGAN'S DYNAMIC COGNITIVE STRUCTURE



Lonergan (1971)

In this particular study, we (the TMT and the writer) focused on the pre-step stage of AR, which comprises “context and purpose” (see Figure 1). As asserted by Whatley and Kliewer (2012), “context trumps method” (p. 3) and the right method in the wrong context will not work. This highlights that having an understanding of the organizational context and purpose is essential to any change intervention and, thus, work done at the front to fully appreciate and understand the context and purpose is time well spent. This was, in essence, the main objective of the strategy session — to ensure that the TMT had a consistent understanding of the concepts of strategy, change, and leadership, and to enable the writer to have a more thorough understanding of the “actors” and their “stage.” One question clearly stood out in the strategy session: What is the best intervention method to use for this organization at this point in time? This, then, leads us into a discussion of STS.

Emery saw multiskilling as the real key to removing parent-child-type supervisory relationship.
Weisbord (2004, p. 178)

Within AR, strategy could be considered through an STS approach, since strategy, if done “well,” has to ultimately influence job design and structure to promote the individual desired behaviors. This approach is consistent with the views of Cummings and Worley (2009) who emphasized STS under the area of self-managed teams and part of “work design” and, thus, considered it part of organizational structure — structuration theory. STS is concerned with the optimization of both the social and technical aspects of work systems and how they interact with the various subcontexts within and outside of the organization. This occurred since STS evolved out of an engineering approach, which predominately focused on efficiency (optimization) and motivation theories which, in turn, looked at job enrichment, job meaning, and knowledge of results (Cummings & Worley, 2009). At its core, STS is about joint

optimization — that is, when both the social and technical systems are designed to fit the demands of each other and the operational context.

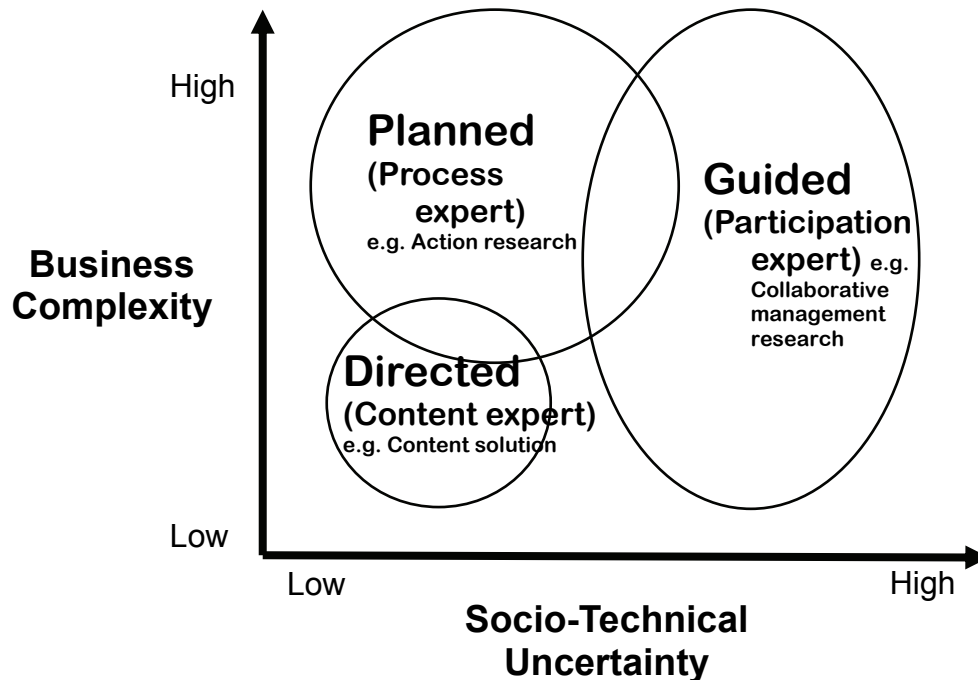
Van Eijnatten, Shani, and Leary (2008) suggested that there are three subfields of STS that have emerged: STS theory, STS design, and STS change and development process. STS theory and STS design are concerned with the elements of structure and work design, while STS change and development process is concerned with creating and transforming organizations. Thus, it is considered a “comprehensive” planned change process. Van Eijnatten, Shani, and Leary asserted that this method uses an AR orientation and provides linkages to strategy, system diagnosis and analysis, and learning structures and systems. As a result, it is a very relevant intervention approach for the case under consideration.

Interestingly, STS has evolved around the world with different nuances existing between North America, Australia, France, Scandinavia, and the Netherlands, yet, as asserted by Van Eijnatten, Shani, and Leary (2008), the common elements are: firstly, organizations are open systems and, thus, the use of systems theory; secondly, organizations optimize performance when there is self-regulation, democracy, and participation from all employees; thirdly, STS is considered a comprehensive planned change process. The differences between these countries are small, subtle distinctions as a result of different degrees of emphasis on either the social, technical and/or structural design elements (Van Eijnatten, Shani, & Leary). In other words, the emphasis is derived from epistemological or ontological beliefs of that culture or their experiences. In this particular case study, the writer is Australian/Canadian, while the members of the company’s TMT are Canadian, with the company residing in Western Canada.

During the two-day strategy session, all of the available company metrics were reviewed. The group identified two significant positives from the data: 1) higher return on equity (ROE) than the industry average — a function of superior profit margins and an outstanding total asset turnover (significantly larger than the industry average), and 2) sales growth that was in excess of the industry average. These two positives showcased the company’s ability to achieve the task — that is, get the job done. However, the group identified two significant, equally important, negatives from the data: 1) employee turnover within the last year was greater than 50%; and 2) the amount of TMT overtime was excessive (over 30 hours of overtime per week). These two metrics concerned the more senior members of the TMT the most and they were of the opinion that the sound results — ROE and sales growth — were not there, because of the high turnover and excessive TMT overtime, and, more importantly, the strong results would not be sustainable over the long term if employee turnover and excessive TMT overtime were not addressed. This line of thinking became increasingly more of a concern over the pre-step stage as the TMT became more knowledgeable about strategy, leadership, change, STS, and the importance of their perceptions and assumptions. This was the beginning of an appreciation of the importance of knowing one’s individual state in order to be an effective group member, as suggested by Whatley (2012), and aided in building self-awareness on the part of members of the TMT.

The work of Kerber and Buono (2005, 2010) proposed a change complexity typology based on business complexity and STS uncertainty. According to Kerber and Buono’s model for classifying the type of change intervention, the company in the case study is well suited for “planned change.” And, using Kerber and Buono’s typology for change intervention, Whatley and Kliewer (2012) mapped particular intervention methods against particular change typologies (see Figure 3). According to this model, the use of AR, and specifically STS, would be considered an appropriate method for this company, in light of the four key results discussed above. As a result of this analysis, it became clear that structure, policy, and operating procedures would have to shift in order to address the two major concerns identified. This naturally led to the question: Do the members of the TMT really believe that they can change? — and, thus, this leads to a discussion of PsyCap.

FIGURE 3
APPROACHES TO CHANGE TYPOLOGIES, INTERVENTION METHOD AND
CONSULTANT USE OF SELF



Whatley and Kliewer (2012)

Psychological ownership is the state in which individuals feel as though the target of ownership is theirs.

Pierce, Kostova, and Dicks (2003, p. 86)

As part of the required preparation for the strategy session, the author requested that each member of the TMT complete the PsyCap 24 questionnaire (Luthans, Youssef, & Avolio, 2007), the collective results of which would then be shared at the strategy session. While intellectual capital is “what you know,” and social capital is “who you know,” in essence, Psychological Capital (PsyCap) is about “who you are” and, more importantly, “who you are becoming” (Luthans, Youssef, & Avolio, p. 20). What distinguishes PsyCap from other psychological tests is the developmental piece of “moving (developing) from the actual self (human, social, and psychological capital) to the possible self” (Avolio & Luthans, as cited in Luthans, Youssef, & Avolio, p. 26). As a result, PsyCap is a multi-dimensional construct consisting of Hope, Efficacy, Resiliency, and Optimism (the H.E.R.O. within, see Luthans, Youssef, Avolio, 2007). Well established within the positive psychology literature, these four constructs have solidly established PsyCap as a reliable predictor. Hope is defined as “a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-directed energy) and (2) pathway (planning to meet goals)” (Snyder, Irving, & Anderson, 1991, p. 287). Efficacy is “one’s conviction (or confidence) about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context” (Stajkovic & Luthans, 1998, p. 66). Resilience is “the capacity to rebound or bounce back from adversity, conflict, failure, or even positive events, progress, and increased responsibility” (Luthans, 2002, p. 702). Finally, optimism is the general disposition or outlook the individual uses to interpret events external to him or herself.

Most recently, PsyCap has been shown to be a predictor of a number of individual level, organizational performance outcomes such as employee satisfaction, commitment, turnover, and individual organizational behaviors, such as citizenship and deviance (Avey, Reichard, Luthans, & Mhatre, 2011). Additionally, within this same meta-analysis study, there was a negative correlation between undesirable employee attitudes (cynicism, turnover, intentions, job stress, and anxiety) and undesirable employee behaviors (deviance).

In this particular case study, the resulting PsyCap measures for the individual members of TMT were exceptionally high — with the lowest within the TMT at 71% and the highest at 91%. Collectively, the TMT's PsyCap results came out to a low of 79% and a high of 85%. Interestingly enough, the highest individual element in every case was Efficacy, which is the most important aspect (highest load factor) of the measurement tool itself. These high PsyCap scores are important, as they indicate that the members of the TMT have a propensity to genuinely believe that they can shape their destiny and play a role in moving from the self-as-is to the self-as-could-be (possible self) — an outlook that is important for the success of any change initiative. Yet, the still unanswered question within this strategy session was: Are the TMT really teachable? — thus, leading to an examination of their character and, specifically, their humility.

The truly humble man never knows that he is humble.
Singh, 1967, as cited in Tangney (2000, p. 78)

It was not until the birth of Positive Psychology and its “leaking” into Positive Organization Scholarship (POS) that we, collectively, began to consider the importance of virtues (Cameron, 2003), wisdom (Weick, 2003), and transcendent behavior (Bateman & Porath, 2003), and humility (Tangney, 2002). Prior to POS, these constructs (all virtues) were thought of as being much too “religious” in nature — something that “real” science had little time to consider — but, collectively, it now appears that we can return to these “old” constructs without the fear of being misinterpreted. Perhaps, the urgency of the present context now requires new solutions, such that it matters less “where” valid and reliable answers come from.

Historically, the virtue of humility has not received much attention within the academic literature, nor, in general, at the academy, and there have been only a few scholars (such as Vera & Rodriguez-Lopez, 2004; Collins, 2005; Morris, Brotheridge, & Urbanski, 2005; Senge, 2006; and Nielson, Marrone, & Slay, 2010) who have suggested or implied some importance of humility to leadership, strategy, or more contemporary constructs of organizing. Others have identified humility as a component of Values in Action (VIA) (Park & Peterson, 2003; and Park, Peterson, & Seligman, 2004) where humility is identified as one of the several positive individual character strengths that are reflected in all thoughts, feelings, and behaviors. Fry (1998), Casey (2001), and Exline, Campbell, Baumeister, Joiner, and Krueger (2004) all concur that humility is a state of “being” that enhances learning.

Exline and Geyer's (2004) seminal work showcased that, although there was no agreement around definitions, people generally viewed humility as a positive construct. Yet, it was Quiros (2006) who suggested that humility existed on a continuum (see Figure 4) with an “unhealthy” level at one end and a “healthy” level at the other. Quiros' humility continuum was similar to Aristotle's notion of a “mean virtue” within a spectrum, while Peterson and Seligman (2004) suggested all virtues represent an intention or disposition to do that which is “right” or “good” and, so, humility can be thought of as that crest of human excellence between arrogance and lowliness. In addition, Grenberg (2005) suggested that Kant, an icon in philosophy, believed humility to be so important because it was the “meta-attitude which constitutes the moral agent's proper perspective on himself” (p. 133), and, thus, was foundational to all other virtues.

FIGURE 4 HUMILITY CONTINUUM

Unhealthy humility ←-----→ Healthy humility

Quiros (2006)

Tangney (2002) states that the elements of humility include:

1) an accurate assessment of one's abilities and achievements (not low self-esteem or self-deprecation); 2) an ability to acknowledge one's mistakes, imperfections, gaps in knowledge, and limitations (often vis-a-vis a "higher power"); 3) openness to new ideas, contradictory information, and advice; 4) keeping one's abilities and accomplishments – one's place in the world – in perspective (e.g., seeing oneself as just one person in the larger scheme of things); 4) a relatively low self-focus, a "forgetting of the self," while recognizing that one is but one part of the larger universe; 5) an appreciation of the value of all things, as well as the many different ways that people and things can contribute to our world. (p. 413)

In summary, a humble person subordinates him or herself to a belief that he or she is not perfect or in control and, as such, is constantly attempting to be teachable (Fry, 1998) and consistently seeks accurate self-knowledge, reflection, and a desire to personally improve (Tangney, 2002; Quiros, 2006; Peterson & Seligman, 2004; Owens, 2009; and Ou, 2011). Templeton (1997) suggested that humble people are aware of their talents and abilities yet know their limitations, which Emmons (1999) would claim enabled them to put their strengths in place. This balance, Ou (2011) stated, "keeps them from being both arrogant and self-contemptuous" (p. 14), while Grenberg (2005) claimed the humble are not afraid of disclosing themselves and admitting mistakes. According to Morris, Brotheridge, & Urbanski (2005), knowing they fall short on an "ideal" that feeds their desire to learn and makes them available to learn.

Tangney (2000), in attempting to develop a definition for humility as a multidimensional virtue, asserted that it is imperative to also ensure that humility is distinct and separate from other related concepts. This is particularly important in light of a desire to determine or develop accurate measurement tools. Campbell and Fiske (1959) identified that a critical component of measurement validity is to ensure that there is discrimination validity, and this is particularly relevant in any study of humility, given its nature. In agreement with Ryan (1983), Tangney stated that humility is not low self-esteem, "nor an understatement of one's abilities, accomplishments, or worth" (p. 74). As Tangney pointed out, humility is related to, but very distinct from, both modesty and narcissism. Modesty only captures one aspect of humility, and, as such, one can be modest, but not truly humble. Thus, humility is a higher test than modesty, since if you are humble you are also modest. Tangney's very important distinction does not appear to be embraced by Park and Peterson (2003) since they placed modesty and humility together as part of the same virtue within their Values In Action (VIA) taxonomy. Additionally, narcissism lacks many of the essential elements, as determined by Tangney; however, this does not mean that low narcissists are humble, since, although they can see their own place within the world, they may not be able to have a deep appreciation of others.

Tangney (2000, 2002) asserted that we are still within the early stages of scientifically studying virtues with the single largest challenge being the lack of a valid measurement tool. Tangney identified two main dimensions of humility to be considered within a measurement tool: dispositional and situational. The dispositional dimension, "state-like," is concerned with the individual and his or her individual character, while the situational dimension is concerned less with personality and individual characteristic differences and more with understanding under what conditions/circumstances an

individual's humility increases. In this particular case study, due to the relative "newness" of studying this construct, only dispositional humility was measured.

Since there are many challenges in deriving a valid dispositional humility index separate from mixed radar methods, only three have been developed and tested since Tangney's (2000, 2002) seminal theoretical foundation. All the indices were developed and validated by PhD students as part of their dissertations. The first was by Quiros (2006), who obtained a doctorate in psychology and developed, over two separate studies, the HHI made up of an 11-item scale scored on a 6-point Likert scale, demonstrating a sound reliability (0.8285). This index was then further validated by a third study, which considered the relationships between humility and self-esteem, hope, existential meaning, depression, and anxiety. The essence of this index (self-assessing) is that there are four major factors influencing an individual's disposition toward humility, those being: 1) other-focused; 2) spirituality (a higher purpose and being); 3) accurate self-perception; and 4) openness.

The second dispositional humility index was developed by Owen (2009), a doctoral candidate within a business school, who focused on the role of humility within the context of organizational leadership. Within Owen's study, there was the development of both a self-report and an other-report (measurement of) humility index. Owen also examined the strength of the index relative to consciousness, global self-efficacy, and general mental ability. The major factors influencing humility within Owen's index were: 1) willingness to view oneself accurately; 2) appreciation of others' strengths; and 3) teachability. The final stage of Owen's research was to link humility to leadership in an attempt to explore the implications of humility within a particular situation.

The third dispositional humility index was developed by Ou (2011), a business student who focused on the development of an "other report" and was the first researcher to quantify humility and leadership behavior. Ou specifically linked humility and its relationship to the Top Management Team, TMT, and their ability to implement an empowering organizational climate. Ou's work showed that CEO humility was positively related to CEO empowering leadership; CEO empowering leadership was positively related to TMT integration and empowering organizational climate; and empowering organizational climate was positively related to middle managing ambidexterity.

Of the three existing humility measurements, there are small subtleties between them that may stem from differences in their authors' worldviews. Within Owen's (2009) definition of humility, there is a noticeable absence of spirituality, yet both Quiros (2006) and Ou (2011) placed significant importance on the spiritual or the transcendental element of the indices they derived. Ou used Quiros' index as a starting point for her research and then added the additional element of the transcendental aspects. For Tangney (2000, 2002), Emmons (1999), Quiros (2006), and Ou (2011), one's spirituality/religion was an essential element of humility, while Emmons also claimed that individual personality is very much influenced by one's motivation, which is derived from one's spirituality. Thus, the writer can only speculate that Tangney, Emmons, Quiros, and Ou were no longer concerned with being perceived as "nonscientific" in defining humility as a construct in relation to notions of philosophy or spirituality/religion.

Because of its psychology roots and its proven reliability and validity, for purposes of this case study, Quiros' HHI index was selected as a means to measure the individual dispositional humility of all members of the TMT. The results showed that the lowest individual HHI score was 76%, while the highest was 91% and the average for the TMT was 85%. These high results indicate that the members of the TMT have a strong propensity to being open to hearing new ideas, learning from their mistakes, and, essentially, are teachable. As a result, prior to the strategy session, we discovered that the TMT had high levels of the key ingredients of PsyCap and of the virtue of humility. What was then needed was the ability to aid them in seeing multiple futures and a way in which they could begin to navigate the different possible directions that were available to the organization.

The TMT needed a means to aid them in seeing multiple alternatives that would aid them in eventually reframing the possible future of the company and the multiple possible steps to that future — and thus, the importance and role of discrepancy theory.

*For the strength of the Pack is the Wolf,
and the strength of the Wolf is the Pack.*
Kipling (1894)

The notion of shared cognition, which Busche and Coetzer (2007) defined as “shared cognitive structures and processes at the group level” (p. 193), has greatly aided our collective understanding of the dynamics within groups. In other words, who we are as individuals is influenced by who we are within a group. Individual discrepancy theory proposes that the degree of discrepancy between cognitive domains possessed by an individual — referred to as self-state representation — represents particular emotional situations. The self-state representations comprise the actual self-state representations (self-concept) and both the “ideal” and “ought” self-state representations (self-guides). The ideal self represents the hopes, aspirations, and wishes for the self, whereas the ought self represents beliefs about the duties, obligations, and responsibilities of the self. An example of the significant differences between the ideal self and the ought self is the “conflict between a hero’s ‘personal wishes’ and his or her ‘sense of duty’” (Higgins, 1987, p. 321). The research at the individual level has shown that discrepancies between the self-concept and the self-guides are associated with a variety of affects (Higgins, 1987; and Higgins, Bond, Klein, & Strauman, 1986). Busche and Coetzer’s (2007) groundbreaking research used discrepancy theory at the group level and showed that relationships between “membership” and “competence” of the group can be predicted by the extent to which there is congruence and convergence between the group-state ought and group-state ideal.

In this case study, discrepancy theory was used at the strategy session to discuss the future of the company, the members of the TMT, and all other groups/teams within the company and the individuals who work there. Essentially, within this case, discrepancy theory was used at both the TMT level and the company/organizational level. In so doing, all of the dialogue within the pre-step stage of AR was in relation to the “actual,” “ideal,” and “ought” in regards to the TMT and the organization. Within this case, the use of discrepancy theory greatly aided the individual TMT members to identify priorities, possibilities, and next steps for strategy formulation and implementation. These three clear reference points aided in the interpretation of data that unfolded within the pre-step stage of AR over the course of the two-day strategy session, particularly when combined with an understanding of the TMT’s PsyCap and HHI results. And, most importantly, given the high PsyCap and HHI scores (indicating the existence of behavioral skills to influence future states, combined with the skills to learn), the use of discrepancy theory was even more impactful.

CONTRIBUTIONS TO THEORY AND PRACTICE

Since AR is essentially a pragmatic model of inquiry, it can be argued that the contribution to theory is limited and the contribution to practice is only specific under identical contexts. However, it is possible that there are reoccurring themes or patterns that would only be attained or identified through the rigorous process of research through a variety of cases. Additionally, it can also be argued that not only is case analysis practice useful, but, as in this case, it can show the applied application of other theories within the “field,” which only adds to the validity of the theory being used. In this particular case, the use of PsyCap, HHI, and discrepancy theories were all further supported by their application within the field. In addition to the above contribution, upon reflection of the pre-step stage approach taken within this case (an STS method within AR combined with the use of discrepancy theory), there are four specific contributions to both practice and theory for the field of OD, as discussed below.

PsyCap was an excellent tool to aid in determining the “general disposition” of the TMT toward a better or different future for the organization. Additionally, since the members of the TMT learned of the

notion of PsyCap, its four elements, and of the importance of self agency, they have all subsequently commented that this learning changed their thinking. Their meta-cognition had been challenged. As one of the members of the TMT stated, “It’s one thing to believe you can do something; it’s another to know you have the behaviors to achieve it. What a powerful tool for aiding myself and others.” As a result, this case study clearly identified that PsyCap has significant potential as a pre-step assessment tool within AR for both the assessment of the “readiness for change” and the ability to be successful in the change effort itself.

Humility is a new construct within OD literature, and, as a result, there is much skepticism around its validity and reliability. In this particular case, the HHI results indicated a large acceptance to learn, to grow, and to be teachable — teachable to what was needed. In a discussion on the group results for the HHI, the TMT member with the highest humility score, but without knowledge of his own individual score, stated, “I have never really considered myself as humble; however, I definitely would like to think of myself as a being available to learn, even when I didn’t want to hear what I needed to learn.” As a result, this case study suggests a finding that scoring high on humility may be a good indicator of one’s willingness to learn and, thus, has potential as a pre-step assessment tool within AR.

The importance of STS and emphasizing the separation of the individual behavior and motivation from the structural support within the organization was an excellent way of explaining and aiding cognition of the TMT. From the analysis of the PsyCap and HHI results, the two-day strategy session was designed to focus on individual behaviors and motivation, and how they are the underlying drivers to overall performance. This discussion, integrated with the analysis of the overall company performance, was only considered possible due to the high scores on both the PsyCap and HHI indices. This provided an avenue to discuss the differences between the two main aspects of STS: 1) human behaviors; and 2) the structural elements that the organization puts in place to support those behaviors. The use of such tools allowed the TMT to see the importance of aligning the structures within the organization in order to increase the chances of getting the desired behaviors. As one member of the TMT stated, “I just had not thought of thinking about the two [structure and behavior] as separate, yet connected pieces.” Thus, this case study supports the idea that STS is a sound way to aid others in the reframing how TMT consider and reflect on their organization.

Finally, discrepancy theory was used as a way of separating “ideal” states from “best possible” states, under the circumstances. Through this process, members of the TMT were able to place their context within the post, current, immediate future (ought), and preferred future (ideal — although not necessarily attainable). As a result, it took the burden of trying to be “ideal” or “perfect” off the table and enabled the TMT to explore the idea of being “best” under the circumstance context. This was best expressed by the TMT member who stated, “Talking about an ought [best under the circumstances] position or outcome is significantly more forgiving and realistic than an ideal. Context has such an influence on the decisions that we need to allow this in our planning, and, until this discussion, we’ve just never thought about it.” As a result, the use of discrepancy theory (aiding in the collective cognition of appreciating the difference between the group/organizational ideal state and the group/organizational ought state) was an excellent tool/method for considering the implications of context and determining the appropriate next steps.

POSTLUDE

This concludes the theoretical and practical contributions of this AR case study. The case has shown that PsyCap and HHI measures greatly aided within the pre-step stage of this STS AR by identifying whether the TMT had the behavioral elements necessary to realistically undertake a significant change effort. Additionally, the use of discrepancy theory aided the TMT in negotiating the various paths forward by aligning them with considering their “ought” or best future, given their current context/circumstance. And thus concludes Phase One of our journey.

1. Coghlan and Brannick (2011) would refer to diagnosis as “constructing.”

REFERENCES

- Argyris, C. (2002). Double loop learning, teaching and research. *Academy of Management Learning and Education*, 1(2), 206-218.
- Argyris, C. (2002). Double loop learning, teaching and research. *Academy of Management Learning and Education*, 1(2), 206-218.
- Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resources Development Quarterly*, 22(2), 127-152.
- Bateman, T. S., & Porath, C. (2003). Transcendent behavior. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 122-137). San Francisco: Berrett-Koehler Publishers, Inc.
- Burke, W. W. (2008). *Organizational change: Theory and practice* (2nd ed.). Thousand, Oaks: Sage Publication.
- Busche, G. R., & Coetzer, G. H. (2007). Group development and team effectiveness: Using cognitive representatives to measure group development and predict task performance and group viability. *The Journal of Applied Behavioral Science*, 43(2), 184-242.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminate validation by the multirait-multimethod matrix. *Psychological Bulletin*, 56, 81-105.
- Cameron, K. S. (2003). Organizational virtuousness and performance. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline*. (pp. 48-65). San Francisco: Berrett-Koehler Publishers, Inc.
- Casey, M. (2001). *A guide to living in the truth: Saint Benedict's teaching on humility*. Liguori MO: Liguori/Trumph.
- Clarke, A. T. (1992). Humility. In D. H. Ludlow (ed.), *Encyclopedia of Mormonism*. (pp. 663-664). NY: Macmillan.
- Clarke, L. (1994). *The essence of change*. Hemel Hempstead, UK: Prentice Hall.
- Coghlan, D. (2011). Action research: Exploring perspective on a philosophy of practical knowing. *The Academy of Management Annals*, 5(1), 53-87.
- Coghlan, D., & Brannick, T. (2010). *Doing action research in your own organization* (3rd ed.). London: Sage.
- Collins, J. (2005). Level 5 Leadership: The triumph of humility and fierce resolve. *Harvard Business Review*, 83, 136-146.
- Cummings, T. G., & Worley, G. C. (2009). *Organization development & change* (9th ed.). Mason, OH: South-Western Boulevard.

- Emery, F. E., & Trist, E. L. (1965). The causal texture of organizational environments. *Human Relations*, 18(1), 21-32.
- Emmons, R. A. (1999). *The psychology of ultimate concern: Motivation and spirituality in personality*. NY: The Guilford Press.
- Exline, J. J., & Geyer, A. L. (2004). Perceptions of humility: A preliminary study. *Self and Identity*, 3, 95-114.
- Exline, J. J., Campbell, W. K., Baumeister, R. F., Joiner, T., & Krueger, J. (2004). Humility and modesty. In C. Petersin & M. Sligman (Eds.) *The values in action (VIA) classification of strengths*. Cincinnati, OH: Values in Action Institute.
- Fry, T. (Ed.). (1998). *The rule of Saint Benedict in English*. NY: Vintage Books.
- Grenberg, J. M. (2005). *Précis of Kant and the ethics of humility: A story of dependence, corruption and virtue*. Cambridge, MA: Cambridge University Press.
- Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, 94(3), 319-340.
- Higgins, E. T., Bond, R. N., Klein, R., & Strauman, T. (1986). Self discrepancy and emotional vulnerability: How magnitude, accessibility, and type of discrepancy influence affect. *Journal of Personality and Social Psychology*, 51, 5-15.
- Kerber, K. W., & Buono, A. F. (2005). Rethinking organizational change: Reframing the challenge of change management. *Organizational Development Journal*, 23(3), 23-38.
- Kerber, K. W., & Buono, A. F. (2010). Invention and organizational change: Building organizational change capacity. In A. F. Buono & D. W. Jamieson (Eds.), *Consultation of organizational change* (pp. 15-40). Charlotte, NC: Information age publishing, Inc.
- Lonergan, B. (1971). *Method in theology*. Toronto, Ontario: University of Toronto Press.
- Luthans, F. (2002). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior*, 23, 695-583.
- Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological Capital*. NY: Oxford.
- Mirvis, P. H. (1988). Organization development: Part I – An evolutionary perspective. *Research in organizational change and development: Vol. 2*. Stamford, CT: JAI Press. Inc.
- Mirvis, P. H. (1990). Organization Development: Part II – A revolutionary perspective. *Research in Organizational Change and Development* (Vol. 4), p. 1-66.
- Morgan, G. (2006). *Images of organizations: Updated edition of the international bestseller*. Thousand Oaks, CA: Sage Publication Inc.
- Morris, J. A., Brotheridge, C. M., & Urbanski, J. C. (2005). Bringing humility to leadership: Antecedents and consequences of leader humility. *Human Relation*, 58(10), 1323-1350.

- Nadler, D., & Tushman, M. (1999). The organization of the future: Principles of design for the 21st Century. *Organizational Dynamics*, 28(1), 45-60.
- Nielson, R., Marrone, J. A., & Slay, H. (2010). A new look at humility: Exploring the concept and its role in socialized charismatic leadership. *Journal of Leadership Studies*, 17(1), 33-43.
- Ou, Y. (2011). *CEO Humility and its relationship with middle manager behaviors and performance: Examining the CEO-Middle manager interface*. Dissertation Abstracts International, (UMI No. 3453511).
- Owen, B. P. (2009). *Humility in Organizational Leadership*. Dissertation Abstracts International, (UMI No. 3370531).
- Park, N., & Peterson, C. M. (2003). Virtues and organizations. In K. Cameron & G. Spreitzer (Eds.) *Handbook of Positive Organizational Scholarship* (pp. 33-47). NJ: Oxford University Press.
- Park, N., Peterson, C. M., & Seligman, M. E. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology*, 23(5), 603-619.
- Peterson, C., & Seligman, M. (2004). *Character strengths and virtues: A handbook and classification*. NY: Oxford University Press.
- Pettigrew, A. M., Woodman, R. W., & Cameron, K. S. (2001). Studying organizational change and development: Challenges for future research. *Academy of Management Journal*, 44(4), 697-713.
- Quiros, A. E. (2006). *The development, construct validity, and clinical utility of the Healthy Humility Inventory*. Dissertation Abstracts International, (UMI No. 3280499).
- Ryan, D. S. (1983). Self-esteem: An operational definition and ethical analysis. *Journal of Psychology and Theology*, 11, 295-302.
- Schein, E. H. (1996). Kurt Lewin's change theory in the field and in the classroom: Note toward a model of managed learning, *Systems Practice*, 9(1), 27-48.
- Senge, P. M. (2006). *The fifth discipline: The art and practice of the learning organization*. NY: Doubleday Publishing.
- Shani, A. B. (Rami), & Pasomore, W. A. (1985). Organization inquiry: Towards a new model of the action research process. In D.D. Warrick (ed.), *Contemporary organization development: Current thinking and applications* (pp. 438-448). Glenview, IL: Scott, Foresman.
- Shani, A. B. (Rami), Mohrman, S. A., Pasmore, B. A., Stymne, B., & Adler, N. (2008). *Handbook of collaborative management research*. Los Angeles, CA: Sage Publications.
- Snyder, C. R., Irving, L., & Anderson, J. (1991). Hope and health: Measuring the will and the ways. In C.R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 285-305). Elmsford, NY: Pergamon.
- Stajkovic, A. D., & Luthans, F. (1998). Social cognitive theory and self-efficacy: Going beyond traditional motivational and behavioral approaches. *Organizational Dynamics*, 26, 62-74.

- Tangney, J. P. (2000). Humility: Theoretical perspectives, empirical findings and directions for future research. *Journal of social and clinical Psychology, 19*(1), 70-82.
- Tangney, J. P. (2002). Humility. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology*. NY: Oxford University Press.
- Templeton, J. M. (1997). *Worldwide Laws of Life*. Philadelphia: Templeton Foundation Press.
- Vaill, P. B. (1996). *Learning as a way of being: Strategies for survival in a world of permanent while water*. San Francisco: Jossey-Bass.
- Van De Ven, A. H., & Poole, M. S. (1995). Explaining development and change in organizations. *Academy of Management Review, 20*(3).
- Van Eijnatten, F. M., Shani, A. B. (Rami), & Leary, M. M. (2008). Sociotechnical systems: Designing and managing sustainable organizations, In Thomas Cummings (Ed.), *Handbook of organization development* (pp. 277-309). Los Angeles, CA: Sage Publications.
- Vera, D. & Rodriguez-Lopez, A. (2004). Strategy virtues: Humility as a source of competitive advantage. *Organizational Dynamics, 33*(4), 393-408.
- Weick, K. E. (2003). Positive organizing and organizational tragedy. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 66-80). San Francisco: Berrett-Koehler Publishers, Inc.
- Weisbord, M. R. (2004). *Productive workplaces revisited: Dignity, meaning, and community in the 21st century*. San Francisco: Jossey-Bass.
- Whatley, L. R. (2012). Individual “states” model for healthy group dynamics. *Organization Development Journal, 30*(3): 40-53.
- Whatley, L. R., & Kliewer, H. (2013). Contextual influences on team effectiveness & consultant identity: Implications for consulting & consultation. In Press. *Journal of Leadership, Accountability and Ethics, 10*(1).
- Zuber-Skerritt, O., & Perry, C. (2002). Action research within organizations and universities thesis writing. *The Learning Organization, 9*(4), 171-9.

Person-Environment Fit in Non Standard Work: Insights from Workers with Limited Expectations of Continued Employment

Kang Yang Trevor Yu
Nanyang Technological University

This study investigates nonstandard work through the lens of person-environment (PE) fit theory. Based on a sample of employees with limited expectations of continued employment in Singapore, PE fit is observed to be an important component of these individuals' work experiences. Findings suggest that demands-abilities fit was strongly associated with the organizational commitment and job satisfaction of nonstandard workers. Furthermore, needs-supplies fit was also associated with commitment but not satisfaction. In contrast, value congruence was only weakly associated with commitment and not at all related to satisfaction. Implications of applying PE fit to the study of nonstandard work are discussed.

INTRODUCTION

Nonstandard work is becoming a more and more prominent employment arrangement in today's modern economy. As of 2005, contingent work accounted for at least 1.8 percent of total employment in the United States, while independent contractors, on-call, temporary help, and workers provided by contract firms further totaled approximately 14.8 million or 10.7% of total employment (BLS report, 2005). This phenomenon is not just constrained to the US. The developed economies of Europe and Asia have all experienced considerable growth in nonstandard work during the past decades (Kalleberg, 2000; Kalleberg, Reskin, & Hudson, 2000).

Prevalent conceptualizations describe standard workers as those who work on a fixed schedule, at the employer's location, under the employer's administrative authority, and with the shared expectation of continued employment (Ashford, George & Blatt, 2007; Pfeffer & Baron, 1988; Kalleberg et al., 2000). Thus, *nonstandard* workers operate in conditions where one or more of the above conditions are not fulfilled. As such, they include temporary workers, contract employees, and even part-timers (George & Chattopadhyay, 2005). As a comprehensive investigation of all types of nonstandard workers is beyond the scope of this study, this study focuses on individuals who do not have the shared expectation of continued employment, which is one of the key dimensions of nonstandard work (Pfeffer & Baron, 1988).

To cope with their growing presence, organizations and their managers need to know how to design nonstandard jobs to create conducive working environments for nonstandard employees (Feldman, Doeringhaus, Turnley, 1994). Unfortunately, the applicability of current knowledge in the context of nonstandard work is questionable because most of it has been developed based on assumptions of standard employees who work a fixed number of hours daily while holding the expectation of long-term employment with the same company (Ashford et al., 2007). The current study seeks to address this issue by assessing the relevance of person-environment (PE) fit to the above-mentioned group of nonstandard workers.

PE fit is a widely-used framework in the study of individual attitudes and behavior (Edwards, 2008). In highlighting the importance of satisfying the individual needs of employees and designing jobs that suit their abilities, PE fit research often presumes that individuals are involved in long-lasting and stable employment relationships (Kristof-Brown, Zimmerman & Johnson, 2005). Hence, some could say that this perspective might be less useful when individuals work without expectations for continued employment because the absence of such expectations may compromise the perceived benefits of PE fit (e.g. social support and learning opportunities), many of which may require a sustained relationship with an employer over a good amount of time.

On the other hand, PE fit might be especially applicable to nonstandard work. Past research on nonstandard work has typically adopted a one-sided approach by either focusing on individual factors such as demographics (Ellingson, Gruys & Sackett, 1998; Lee & Johnson, 1991), or environmental factors like work conditions to understand the experience of nonstandard work (Martin & Peterson, 1987; Van Dyne & Ang, 1998). PE fit can thus serve as a unifying analytical tool to incorporate *both* individual and environmental factors within the context of nonstandard work. Furthermore, nonstandard work also serves as an ideal context for testing the boundaries of widely used frameworks like PE fit (Ashford et al., 2007). In particular, it is important to ask if and how established relationships between PE fit and individual experiences are altered by the unique conditions that are experienced by non-standard workers such as the lack of expectations for continued employment and/or significantly reduced time on the job. Thus, noting the lack of research on nonstandard work utilizing PE fit theory despite its potential, this study seeks to provide insight to the crucial but unexplored question of: “How important is PE fit to nonstandard workers?”

The current study focused on PE fit’s relationship with two fundamental types of job attitudes: Organizational commitment and job satisfaction. These attitudes are widely-considered important aspects of nonstandard work experience and have been the focus of numerous studies (Ashford et al., 2007; Galais & Moser, 2009; McGinnis & Morrow, 1990). However, most investigations on them have been conducted based on the loose premise that nonstandard workers receive less favorable inducements and work under poorer social and task-based conditions compared to their standard worker counterparts (Aletraris, 2010; Eberhardt & Shani, 1984; McLean Parks, Kidder & Gallagher, 1998). Consequently, results to date have been inconsistent at best, suggesting that the nonstandard employment status alone cannot accurately account for the work attitudes of nonstandard workers (Ang & Slaughter, 2001). This study deals with this issue by using PE fit theory to gain insight to how characteristics of both individuals and their work environments are related to their work attitudes under nonstandard work arrangements.

Hypotheses Development

PE fit refers to the congruence, match, or similarity between a person and the environment (Edwards, Caplan & Harrison, 1998). According to Kristof (1996, c.f. Muchinsky & Monahan, 1987), the three main types of fit involve fit between individual needs and provisions supplied by the environment or needs-supplies (NS) fit (Dawis & Lofquist, 1984); individual abilities and environmental demands or demands-abilities (DA) fit (Edwards, 1996); and similarity between individuals and their social environments (e.g. supplementary fit or value congruence) (Chatman, 1989; Posner, 1992). Unfortunately, past research has tended to only focus on isolated relationships involving one or two of the above mentioned types of fit (Edwards & Shipp, 2007). Thus, in addition to testing the relevance of the PE fit to nonstandard work, this study also improves on current research on this topic by investigating and comparing relationships involving all three different types of fit to individuals working under such arrangements (Jansen & Kristof-Brown, 2006).

Needs-Supplies Fit

Edwards (2008) recommends focusing on specific forms of relationships involving person and environment when investigating PE fit. This requires thinking about how an outcome varies as environmental supplies approach individual needs. In needs-supplies (NS) fit psychological needs are compared against environmental supplies that often take the form of extrinsic (e.g. pay) and intrinsic (e.g. job autonomy and relationship support) resources provided by employers. Following significant recent PE

fit research utilizing the intrinsic dimensions of personal needs (Cable & Edwards, 2004; Edwards & Cable, 2009), this investigation centers around NS fit based on two fundamental aspects of jobs: *autonomy* (i.e. individual control over the nature and timing of one's job activities) and *relationships* (i.e. personal and social connections shared with other people at work (Baumeister & Leary, 1995)). These dimensions were also chosen because they represent aspects of work that are especially pertinent in the context of nonstandard work. *Relationships* have constantly been highlighted as an important aspect of nonstandard work. For instance, feelings of isolation impact many nonstandard employees (Feldman et al., 1994; Feldman & Bolino, 2000). Others have also pointed out that nonstandard employees are especially concerned about how they get along with others at work (Ashford et al., 2007; George & Chattopadhyay, 2005). Similarly, the need for *autonomy* is often cited as a key concern why people opt for nonstandard work (Kunda et al., 2002; Marler, Barringer & Milkovich, 2002)¹.

NS fit impacts the commitment and satisfaction of nonstandard workers because they respond to the degree to which employer provisions are able satisfy their own needs (Ellingson et al., 1998). According to social exchange theory, nonstandard employees with limited expectations of continued employment tend to contribute on the job in response to how well their individual needs are being met (Parker, Griffin, Sprigg & Wall, 2002). Thus, commitment should increase as supplies increase toward individual needs because nonstandard employees feel an increasing need to reciprocate as employer provisions of job autonomy and supportive work relationships gradually meet their needs. Previous research has documented that nonstandard workers feel indebted and committed in response to having their psychological needs met (Liden, Wayne, Kraimer & Sparrow, 2003).

Contrastingly, commitment should *decrease* as organizational supplies exceed the amount that individuals need because over-supply may actually engender negative reactions. For instance, the provision of too much autonomy to nonstandard workers may compromise their opportunities to learn from others on the job, compromising a key reason why nonstandard workers remain with their jobs (Burger & Cooper, 1979). The lack of learning opportunities could be a factor why such workers become unattached to their jobs and employers. Furthermore, nonstandard workers also typically lack the time and organizational tenure that is required to fully utilize excess supplies of work relationships. Individuals need to be with an employer for a significant amount of time before they can utilize the benefits of positive relationships and social networks within the organization. Hence, the perceived political benefits of relationship networks that exceed personal needs may not exist for such workers due to their limited expectations of continued employment relationships. Thus, the lack of expectations for continued employment suggests that commitment should decrease once these nonstandard workers' psychological needs are met.

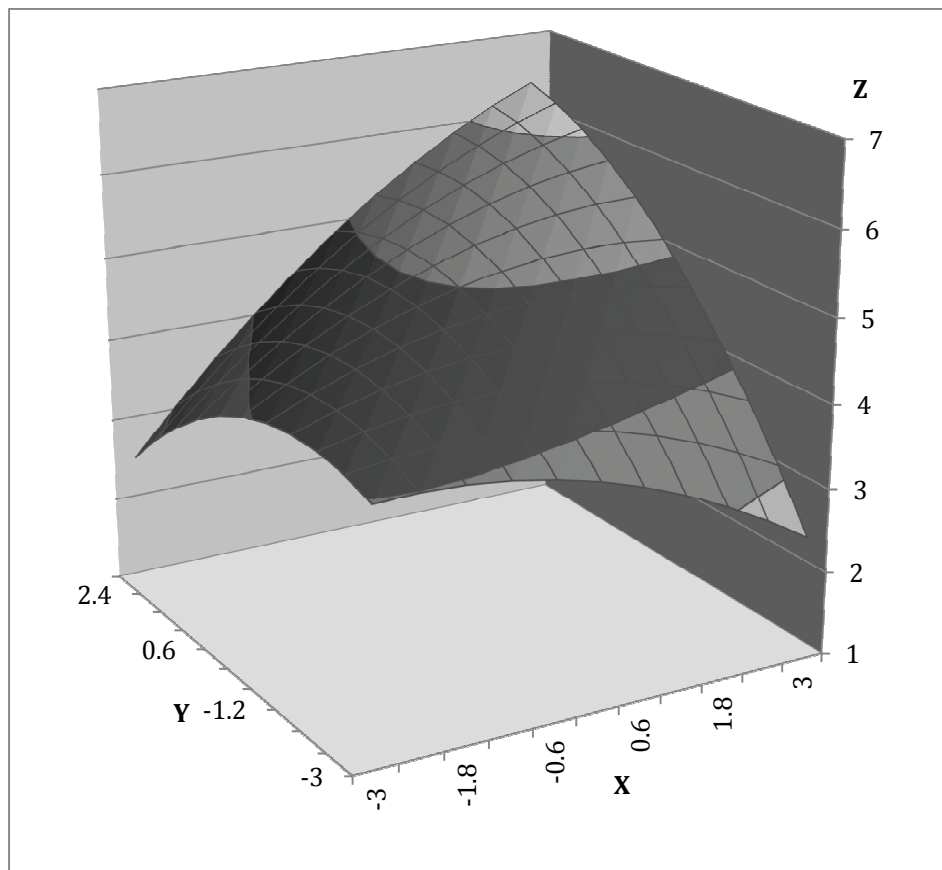
Hypothesis 1: NS fit will be related to organizational commitment in such a way that commitment will increase as organizational supplies increase toward individual needs and will decrease as supplies exceed needs.

Nonstandard workers' limited expectations of a long-term employer relationship and reduced time spent within the social context of their organizations cause them to be especially focused on the transactional nature of their work. Hence, it is important that their individual needs are fulfilled by the conditions experienced on the job (McLean Parks et al., 1998). Job satisfaction should thus improve as supplies increase toward personal needs (Locke, 1976). Conversely, organizational supplies that exceed personal needs could potentially have a negative impact on satisfaction where too much autonomy is accompanied by a lack of guidance, which in turn creates disturbing job-based uncertainty (Webster & Kruglanski, 1994). Similarly, work relationships that exceed the amount desired by individuals can also impinge in individuals' private space. This situation may be especially salient for individuals who opt for such nonstandard work because of other non-work related commitments (Maynard, Thorsteinson & Parfyonova, 2006).

Hypothesis 2: NS fit will be related to job satisfaction in such a way that satisfaction will increase as organizational supplies increase toward individual needs and will decrease as supplies exceed needs.

For illustrative purposes, the above hypothesized relationships linking NS fit to commitment and satisfaction are reflected graphically in the three-dimensional surface Figure 1. Needs and supplies are the horizontal axes perpendicular to one another and the outcome is represented on the vertical axis.

FIGURE 1
THREE DIMENSIONAL SURFACE ILLUSTRATING HYPOTHESIZED RELATIONSHIP
BETWEEN NS FIT AND WORK ATTITUDE



Note. Needs and supplies are scale centered, where -3 represents “none” and +3 represents “a very great amount”.

Demands-Abilities Fit

Fit between job demands and nonstandard worker ability is also important. Abilities can take the form of skills, knowledge, time, and energy that people use to meet environmental demands, while demands are job requirements that range from objective (e.g. required work hours) to subjective (e.g. role expectations) (Edwards, 1996). Ang and Slaughter’s (2001) work on contract employees in the technology industry indicates that contractors respond poorly when they are not provided with jobs that suit their ability. Thus, DA fit impacts work attitudes because nonstandard workers are generally concerned about how their respective skills are used by their employers.

Commitment should increase as demands approach individual abilities because nonstandard workers appreciate increasing employer attempts to assign them appropriate work that matches their skills and

thus they reciprocate this with feelings of loyalty (Hundley, 2001). However, some caution that exceedingly high demands may overwhelm employees who may in turn feel taken advantage of and react negatively as a result (Edwards et al., 1998; Golden & Veiga, 2005). This feeling of being taken advantage of may be especially salient to workers who know that they will only be with an employer for a limited time, which lessens the possibility that they will be able to reap the benefits of future rewards that may be offered to workers who take on exceedingly challenging roles within a company. Thus, commitment should decrease once demands exceed abilities.

Hypothesis 3: DA fit is related to organizational commitment in such a way that commitment will increase as job demands increase toward individual abilities and will decrease as demands exceed abilities.

Job satisfaction should also increase as job demands increase towards individual abilities because nonstandard workers are likely to experience a sense of competence when they are able to fulfill role expectations (Edwards & Shipp, 2007). This may be especially true for nonstandard workers who want to make the most of their limited time on the job. Feelings of being bored, dissatisfied, and “underemployed” have been documented in circumstances where there is a lack of challenging work demands (Feldman, 1996; Fisher, 1993). On the other hand, satisfaction should decrease when job demands exceed individual abilities because people would feel overwhelmed and stressed by excess responsibilities and role expectations (Edwards, 1996). Their lack of a permanent employer relationship would also exacerbate dissatisfactory feelings of being shortchanged in such a situation. Overall, these ideas echo recommendations to design jobs that fit nonstandard worker abilities (Marler, Barringer & Milkovich, 2002).

Hypothesis 4: DA fit will be related to job satisfaction in such a way that satisfaction will increase as job demands increase toward individual abilities and will decrease as demands exceed abilities.

Supplementary Fit

Supplementary fit refers to the similarity between characteristics of people and other individuals in their social environment. It is most commonly represented by studies of value congruence (VC) between individuals and their organizations (i.e. person-organization fit) (Chatman, 1989). While past research has uncovered significant relationships between VC and job attitudes, such research was based in settings where individuals usually had expectations of continued employment and full-time work occupied a majority of people’s lives (Kristof-Brown, et al., 2005). In the absence of such conditions, VC may not be so influential on the attitudes of nonstandard workers. The benefits of VC like improved communication and trust would seem less important when people know that they would only be with the organization for a limited period. Furthermore, the impact of VC on interpersonal attraction would also be less important for individuals working on reduced schedules because they would not be spending much of their time in their organizational setting (Edwards & Cable, 2009; Evans, Kunda & Barley, 2004).

Hypothesis 5: The relationship between value congruence and work attitudes will be weaker compared to that of NS and DA fit.

METHOD

Context and Sample

This study was conducted in Singapore, a developed country with a market-based economy. During the time of this survey (June to Dec 2009), the total resident labor force approximated 2 million, while unemployment rate stood at 4.5% (Manpower Research and Statistics Department (i.e. MRSD), 2009). At the same time, the Singapore economy had just recovered from a brief (less than a year) recession

perpetuated by the global financial crisis of 2008, and was experiencing a period of vigorous economic revival (Monetary Authority of Singapore, 2010).

An online survey was conducted to test the above hypotheses. Participants were recruited through advertisements. Survey advertisements containing links to the online survey were posted around the university campus and online bulletin boards calling for participants who were currently engaged in work on a *non-permanent* basis. The term “non-permanent” was used because this study targeted individuals in work arrangements without the shared expectation of continued employment. This term is usually used to refer to such nonstandard work in Singapore. Participants were offered \$5 for completing a survey. Number of survey responses totaled 189. Respondents were asked to provide the name of their organization and a brief description of the nature of their job. As some of the hypotheses involve supplementary fit between individuals and organizations, survey responses were screened to ensure that respondents were working in a job within an organization. This process resulted in the removal of one response from a worker who was self-employed (Evans et al., 2004), leaving us with a final sample size of 188.

There was a large variety of jobs in the sample including service-oriented jobs (e.g. waiting tables, serving store customers), sales jobs (e.g. telemarketers, in-store sales), and administrative jobs (e.g. receptionist, secretarial, accounts management). Job descriptions and the reported number of hours worked in a week confirmed that the type of nonstandard work arrangements were predominantly contract-based (i.e. temporary) and part-time. Temporary or contract workers are those who are on a fixed-term contract of employment that will terminate upon expiry. Part-timers in Singapore are those who work less than 35 hours a week. This is a popular arrangement for businesses in Singapore to manage their workforce requirements because part-timers’ employment can be started and terminated at relatively short notice and with little or any financial cost. The fluidity of such employment relationships gives rise to limited expectations of continued employment. Consequently, it is no surprise that workers under these arrangements refer to their work arrangements as temporary and non-permanent (Kalleberg, 2000; MRSD, 2009). Therefore, the individuals in the current sample did not have expectations of continued employment with their current employers.

The current sample consisted of 130 males (69.9%) and tenure averaged almost 9 months (s.d. = 10.2). 167 (89.8%) respondents also indicated were part-timers and worked less than 35 hours a week (Mean = 15.9; s.d. = 11.8). To account for the effects that hours worked, tenure, and gender could have on the hypothesized relationships, these variables were treated as control variables in the present analyses.

In line with previous research on nonstandard workers, analysis also controlled for the effects of choice. The amount of choice that people had in determining their nonstandard status significantly influences how these workers respond to their jobs environments (Ashford et al., 2007). For instance, Van Dyne and Ang (1998) argue that the “voluntariness” of contingent workers’ status was responsible for hypothesized differences in attitudes and behavior among such workers in Singapore and the United States (cf. Feldman et al., 1994). While previous research has identified multiple reasons that could be responsible for choosing nonstandard work (Maynard et al., 2006), two were chosen due to the expected nature of the current sample. First, although advertisements were directed toward nonstandard workers of all backgrounds, they were still especially likely to be seen by people who had access to them on the university campus and student-based bulletin boards. Thus, the effects of student status was controlled for by asking respondents how much “Going to school” played a role in their decision to work in a nonstandard job (Mean = 4.76; s.d. = 2.09). Next, as the Singapore economy was still in the process of recovery from a recession, full-time or permanent jobs were still very much in demand (Monetary Authority of Singapore, 2010). Thus, it was also important to take into account the degree to which individuals would have chosen a full-time position over their nonstandard work if such opportunities available (Ellingson et al., 1998). Hence, the “Lack of full-time jobs” as a reason for nonstandard work also served as a control variable in the analysis (Mean = 2.32; s.d. = 1.77). Answers to both these questions were assessed using a 7-point scale (i.e. “1” = “No role” and “7” = “Major role”).

Measures

The Work Values Survey (WVS) was used to operationalize the *relationships* and *autonomy* dimensions of needs-supplies (NS) fit and value congruence (VC). *Relationships* (e.g. “Developing close ties with coworkers”) and *autonomy* (“Doing my work in my own way”) were each represented by three items. This measure is suitable because it draws from a widely-recognized theory of individual needs and values (Schwartz, 1992), and it also allows person and environment constructs to be operationalized commensurately in the study of NS fit and VC (Cable & Edwards, 2004; Edwards & Cable, 2009). In line with previous research for NS fit and personal needs, respondents were asked “How much is the right amount for you?” for each item using the scale from 1 (none) to 7 (a very great amount). Using the same scale, organizational supplies were measured by asking with regards to the same items “how much are present in your work?” As with previous research in values congruence, individual values were measured by asking respondents to rate how important each item was to them using the scale from 1 (not important at all) to 7 (extremely important). Correspondingly, organizational values were measured by asking respondents to rate how important each item was to their work organization using the same scale.

A different approach was required when it came to demands-abilities (DA) fit because of the huge amount of variance that was expected in the nature of jobs of respondents. As responsibilities across participant jobs were expected to range widely from menial (e.g. maintaining workplace cleanliness and waiting tables) to interactive (e.g. telemarketing, in-store sales) and intellectual (e.g. data entry and analysis), it was impossible to determine a fixed set of dimensions to assess with regards to job demands. Hence, respondents were asked to focus on the overall skill requirements of each job by rating the overall level of skill required to perform their job. Ergo, job abilities were assessed by asking respondents to rate their possessed level of skill when it comes to performing their job. Both demands and abilities were rated using a 7-point scale ranging from 1 (low) to 7 (high) (Edwards, 1996). Job satisfaction was assessed using Edwards & Rothbard’s (1999) 3-item scale and affective organizational commitment was measured using Allen and Meyer’s (1990) 8-item measure. All measures demonstrated good reliability (see Table 1).

Analyses

Polynomial regression modeling and response surface methodology were used to test hypotheses. Investigating PE fit effects involving VC, NS, and DA fit requires representing these concepts in terms of the relationship between two types of variables modeling the person and the environment. For instance, estimating VC effects requires analyzing nonlinear and interactive terms consisting of individual and organizational values. Past research uses the following polynomial regression model to estimate such PE fit effects (Edwards, 1994; Edwards & Parry, 1993):

$$Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 \quad (1)$$

Z denotes either organizational commitment or job satisfaction as outcome variables. In the case of value congruence, X and Y represent organizational and individual values respectively, whereas for NS fit X and Y represent organizational supplies and psychological needs respectively. Lastly, in the case of DA fit, X and Y denote job skill requirements and individual skills respectively. Response surface methodology is appropriate for the current study because it facilitates the analysis of whether the dependent variable increases or decreases when the environment variable (X) in equation 1 approaches and exceeds the person variable (Y) (Cha, Kim & Kim, 2009). This is done through the testing of linear combinations of regression coefficients (currently done using SAS v9.2) from equation 1 and the plotting of these findings along a three-dimensional surface (Edwards, 1994; Edwards & Rothbard, 1999)². All PE fit measures were scale-centered for ease of interpretation and illustration using response surfaces.

Results

TABLE 1
DESCRIPTIVE STATISTICS, RELIABILITY ESTIMATES, AND CORRELATIONS

Measure	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
Personal Needs														
1. Relationships	5.20	1.16	(.94)											
2. Autonomy	4.93	1.07	.29	(.83)										
Organizational Supplies														
3. Relationships	4.52	1.45	.57	.14	(.94)									
4. Autonomy	4.33	1.33	.10	.42	.31	(.87)								
Individual Values														
5. Relationships	5.26	1.22	.64	.18	.46	.15	(.96)							
6. Autonomy	5.07	1.09	.15	.51	.15	.43	.21	(.91)						
Organizational Values														
7. Relationships	4.88	1.41	.43	.14	.50	.18	.45	.19	(.96)					
8. Autonomy	4.41	1.38	.25	.33	.27	.43	.32	.44	.48	(.93)				
Job Demands & Abilities														
9. Demands	4.29	1.46	.19	.26	.17	.23	.25	.24	.29	.27				
10. Abilities	4.93	1.23	.20	.32	.17	.22	.08	.18	.20	.23	.44			
Dependent Variables														
11. Org Commitment	3.96	0.90	.26	.01	.45	.26	.27	-.01	.40	.16	.28	.16	(.74)	
12. Job Satisfaction	4.59	1.35	.32	.07	.31	.15	.38	-.01	.42	.22	.27	.22	.65	(.95)

Note. Reliability estimates (Cronbach's alpha) are reported along the diagonal. Correlations larger than .14 are significant at the $p < .05$ level; Correlations larger than .18 are significant at the $p < .01$ level

Correlations, descriptive statistics, and reliability estimates for all measures are reported in Table 1. Hypotheses 1 to 4 would be supported if there was a negative (downward) curvature along the $Y=-X$ line (i.e. a negative value for $b_3 - b_4 + b_5$) for the particular response surfaces (Edwards, 1994; Edwards & Parry, 1993). Figures in Table 2B show the results of the testing of this linear combination of regression coefficients. This relationship was supported for the effect of *relationships* on commitment ($p < .05$), while there was no effect for job satisfaction (second column from the right in Table 2). Figure 2, illustrates the surface linking NS fit for the *relationships* dimension and commitment, where the downward curvature (inverted-U) along the $Y=-X$ line is evident running from the left to right of the three-dimensional plane. Both commitment and satisfaction were higher when supplies and needs were high, as evidenced by a positive slope along the $Y=X$ line for the particular response surface (i.e. a positive value for $b_1 + b_2$ displayed in the 5th column from the right in Table 2). This result is similar to findings of research conducted in standard work contexts (Cable & Edwards, 2004).

TABLE 2A
RESULTS FROM POLYNOMIAL REGRESSION MODELS ON COMPONENTS OF NEEDS-SUPPLIES, DEMANDS-ABILITIES, AND SUPPLEMENTARY FIT

Dimension	DV	n	Constant b ₀	X b ₁	Y b ₂	X ² b ₃	X*Y b ₄	Y ² b ₅	R ²
Needs-Supplies Fit									
Relationships	OC	188	3.490**	0.138	0.105	-0.023	0.109*	-0.056	0.251**
Autonomy	OC	188	3.668**	0.190*	0.012	-0.049	0.039	-0.058	0.146**
Relationships	JS	188	3.562**	0.094	0.316*	0.110*	0.013	-0.055	0.23**
Autonomy	JS	188	4.069**	0.097	0.162	-0.056	0.073	-0.079	0.11*
Demands-Abilities Fit									
	OC	188	3.728**	0.027	0.178*	-0.056*	0.089*	-0.073	0.163**
	JS	188	4.279**	-0.102	0.494**	-0.096*	0.206**	-0.175**	0.243**
Supplementary Fit									
Relationships	OC	188	3.531**	0.180**	0.144*	-0.007	0.042	-0.065*	0.221**
Autonomy	OC	188	3.836**	0.046	0.052	-0.080*	0.102	-0.070	0.128**
Relationships	JS	188	3.763**	0.191*	0.234*	0.022	0.071	-0.045	0.272**
Autonomy	JS	188	4.411**	0.217	-0.034	-0.058	0.061	-0.076	0.146**

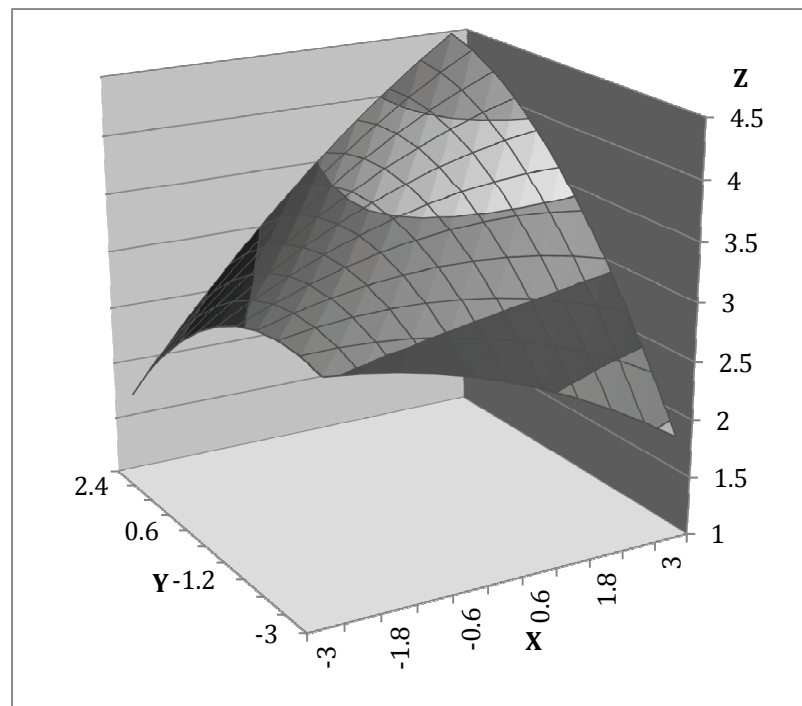
Note. The column labeled R² indicates the variance explained by the five fit-based terms, controlling for work hours, expectations for continued employment, gender, tenure, and reasons for nonstandard work (i.e. going to school, and the lack of full-time jobs). OC represents organizational commitment. JS represents job satisfaction. * *p* , .05. ** *p* , .01.

TABLE 2B
RESULTS FROM TESTS OF LINEAR CONTRASTS INVOLVING REGRESSION COEFFICIENTS

Dimension	DV	n	Y=X line		Y=-X line	
			b ₁ +b ₂	b ₃ +b ₄ +b ₅	b ₁ -b ₂	b ₃ -b ₄ +b ₅
Needs-Supplies Fit						
Relationships	OC	188	0.243**	0.030	0.033	-0.188*
Autonomy	OC	188	0.202	-0.068	0.178	-0.146
Relationships	JS	188	0.410**	0.068	-0.222	0.042
Autonomy	JS	188	0.259	-0.062	-0.065	-0.208
Demands-Abilities Fit						
	OC	188	0.205**	-0.040	-0.151	-0.218**
	JS	188	0.392**	-0.065	-0.596**	-0.477**
Supplementary Fit						
Relationships	OC	188	0.324**	-0.030	0.036	-0.114
Autonomy	OC	188	0.098	-0.048	-0.006	-0.252*
Relationships	JS	188	0.425**	0.048	-0.043	-0.094
Autonomy	JS	188	0.183	-0.073	0.251	-0.195

Note. Columns labeled b₁ + b₂ and b₃ + b₄ + b₅ represent the slope of each surface along the Y = X line, and columns labeled b₁ - b₂ and b₃ - b₄ + b₅ represent the slope of each surface along the Y = -X line. OC represents organizational commitment. JS represents job satisfaction. * *p* , .05. ** *p* , .01.

FIGURE 2
SURFACE LINKING NEEDS-SUPPLIES FIT FOR THE *RELATIONSHIPS* DIMENSION AND ORGANIZATIONAL COMMITMENT



Results also suggest strong support for hypotheses 3 and 4 where there were significant downward curvatures along the $Y=-X$ line ($p < .01$). There was also a negative slope along the $Y=-X$ line for job satisfaction ($p < .01$), which suggests that satisfaction was maximized when demands was *less* than abilities (see Figure 3). Furthermore, positive slopes along the $Y=X$ line ($p < .01$) also indicate that commitment and satisfaction were highest when individuals had *high* abilities that were met with challenging jobs. Significant results for supplementary fit were only found for the relationship involving *autonomy* ($p < .05$) where commitment was maximized when fit existed between individual and organizational values for *autonomy* (Figure 4).

To assess the relative importance of all types of fit (hypothesis 5), additional analyses were run to see which relationships prevailed after controlling for other types of fit. Thus, separate analyses were run using equations that contained NS fit, DA fit, and VC for both dimensions of *relationships* and *autonomy*. Only H3 and H4 received support, supporting H5 and the preeminence of DA fit over VC and NS fit. There was significant downward curvature for DA fit ($p < .05$) indicating the presence of a fit effect where commitment was maximized when individual skills matched job demands. As evidenced by a positive slope along the $Y=X$ line, commitment was also higher when individuals with higher levels of skills were able to meet higher job demands ($p < .05$). Figure 5 illustrates this relationship for the *autonomy* dimension. Similar relationships were observed for job satisfaction, where only significant DA fit relationships were detected. There was also significant downward curvature for DA fit ($p < .01$) accompanied by a negative slope ($p < .01$) along the $Y=-X$ line. The latter finding indicates that whereas satisfaction increased as job demands increased toward abilities, satisfaction peaked when demands were still *less* than abilities (Figure 6). Positive slopes along the $Y=-X$ line also indicate that satisfaction was higher when individuals with more skills were able to meet higher job demands for both *relationships* ($p < .01$) and *autonomy* ($p < .05$)³. Hence, nonstandard workers were most satisfied when their abilities slightly exceeded the demands of their jobs.

FIGURE 3
SURFACE LINKING DEMANDS ABILITIES FIT AND JOB SATISFACTION

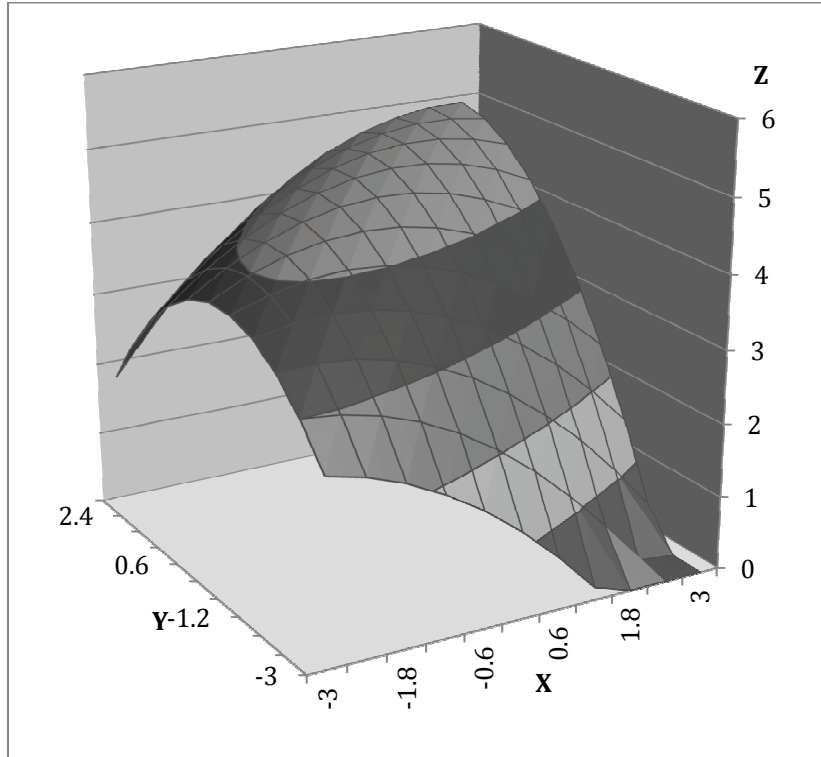


FIGURE 4
SURFACE LINKING SUPPLEMENTARY FIT FOR THE *AUTONOMY* DIMENSION AND ORGANIZATIONAL COMMITMENT

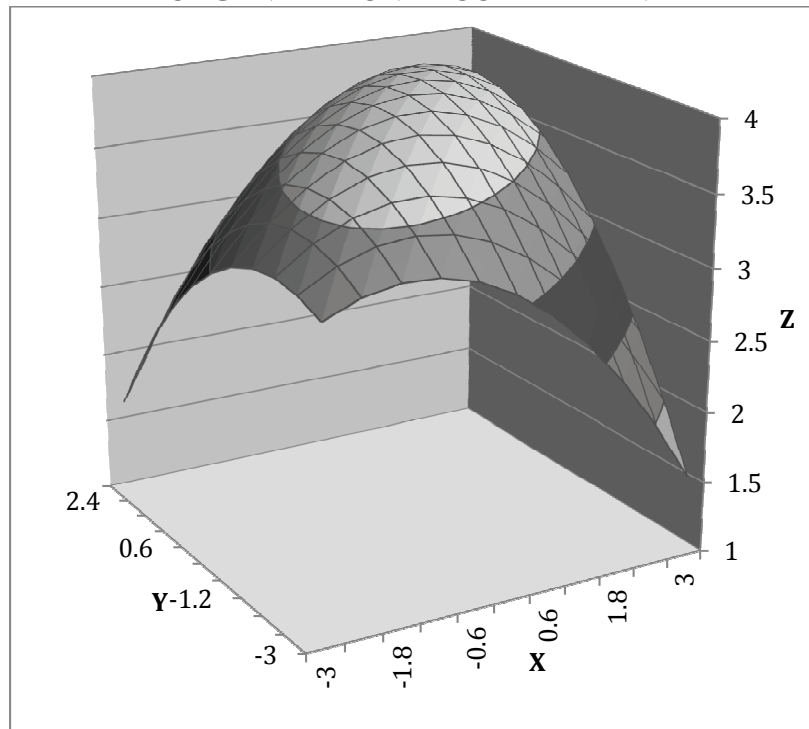
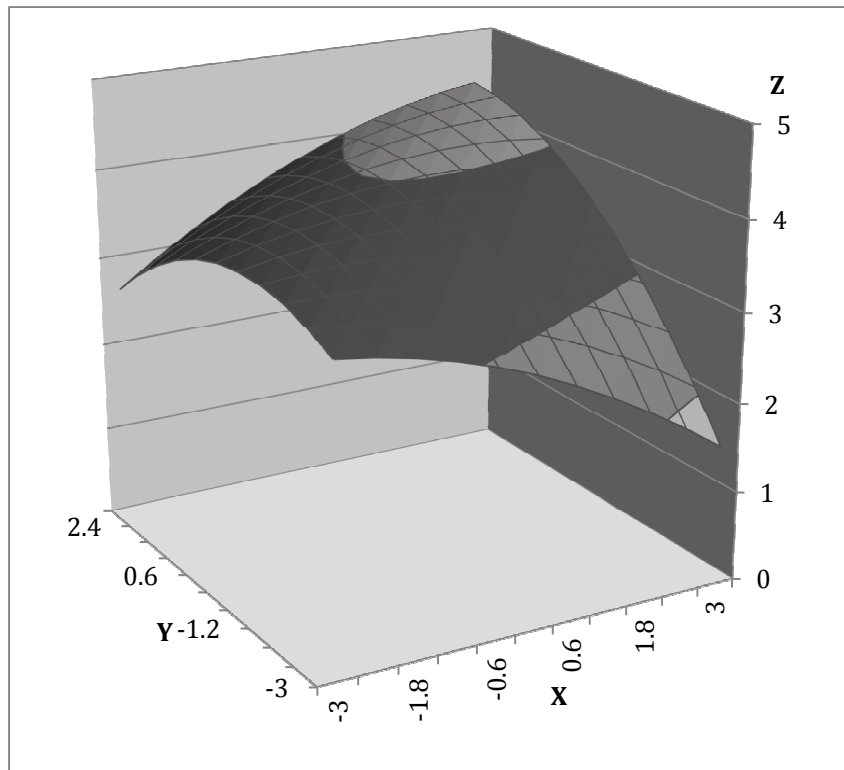


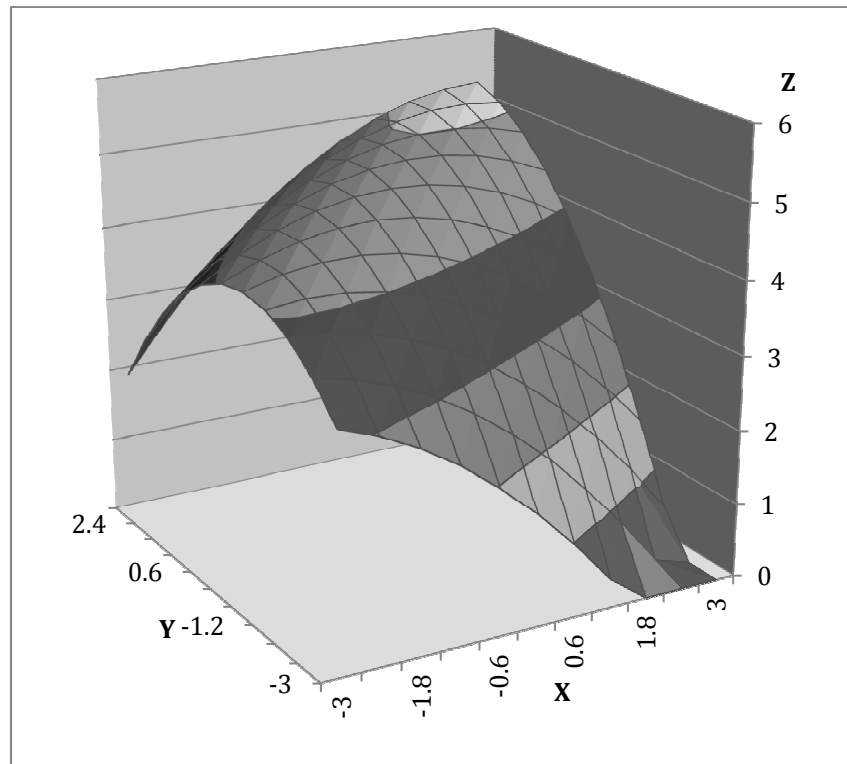
FIGURE 5
SURFACE LINKING DA FIT AND ORGANIZATIONAL COMMITMENT CONTROLLING
FOR NS FIT AND SUPPLEMENTARY FIT ON *AUTONOMY*



DISCUSSION

While past research has identified both individual and environmental factors as important determinants of the nonstandard work experience, the importance of PE fit theory has yet to be explored in such a context. Results from this study attest to the utility of using PE fit as a unifying framework to see how *both* individual and environment are related to the attitudes experienced by nonstandard workers. The additional insight gained from explicitly considering different types of PE fit and its multidimensional nature is also demonstrated (Jansen & Kristof-Brown, 2006). Findings from this study suggest that assigning challenging jobs that suit the abilities of individuals who had limited expectations for continued employment helps develop a sense of commitment toward the employer. Nonstandard employees are also more satisfied with their jobs when they have excess ability take on a reasonably challenging job in a comfortable manner. Satisfying needs for *relationships* induced feelings to reciprocate employers with increased commitment, but it did not make these individuals more satisfied with their jobs. Lastly, VC was not important to the experience of commitment and satisfaction.

FIGURE 6
SURFACE LINKING DA FIT AND JOB SATISFACTION CONTROLLING FOR NS FIT AND SUPPLEMENTARY FIT ON *AUTONOMY*



Implications

The current findings suggest that research on nonstandard work should focus more on investigating how relationships between individuals and their environments are associated with the experience of such work arrangements. While past research has yielded some interesting findings through the comparison of standard and nonstandard workers, their findings do not provide much information about exactly which characteristics of individuals or their work environments are directly related to the experience of positive attitudes (Eberhardt & Shani, 1984; Lee & Johnson, 1991). In this respect, using PE fit to study nonstandard workers provides organizations and their decision makers with more specific recommendations for the better management of these employees as opposed to relying on prescriptive assumptions about the impact of employment status (Jackofsky & Peters, 1987; McGinnis & Morrow, 1990; Parker et al., 2002).

It is thus very important for organizations to understand the abilities and skills of nonstandard workers and assign them jobs where they can fully utilize their talents. Instituting too much job demands can also be detrimental because nonstandard workers are also prone to role overload resulting in lower commitment and satisfaction. The current findings also allow us to refine our understanding of how PE fit operates across different types of work arrangements. For instance, present findings are somewhat at odds with Cable and Edwards' (2004) findings that both VC and NS fit had unique direct effects on work attitudes. Instead, VC was not essential to the nonstandard work experience in the present study. Value-based similarity with co-workers and employers becomes less salient in the absence of shared expectations for continued employment, possibly due to the limited importance of long-term working relationships.

Likewise, findings also conflict with Edwards and Rothbard's (1999) results that satisfaction improves when employers supplied their employees with excess *relationships* and *autonomy*, which likely occurred because excess amounts of these supplies acted as resources to gain access to other supplies that fulfilled needs on other work dimensions (i.e. a carryover effect) (p. 92). In contrast, no such carryover effects were observed in the current sample of nonstandard workers who largely became less committed and satisfied once supplies exceeded personal needs. This relationship may be again attributed to the general lack of a definite expectation for future employment among current nonstandard employees, where carryover effects are less meaningful when there is uncertainty about future opportunities to use such excess supplies. Therefore, a promising area for expansion in PE fit theory is the more explicit consideration of temporal expectations regarding the sustainability of employer-employee relationships, and how these expectations influence the saliency of different types of fit (e.g. NS, DA, and VC) (Shipp & Jansen, 2011).

Limitations and Future Research

The present cross-sectional design does not facilitate the inference of causal mechanisms linking fit to work attitudes. Thus, care was taken to ensure that the above interpretations of the results highlighted the *associative* relationships between PE fit and attitudes. However, the results still provide vital information of the cognitive appraisal process underlying how PE fit is associated with work attitudes among nonstandard workers. Hence, one can still say that job design and DA fit is a crucial component to the experience of work attitudes because of the variance in outcomes explained and the nature of the response surfaces linking the two variables. Moreover, a significant amount of recent research that has made important contributions to PE fit research has also been based on cross-sectional designs (Cable & Edwards, 2004; Edwards & Rothbard, 1999; Edwards & Cable, 2009). Still there is no doubt that future research employing longitudinal designs can help disentangle the causal flow between fit and attitudes in the context of nonstandard work (Ashford et al., 2007; Yu, 2009).

The current results were also purely based on individual subjective perceptions of PE fit and its components. Based on the widely-held assumption that subjective experiences of PE fit are the most proximal indicators of fit and its relationship with attitudes (Kristof, 1996; Kristof et al., 2005), this approach was appropriate for the current study because it focused on the psychological experiences of nonstandard workers (Edwards & Cable, 2009). Other PE fit research has however investigated fit by obtaining third-party ratings of organizational supplies, values, and job demands (e.g. O'Reilly, Chatman & Caldwell, 1991), which are assumed to represent objective representations of the environment. Both these approaches have their merits and future research should be conducted to investigate if they reveal different relationships linking PE fit to attitudes (Kristof-Brown & Guay, 2011).

Finally, the current sample also presents some limitations regarding the generalizability of the findings. As noted earlier, the sample was made up of predominantly contract and part-time workers. As such, findings may not generalize as much to other types of non-standard workers like "boundaryless" professionals (Evans et al., 2004; Inkson, Heising & Rousseau, 2001) and telecommuters (Golden & Veiga, 2005), who arguably engage in nonstandard work for different reasons. In addition to investigating how the employment expectations and physical attachment of these other types of nonstandard employees impact their experience of PE fit, future research should also explore how the amount of administrative attachment that employers or agencies have over nonstandard employees impacts PE fit relationships. It could be that NS fit would be less related to organizational commitment for employees who are largely under the administrative control of temporary work agencies because a larger proportion of supplies may now be derived from the agency instead (George & Chattopadhyay, 2005).

CONCLUSION

The growing incidence of nonstandard work in today's organizations makes it imperative that we develop a better understanding of the work experiences of nonstandard employees. The current study demonstrates that the PE fit framework adds valuable insight to the psychological experience of such

employees. Future research is needed to realize the potential of nonstandard work as a fertile context for improving the explanatory power and precision of PE fit theory.

ENDNOTES

1. Selecting these dimensions does not deny the existence of other potentially applicable aspects of nonstandard work, instead focusing on two dimensions ensures that the current investigation covers a manageable set of dimensions that are relevant enough to develop a good initial understanding of the role of PE fit in nonstandard work (cf. Cable & Edwards, 2004; Edwards & Rothbard, 1999).
2. Please see Edwards and Parry (1993) and Edwards (2002) for details of the testing of these linear combinations and complete discussions of response surface methodology.
3. Detailed results from these supplemental analyses may be obtained from the first author upon request.

REFERENCES

- Aletraris, L. (2010). How satisfied are they and why? A study of job satisfaction, job rewards, gender and temporary agency workers in Australia. *Human Relations, 63*, 1129-1155.
- Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology, 63*, 1-18.
- Ang, S., & Slaughter, S. A. (2001). Work outcomes and job design for contract versus permanent information systems professionals on software development teams. *MIS Quarterly, 25*, 321-350.
- Ashford, S. J., George, E., & Blatt, R. (2007). Old assumptions, new work: The opportunities and challenges of research on nonstandard employment *The Academy of Management Annals* (Vol. 1, pp. 65-117). New York, NY: Taylor & Francis Group/Lawrence Erlbaum Associates.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.
- Burger, J. M., & Cooper, H. M. (1979). The desirability of control. *Motivation and Emotion, 3*, 381-393.
- Bureau of Labor Statistics (2005). *Contingent and alternative employment arrangements*: United States Department of Labor.
- Cable, D. M., & Edwards, J. R. (2004). Complementary and supplementary fit: A theoretical and empirical integration. *Journal of Applied Psychology, 89*, 822-834.
- Cha, J., Kim, Y., & Kim, T.-Y. (2009). Person-career fit and employee outcomes among research and development professionals. *Human Relations, 62*, 1857-1886.
- Chatman, J. A. (1989). Improving interactional organizational research: A model of person-organization fit. *Academy of Management Review, 14*, 333-349.
- Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis: University of Minnesota Press.

- Eberhardt, B. J., & Shani, A. B. (1984). The effects of full-time versus part-time employment status on attitudes toward specific organizational characteristics and overall job satisfaction. *Academy of Management Journal*, 27, 893-900.
- Edwards, J. R. (1994). The study of congruence in organizational behavior research: Critique and a proposed alternative. *Organizational Behavior & Human Decision Processes*, 58, 51-100.
- Edwards, J. R. (1996). An examination of competing versions of the person-environment fit approach to stress. *Academy of Management Journal*, 39, 292-339.
- Edwards, J. R. (2002). Alternatives to difference scores: Polynomial regression analysis and response surface methodology. In F. Drasgow & N. W. Schmitt (Eds.), *Advances in measurement and data analysis* (pp. 350-400). San Francisco: Jossey-Bass.
- Edwards, J. (2008). Person-environment fit in organizations: An assessment of theoretical progress. *The Academy of Management Annals*, 2, 167-230.
- Edwards, J. R., & Cable, D. M. (2009). The value of value congruence. *Journal of Applied Psychology*, 94, 654-677.
- Edwards, J. R., Caplan, R. D., & Harrison, R. V. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress*. Oxford: Oxford University Press.
- Edwards, J. R., & Shipp, A. J. (2007). The relationship between person-environment fit and outcomes: An integrative theoretical framework. In C. Ostroff & T. A. Judge (Eds.), *Perspectives on Organizational Fit* (pp. 209-258). New York: Lawrence Erlbaum Associates.
- Ellingson, J. E., Gruys, M. L., & Sackett, P. R. (1998). Factors related to the satisfaction and performance of temporary employees. *Journal of Applied Psychology*, 83, 913-921.
- Evans, J. A., Kunda, G., & Barley, S. R. (2004). Beach time, bridge time, and billable hours: The temporal structure of technical contracting. *Administrative Science Quarterly*, 49, 1-38.
- Feldman, D. C. (1996). The nature, antecedents and consequences of underemployment. *Journal of Management*, 22, 385-407.
- Feldman, D. C., & Bolino, M. C. (2000). Career patterns of the self-employed: Career motivations and career outcomes. *Journal of Small Business Management*, 38, 53-67.
- Feldman, D. C., Doeringhaus, H. I., & Turnley, W. H. (1994). Managing temporary workers: A permanent HRM challenge. *Organizational Dynamics*, 23, 49-63.
- Fisher, C. D. (1993). Boredom at work: A neglected concept. *Human Relations*, 46, 395-417.
- Galais, N., & Moser, K. (2009). Organizational commitment and the well-being of temporary agency workers: A longitudinal study. *Human Relations*, 62, 589-620.
- George, E., & Chattopadhyay, P. (2005). One foot in each camp: The dual identification of contract workers. *Administrative Science Quarterly*, 50, 68-99.

- Golden, T. D., & Veiga, J. F. (2005). The impact of extent of telecommuting on job satisfaction: Resolving inconsistent findings. *Journal of Management*, *31*, 301-318.
- Hundley, G. (2001). Why and when are the self-employed more satisfied with their work? *Industrial Relations*, *40*, 293-316.
- Inkson, K., Heising, A., & Rousseau, D. M. (2001). The interim manager: Prototype of the 21st-century worker? *Human Relations*, *54*, 259-284.
- Jackofsky, E. F., & Peters, L. H. (1987). Part-time versus full-time employment status differences: A replication and extension. *Journal of Occupational Behavior*, *8*, 1-9.
- Jansen, K. J., & Kristof-Brown, A. L. (2006). Toward a multidimensional theory of person-environment fit. *Journal of Managerial Issues*, *18*, 193-212.
- Kalleberg, A. L. (2000). Nonstandard employment relations: Part-time, temporary and contract work. *Annual Review of Sociology*, *26*, 341-365.
- Kalleberg, A. L., Reskin, B. F., & Hudson, K. (2000). Bad jobs in America: Standard and nonstandard employment relations and job quality in the United States. *American Sociological Review*, *65*, 256-278.
- Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, *49*, 1-49.
- Kristof-Brown, A. L., & Guay, R. P. (2011). Person-Environment Fit. In S. Zedeck (Ed.), *American Psychological Association Handbook of Industrial and Organizational Psychology* (Vol. 3, pp. 1-50). Washington D.C.: American Psychological Association.
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*, 281-342.
- Kunda, G., Barley, S. R., & Evans, J. (2002). Why do contractors contract? The experience of highly skilled technical professionals in a contingent labor market. *Industrial & Labor Relations Review*, *55*, 234-261.
- Lee, T. W., & Johnson, D. R. (1991). The effects of work schedule and employment status on the organizational commitment and job satisfaction of full versus part time employees. *Journal of Vocational Behavior*, *38*, 208-224.
- Liden, R. C., Wayne, S. J., Kraimer, M. L., & Sparrowe, R. T. (2003). The dual commitments of contingent workers: an examination of contingents' commitment to the agency and the organization. *Journal of Organizational Behavior*, *24*, 609-625.
- Locke, E. A. (1976). The nature and causes of job satisfaction. In M. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 1297-1350). Chicago: Rand McNally.
- Manpower Research and Statistics Department (2009). *Report on Labour Force in Singapore, 2009*. Singapore: Ministry of Manpower Singapore.

- Marler, J. H., Barringer, M. W., & Milkovich, G. T. (2002). Boundaryless and traditional contingent employees: Worlds apart. *Journal of Organizational Behavior*, 23, 425-453.
- Martin, J. E., & Peterson, M. M. (1987). Two-tier wage structures: Implications for equity theory. *Academy of Management Journal*, 30, 297-315.
- Maynard, D. C., Thorsteinson, T. J., & Parfyonova, N. M. (2006). Reasons for working part-time. *Career Development International*, 11, 145-162.
- McGinnis, S. K., & Morrow, P. C. (1990). Job attitudes among full- and part-time employees. *Journal of Vocational Behavior*, 36, 82-96.
- McLean Parks, J., Kidder, D. L., & Gallagher, D. G. (1998). Fitting square pegs into round holes: mapping the domain of contingent work arrangements onto the psychological contract. *Journal of Organizational Behavior*, 19, 697-730.
- Monetary Authority of Singapore (2010). *Annual Report*. Singapore: Monetary Authority of Singapore.
- Muchinsky, P. M., & Monahan, C. J. (1987). What is person-environment congruence? Supplementary versus complementary models of fit. *Journal of Vocational Behavior*, 31, 268-277.
- O'Reilly, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*, 34, 487-516.
- Parker, S. K., Griffin, M. A., Sprigg, C. A., & Wall, T. D. (2002). Effect of temporary contracts on perceived work characteristics and job strain: A longitudinal study. *Personnel Psychology*, 55, 689-719.
- Pfeffer, J., & Baron, J. N. (1988). Taking the workers back out: Recent trends in the structuring of employment. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 10, pp. 257-303). Greenwich, CT: JAI Press.
- Posner, B. Z. (1992). Person-organization values congruence: No support for individual differences as a moderating influence. *Human Relations*, 45, 351-361.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1-65). San Diego, CA: US: Academic Press.
- Shipp, A. J., & Jansen, K. J. (2011). Reinterpreting time in fit theory: Crafting and recrafting narratives of fit in media res. *Academy of Management Review*, 36, 76-101.
- Van Dyne, L., & Ang, S. (1998). Organizational citizenship behavior of contingent workers in Singapore. *Academy of Management Journal*, 41, 692-703.
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality & Social Psychology*, 67, 1049-1062.
- Yu, K. Y. T. (2009). Affective influences in person-environment fit theory: Exploring the role of affect as both cause and outcome of P-E fit. *Journal of Applied Psychology*, 94, 1210-1226.

The Influence of Facebook Usage on Perceptions of Social Support, Personal Efficacy, and Life Satisfaction

Deborah A. Olson
University of La Verne

Jeanny Liu
University of La Verne

Kenneth S. Shultz
California State University, San Bernardino

This research focused on: 1) The impact of Facebook usage on perceptions of social support, and 2) the relationship between Facebook usage, social support, and efficacy in predicting life satisfaction. Our findings showed that social support as perceived by Facebook users was significantly higher for face-to-face friends, for three types of social support (emotional, informational, and instrumental). Also, the greater the number of hours spent on Facebook, the more social support was perceived from both face-to-face and Facebook friends. Only goal efficacy and interpersonal control had a significant relationship with life satisfaction. Implications for organizational leaders are discussed.

THE IMPORTANCE OF SOCIAL SUPPORT AT WORK

The impact of positive relationships at work and effective support networks in nonwork relationships on overall life satisfaction is well established (Adams, King, & King, 1996; Barsade, 2002; Diener, Biswas-Diener, 2002). However, with the explosion of social media usage there is little understanding of how it impacts the formation and maintenance of relationships both at work and at home (Aaker & Smith, 2010; Ellison, Steinfield, & Lampe, 2007). Social media outlets such as Facebook, Twitter, and YouTube have all impacted choices about how individuals spend their time and interact with others (everyday over 175 million people worldwide log on to Facebook); how organizations engage employees and customers (to “Like Me” on Facebook); and politics (the election of Barack Obama in 2008). The full range of possible uses of social media to drive change and impact how we interact with each other personally and professionally continues to expand (Kavanaugh & Patterson, 2001). Social media has created the possibility to exchange information and establish relationships with people across the globe that we might never have had the opportunity to meet and interact with in the past.

Researchers are just beginning to investigate the significance of using frequent use of social media on relationships, communications, and the ability to facilitate change (Doyle, 2008; Kramer, 2010; Sheldon, Abad, & Hinsch, 2011). Anecdotal examples highlighted in the media include positive effects (i.e., networking to increase job opportunities) and negative impacts (i.e., use of Facebook to bully and

“stack”). The impact of social media on expanding relationships and how individuals experience social support and overall satisfaction with their lives was the focus of the present research. We also investigated the relationship between the use of Facebook and perceptions of personal/interpersonal efficacy and overall satisfaction with life. Given the amount of time that individuals spend on social media each day, we wanted to further examine the impact on the type and quality of support that is perceived in these relationships when compared to traditional face-to-face interactions.

Types of Social Support

Healthy social relationships are essential to help individuals feel embedded in a social network that allows them to effectively address the most mundane problems (i.e. What should we do on Saturday night?) to the most complex (i.e., how to deal with the stress and pain that results from the loss of a loved one; displacement from work; economic stress caused by un/underemployment). Research has shown that *positive* social relationships help individuals cope with a variety of stresses that they face (Barrera, 1986; Carroll & Landry, 2010; Glew, 2009; Lin, 1999; Luthans, Avolio, Avey, & Norman, 2007). This research, however, is grounded in understanding relationships in which people have had some face-to-face contact and interactions with those providing the support. When using social media, there often are people who are “friends” or are sharing information/opinions with others whom have never met face-to-face, and may never interact with each other in the traditional way that friends would have prior to the explosion of social media usage.

The traditional operational definition proposed by House (1981) social support is an interpersonal transaction in which one can rely on others for information, help, and advice. In House’s conceptualization, social support has multiple dimensions. *Emotional support* is showing others that you care about them, have empathy for their situation/problem, trust and respect them, and even love them. Research shows that this is the most important and often researched form of social support (Carroll & Landry, 2010; Cobb, 1976; Gottlieb, 1983). *Instrumental support* is perceived when others provide specific help or assistance to others. This dimension can include taking care of others, helping them complete tasks or activities that need to be done, or lending them money. The third dimension, *information support* occurs when information is shared with others to help them address a problem, make a decision, or cope with a stressful situation. Information support is conceptually different from instrumental support in that by providing it, the information helps the person help him/herself. Each of these three types of support (emotional, instrumental, and informational) are interrelated and often are linked in complex ways in relationships with others. Individuals need each type of social support to help them feel embedded in a social context and connected to others in a positive way.

Given that millions of people who invest hours each day on social media such as Facebook, it is clear that some needs are being met, but what type of social impact it has on friendships is unclear and speculative. The question posed in this research project focuses on the types of social support given by face-to-face friends compared to the types of social support provided by friends on Facebook. Previous research has demonstrated that spending time on Facebook can create both a feeling of connectedness AND a feeling of disconnectedness (Sheldon et al, 2011). Thus, in this research one of our goals was to deepen our understanding of the impact of spending time on Facebook by looking more closely at the perceptions of the *type* of support experienced with Facebook friends. We posited that using the conceptual framework of social support types (House, 1981) may offer further explanation for the paradox that Sheldon et al (2011) found that use of Facebook resulted in both feelings of connectedness with and disconnectedness from others. Also, understanding the type of social support that is perceived with Facebook friends can assist organizational leaders in understanding the impact of such social media and possibly assist in setting policies and clarifying how and when social media, such as Facebook, can be used at work to facilitate positive relationships at work.

Research Question 1: Are there differences in the type of social support (emotional, informational, and instrumental) that individuals perceive from face-to-face friends compared to friends on Facebook? What is the relationship between the perceptions of social support received from Facebook friends and expressed behavioral intention to continue to use Facebook in the future?

Social Support, Efficacy, and Life Satisfaction: The Impact of Social Media

When building and maintaining relationships with others, particularly in professional and work contexts, one factor individuals often consider is how others can help them achieve their goals. Developing a large social network and expanding one's social capital have been found to be related to the ability to achieve important life goals: making friends, admission to colleges, access to job interviews, and personal educational experiences (Adams, King, & King, 1996; Adler & Kwon, 2002; Ellison, Steinfield, & Lampe, 2007; Luthans et al, 2007). While "what you know" is important in terms of achieving goals, "who you know" can have a significant impact on one's ability to achieve important goals by providing information, access and other valuable "connections"..

Building social capital and expanding social support are related to one's personal efficacy and the interpersonal impact. Personal efficacy is the belief in one's ability to engage in activities and activate processes which positively contribute to one's ability to achieve specific goals or valued outcomes (Paulhus, 1983; Paulhus & Christie, 1981). Positive interpersonal impact develops through having experiences with a wide range of people and varied interactions with others in different contexts. Through these experiences, individuals have the opportunity to learn how to adjust their behavior to optimize their impact on others in social situations. Sandler and Lakey (1982), for example, found that having an internal locus of control (a belief that one has the ability to make a specific impact in a situation or when interacting with others) led to receiving more social support from others. Those individuals, who believed that they had the ability to achieve goals that were important to them and were perceived as effective when interacting with a wide range of people, were able to establish a large social support network and more frequently met their goals (Sandler & Lakey, 1982). Individuals who have more personal efficacy and make a positive interpersonal impact may also be the ones who reach out to others more frequently now using social media to build, expand, and maintain their relationships with others. This relationship though has not yet been assessed to understand the relationship between Facebook usage and personal efficacy.

Individuals who report the highest levels of happiness, also more often experience meaning and purpose in their lives (Kabanoff, 1980; Sheldon et al, 2011). In addition, happiness has a multiplier effect. Through the process of emotional contagion, Lakin and Chartrand (2003) found that others are "infected" by the feelings that they perceive in others. Therefore, those who are experiencing happiness are more likely to have a positive impact on others' happiness (Barsade, 2002; Neumann & Strack, 2000; Sy, Cote, & Saavedra, 2005). Similarly, social media could create this multiplier effect related to the sheer number of people who use it daily and the amount of time that people invest posting information about themselves and events that are occurring. The information individuals post has the potential to create positive emotions in others and accelerate the impact of positive change (Aaker & Smith, 2010). Posting and sharing positive information could provide informational social support that would facilitate other's efficacy and ability to achieve goals that are important to them.

Research Question 2: What is the relationship among social support, use of Facebook, personal efficacy, and interpersonal control? What is the impact of social support (from face-to-face friends and Facebook friends), personal efficacy, and interpersonal efficacy on overall life satisfaction (e.g. feelings of satisfaction and enjoyment through being with friends)?

METHOD

Participants

Surveys were completed by 218 participants who were undergraduate and graduate students at a private university in southern California. A total of 178 respondents were Facebook users and thus completed the "I'm a Facebook user" long version of the survey, while 40 non-Facebook users completed the "I'm not a Facebook user" shorter version of the survey. The participants in the study were almost evenly divided by gender (50.8% men) and degree program (53.8% graduate, full time working students). The ethnic distribution of the participants was 34.8% Caucasian, 4.5% African American, 25.8% Hispanic, and 22.2% Asian.

Procedures

The authors distributed questionnaires during business classes to students who were willing to participate. Students were given an informed consent letter which described the purpose of the research project, types of questions they would answer, and a guarantee of their anonymity. Participants did not write their name on the questionnaire and only general demographic data were gathered. There were two versions of the questionnaire, one for individuals who used Facebook regularly (49 items) and one for those individuals who did not currently or who never have used Facebook (22 items).

Measures

In the “I’m a Facebook User” version of the survey, participants were asked of their frequency of weekly Facebook usage (less than 1 hour, 1 - 3 hours, 3 - 5 hours, 5 - 8 hours, 8 - 10 hours, or more than 10 hours). The participants then continued to answer questions on how they have used Facebook and to what extent their friends on Facebook have shown certain friendship behaviors. Most questions used a five-point response scale anchored by either “strongly disagree” (1) and “strongly agree” (5) or “not at all” (1) and “to a very great extent” (5). The participants rated the type of social support they received from their friends (Instrumental, Emotional, and Informational), how they interact with others in social situations, their personal and interpersonal efficacy, current life satisfaction, and finally their intentions to continue to use Facebook to connect with their friends. In the last section of the survey, participants were asked two open-ended questions referring to the “three most important” reasons why they are on Facebook or “three reasons why they do not spend much time on Facebook”.

In the “I’m not a Facebook User” version of the survey, the questions that focused on face-to-face social support, efficacy, and life satisfaction were identical to the questions on the “I’m a Facebook User” survey. Questions on Facebook usage, how they have used Facebook, and to what extent their friends on Facebook have shown certain friendship behavior were deleted from this 22 item survey for non-Facebook users. The open-ended question referring to the “three most important reasons why they are on Facebook” were also removed.

Facebook Usage was a 6-item measure ($\alpha = .70$) derived from Ellison, Steinfield, and Lampe (2007) used to measure the ways in which participants used Facebook. An example item was, “I have used Facebook to check out someone I met socially”. Social Support was a 9-item scale, which has three dimensions of three items each measuring Emotional (e.g., listened to my feelings and concerns; Facebook $\alpha = .76$; Face-to-face $\alpha = .88$), Informational (e.g., given me information to help me understand a situation I was in; Facebook $\alpha = .85$; Face-to-face $\alpha = .90$), and Instrumental (e.g., pitched in to help me do something that needed to get done, Facebook $\alpha = .66$; Face-to-face $\alpha = .86$) social support (Barrera, Ramsey, & Sandler, 1981).

Personal Efficacy was based on the research of Paulhus (1983). This scale has two subdimensions, Goal Efficacy (3-items, $\alpha = .72$, e.g., I can learn almost anything if I set my mind to it) and Interpersonal Efficacy (3-items, $\alpha = .63$, e.g., I have no trouble making and keeping friends). Life Satisfaction was assessed by modifying scale items from Liang (1984). This 6-item scale ($\alpha = .71$) included items such as, “I am just as happy now as when I was younger”. A 3-item Facebook Behavioral Intention scale (e.g., I will connect with my Facebook friends sometime during the next 2 weeks, $\alpha = .79$) and a 4-item Facebook Outcomes scale (e.g., Facebook has increased the number of friends that I have, $\alpha = .85$) were also measured for the Facebook users.

RESULTS

Table 1 provides the means, standard deviations, and intercorrelations among the study variables. As can be seen in Table 1, the relationship between the Facebook Use variable was significantly correlated with the perceived levels of all three forms of Facebook social support at the $p < .01$ level, but only face-to-face levels of emotional social support were significant at the $p < .05$ level. Hours of Facebook use per week again correlated at the $p < .01$ level for all three forms of Facebook social support, but at $p < .01$ for

informational face-to-face social support, $p < .05$ for instrumental face-to-face social support, and non-significantly with emotional face-to-face social support.

TABLE 1
CORRELATION MATRIX

Variables	Mean	SD	2	3	4	5	6	7	8	9	10	11	12	13
1. Facebook use	2.81	1.49	.198**	.046	-.031	.159*	.146	.092	.333**	.255**	.235**	.419**	.234**	.009
2. Hrs of FB / week	2.88	.76		.037	-.059	.123	.207**	.163*	.420**	.417**	.414**	.454**	.590**	-.084
3. Interper Efficacy	3.61	.67			.438*	.101	.075	.076	.086	.068	.022	.103	.046	.281**
4. Goal Efficacy	4.13	.57				.062	.018	-.020	-.033	-.074	-.127	.075	-.107	.337**
5. SS1FtoF	3.70	1.09					.689**	.731**	.410**	.239**	.221**	.332**	.043	.117
6. SS2FtoF	3.41	1.07						.773**	.378**	.335**	.314**	.240**	.139	.040
7. SS3FtoF	3.26	1.11							.281**	.241**	.365**	.238**	.120	.043
8. SS1FB	3.08	.93								.569**	.559**	.469**	.402**	.069
9. SS2FB	2.53	.96									.661**	.359**	.441**	.078
10. SS3FB	2.39	.81										.300**	.413**	.079
11. FB Beh Intentions	3.86	.78											.439**	.129
12. FB Outcomes	2.87	.85												-.112
13. Life Satisfaction	3.83	.61												

Note: SS1FtoF = Emotional Social Support Face-to-face Friends; SS2FtoF = Informational Social Support Face-to-face Friends; SS3FtoF = Instrumental Social Support Face-to-face Friends; SS1FB = Emotional Social Support Facebook Friends; SS2FB = Informational Social Support Facebook Friends; SS3FB = Instrumental Social Support Facebook Friends.

* $p < .05$; ** $p < .01$

In order to determine if the mean level of social support was different for Facebook versus face-to-face friends, paired samples t-tests were conducted for Facebook users. As can be seen in Table 2, the mean level of social support for all three types of support (emotional, informational, and instrumental) was significantly higher for face-to-face friends compared to Facebook friends. The effect sizes for these differences ranged from small ($\eta^2 = .25$ for emotional support) to moderate ($\eta^2 = .40$ for instrumental support). Interestingly, ordering of the mean levels of types of social support were the same for Facebook and face-to-face friends, with emotional social support being the highest, informational social support the second highest, and instrumental social support the lowest. However, no significant differences were found in the levels of face-to-face social support reported for Facebook and non-Facebook users in terms of their perceived level of social support across all three types of social support.

TABLE 2
PAIRED SAMPLES T-TESTS COMPARING SOCIAL SUPPORT FROM FACEBOOK AND FACE-TO-FACE FRIENDS FOR FACEBOOK USERS (N=178)

Social Support	Facebook		Face-to-face		Paired t-test	η^2
	Mean	Std	Mean	Std		
Emotional	3.07	0.93	3.72	1.12	7.66**	.25
Informational	2.53	0.96	3.47	1.09	10.50**	.38
Instrumental	2.39	0.81	3.31	1.12	10.98**	.40

** $p < .001$

Table 3 displays the results of the hierarchical multiple regression analyses for predicting Facebook Behavioral Intentions. As can be seen in Table 3, the control variables of the number of hours of Facebook use per week and the Facebook use scale were entered in model 1. This resulted in a significant R^2 of .323. Both hours of Facebook use per week and the Facebook use scale were statistically significant

predictors of the Facebook Behavioral Intentions, with the latter being the stronger of the two predictors. In model 2, the interpersonal and goal efficacy scales were entered. The change in R^2 was nonsignificant ($\Delta R^2 = .017$). For model 3, the three face-to-face social support measures were added. The change in R^2 was significant ($\Delta R^2 = .058$). However, only emotional social support was a significant individual predictor of Facebook Behavioral Intentions. Finally, in model 4 the three Facebook social support measures were added. This again resulted in a significant change in R^2 ($\Delta R^2 = .038$). Both the emotional social support and informational social support face-to-face were marginally significant ($p < .10$) predictors of Facebook Behavioral Intentions, while emotional social support on Facebook was significant at $p < .05$. The results in tables 1 – 3 shows that face-to-face and Facebook friends provide all three types of social support (at different levels) and that receiving this support from Facebook friends is related to the intention to continue to use Facebook in the future.

TABLE 3
SUMMARY OF HIERARCHIAL REGRESSION ANALYSIS FOR PREDICTING FACEBOOK BEHAVIORAL INTENTIONS (N =178)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Hours	.17**	.03	.32	.16**	.03	.32	.15**	.03	.28	.12**	.03	.24
FB Use	.43**	.07	.41	.43**	.07	.42	.43**	.07	.42	.34**	.07	.34
Interpersonal Efficacy				.04	.09	.03	.07	.09	.05	.03	.09	.03
Goal Efficacy				.14	.09	-.09	.12	.09	.09	.15†	.09	.12
SS1FtoF							.23**	.07	.34	.15†	.08	.22
SS2FtoF							-.10	.08	-.14	-.15†	.08	-.21
SS3FtoF							-.01	.08	-.02	.06	.09	.08
SS1FB										.18*	.07	.22
SS1FB										.08	.07	.10
SS1FB										-.07	.09	-.07
R^2	.323			.340			.398			.436		
Adj R^2	.314			.323			.370			.398		
ΔR^2	.323			.017			.058			.038		
F for ΔR^2	38.15*			2.07			4.94*			3.41*		

† $p < .10$, * $p < .05$; ** $p < .01$

Note: SS1FtoF = Emotional Social Support Face-to-face Friends; SS2FtoF = Informational Social Support Face-to-face Friends; SS3FtoF = Instrumental Social Support Face-to-face Friends; SS1FB = Emotional Social Support Facebook Friends; SS2FB = Informational Social Support Facebook Friends; SS3FtoF = Instrumental Social Support Facebook Friends.

Table 4 displays the results of the hierarchical multiple regression analyses for predicting Facebook Outcomes. As can be seen in Table 4, the control variables of the number of hours of Facebook use per week and the Facebook use scale were entered in model 1. This results in a significant R^2 of .347. However, only the Facebook use scale was a statistically significant predictor of the Facebook outcomes variable. In model 2, the interpersonal and goal efficacy scales were entered. The change in R^2 was nonsignificant ($\Delta R^2 = .007$). For model 3, the three face-to-face social support measures were added. Again, the change in R^2 was not significant ($\Delta R^2 = .003$). Finally, in model 4 the three Facebook social support measures were added. This did result in a significant change in R^2 ($\Delta R^2 = .046$). However, none of the individual Facebook social support measures were statistically significant.

TABLE 4
SUMMARY OF HIERARCHIAL REGRESSION ANALYSIS FOR
PREDICTING FACEBOOK OUTCOMES (N =178)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Hours	.06	.04	.10	.05	.04	.09	.05	.04	-.03	.02	.04	.04
FB Use	.64**	.07	.56	.63**	.07	.56	.62**	.08	.04	.50**	.08	.44
Interpersonal Efficacy				.09	.10	.07	.08	.10	-.87	.05	.10	.04
Goal Efficacy				-.13	.10	-.09	-.13	.10	-.03	-.08	.10	-.06
SS1FtoF							-.04	.09	.30	-.07	.09	-.09
SS2FtoF							.05	.09	.30	-.00	.09	-.00
SS3FtoF							.01	.09	.30	.02	.10	.03
SS1FB										.10	.08	.11
SS1FB										.12	.08	.13
SS1FB										.09	.10	.08
R ²	.347			.354			.357			.403		
Adj R ²	.338			.337			.327			.363		
Δ R ²	.347			.007			.003			.046		
F for Δ R ²	42.16*			.89			.21			3.91*		

*p<.05; **p<.01

Note: SS1FtoF = Emotional Social Support Face-to-face Friends; SS2FtoF = Informational Social Support Face-to-face Friends; SS3FtoF = Instrumental Social Support Face-to-face Friends; SS1FB = Emotional Social Support Facebook Friends; SS2FB = Informational Social Support Facebook Friends; SS3FtoF = Instrumental Social Support Facebook Friends.

Table 5 displays the hierarchical multiple regression results for predicting Life Satisfaction. As can be seen in Table 5, the control variables of number of hours of Facebook use per week and the Facebook use scale were entered in model 1. This resulted in a nonsignificant R² of .022. In model 2, the interpersonal and goal efficacy scales were entered. The change in R² was significant (Δ R² = .147). Both interpersonal and goal efficacy were significant individual predictors of life satisfaction. For model 3, the three face-to-face social support measures were added. The change in R² was not significant (Δ R² = .012). Finally, in model 4 the three Facebook social support measures were added. This again resulted in a nonsignificant change in R² (Δ R² = .019). Thus, the result related to research question 2 showed that only goal and interpersonal efficacy were related to life satisfaction.

DISCUSSION

Our first research question focused on Facebook's impact on three different types of perceived social support. Our findings suggest that the mean level of social support, perceived by Facebook users, was significantly higher for face-to-face friends, across all three types of social support. Additionally, a significant correlation was found between Facebook users and their offline activities. This finding reinforces the prior research (Glew, 2009; Luthans, et al, 2007; Seligman, 2002) which shows the importance of social support in personal and workplace relationships.

TABLE 5
SUMMARY OF HIERARCHICAL REGRESSION FOR PREDICTING LIFE SATISFACTION
(N =178)

Variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Hours	.01	.03	.02	.00	.03	.01	.00	.03	.00	-.01	.03	-.03
FB Use	-.12†	.06	-.15	-.11†	.06	-.13	-.11†	.06	-.13	-.16*	.07	-.19
Interpersonal Efficacy				.17*	.08	.17	.17*	.08	.17	.15†	.08	.16
Goal Efficacy				.27**	.08	.27	.27**	.08	.27	.29**	.08	.30
SS1FtoF							.03	.07	.06	.04	.07	.07
SS2FtoF							-.06	.07	-.11	-.07	.07	-.14
SS3FtoF							.07	.07	.13	.05	.08	.09
SS1FB										.02	.07	.02
SS1FB										.02	.07	.04
SS1FB										.10	.08	.13
R ²	.022			.168			.181			.200		
Adj R ²	.009			.147			.144			.148		
Δ R ²	.022			.147			.012			.019		
F for Δ R ²	1.77			14.04*			.77			1.23		

†p<.10; *p<.05; **p<.01

Note: SS1FtoF = Emotional Social Support Face-to-face Friends; SS2FtoF = Informational Social Support Face-to-face Friends; SS3FtoF = Instrumental Social Support Face-to-face Friends; SS1FB = Emotional Social Support Facebook Friends; SS2FB = Informational Social Support Facebook Friends; SS3FtoF = Instrumental Social Support Facebook Friends.

These results contribute to the literature by demonstrating that while face-to-face friends offer higher levels of social support across all three types (emotional, informational, and instrumental), Facebook friends augment the support provided through all three types of social support (McMillan & Morrison, 2008; Procidano & Heller, 1983; Subrahmanyam, Reich, Waechter & Espinoza, 2008). This result has implications for organizational leaders regarding how the use of Facebook impacts building and maintaining positive working relationships. However, this research should be extended to a full time employee sample to clarify our understanding of the generalizability of these results.

Organizational leaders need to be cautious in how they manage the use of Facebook and other social media to ensure that negative social encounters do not result, despite the manager’s good intentions to build relationships among coworkers. For example, “requiring” coworkers to become friends on Facebook would potentially cause significant problems for those employees who want to keep their private lives “private”. Using other social media such as Linked In and Twitter to share professional information (e.g. about job openings and new positions that become available when individuals are promoted), may be a more productive way to encourage coworkers to share information and provide support to each other, without blurring the lines between personal and professional information sharing. The key learning outcome from this result is that people are indeed looking for all three types of social support (emotional, informational, and instrumental), and investing time on Facebook does indeed fulfill some of the social support needs. Managers need to be aware of how to use social media and other approaches to facilitate social support among work colleagues to facilitate collaboration and positive working relationships without mandating that colleagues become Facebook Friends (if they do not want to be “friends”).

Additionally, participants who reported higher Facebook usage expressed that they were more likely to continue to use Facebook in the future. Specifically, participants scoring high on emotional social support were most likely to state that they intended to continue to use Facebook in the future when compared with the impact of information support and instrumental support. While causation cannot be inferred, the results indicate that active Facebook users tend to have a higher motivation to continue to use Facebook. Although studies have shown that active Facebook users can feel both greater connectedness and disconnectedness with their friends, those who were deprived of Facebook usage tended to engage in more Facebook activities after the deprivation period (Sheldon, Abad, & Hinsch, 2011). Given this result, organizational leaders may want to consider the impact of policies that completely prohibit use of Facebook at work and explore alternatives that allow employees to interact with others, but within the work context and not solely to post pictures for family and friends. Again, using other social media tools, such as Linked In and Twitter, may provide other avenues to engage others in a professional social context and create a venue for sharing information to provide others to be successful in their work goals and projects. For example, information shared on Linked In about people who have recently received a promotion to a new job in the organization, will provide others with information on new job openings (e.g. the job that is now vacant due to the promotion the individual received) and may be shared more quickly than Human Resources Department can post it on the organizations' website.

For research question two, we explored the impact of social support, personal efficacy, and interpersonal control on overall life satisfaction, as well as Facebook Behavioral Intentions. Findings from the regression analyses suggest that Facebook related usage does not contribute to perceptions of personal efficacy and that staying connected with friends on Facebook does not lead to higher perceived satisfaction with their lives. However, we found that Facebook usage was a significant factor for predicting Facebook outcomes (e.g., I feel that my Facebook friends: 1) provide positive support and help to me, 2) would support me when I needed help, 3) improve the quality of friendships I have, and 4) increase the number of friends that I have). The results also showed that the greater the number of hours spent on Facebook, the higher the informational, instrumental, and emotional support those individuals perceived from their Facebook friends and the higher informational support they received from their face-to-face friends. Again, creative use of social media tools can contribute to individuals' ability to achieve their goals and gain access to information as well as enhance inclusion and embeddedness (Sheldon et al, 2011). Facebook has been masterful in creating the embeddedness feeling by tracking what friend are doing and the number of friends individuals have in their network. That basic human need to feel a part of something bigger than oneself is related to "having 458 friends" (Aaker & Smith, 2010). The key is to ensure that those friendships are meaningful and that technology is used to enhance social capital and does not result in technology based separation and loneliness that diminishes the social support that is provided by face-to-face friends. In this way, using social media in a positive way to facilitate work relationships can contribute to a positive organizational culture, through building and reinforcing strong collegial relationships and retention.

In our analysis, both goal and interpersonal efficacy were significantly related to perceptions of overall life satisfaction. This finding is consistent with previous research on efficacy (personal and interpersonal) and overall life satisfaction (Csikszentihalyi, 1990; Diener & Biswas-Diener, 2002; Gilbert, 2006; Kabanoff, 1980; Levenson, 1973; Procidano & Heller, 1983). While the other variables were nonsignificant in predicting life satisfaction, it may be that the use of Facebook and social support has a more complex and nuanced relationship with life satisfaction that needs to be assessed in future research (Wellman & Gulia, 1999; Yee, Bailenson, Urbanek, Chang, & Merget, 2007; Young, 2004). It is clear organizational leaders and individuals need to have a clearer understanding of these relationships as they consider how to invest their valuable time and energy to achieve important individual and organizational goals (Ellison, Steinfield & Lampe, 2011).

REFERENCES

- Aaker, J., & Smith, A. (2010). *The dragonfly effect: Quick, effective, and powerful ways to use social media to drive social change*. San Francisco, CA: Jossey-Bass.
- Adams, G.A., King, L.A., & King, D.W. (1996). Relationships of job and family involvement, family social support, and work-family conflict with job and life satisfaction, *Journal of Applied Psychology*, 81, 411-420.
- Adler, P.S., & Kwon, S. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27, 17-40.
- Barsade, S.G. (2002). The ripple effect: Emotional contagion and its influence on group behavior. *Administrative Science Quarterly*, 47(4), 644-675.
- Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, 14, 413-445.
- Carroll, B., & Landry, K. (2010). Loggin on and letting out: Using online social networks to grieve and to mourn. *Bulletin of Science, Technology & Society*, 30(5), 341-349.
- Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, 38, 300-314.
- Csikszentihalyi, M. (1990). *Flow: the psychology of optimal experience*. New York: HarperCollins.
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? A literature review and guide to needed research. *Social Indicators Research*, 57(2), 119-169.
- Doyle, K.O. (2008). Thinking differently about the new media. *American Behavioral Scientist*, 52(1), 3-7.
- Ellison, N.B., Steinfield, C., & Lampe, C. (2007). The benefits of facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12, 1143-1168.
- Ellison, N., Steinfield, C., & Lampe, C. (2011). Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media & Society*, 13, 873-892.
- Gilbert, D.T. (2006). *Stumbling on Happiness*. New York: Knopf.
- Glew, D.J. (2009). Personal values and performance in teams: An individual and team-level analysis. *Small Group Research*, 40(6), 670-693.
- Gottlieb, B.H. (1983). Social support as a focus for integrative research in psychology. *American Psychologist*, 38, 278-287.
- House, J.S. (1981). *Work stress and social support*. Reading, MA: Addison-Wesley Publishing Co.
- Kabanoff, B. (1980). Work and nonwork: A review of models, methods, and findings. *Psychological Bulletin*, 88, 60-77.

- Kavanaugh, A.L., & Patterson, S.J. (2001). The impact of community computer networks on social capital and community involvement. *The American Behavioral Scientist*, 45, 496-509.
- Kramer, L. (2010). How French innovators are putting the “social” back in social networking. *Harvard Business Review*, 121-124.
- Lakin, J.L., & Chartrand, R.L. (2003). Using nonconscious behavioral mimicry to create affiliation and rapport. *Psychological Science*, 14(4), 334-339.
- Levenson, H. (1973). Multidimensional locus of control in psychiatric patients. *Journal of Consulting and Clinical Psychology*, 41, 397-404.
- Liang, J. (1984). *Dimensions of life satisfaction index: A structural formulation*. Unpublished manuscript, Institute of Gerontology, Wayne State University.
- Lin, N. (1999). Building a network of social capital. *Connections*, 22, 28-51.
- Luthans, F., Avolio, B.J., Avey, J.B., & Norman, S.M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, 60, 541-572.
- McMillan, S. J., & Morrison, M. (2008). Coming of age with the Internet: A qualitative exploration of how the Internet has become an integral part of young people's lives. *New Media Society*, 8, 73–95.
- Neumann, R., & Strack, F. (2000). Mood contagion: The automatic transfer of mood between persons. *Journal of Personality and Social Psychology*, 79, 211-223.
- Paulhus, D.L. (1983). Sphere-specific measures of perceived control. *Journal of Personality and Social Psychology*, 44, 1253-1265.
- Paulhus, D.L., & Christie, R. (1981). Spheres of control: An interactionist approach to assessment of perceived control. In H.M. Lefcourt (Ed.) *Research with the locus of control construct (Vol. 1)*. New York: Academic Press.
- Procidano, M.E., & Heller, K. (1983). Measures of perceived social support from friends and from family: Three validation studies. *American Journal of Community Psychology*, 11, 1 – 24.
- Sandler, I.M., & Lakey, B. (1982). Locus of control as a stress moderator: The role of control perceptions and social support. *American Journal of Community Psychology*, 10, 65-80.
- Seligman, M.E.P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York: Free Press.
- Sheldon, K.M., Abad, N., & Hinsch, C. (2011). A two-process view of facebook use and relatedness need-satisfaction: Disconnection drives use, and connection rewards it. *Journal of Personality and Social Psychology*, 100, 766-775.
- Subrahmanyam, K., Reich, S.M., Waechter, N., & Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology*, 29, 420–433.

Sy, T., Cote, S., & Saavedra, R. (2005). The contagious leader: Impact of the leader's mood on the mood of group members, group affective tone, and group process. *Journal of Applied Psychology*, 90, 295-305.

Wellman, B. & Gulia, M. (1999). The network basis of social support: A network is more than the sum of its ties. In Wellman B (Ed): *'Networks in the Global Village'*, Boulder, CO: Westview Press.

Yee, N., Bailenson, J.N., Urbanek, F., Chang, F., & Merget, D. (2007). The unbearable likeness of being digital; the persistence of nonverbal social norms in online virtual environments. *Cyberpsychology and Behavior*, 10, 115-121.

Young, K. S. (2004). Internet addiction: A new clinical phenomenon and its consequences. *American Behavioral Scientist*, 48, 402-415.

Simulate the Job: Predicting Accidents Using a Work Sample

Mei-Chuan Kung
Select International, Inc.

Matthew S. O'Connell
Select International, Inc.

Esteban Tristan
Select International, Inc.

Brian Dishman
Select International, Inc.

This study examined the construct and criterion-related validity of a psychomotor work sample in predicting safety incidents in addition to job performance for entry-level manufacturing jobs. Results shed light to the underlying constructs measured in the work sample and demonstrated usefulness of a pre-employment work sample in improving workplace safety.

In almost any work-related environment that involves physical activity, safety is routinely rated as the single most important factor by subject matter experts. No other aspect of work is more important than ensuring the health and well-being of oneself and others. While there are many factors that contribute to accidents, it is clear that some individuals are more likely to engage in high risk, unsafe behaviors than others. For instance, a study by Knipling and his colleagues found that 20 percent of drivers account for almost 80 percent of all driving accidents (Knipling et al., 2004).

In addition to the health and welfare of the individuals involved, accidents are costly to the organization in terms of insurance, equipment, and goods. According to the Occupational Safety and Health Administration (OSHA), for every \$1 a company spends on medical expenses for a worker's compensation claim they also incur \$4 in indirect workers compensation costs. For every \$1 of disability (lost time) expenses paid for a worker's compensation claim OSHA estimates that the employer also incurs between \$2 and \$10 in indirect workers compensation costs. Considering that in 2007 the average workers' compensation claim was \$46,800, the indirect cost would be over \$200,000.

Workplace injuries are both more ubiquitous and serious than is commonly thought. According to a recent study by the U.S. Bureau of Labor Statistics, slightly more than one-half of the 3.3 million private industry injury and illness cases reported nationally in 2009 were of a more serious nature that involved days away from work, job transfer, or restriction – commonly referred to as DART cases. In 2009 these occurred at a rate of 1.8 cases per 100 workers (U.S. Department of Labor, Bureau of Labor Statistics, *News Release, October 21, 2010*. USDL-10-1452). Therefore, nearly 50% of all injuries are severe enough to lead to loss of work, restricted duty upon return and/or transferring out of the original job.

IMPROVING SAFETY

Safety incidents, accidents, and various forms of safety-related behaviors are influenced by a range of factors. A recent meta-analysis evaluated two broad categories, person factors and situation factors in predicting workplace safety (Christian, Bradley, Wallace, & Burke, 2009).

Situational Factors

On the one hand there are Situational Factors that play a key role in predicting safety behavior. One of the primary and most important of these factors is the Safety Climate of the organization. *Safety climate* can be defined as the shared perceptions of individuals in the work environment related to safety-related policies, practices, and procedures pertaining to safety matters that affect personal well being (James, James, & Ashe 1990). It is impacted by factors such as management's commitment to safety practice, perceived organizational support, safety systems that are put in place, and training provided about safe practices and procedures, as well as the leadership style of the direct supervisor. With regard to leadership, the level of leader member exchange (LMX), or the degree to which employees feel free and willing to raise safety concerns to their supervisor is a critical determinant of safety climate (Hofmann & Morgeson, 1999). Research consistently shows that there is a strong, significant relationship between safety climate and safety behavior (Clarke, 2006).

Personal Factors

In addition to situational factors there are individual factors that relate to safety behavior which then result in safety outcomes. In other words, two individuals, placed in the same job and the same environment, will not necessarily engage in similar levels of safety behaviors. One will be more or less likely to act safely, follow procedures and protocols, and avoid unnecessary risks than the other. Each individual brings characteristics, ways of processing information, and behaviors that are unique to them.

Many individual difference variables have been shown to relate to safety outcomes. Conscientiousness is consistently related to safety performance and safety compliance as well as accidents and injuries (c.f. Christian et al., 2009; Clarke & Robertson, 2005; Wallace & Vodanovich, 2003). Thrill seeking and recklessness have long been associated with unsafe behaviors (c.f. Zuckerman & Link, 1968). Individuals who are more thrill-seeking are more likely to drive fast, accelerate through yellow lights, take dangerous shortcuts, and drive while intoxicated (Arnett, Offer, & Fine, 1997; Ashton, 1998; Kilgore, Vo, Castro, & Hoge, 2006; Paul & Maiti, 2007). Risk taking has also been shown to be significantly related to accidents and injuries (Christian et al., 2009). Across a variety of occupations locus of control has been found to predict accident risk, number of reported accidents, and accident severity (Wuebker, 1986). In addition, individuals with an external locus of control had average accident-related medical costs 2.6 times higher than their internally-oriented counterparts (Jones & Wuebker, 1993). Emotional stability has long been shown to be related to accidents among professional drivers (Roy & Choudhary, 1985), motorists (Mayer & Treat, 1977), and within industrial settings (Hansen, 1989).

In general, these studies have addressed the types of individual difference variables that predict safety outcomes. Most of these studies used non-interactive assessment methodologies, such as personality and biodata inventories and cognitive ability tests for capturing these individual factors. Indeed, even a variable such as cognitive failure, which has also shown to be related to safety outcomes, is typically evaluated using self-report response scales (c.f. Broadbent, Cooper, Fitzgerald, & Parkes, 1982; Wallace & Chen, 2006; Wallace & Vodanovich, 2003).

The purpose of the current paper is to describe the development of an interactive psychomotor work sample simulation and evaluate how effectively that was able to predict safety behavior in applied manufacturing setting. In addition, the construct validity of that simulation was evaluated to determine the individual differences variables that comprise that simulation. One of the criticisms of past research on safety and safety outcomes is that many studies suffer from a common method and perhaps more critically, a common rater bias. For instance, of the 113 criteria listed in Christian et al.'s (2009) meta-

analysis, 72 of them (64%) relied on self-reports of safety criteria. In addition, of the 111 predictor variables in that study, 93 of them (84%) relied on self-report measures such as personality scales, job attitudes, climate measures, etc. While a number of studies have shown that there is a strong relationship between self-reports and supervisor ratings of accidents (c.f. Wallace & Vodanovich, 2003), the over reliance on self-reports of both predictor and criteria are concerning. In the current study, the predictor is based on actual physical performance in a job-relevant simulation and the criterion consists of supervisor ratings of safety incidents.

Work Sample Testing and Previous Research

Work sample testing is a form of assessment involving the use of hands-on performance measures, whereby an applicant or incumbent performs a given task or set of tasks under conditions comparable to those found on the position in question (Callinan & Robertson, 2000). The primary philosophy behind this approach to assessment lies in the theoretical foundation set forth in the seminal works of both Wernimont and Campbell (1968) and Asher and Sciarrino (1974). Although addressing the concept of validity more broadly, Wernimont and Campbell (1968) encouraged a general shift from the traditional focus on traits and predispositions to a greater emphasis on observable forms of behavior.

A large body of research has provided evidence for the high validity of work sample measures, compared to traditional paper-and-pencil tests (e.g., Campion 1972; Mount, Munchinsky, & Hanser, 1977), and similar conclusions have been reached in meta-analyses and reviews (Schmitt, Gooding, Noe, & Kirsch, 1984; Robertson & Kandola, 1982; Roth, Bobko, & McFarland, 2005; Schmidt & Hunter, 1998). Schmidt and Hunter (1998) noted that, across all predictor measures, work samples produced the highest validity for overall job performance (.54), higher than that of general cognitive ability (.51), Conscientiousness (.31), and biodata (.35). Roth et al. (2005) also reported a moderate relationship between work sample test and general cognitive ability (.32). However, specific research examining validity of work sample measures in relation to safety criteria was scarce, if not nonexistent.

HYPOTHESES

The hypotheses for this study are broken into two different categories. The first set relates to the construct validity of the work simulation. These hypotheses are evaluated using a large applicant dataset. The second set of hypotheses relates to the predictive validity of the work simulation in predicting not only job performance, but more specifically, to the prediction of safety outcomes.

In the first set of hypotheses, the work sample test is evaluated against a web-based multi-scale and multi-measurement assessment battery, described below, that has been shown to be related to performance as well as related to other measures of the constructs in question. There are a number of competency areas that should logically be related to performance on the work sample and many that should not.

Hypothesis 1. The work sample simulation will be unrelated to Positive Attitude (1a), Conscientiousness (1b), Locus of Control (1c), and Teamwork (1d) as measured in the web-based assessment. The work sample simulation will be positively related to Attention to Detail (1e), Multitasking (1f), Work Pace (1g), and Cognitive Ability (1h) as measured in the web-based assessment.

The second set of hypotheses focuses on the predictive validity of the work sample in predicting job performance and safety outcomes using the smaller validation sample.

Hypothesis 2. The work simulation will be positively and significantly related to Task Performance (2a), Contextual Performance (2b), and occurrence of safety incidents (2c) as rated by supervisors.

METHOD

Applicant Sample and Procedure

The applicant dataset came from 5,849 applicants to production team member positions at a large auto manufacturer in Canada who successfully completed two of the four phases of the selection process. The first two phases of the process included an online application and then a proctored administration of the Select Assessment for Manufacturing, a web-based multi-assessment battery, described below. Applicants needed to successfully complete the first two phases in order to be invited to the work sample simulation. The original applicant sample size for the first phase in the process was 37,538, and 26,116 for the second phase in the process. Due to legal environment in privacy laws, it is less common to collect demographic information in Canada during the pre-employment selection process. Therefore, racioethnic and gender information were not available.

The validation sample consisted of 130 production employees who had been hired using the above referenced selection process and who had been employed for at least one year and with their immediate supervisor for at least six months.

Measures

Test Battery

The content of the web-based multi-assessment battery, the Select Assessment[®] for Manufacturing, has been described and appeared elsewhere in the literature (O'Connell, Kung, & Tristan, 2011; Hatstrup, O'Connell, & Labrador, 2005; O'Connell, Hartman, McDaniel, Grubb, III, & Lawrence, A., 2007). The assessment consists of four major types of assessment methods: self-report personality scales, situational judgment items, applied problem solving/cognitive ability items and interactive information processing simulations. These measures are combined within the program using a proprietary weighting methodology and resulting in a set of competencies, which include: attention to detail, positive attitude, process monitoring (multitasking), personal responsibility (locus of control), problem solving (cognitive ability), teamwork, conscientiousness and work pace. A recent meta-analysis of this assessment showed that across 27 studies and 3,926 individuals all of these competencies were significantly related to performance with corrected correlations ranging from .23 for positive attitude to .37 for work tempo (O'Connell & Reeder, 2008). For the purposes of this study, results are presented at the competency level because those provide the most reliable and accurate measure of the variable in question.

Work Sample

The work sample simulation was designed using information gathered from detailed observations and job analyses at four separate manufacturing sites for the manufacturer in question. This simulation has been described elsewhere in the literature (O'Connell et al., 2011). The exercise simulated an essential set of physical tasks that are required in manufacturing positions at all facilities in the organization. There were four primary stations that candidates rotated through during the course of the exercise: spot weld, bolt mount, wire harness, and weight mount. The work sample lasted approximately four hours. Most of the scores for the simulation were calculated automatically via computers connected to each station. Collapsed across the four stations, three major scores emerged from the simulation: Attention to Detail (accuracy), Fine Motor Skills, and Work Pace (speed). In addition, a trained proctor observed groups of six individuals who completed the exercise and completed a structured rating form associated with the number of "safety violations." Violations were operationalized as instances where candidates did not follow procedures or failed to wear the appropriate personal protection equipment. An overall rating was made at the end of the simulation and entered into the system.

Criterion Measure

For the validation sample, a 21-item performance rating form was administered to the incumbents' immediate supervisors. Responses to each item are indicated on a 7-point Likert-type scale. Data collected from this rating form was used to compute two primary performance scales: Task performance

and Contextual performance. Task performance (8-item) relates to activities involved in direct-line job responsibilities, while Contextual performance (8-item) is associated with activities that benefit the organization and the work group but are not necessarily associated with direct-line behavior. Internal consistency for Task and Contextual performance in the present sample were .89 and .84, respectively. In addition, a separate rating was made regarding the number of safety related incidents the individual was involved in over the past six months.

RESULTS

The first set of analyses focused on the construct validity of the work sample simulation using an applicant sample. Table 1 presents descriptive statistics and correlations for the variables in question.

Because the sample size for the applicant sample is so large, even very small correlations such as $r=.03$ are statistically significant at $p<.05$. For purposes of this study we used a cutoff of $p<.001$ to test the hypotheses in question. Using this standard we evaluated the first set of hypotheses as follows.

Hypotheses 1a – 1d were all supported. The correlations between the work sample and positive attitude, conscientiousness, locus of control and teamwork were all either insignificant or in the negative direction, although below the .001 threshold. Hypotheses 1e - 1f, regarding a positive, significant correlation between the work sample and attention to detail, multitasking, work pace, and cognitive ability were also supported.

TABLE 1
DESCRIPTIVE STATISTICS AND INTERCORRELATIONS BASED ON
APPLICANT SAMPLE (n=5,849)

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. SAM: Attention to Detail	7.13	1.06	--										
2. SAM: Positive Attitude	7.21	1.53	.24 [†]	--									
3. SAM: Multi-Tasking	7.40	1.80	.44 [†]	-.11**	--								
4. SAM: Locus of Control	7.15	1.75	.30 [†]	.40 [†]	-.11**	--							
5. SAM: Teamwork	6.91	1.47	.05**	.15 [†]	-.03**	.15 [†]	--						
6. SAM: Conscientiousness	7.14	1.56	.27 [†]	.52 [†]	-.13 [†]	.40 [†]	.04**	--					
7. SAM: Work Pace	7.60	1.21	.41 [†]	.07**	.72 [†]	.03*	.01	.20 [†]	--				
8. SAM: Cognitive Ability	7.50	1.42	.15**	-.01	.19**	.07**	.39**	-.11**	.16**	--			
9. WS: Attention to Detail	5.93	1.78	.13 [†]	-.02	.19 [†]	-.03*	.01	-.06**	.17 [†]	.21**	--		
10. WS: Fine Motor Skills	5.89	1.78	.17 [†]	-.06**	.30 [†]	-.05**	-.04**	-.03**	.28 [†]	.16**	.43 [†]	--	
11. WS: Work Pace	6.02	1.88	.14 [†]	-.07**	.27 [†]	-.05**	-.07**	-.04**	.26 [†]	.11**	.15 [†]	.86 [†]	--
12. WS: Safety	7.36	2.70	.08**	-.05**	.14 [†]	.03*	.00	-.04**	.10**	.09**	.20 [†]	.19 [†]	.17 [†]

Notes: * $p < .05$, ** $p < .01$, [†] $p < .001$

The second set of hypotheses focused on the criterion-related validity of the work samples. Table 2 below presents descriptive statistics and correlations for the variables in question. There was extreme range restriction on the validation sample. A sample of 37,538 applicants was screened down to less than 3,000 individuals eligible for job offers. Of the group hired, only those individuals who were still on the job after one year were eligible for inclusion in the validation sample. For that reason, the second set of hypotheses were evaluated using the corrected correlations and the associated significance tests described by Raju and Brand (2003) for determining significance of correlations corrected for unreliability and range restriction.

Hypothesis 2a was supported across the board. The three measures that came directly from the work sample, i.e. attention to detail, fine motor skills, and work pace, as well as the safety ratings by proctors were all significantly related to task performance as rated by supervisors. Hypothesis 2b was mostly supported. The three measures that came directly from the work simulation were all significantly related to contextual performance as rated by supervisors. However, the safety rating by proctors was not. The results for Hypothesis 2c were also largely but not fully supported. Fine motor skills, work pace, and safety ratings were all significantly related to safety incidents whereas attention to detail was not.

TABLE 2
DESCRIPTIVE STATISTICS AND INTERCORRELATIONS BASED ON
VALIDATION SAMPLE (n=130)

	M	SD	1	2	3	4	5	6
1. Criteria: Task Perf.	5.76	0.80	--					
2. Criteria: Contextual Perf.	5.40	0.82	.84 [†]	--				
3. Criteria: Safety Incidents	0.16	0.55	-.19**	-.22**	--			
4. WS: Attention to Detail	6.83	1.59	.16 (.38 [†])	.12 (.29 [†])	.00 (.06)	--		
5. WS: Fine Motor Skills	6.85	1.40	.21*(.48 [†])	.15 (.35 [†])	-.22*(-.52 [†])	.25**	--	
6. WS: Work Pace	7.28	1.53	.19*(.44 [†])	.15 (.35 [†])	-.27**(-.61 [†])	-.03	.86**	--
7. WS: Safety	8.19	1.83	.15 (.37 [†])	.03 (.08)	-.15(-.39 [†])	.16	.24**	.19*

Notes: * $p < .05$, ** $p < .01$, [†] $p < .001$. Correlations in parentheses represent corrected correlations for range restriction and criterion unreliability.

DISCUSSION

The purpose of the current study was twofold. The first was to evaluate the accuracy of a work sample simulation in predicting safety incidents and job performance. The second was to gain a better understanding of the constructs that were being measured by the work sample.

Increasingly, organizations that employ individuals in physically demanding work environments are searching for ways to improve safety behavior, reduce exposure to dangerous situations, and, ultimately, to reduce accidents and injuries (c.f. Bell, O'Connell, Reeder, & Nigel, 2008; O'Connell & Delgado, 2011). As noted earlier, one of the criticisms with safety research to date is that it suffers from a common method, common rater bias. The vast majority of safety research has used self report measures of personality or biodata correlated with self reports of safety incidents (c.f. Christian et al., 2009; Clarke & Robertson, 2005). This study adds to the safety literature by evaluating how well a job relevant work sample relates to independent ratings of safety incidents. While supervisor ratings of the number of safety incidents are not necessarily "objective" criteria, they are certainly more objective than self ratings of

safety incidents and are provided by a different source. The results were very clear and positive. Three of the four assessment scores from the work sample simulation were significantly and strongly related to independent ratings of safety incidents. It was interesting that the attention to detail measure from the work sample was unrelated to safety incidents, although it was related to both task and contextual performance.

The current study contributes to the understanding of how a work sample measure can broadly cover the criterion domain by not only differentiating task from contextual performance, but also by predicting a separate and largely independent rating of safety. Given the multidimensional nature of the performance construct (Borman & Motowidlo, 1993), the validity of any predictor will be at least partially dependent upon how the criterion domain is conceptualized. Our results support this notion; the magnitude of the relationship for all four measures that emerged from the work sample measure was higher for task performance than for contextual performance. Three of the four work sample scores were also more strongly related to safety incidents than contextual performance. This is as expected because the work sample measure is essentially an assessment of task related performance compared with contextual performance. Future research should continue to investigate how various assessment methods, including work samples, combine to predict other organizationally-relevant criterion variables, including safety violations, injury and accident occurrence, and turnover.

The second major purpose of this study was to better understand the constructs associated with performance in the work sample simulation. As expected, performance on the work sample was largely unrelated to measures of positive attitude, locus of control, teamwork, and conscientiousness. The work sample was related, however, to measures of attention to detail, multitasking, work pace, and cognitive ability. Clearly, there is a strong cognitive component to the work sample simulation used in this study, consistent with prior research (Roth et al., 2005), even though it was largely a physical activity. Significant correlations were also observed between the work sample and safety incidents. Overall these results provided useful construct validity findings for the work sample.

The cognitive component found in the work sample measures likely reflects the learning curve associated with a new activity. While it was not evaluated in the current study, it is likely that the cognitive nature of performance in the work sample would diminish as the simulation continued, with the highest relationship being at the start of the simulation. The measures of attention to detail, multitasking, and work pace in the web-based simulation were all partially derived from interactive, information processing simulations which all clearly have a cognitive component (Kinney, Reeder, & O'Connell, 2008, 2009). These measures all correlated with the work sample which itself predicted safety incident ratings. Together these findings build on previous evidence demonstrating that information processing based measures are strong predictors of safety behavior and accidents (c.f. Arthur, Barrett, & Doverspike, 1990). Furthermore, these findings suggest that individual differences other than personality might be important personal factors associated with safety behaviors and outcomes as well as a fruitful area for safety research.

As stated earlier, situational factors plays an important role in workplace safety. Future research could incorporate safety climate and LMX in examining relationship between work sample simulation and safety outcomes. In summary, the current study illustrates that psychomotor work samples, when designed to replicate various aspects of a physically demanding job, can significantly predict work related incidents and accidents, in addition to task and contextual performance. From a construct validity perspective, our findings suggest that these types of work samples will correlate with cognitive ability while showing little relationships with personality traits. Given the importance of reducing accidents and safety incidents in the workplace, future research on work samples in physically demanding job settings would be beneficial to both researchers and practitioners.

REFERENCES

Arnett, J.J., Offer, D. & Fine, M.A. (1997). Reckless driving in adolescence: State and trait factors. *Accident Analysis and Prevention*, 29, 57-63.

- Arthur, W.J., Barrett, G.V. & Doverspike, D. (1990). Validation of an information-processing-based test battery for the prediction of handling accidents among petroleum-product transport drivers. *Journal of Applied Psychology, 75*, 621-628.
- Asher, J.J. & Sciarrino, J.A. (1974). Realistic work sample tests: A review. *Personnel Psychology, 27*, 519-533.
- Ashton, M.C. (1998). Personality and job performance: The importance of narrow traits. *Journal of Organizational Behavior, 19*, 289-303.
- Bell, K.J., O'Connell, M. S., Reeder, M. & Nigel, R. (2008). Predicting and improving safety. *Industrial Management, March/April*, 12-16.
- Borman, W.C. & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. In N. Schmitt & W. C. Borman (Eds.), *Personnel selection in organizations* (pp. 71-98). San Francisco: Jossey-Bass.
- Broadbent, D.E., Cooper, P.F., Fitzgerald, P. & Parkes, K.R. (1982). The Cognitive Failures Questionnaire (CFQ) and its correlates. *British Journal of Clinical Psychology, 21*, 1-16.
- Callinan, M. & Robertson, I. T. (2000). Work sample testing. *International Journal of Selection and Assessment, 8*, 248-260.
- Campion, J. E. (1972). Work sampling for personnel selection. *Journal of Applied Psychology, 56*, 40-44.
- Christian, M.S., Bradley, J.C., Wallace, J.C. & Burke, M.J. (2009). Workplace safety: A meta-analysis of the roles of person and situation factors. *Journal of Applied Psychology, 94*, 1103-1127.
- Clark, S. (2006). The relationship between safety climate and safety performance: A meta-analytic review. *Journal of Occupational Psychology, 11*, 315-327.
- Clarke, S. & Robertson, I. T. (2005). A meta-analytic review of the big five personality factors and accident involvement in occupational and non-occupational settings. *Journal of Occupational and Organizational Psychology, 78*, 355-376.
- Hansen, C.P. (1989). A causal model of the relationship among accidents, biodata, personality, and cognitive factors. *Journal of Applied Psychology, 74*, 81-90.
- Hattrup, K., O'Connell, M. S. & Labrador, J. R. (2005). Incremental validity of locus of control after controlling for cognitive ability and conscientiousness. *Journal of Business Psychology, 19*, 461-481.
- Hofmann, D.A. & Morgeson, F.P. (1999). Safety-related behavior as a social exchange: The role of perceived organizational support and leader-member exchange. *Journal of Applied Psychology, 84*, 286-296.
- James, L.R., James, L.A. & Ashe, D.K. (1990). The meaning of organizations: The role of cognition and values. Organizational Climate and Culture. In B. Schneider (Ed), *Organizational climate and culture* (pp 40-84). San Francisco: Jossey-Bass.

- Jones, J.W. & Wuebker, L.J. (1993). Safety locus of control and employees' accidents. *Journal of Business and Psychology*, 7, 449-457.
- Killgore, W.D., Vo, A.H., Castro, C.A. & Hoge, C. W. (2006). Assessing risk propensity in American soldiers: Preliminary reliability and validity of the evaluation of risks (EVAR) scale – English version. *Military Medicine*, 171, 233-239.
- Kinney, T., Reeder, M. & O'Connell, M.S. (2008). *Cognitive predictors of performance in an applied multitasking environment*. Paper presented at the 23rd annual meeting of the Society for Industrial and Organizational Psychology, San Francisco, CA.
- Kinney, T., Reeder, M. & O'Connell, M.S. (2009). *Comparing multitasking and cognitive ability as predictors of job performance*. Paper presented at the 24th annual meeting of the Society for Industrial and Organizational Psychology, New Orleans, LA.
- Knipling, R.R., Boyle, L.N., Hickman, J.S., York, J.S., Daecher, C. Olsen, E.C.B. & Prailey, T.D. (2004). *CTBSSP Synthesis Report 4: Individual Differences and the "High-Risk" Commercial Driver*, Commercial Truck and Bus Synthesis Program. Transportation Research Board, National Research Council, Washington, D.C.
- Mayer, R.E. & Treat, J.R. (1977). Psychological, social and cognitive characteristics of high-risk drivers: A pilot study. *Accident Analysis and Prevention*, 9, 1-8.
- Mount, M.K., Muchinsky, P.M. & Hanser, L.M. (1977). The predictive validity of a work sample: A laboratory study. *Personnel Psychology*, 30, 637-645.
- O'Connell, M.S., Hartman, N.S., McDaniel, M.A, Grubb, W.L. III & Lawrence, A. (2007). Incremental validity of situational judgment tests for task and contextual job performance. *International Journal of Selection and Assessment*, 15, 19-29.
- O'Connell, M.S. & Reeder, M. (2008). *Meta-analysis of the Select Assessment[®] for Manufacturing*. Technical Report. Select International, Inc., Pittsburgh, PA.
- O'Connell, M. S & Delgado, K. (2011). The human element in workplace accidents: The importance of selection. *Industrial Management, January/February*, 12-16.
- O'Connell, M., Kung, M.C. & Tristan, E. (2011). Beyond impression management: Evaluating three measures of response distortion and their relationship to job performance. *International Journal of Selection and Assessment*, 19, 340-351.
- Paul, P.S. & Maiti, J. (2007). The role of behavioral factors on safety managements in underground mines. *Safety Science*, 45, 449-471.
- Robertson, I.T. & Kandola, R.S. (1982). Work sample tests: Validity, adverse impact and applicant reaction. *Journal of Occupational Psychology*, 55, 171-183.
- Roth, P.L., Bobko, P. & McFarland, L. A. (2005). A meta-analysis of work sample test validity: Updating and integrating some classic literature. *Personnel Psychology*, 58, 1009-1037.
- Roy, G.S. & Choudhary, R. K. (1985). Driver control as a factor in road safety. *Asian Journal of Psychology and Education*, 16, 33-37.

Schmidt, F.L. & Hunter, J.E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, 124, 262-274.

Schmitt, N., Gooding, R.Z., Noe, R.A. & Kirsch, M. (1984). Meta analyses of validity studies published between 1964 and 1982 and the investigation of study characteristics. *Personnel Psychology*, 37, 407-422.

Wallace, C. & Chen, G. (2006). A multi-level integration of personality, climate, self-regulation, and performance. *Personnel Psychology*, 59, 529-557.

Wallace, J.C. & Vodanovich. (2003). Workplace safety performance: Conscientiousness, cognitive failure, and their interaction. *Journal of Occupational Health Psychology*, 8, 316-327.

Wernimont, P.F. & Campbell, J.P. (1968). Signs, samples, and criteria. *Journal of Applied Psychology*, 52, 372-376.

Wuebker, L.J. (1986). Safety locus of control as a predictor of industrial accidents and injuries. *Journal of Business and Psychology*, 1, 19-30.

Zuckerman, M. & Link, K. (1968). Construct validity for the sensation-seeking scale. *Journal of Consulting and Clinical Psychology*, 32, 420-426.