

## Modeling leadership effectiveness among higher educational institutions using PLS-SEM

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### Abstract:

*The aim of this research is two-fold: (a) to identify the causal relationship of the leader's CSEs on the followers' OC, and (b) to develop a theory that will predict the followers' OC endogenous latent construct by maximizing the constructs of the leader's CSEs, transformational leadership [TFL], and ethical leadership [EL] using partial least squares approach to structural equation modeling [PLS-SEM]. Data were collected from 11 higher educational institutions [HEIs]. With 883 and 88 valid responses, thus, achieving a response rate of 57.05% from the followers and the leaders, respectively, a model of leadership effectiveness among HEIs through OC was established grounded on PLS-SEM. This model emanated from the leader specific traits in the context of CSEs and the trickle-down effect of leadership effectiveness through the followers' response in the context of OC.*

**Key words:** Core self-evaluations, Organizational commitment, Transformational leadership, Ethical leadership, Partial least squares-Structural equation modeling

### Introduction

In advancing knowledge, higher educational institutions [HEIs] essentially invested in research and human resources as they aided in the foundation and creation of knowledge (Sanchez &

Elena, 2006). The HEIs include the students, faculty members, administrators, and non-academic staff that performed their respective pivotal roles in the value formation of their affiliates. Thus, the leader plays a vital role in identifying effectiveness in all levels in the organization: (a) the individual, (b) the team, and (c) the unit (Burke, Sims, Lazzara, & Salas, 2007). It is important for the leaders to pay immense attention not for profit per se but unequivocal focus on the aspect of human resources development and management as it impacted the organization as a whole. Yukl (2008) emphasized that efficiency, adaptation, and human capital were the three core bases of financial performance.

In doing so, the leader acts as the prime mover and catalyst towards the realization of organizational goals and the followers' response is a consequence of how they perceive their leader. The positive traits and behaviors of the leader through consciously walking the talk create a trickle-down effect to the followers. Thus, behaviors and traits play a critical role in the process of unearthing the leader's effectiveness. Traits or personality is important for it is stable from childhood to adulthood (Strang & Kuhnert, 2009), one of the most potent ingredients of subjective behavior in the organization (Penney, David, & Witt, 2011), and across variety of circumstances that influences a person to behave in a certain manner (Judge & Kammeyer-Mueller, 2011).

In examining the literature, streams of research have already been devoted on the core self-evaluations [CSEs] theory which predicts outcomes such as performance, satisfaction, happiness, career success, stress and coping process, and leadership. Thus, this study employed CSEs to elucidate the "interpersonal and intrapersonal" (Tsaousis, Nikolaou, Serdaris, & Judge, 2007, p. 1450) aspects of the leader's specific traits. Another important facet of leadership effectiveness is a trickle-down effect to the followers that is manifested through the bind the latter has to the organization. Indeed, effective

leadership establishes commitment among employees (Wallace, Chernatony, & Buil, 2013) and strongly committed employees have the least probability of leaving the organization (Allen & Meyer, 1990). Meyer and Allen (1991) refers to this as organizational commitment [OC] which is entirely a psychological state. However, another noteworthy aspect of understanding leadership goes beyond its antecedents and consequences and explores comparatively the mediating variable/s by which the leader impacts the followers. Thus, this study argued that through the leader's behaviors in the context of transformational leadership [TFL] and ethical leadership [EL], the link between the leader specific traits in the context of the leader's CSEs and a trickle-down effect of leadership effectiveness through the followers' response in the context of OC could be mediated.

Another issue that needs to be addressed was the considerable amount of literature conducted and published by Western researchers whereas very few researches on the subject have developing countries as locus (Sadeghi & Pihie, 2012). Similarly, only few studies focus on higher education institutions [HEIs] (Voon et al., 2010 as cited in Sadeghi & Pihie, 2012) which resulted to mostly Western and limited vantage point on leadership (Takahashi, Ishikawa, & Kanai, 2012). Taken together, this created an imbalance in the academic literature; thus, the researcher finds that a study was deemed necessary to bridge the above knowledge gaps.

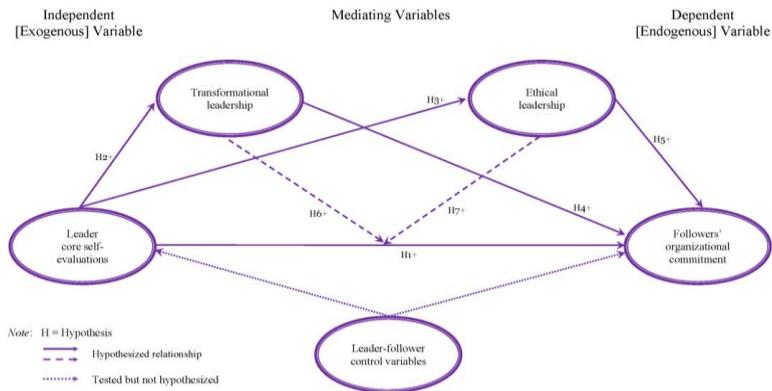
Amidst the vast works on leadership, the current research sought primarily to investigate how a leader's CSEs affect followers' OC by taking into account the roles played by behavioral traits of the leader. That is, how do transformational and ethical leaderships act as mediators between the leader's CSEs and the followers' OC? Corollary to these, the current study offers the following two-fold objectives:

1. To identify the causal relationship of the leader's CSEs on the followers' OC.

2. To develop and explore a theory that will predict the followers' OC endogenous latent construct while maximizing the constructs of leader's CSE, TFL, and EL using PLS-SEM.

### Theoretical framework and hypotheses development

The succeeding discussions were viewed through the lenses of the proposed hypotheses. The applicable theories and priori guidelines posited the relationships among the identified variables in the succeeding simulacrum model. Hypothesizing the link between constructs addressed and tested the objectives underpinning this research and gave weight to the fit of PLS-SEM method. Applying the principle of parsimony, Figure 1 showed the postulated theory of leadership effectiveness among HEIs. Utilizing the constructs of CSEs, OC, TFL, and EL gave rise to the formulation of seven hypotheses.



**Fig. 1. Hypothesized model of leadership effectiveness among HEIs**

*The leader's core self-evaluations and the followers' organizational commitment*

Recent number of studies have found the positive effect of CSEs, a personality-related construct on leadership (e.g., Hu, Wang, Liden, & Sun, 2012; Nübold, Muck, & Maier, 2013). The relationship among CSEs and job performance and satisfaction

has also been widely investigated (e.g., Judge, Bono, Erez, & Locke, 2005; Kacmar, Collins, Harris, & Judge, 2009; Piccolo, Judge, Takahashi, Watanabe, & Locke, 2005).

On the whole, the CSEs concept together with conscientiousness was perceived as the most valuable personality trait in the aspect of human performance (Judge, Van Vianen, & De Peter, 2004) and this, in fact, could be translated to OC. However, the level of employee OC varies across situations. An organization with a leader who possesses high CSEs could have strong employees' OC. Hence, the leader's CSE as an antecedent to the followers' OC will be determined with the posited hypothesis. Based on the above theoretical and empirical supports, this study predicts and proposes hypothesis 1:

**H1.** *The leader's core self-evaluations are positively related to the followers' organizational commitment.*

#### *The leader's core self-evaluations and transformational leadership*

A seminal article (Judge, 2009) affirmed the positive effects of individuals with high levels of CSEs. An individual who scores high on CSEs exudes high confidence levels and positive orientation towards life which were translated into high levels of the four lower-order traits (Karthikeyan & Srivastava, 2012). In general sense, CSEs when applied to leadership demonstrated perceived essential traits for leadership effectiveness (Judge, Piccolo et al., 2009 as cited in Hu et al., 2012). This is akin to the behavioral style that a transformational leader exhibits. One study (Hu et al., 2012) investigated the role and influence of the leader's CSEs on the follower perceptions of TFL dimensions from three Chinese organizations revealed that the leader CSEs were positively and significantly associated with the follower's perception of the leader's TFL. Based on the above theoretical and empirical supports, this study predicts and proposes hypothesis 2:

**H2.** *The leader's core self-evaluations are positively related to transformational leadership.*

*The leader's core self-evaluations and ethical leadership*

As has been noted, with the positive traits of CSEs, EL is an archetype of leader behavior that is critical in the organization. In fact, Kalshoven, Den Hartog, & De Hoogh (2011) stated that there was a comparable increase in demand for ethical leader behavior at all levels in the organization. With the positive self-concept of CSEs and the effects to self-concept of EL, strong and positive correlations of the two constructs are expected. Based on the above theoretical and empirical supports, this study predicts and proposes hypothesis 3:

**H3.** *The leader's core self-evaluations are positively related to ethical leadership.*

*Transformational leadership and the followers' organizational commitment*

TFL was identified as a path towards securing true commitment from the follower through the involvement of one's self-worth in the work (Tuuk, 2012). Central to the aims of TFL, Tuuk (2012) further stated that it invigorated the followers to transcend obvious expectations and elicit extraordinary results. Effective leadership behaviors have been manifested through OC (Sayyadi & Sarvtamin, 2011) as TFL is believed to improve OC (Chiang & Wang, 2012). Followers of transformational leaders display higher levels of commitment, esprit de corps, hard work, and trust (Avolio, 1999 as cited in Berson & Avolio, 2004).

This is central to the idea that effective leadership nurtures commitment among employees (Wallace, Chernatony, & Buil, 2013) and fosters strong ties in the organization (Meyer et al., 2012). Based on the above theoretical and empirical supports, this study predicts and proposes hypothesis 4.

**H4.** *Transformational leadership is positively related to the followers' organizational commitment.*

*Ethical leadership and the followers' organizational commitment*

The catastrophes involving high profile individuals prompted the researchers' propensity to study EL. Collectively, EL is viewed by researchers as crucial in attaining essential outcomes in the organization. Brown and Treviño (2006) presented novel findings which asserted that organizations want to find out exactly how to choose, cultivate, and keep ethical leaders while business schools want to find out exactly how to best teach their students to become ethical leaders.

Drawing on the three-component model proposed by Meyer and Allen (1991), employee commitment was gauged by desire [affective commitment/AC], obligation [normative commitment/NC], and need [continuance commitment/CC]. With that, the followers' OC could also be attributed to the perceived credibility of an ethical leader. Building an organization with a leader who espouses ethical values will affect leadership effectiveness (e.g., Elci, Sener, Aksoy, & Alpan, 2012; Kalshoven & Den Hartog, 2009). One study (Kim & Brymer, 2011) validated that executives' EL was positively linked to their middle managers' job satisfaction and their AC. Clearly, the ethics of the leader was a vital aspect on leadership effectiveness and creates a trickle-down effect on followers (e.g., Ruiz, Ruiz, & Martinez, 2011). Accordingly, OC can be expected if the ethics of the followers matches the organization ethics (Smeenk, Eisinga, Teelken, & Doorewaard, 2006) and the leader ethics. Based on the above theoretical and empirical supports, hypothesis 5 is formulated.

**H5.** *Ethical leadership is positively related to the followers' organizational commitment.*

*Transformational and ethical leaderships, the leader's core self-evaluations, and the followers' organizational commitment*

Central tenets in these hypotheses were that TFL and EL mediate the link between the leader's CSEs and the followers' OC. The concept of CSEs were clearly manifested in the "beliefs in one's capabilities (to control one's life) and one's competence (to perform, cope, persevere, and succeed) and a general sense that life will turn out well for oneself" (Judge, 2009, p. 59). Individuals with positive CSEs assessed themselves positively because they were capable, in control of their lives and feel worthy (Judge et al., 2004).

Thus, the researcher argues that TFL and EL are interrelated leadership behaviors that might be a possible antecedent of the leader's CSEs, and as such, might be possible consequence of the followers' OC. Based on the above theoretical and empirical supports, this study predicts and proposes hypotheses 6 and 7.

**H6.** *Transformational leadership mediates the relationship between the leader's core self-evaluation and the followers' organizational commitment.*

**H7.** *Ethical leadership mediates the relationship between the leader's core self-evaluation and the followers' organizational commitment.*

## **Methods**

### **3.1 Participants**

The participants were the academic and non-academic employees of 11 HEIs in Metro Manila, Philippines. The major qualification for the faculty members, guidance counselors, and non-academic staff is that they must have served their leaders for at least one year. Such fosters the growth of consistent insights and interactions with their leaders (Jung, Yammarino, & Lee, 2009). Whereas, both select faculty members and non-

academic staff must have tenured status to reduce the possible desirability bias.

The survey questionnaires were administered within a four-month period [from mid-November 2013 to mid-March 2014] using a simple random sampling technique. Out of 1702 [182 and 1520 for the leaders and the followers, respectively] distributed survey questionnaires only 1032 were retrieved. Hence, only 971 [88 and 883 for the leaders and the followers, respectively] were found to be valid with response rate of 57.05%. The 61 invalid responses were due to these four factors committed by the participants: (a) incorrect used of instrument [e.g., follower answered leader-rater instrument], (b) position were non-tenured or part-time, (c) has been with the current leader for less than a year, and (d) one participant answered all the instruments for their department.

For the leader raters, there were 34 males (39%) and 54 females (61%), majority of the age were between 41 and 50 years old (28%), and 59 were married (67%). The educational attainment was distributed as follows: 10 had bachelor's (11%), 42 had master's (48%), 35 had doctoral (40%), and 1 answered others (1%). The majority of the leaders were tenured in their respective institutions between 1 and 10 years (34%) and 26 were earning a gross monthly income from the bracket of 31,000 to 60,000 (33%).

For the follower raters, there were 360 males (41%) and 523 females (59%), majority of the age were between 31 and 40 years old (36%), and 533 were married (60%). The educational attainment was distributed as follows: 378 had bachelor's (43%), 417 had master's (47%), 71 had doctoral (8%), and 16 answered others (2%). About half of the followers were tenured in their respective institutions between 1 and 10 years (52%) and 482 were earning a gross monthly income from the bracket of 10,000 to 30,000 (55%). Nearly half (49%) of the followers were faculty members, and the organizational tenure with current leader between 1 to 5 years (74%).

### **3.2 Constructs and Measurements**

The survey questionnaires were anchored on a five-point Likert-type scale to measure each indicator ranged from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The same scale format creates uniform set of choices that gave each participant ease of recall. All measures were adapted with a written consent from the corresponding authors. The validity and reliability of these questionnaires were already proven because it has been pre-tested from past empirical studies (García-Morales, Jiménez-Barrionuevo, & Gutiérrez-Gutiérrez, 2012).

#### *Independent variable*

*Core self-evaluations.* The leader rated his or her own CSEs by utilizing the 12-item core self-evaluations scale [CSES] developed by Judge et al. (2003). Cronbach's alpha ( $\alpha$ ) average reliability or internal consistency estimate of the CSES measure was  $\alpha = .84$  (Kammeyer-Mueller et al., 2009) and its test-retest reliability showed good stability of  $.81$  (Judge et al., 2003). Further, they recommended high level of internal consistency for the alphas, item-total correlations, and inter-item correlations. CSES measure addresses the four traits in assimilated method (Judge & Kammeyer-Mueller, 2011).

#### *Dependent variable*

*Organizational commitment.* The followers rated their own OC using the 18-item three-component model employee commitment survey [TCM ECS] revised version developed by Meyer, Allen and Smith in 1993. Cronbach's  $\alpha$  of this measure consists of three subscales and has acceptable scale reliabilities of (a) Affective Commitment Scale [ACS]  $\alpha = .83$ , Continuance Commitment Scale [CCS]  $\alpha = .68$ , and Normative Commitment Scale [NCS]  $\alpha = .85$  (Smeenk et al., 2006; Somers, 2009).

### *Mediating variables*

*Transformational leadership.* The followers rated their views of their leader's TFL by utilizing the 23-item transformational leadership inventory [TLI] developed by Podsakoff, MacKenzie, Moorman, and Fetter (1990). This is a product of an in-depth psychometric and theoretical work. Developers of this scale reported a Cronbach's  $\alpha$  of .92, thus, it is acceptable in respect of internal consistency reliability estimate.

*Ethical leadership.* The followers rated their views of their leader's EL by utilizing the 10-item ethical leadership scale [ELS] developed by Brown et al. (2005). This scale posted excellent internal consistency a Cronbach's  $\alpha$  of .92 and "formed a coherent construct" (Brown et al., 2005, p. 125).

### *Control variables [Demographic]*

The common demographic variables used in previous survey questionnaires were also utilized for the individual characteristics of each participant in the present study (e.g., Chiang & Wang, 2012; Elci et al., 2012; Gumusluoglu, Karakitapoğlu-Aygün, & Hirst, 2013; Lambert, Kim, Kelley, & Hogan, 2013; Loi, Lai, & Lam, 2012; Wang & Howell, 2012; Zhang, Kwan, Zhang, & Wu, 2012). The participants' demographic profile corresponding to the given CVs of gender, age, civil status, educational attainment, position, organizational tenure, tenure with current leader, and income that have been coded as a dummy.

## **3.3 Data analysis**

PLS-SEM is a regression-based ordinary least squares [OLS] approach (Astrachan, Patel, & Wanzenried, 2014; Reinartz, Haenlein, & Henseler, 2009) focused on maximizing the explained variance of endogenous latent construct (Hair, Ringle, & Sarstedt, 2012). A PLS path modeling approach to SEM comprised of two components using unidirectional arrows,

the: (a) outer or measurement model linking latent variable [LV] to its own manifest/measured variables [MVs] or block of observable indicators , and (b) inner or structural model linking several endogenous LVs to other LVs (Hair, Ringle, & Sarstedt, 2011; Tenenhaus et al., 2005).

PLS regression executed in WarpPLS version 4.0 software package was used in this study to test the fit of the proposed hypothesized research model with the aid of SPSS v. 20. All PLS software packages offered “graphical user interface to create the model and implement the basic PLS algorithm for model estimation” (Hair et al., 2011, p. 143). There were three models of fit indices generated by WarpPLS, namely: (a) average path coefficient [APC], (b) average R-squared [ARS], and average variance inflation factor [AVIF] (Kock, 2011). The software also estimated  $p$  - values for the APC and ARS fit indices automatically which will determine if the hypothesized path inference is accepted or cannot be supported (Kock, 2010, 2011).

### **3.4 Procedures**

Ethical approval was obtained from the UST College of Rehabilitation Sciences Ethical Review Committee [ERC] with Protocol No. 2013-051-OR prior to data collection. Participating HEIs were assigned pseudonym throughout the results and discussion [viz., HEI-1, HEI-2, . . . , HEI-11, hence, the arrangement was in no particular order]. To assure that all information shared were treated with strictest confidence, all participants voluntarily signed and kept an informed consent form, thus, reducing possible desirability bias (García-Morales et al., 2012).

## Results

### *Assessment of the models*

The results of PLS-SEM were evaluated by implementing two steps: (a) measurement or outer model, and (b) structural or inner model. This study followed a recent research (Sarstedt, Ringle, Smith, Reams, & Hair Jr., 2014) utilizing PLS-SEM in assessing the reliability and validity of the measurement model.

### Measurement or outer model

#### *Reflective measurement model*

All items of the hypothesized constructs were presented as reflective indicators. The first step in the reflective measurement model analysis was the reliability test of the indicator loadings or survey questions. Items with factor loadings of 0.70 were retained because that explained more than 50% of the variance of the indicator, thus, measured the underlying construct (Hulland, 1999 as cited in Howat & Assaker, 2013). All retained item loadings ranged from 0.739 to 0.969. Whereas, *p* – values of < 0.05 were desirable for reflective indicators. A total of 12 and 63 indicators were answered by the leaders and the followers, respectively. After the data were executed with WarpPLS, the result was the elimination of 7 and 17 from the original indicators for the leader and the follower, respectively.

**Table 1. Internal Consistency Reliability and Convergent Validity.**

Latent variables/ constructs	Composite reliability coefficients ( $\rho_c$ ) <sup>a</sup>	Cronbach's alpha ( $\alpha$ ) coefficients <sup>b</sup>	Average variances extracted (AVE) <sup>a</sup>
CSES	0.927	0.902	0.719
TLL1	0.959	0.946	0.824
TLL2	0.974	0.959	0.925
TLL3	0.970	0.958	0.889
TLL4	0.917	0.864	0.787
TLL5	0.944	0.882	0.895
TLL6	0.953	0.934	0.835
ELS	0.970	0.966	0.765
TCMECS_1	0.945	0.912	0.851
TCMECS_2	0.861	0.785	0.608
TCMECS_3	0.907	0.845	0.764

*Note:* Scale reliability:

$\rho_c > 0.70$ , Cronbach's  $\alpha > 0.70$ , AVE > 0.50.

<sup>a</sup> Estimated by WarpPLS v. 4.0.

<sup>b</sup> Estimated by SPSS v. 20.0.

**Table 2. Discriminant Validity.**

	CSES	TLI_1	TLI_2	TLI_3	TLI_4	TLI_5	TLI_6	ELS	TCMECS_1	TCMECS_2	TCMECS_3
CSES	<b>0.848</b>	0.251	0.241	0.252	0.111	0.203	0.169	0.232	0.466	-0.194	0.064
TLI_1	0.251	<b>0.907</b>	0.839	0.854	0.550	0.669	0.704	0.819	0.142	0.185	0.427
TLI_2	0.241	0.839	<b>0.962</b>	0.849	0.495	0.681	0.690	0.825	0.147	0.204	0.395
TLI_3	0.252	0.854	0.849	<b>0.943</b>	0.553	0.669	0.714	0.834	0.164	0.185	0.420
TLI_4	0.111	0.550	0.495	0.553	<b>0.887</b>	0.389	0.526	0.534	0.058	0.150	0.332
TLI_5	0.203	0.669	0.681	0.669	0.389	<b>0.946</b>	0.649	0.726	0.103	0.171	0.354
TLI_6	0.169	0.704	0.690	0.714	0.526	0.649	<b>0.914</b>	0.747	0.139	0.260	0.441
ELS	0.232	0.819	0.825	0.834	0.534	0.726	0.747	<b>0.875</b>	0.159	0.226	0.455
TCMECS_1	0.466	0.142	0.147	0.164	0.058	0.103	0.139	0.159	<b>0.923</b>	-0.213	0.167
TCMECS_2	-0.194	0.185	0.204	0.185	0.150	0.171	0.260	0.226	-0.213	<b>0.780</b>	0.302
TCMECS_3	0.064	0.427	0.395	0.420	0.332	0.354	0.441	0.455	0.167	0.302	<b>0.874</b>

Note: Square roots of average variances extracted (AVEs) shown on highlighted diagonal values. Off-diagonal values in the corresponding rows and columns represent construct correlations.

The second and third steps were the analyses of the internal consistency reliability and convergent validity of the constructs'. Convergent validity measured the internal consistency by confirming that the indicators of each latent variable estimated what the items were intended to measure (Aibinu & Al-Lawati, 2010). The results, as shown in Table 1 indicated the reliability and validity criteria using PLS namely, composite reliabilities ( $\rho_c$ ), cronbach's alpha ( $\alpha$ ) coefficients, and average variance extracted (AVE). For the composite reliability results, the constructs of CSEs, TFL, and EL posted an excellent scale reliability ranged from 0.91 to 0.97 ( $\geq 0.9$ ) whereas OC posted an acceptable scale reliability of 0.79 ( $\geq 0.7$ ). The data indicated that the measures were robust or excellent with regard to their internal consistency reliability indexed. The cronbach's  $\alpha$  coefficients and  $\rho_c$  exceeded the recommended threshold value (0.70) (Hair et al., 2011; Li, 2007 as cited in Hsu et al., 2012). For the convergent validity with AVE, all constructs met the criteria for convergent validity because it posted an above threshold ranged from 0.65 to 0.76 ( $\geq 0.5$ ) (Hair et al., 2011).

The final step is the analysis of discriminant validity by cross loadings which considered as the less rigorous method (Sarstedt et al., 2014). The correlations among latent variables

with square roots of AVE displayed higher values as shown on highlighted diagonal values ranged from 0.780 to 0.962. The values on the off-diagonal in the corresponding rows and columns represented construct correlations. Hence, each latent construct was higher than the off-diagonal or respective cross loadings which further validated the discriminant validity of the constructs [see Table 2].

### *Formative measurement model*

The results of formative indicators such as the CVs were not subjected to the rigorous steps suggested by Sarstedt et al. (2014) because they were not included in the hypothesized relationship though they were tested and included in the model. Thus, the analyses of its significance were based on the structural model. Furthermore, the significance of the findings in CVs were done on the conclusion part in instigating further analyses (Hair, Ringle, & Sarstedt, 2013).

### **Structural or inner model**

Overall, the results of the reflective measurement model in respect to indicator, internal consistency reliabilities, and convergent and discriminant validities indicated that all values met the significance threshold level. Thus, the results suggested that all variables in the HEIs model were reliable and exude high reliabilities and validities. Accordingly, the psychometric properties of the variables being studied were relevant and robust to proceed with the analysis of the hypothesized structural model.

Assessment on PLS-SEM reflected a non-parametric measures that were prediction-oriented (Segaro, Larimo, & Jones, 2014). The predictive or explanatory power of the model assessed the predictive significance of the structural model by the criterion explained variance or squared multiple correlations [ $R^2$ ] coefficients for dependent LVs (Kock, 2010;

Segaro et al., 2014). The  $R^2$  coefficients for each endogenous LV that can be explained by its corresponding predictors for TFL and EL were moderate (0.17 or 17% and 0.14 or 14%, respectively). Furthermore, the  $R^2$  for the followers' OC was substantial (0.29) which means that nearly 2.9% of the followers' OC or one endogenous LV was attributed to or can be explained by the three exogenous LVs in the structural model. The  $R^2$  of endogenous construct were assessed to be substantial (0.26), moderate (0.13), and weak (0.02) (Cohen, 1988; Cohen, Cohen, West, & Aiken, 2003 as cited in Rahman, Memon, & Karim, 2013).

To empirically examine the seven hypotheses, the standardized path coefficient for each path in the model was acquired using the PLS algorithm in WarpPLS 4.0. The path coefficients ( $\beta$ ) showed the strengths of associations between LVs (Chin, 1998 as cited in Rahman et al., 2013) using bootstrapping technique. The estimated  $p$  – values for standardized path coefficients were shown in Table 3. The seven proposed hypotheses were verified by analyzing the significance of the  $p$  – values for path coefficients. This was realized with the resampling estimation analysis by nonparametric bootstrapping with 100 resamples on the proposed model to achieve estimates of standard errors. For the first five proposed hypotheses [viz., H1, H2, . . . , H5] which indicated a direct effect, all were found to be accepted on the basis of the requirements for  $p$  – values and effect sizes. The path originating from CSEs linking to OC [H1] was negative and statistically significant ( $\beta = -0.137, p < 0.1$ ). The paths originating from CSEs linking to TFL [H2], from CSEs linking to EL [H3], and from EL linking to OC [H5] were all positive and statistically significant ( $\beta = 0.417$ ;  $\beta = 0.377$ ; and  $\beta = 0.261$ , respectively with  $p < 0.1$ ). Lastly, the path originating from TFL linking to OC [H4] was positive and statistically significant ( $\beta = 0.149, p = 0.2$ ). The effect sizes for these path relationships ranged from small for H1 and H4 (0.027 and

0.062, respectively) and medium for H2, H3, and H5 (0.174, 0.142, and 0.110, respectively). Conversely, hypotheses 6 and 7 which reflected the mediation effect revealed non-significant relationships, thus, the hypotheses cannot be supported ( $\beta = -0.199$ ,  $p = 0.19$ , and  $\beta = -0.076$ ,  $p = 0.21$ , respectively). The effect sizes for these relationships ranged from small [H1, H3, H4, and H5] to medium [H2].

**Table 3. Result of Hypotheses Tests Based on PLS-SEM Model.**

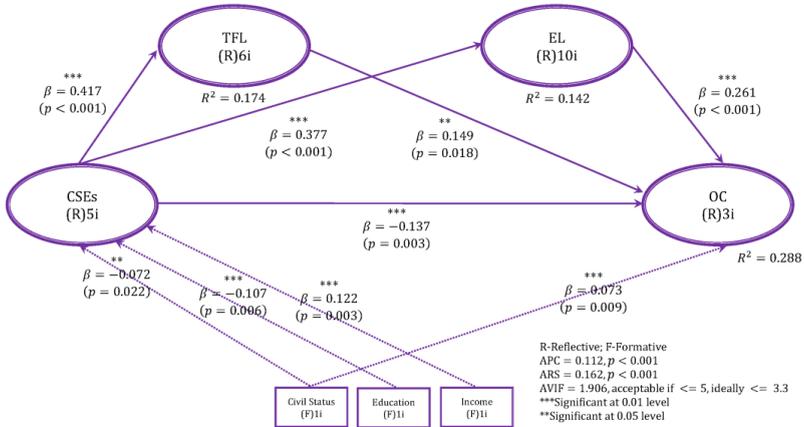
Hypothesis	Paths	Path coefficients			P – values	Inference
		Beta ( $\beta$ )	Standard errors	Effect sizes		
<i>A. Direct effect</i>						
H1	CSEs → OC	-0.137	0.050	0.027	0.003 ***	Supported
H2	CSEs → TFL	0.417	0.034	0.174	<0.001 ***	Supported
H3	CSEs → EL	0.377	0.033	0.142	<0.001 ***	Supported
H4	TFL → OC	0.149	0.071	0.062	0.018 **	Supported
H5	EL → OC	0.261	0.064	0.110	<0.001 ***	Supported
<i>B. Mediation effect</i>						
H6	TFL*CSEs → OC	-0.199	0.222	0.040	0.185 (n. s.)	Cannot be supported
H7	EL*CSEs → OC	-0.076	0.094	0.013	0.211 (n. s.)	Cannot be supported
<i>C. Effect of control variables</i>						
	CSEs → Gender	0.050	0.035	0.001	0.078 (n. s.)	Cannot be supported
	CSEs → Age	-0.041	0.056	0.002	0.234 (n. s.)	Cannot be supported
	CSEs → Status	-0.072	0.036	0.006	0.022 **	Supported
	CSEs → Educ	-0.107	0.043	0.007	0.006 ***	Supported
	CSEs → Position	0.063	0.046	0.005	0.086 (n. s.)	Cannot be supported
	CSEs → OrgTenure	0.008	0.043	0.000	0.430 (n. s.)	Cannot be supported
	CSEs → Income	0.122	0.044	0.009	0.003 ***	Supported
	OC → Gender	0.048	0.030	0.001	0.054 (n. s.)	Cannot be supported
	OC → Age	0.072	0.045	0.009	0.055 (n. s.)	Cannot be supported
	OC → Status	0.073	0.031	0.009	0.009 ***	Supported
	OC → Educ	-0.018	0.041	0.001	0.333 (n. s.)	Cannot be supported
	OC → Position	0.027	0.072	0.000	0.354 (n. s.)	Cannot be supported
	OC → OrgTenure	0.054	0.068	0.006	0.215 (n. s.)	Cannot be supported
	OC → CLTenure	0.071	0.073	0.007	0.166 (n. s.)	Cannot be supported
	OC → Income	0.027	0.055	0.002	0.308 (n. s.)	Cannot be supported

Note: \*\*\*Significant at  $p = 0.01$ ; \*\*Significant at  $p = 0.05$ ; n. s. = non-significant.

In terms of CVs of the respondents in the measurement or indicator, all were tested; hence, all were not hypothesized. However, for purposes of analysis of the gathered results, among the CVs of the leader-rater, three were found to be statistically acceptable in terms of its  $p$  – values, namely: (a) civil status, (b) educational attainment, and (c) gross monthly income. First, the relationship between civil status and the leader’s CSEs was negative ( $\beta = -0.072$ ) and the relationship was significant ( $p = 0.022$ ); second, the relationship between educational attainment and the leader’s CSEs was negative ( $\beta = -0.107$ ) and the relationship was significant ( $p = 0.006$ );

and lastly, the relationship between gross monthly income and the leader’s CSEs was positive ( $\beta = 0.122$ ) and the relationship was significant ( $p = 0.003$ ). For the follower-rater, civil status was the sole CV that was found to be acceptable. The relationship between the civil status and the followers’ OC was positive ( $\beta = 0.073$ ) and the relationship was significant ( $p = 0.009$ ). On the other hand, the effects of H1, H2, H3, H4, and H5 will all remain statistically significant regardless of the effects of CVs. The same thing goes with the results of the remaining hypotheses [H6 and H6], non-significant effects regardless of the effects of CVs.

As to the soundness of the model, the three fit indices [APC, ARS, and AVIF] generated by WarpPLS were calculated and resulted to an acceptable APC of 0.112, and ARC of 0.162, with both  $p$  values of lower than 0.05 ( $p < 0.001$ ). The AVIF was 1.906 which was acceptable because it posted a below 5 recommended threshold. Thus, the model showed that the three fit indices criteria were satisfied based on the fit indices rules of thumb [see Figure 2].



**Fig. 2. Revised hypothesized model of leadership effectiveness among HEIs with PLS test results**

## **Discussion**

A model applying a multivariate statistical analysis known as PLS-SEM among constructs of CSEs, OC, TFL, and EL was theorized giving rise to the analysis of two-fold objectives: (a) identification of the causal relationship of the leader's CSEs on the followers' OC, and (b) development of a theory that will predict the followers' OC endogenous latent construct by maximizing the constructs of leader's CSEs, TFL, and EL using PLS-SEM. The significant empirical evidence of this study produces novel contributions to the literature—in theory and in practice.

### *Theoretical contributions*

This study makes several unique contributions, to the limited, yet significant, burgeoning set of related literatures. The ultimate contribution of this research centers to an in-depth analysis of the relative effect of the leader's effectiveness emanated from the leader's CSEs that could be translated to the followers' OC. The analysis revealed that five out of seven postulated hypotheses were found to be supported and has significant link to the followers' OC exogenous variable. The significant results were all directional arrows from the first five hypotheses, namely: (a) CSEs  $\rightarrow$  OC, (b) CSEs  $\rightarrow$  TFL, (c) CSEs  $\rightarrow$  OC, (d) TFL  $\rightarrow$  OC, and (e) EL  $\rightarrow$  OC. The leader who espouses TFL and EL that could be emanated from CSEs are likely to develop highly committed followers' who eventually stays in the organization. Such allows the members of the organization to make their contributions using all of their abilities to develop concepts that may involve better methodology toward goal attainment.

Interestingly, the contentions made for hypotheses 6 and 7 [viz., TFL\*CSEs  $\rightarrow$  OC, and EL\*CSEs  $\rightarrow$  OC, respectively] that were presented as indirect or mediators showed non-significant effects. These findings suggested that even in the

absence of the two mediators, the single endogenous LV will still be significant in the presence of three exogenous direct LVs.

Also, this study targeted to add relevant results to the presently used quantitative measures in the analysis of the four variables [CSEs, OC, TFL, and EL] by adding to the emergent studies that tested the fit of the proposed hypothesized measurement model through the use of PLS path modeling approach to SEM. The choice of PLS-SEM over CB-SEM in the current study was warranted on five occasions: (a) ability to handle two models simultaneously [viz., measurement and structural models] (Wu, 2010), (b) capacity to examine and compute the measurement model for both reflective [effects of LVs] and formative [causes of LVs] indicators (Chin, 1998 as cited in Hwang, 2012; Gudergan, Ringle, Wende, & Will, 2008), (c) large complexity of the model [viz., 5 constructs and 70 indicators, as to the case of the current model] (Hair et al., 2014 as cited in Astrachan et al., 2014; Ringle, Sarstedt, & Hair, 2013), (d) assumption of a non-parametric predictor specification, (e) application of sample size requirement of 1:10 ratio or “10 times” rule of thumb (Hair, Black, et al., 2010 as cited in Yee-Loong Chong & Bai, 2014; Peng & Lai, 2012). As to the case of the current research, leader-follower dyadic CVs reflective indicators were seven items, and the largest number of arrows pointing at a certain LV in the structural model was three. Thus, the sample size of 971 exceeded the PLS path modeling requirement.

### *Practical contributions*

This study poses significant implications for HEIs’ leaders and followers, and researchers. First, this study determined the “what and how” of effective leadership and its effect towards organizational performance through human capital. Effective leaders value and understand that committed employees can help them attain organizational mission, vision, and goals.

Highly-committed employees also bring in a sustainable competitive advantage required in the age of globalization. Thus, it is imperative for the HEIs leaders to practice TFL and EL that stem from their positive CSEs which translates to employees' through OC. Second, in quest for academic excellence and quality, the human resource department of HEIs should focus on honing current policies and developing programs that foster retention of key performing employees such as those who exude AC. In a nutshell, whatever their individual intentions are, what matters most is that there is a sense of commitment exists which impelled social action. This is for the benefit of the entire organization and the people in the organization as a whole.

### **Limitations and future research directions**

This study acknowledges several limitations that necessitate directions for future research. First, data collected were from select HEIs in Metro Manila. To gain inclusion and better representation, HEIs from other regions of the Philippines and outside of the country must be considered to facilitate cross-regional and/or cross-country investigation to arrive at a multi-cultural analysis. The results will give greater generalizability of data. Second, though PLS-SEM is the best statistical fit for this study, future researchers may explore the combination of two different approaches to SEM [i.e., CB-SEM and PLS-SEM]. Third, the quantitative design employed can be enhanced by utilizing more than one methodological approach in research called triangulation of information. This increases the researcher's confidence in terms of the credibility of the external validity [generalizability] and internal validity [consistency] of the results being presented (Hussein, 2009). Lastly, the cross-sectional research design employed poses a drawback because of the multifaceted nature of the subject

being investigated, thus, future studies using longitudinal field research are recommended to gain additional insights.

## **Conclusions**

This study contributed to the growing body of knowledge on how the leader's characters and behaviors affected the followers' OC. The findings on the significant relationships of the first five hypotheses expand our knowledge that a leader's positive CSEs are essential in determining their effectiveness in the context of the followers' OC. This is an effort to explore the factors affecting one's desire to work to achieve a significant goal. The proposed hypothesized model solidifies the essence of the leader's CSEs, TFL, and EL in achieving the followers' OC in HEIs setting.

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## **REFERENCES**

- Aibinu, A. A., & Al-Lawati, A. M. (2010). Using PLS-SEM technique to model construction organizations' willingness to participate in e-bidding. *Automation in Construction*, *19*, 714-724. doi:10.1016/j.autcon.2010.02.016.
- 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.

- Astrachan, C. B., Patel, V. K., & Wanzanried, G. (2014). A comparative study of CB-SEM and PLS-SEM for theory development in family firm research. *Journal of Family Business Strategy*, 5, 116-128. doi:10.1016/j.jfbs.2013.12.002.
- Berson, Y., & Avolio, B. J. (2004). Transformational leadership and the dissemination of organizational goals: A case study of a telecommunication firm. *The Leadership Quarterly*, 15, 625-646. doi:10.1016/j.leaqua.2004.07.003.
- Brown, M. E., & Treviño, L. K. (2006). Ethical leadership: A review and future directions. *The Leadership Quarterly*, 17, 595–616. doi:10.1016/j.leaqua.2006.10.004.
- Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes*, 97, 117–134. doi:10.1016/j.obhdp.2005.03.002.
- Burke, C. S., Sims, D. E., Lazzara, E. H., & Salas, E. (2007). Trust in leadership: A multi-level review and integration. *The Leadership Quarterly*, 18, 606–632. doi:10.1016/j.leaqua.2007.09.006.
- Chiang, C.-F., & Wang, Y.-Y. (2012). The effects of transactional and transformational leadership on organizational commitment in hotels: The mediating effect of trust. *Journal of Hotel & Business Management*, 1(1), 1-11. doi:10.4172/jhbm.1000103.
- Den Hartog, D. N., & Belschak, F. D. (2012). Work engagement and machiavellianism in the ethical leadership process. *Journal of Business Ethics*, 107, 35–47. doi:10.1007/s10551-012-1296-4.
- Elci, M., Sener, I., Aksoy, S., & Alpkın, L. (2012). The impact of ethical leadership and leadership effectiveness on employees' turnover intention: The mediating role of work related stress. *Procedia - Social and Behavioral*

- Sciences*, 58, 289 – 297.  
doi:10.1016/j.sbspro.2012.09.1003.
- García-Morales, V. J., Jiménez-Barrionuevo, M. M., & Gutiérrez-Gutiérrez, L. (2012). Transformational leadership influence on organizational performance through organizational learning and innovation. *Journal of Business Research*, 65, 1040-1050. doi:10.1016/j.jbusres.2011.03.005.
- Gudergan, S. P., Ringle, C. M., Wende, S., & Will, A. (2008). Confirmatory tetrad analysis in PLS path modeling. *Journal of Business Research*, 61, 1238–1249. doi:10.1016/j.jbusres.2008.01.012.
- Gumusluoglu, L., Karakitapoğlu-Aygün, Z., & Hirst, G. (2013). Transformational leadership and R&D workers' multiple commitments: Do justice and span of control matter? *Journal of Business Research*, 66, 2269-2278. doi:10.1016/j.jbusres.2012.02.039.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–151. doi:10.2753/MTP1069-6679190202.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2012). Partial least squares: The better approach to structural equation modeling? *Long Range Planning*, 45, 312-319. doi:10.1016/j.lrp.2012.09.011.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 46, 1-12. doi:10.1016/j.lrp.2013.01.001.
- Howat, G., & Assaker, G. (2013). The hierarchical effects of perceived quality on perceived value, satisfaction, and loyalty: Empirical results from public, outdoor aquatic centres in Australia. *Sport Management Review*, 16, 268-284. doi:10.1016/j.smr.2012.10.001.

- Hsu, I.-Y., Su, T.-S., Kao, C.-S., Shu, Y.-L., Lin, P.-R., & Tseng, J.-M. (2012). Analysis of business safety performance by structural equation models. *Safety Science*, *50*, 1-11.. doi:10.1016/j.ssci.2011.04.012.
- Hu, J., Wang, Z., Liden, R. C., & Sun, J. (2012). The influence of leader core self-evaluation on follower reports of transformational leadership. *The Leadership Quarterly*, *23*, 860–868. doi:10.1016/j.leaqua.2012.05.004.
- Hussein, A. (2009). The use of triangulation in social sciences research: Can qualitative and quantitative methods be combined. *Journal of Comparative Social Work*, 1-12.
- Hwang, Y. (2012). Understanding moderating effects of collectivist cultural orientation on the knowledge sharing attitude by email. *Computers in Human Behavior*, *28*, 2169-2174. <http://dx.doi.org/10.1016/j.chb.2012.06.023>.
- Judge, T. A. (2009). Core self-evaluations and work success. *Current Directions in Psychological Science*, *18*(1), 58-62.
- Judge, T. A., & Kammeyer-Mueller, J. D. (2011). Implications of core self-evaluations for a changing organizational context. *Human Resource Management Review*, *21*, 331–341. doi:10.1016/j.hrmr.2010.10.003.
- Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology*, *90*(2), 257–268. doi:10.1037/0021-9010.90.2.257.
- Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology*, *56*, 303-331.
- Judge, T. A., Van Vianen, A. E., & De Peter, I. E. (2004). Emotional stability, core self-evaluations, and job outcomes: A review of the evidence and an agenda for future research. *Human Performance*, *17*(3), 325-346.

- Jung, D., Yammarino, F. J., & Lee, J. K. (2009). Moderating role of subordinates' attitudes on transformational leadership and effectiveness: A multi-cultural and multi-level perspective. *The Leadership Quarterly*, *20*, 586–603. doi:10.1016/j.leaqua.2009.04.011.
- Kacmar, K. M., Collins, B. J., Harris, K. J., & Judge, T. A. (2009). Core self-evaluations and job performance: The role of the perceived work environment. *Journal of Applied Psychology*, *94*(6), 1572–1580. doi:10.1037/a0017498.
- Kalshoven, K., & Den Hartog, D. N. (2009). Ethical leader behavior and leader effectiveness: The role of prototypically and trust. *International Journal of Leadership Studies*, *5*(2), 102-120. ISSN 1554-3145.
- Kalshoven, K., Den Hartog, D. N., & De Hoogh, A. H. (2011). Ethical leadership at work questionnaire (ELW): Development and validation of a multidimensional measure. *The Leadership Quarterly*, *22*, 51–69. doi:10.1016/j.leaqua.2010.12.007.
- Kammeyer-Mueller, J. D., Judge, T. A., & Scott, B. A. (2009). The role of core self-evaluations in the coping process. *Journal of Applied Psychology*, *94*(1), 177–195. doi:10.1037/a0013214.
- Karthikeyan, & Srivastava, D. D. (2012). The relationship between core self evaluations individual level job performance and its components. *International Journal of Management*, *3*(2), 319- 334. ISSN 0976–6375.
- Kim, W. G., & Brymer, R. A. (2011). The effects of ethical leadership on manager job satisfaction, commitment, behavioral outcomes, and firm performance. *International Journal of Hospitality Management*, *30*, 1020-1026. doi:10.1016/j.ijhm.2011.03.008.
- Kock, N. (2010). Using WarpPLS in E-collaboration studies: An overview of five main analysis steps. *International*

- Journal of e-Collaboration*, 4, 1-11.  
doi:10.4018/jec.2010100101.
- Kock, N. (2011). Using WarpPLS in e-collaboration studies: Descriptive statistics, settings, and key analysis results. *International Journal of e-Collaboration*, 7(2), 1-17.  
doi:10.4018/jec.2011040101.
- Lambert, E. G., Kim, B., Kelley, T., & Hogan, N. L. (2013). The association of affective and continuance commitment with correctional staff life satisfaction. *The Social Science Journal*, 50, 195-203.  
doi:10.1016/j.soscij.2013.02.001.
- Loi, R., Lai, J. Y., & Lam, L. W. (2012). Working under a committed boss: A test of the relationship between supervisors' and subordinates' affective commitment. *The Leadership Quarterly*, 23, 466-475.  
doi:10.1016/j.leaqua.2011.12.001.
- Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review*, 1(1), 61-89. ISSN:1053-4822.
- Meyer, J. P., Stanley, D. J., Jackson, T. A., McInnis, K. J., Maltin, E. R., & Sheppard, L. (2012). Affective, normative, and continuance commitment levels across cultures: A meta-analysis. *Journal of Vocational Behavior*, 80, 225-245. doi:10.1016/j.jvb.2011.09.005.
- Nübold, A., Muck, P. M., & Maier, G. W. (2013). A new substitute for leadership? Followers' state core self-evaluations. *The Leadership Quarterly*, 24, 29-44.  
doi:10.1016/j.leaqua.2012.07.002.
- Peng, D. X., & Lai, F. (2012). Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, 30, 467-480.  
<http://dx.doi.org/10.1016/j.jom.2012.06.002>.

- Penney, L. M., David, E., & Witt, L. (2011). A review of personality and performance: Identifying boundaries, contingencies, and future research directions. *Human Resource Management Review*, 21, 297-310. doi:10.1016/j.hrmr.2010.10.005.
- Piccolo, R. F., Judge, T. A., Takahashi, K., Watanabe, N., & Locke, E. A. (2005). Core self-evaluations in Japan: Relative effects on job satisfaction, life satisfaction, and happiness. *Journal of Organizational Behavior*, 26, 965–984. doi:10.1002/job.358.
- Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly*, 1(2), 107-142. ISSN:1048-9843.
- Rahman, I. A., Memon, A. H., & Karim, A. T. (2013). Examining factors affecting budget overrun of construction projects undertaken through management procurement method using PLS-SEM approach. *Procedia - Social and Behavioral Sciences*, 107, 120-128. doi:10.1016/j.sbspro.2013.12.407.
- Reinartz, W., Haenlein, M., & Henseler, J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *Intern. J. of Research in Marketing*, 26, 332–344. doi:10.1016/j.ijresmar.2009.08.001.
- Ruiz, P., Ruiz, C., & Martinez, R. (2011). Improving the “leader–follower” relationship: Top manager or supervisor? The ethical leadership trickle-down effect on follower job response. *Journal of Business Ethics*, 99, 587–608. doi:10.1007/s10551-010-0670-3.
- Sadeghi, A., & Pihie, Z. A. (2012). Transformational leadership and its predictive effects on leadership effectiveness. *International Journal of Business and Social Science*, 3(7), 186-197.

- Sanchez, M. P., & Elena, S. (2006). Intellectual capital in universities. Improving transparency and internal management. *Journal of Intellectual Capital*, 7(4), 529-548. doi:10.1108/14691930610709158.
- Sarstedt, M., Ringle, C. M., Smith, D., Reams, R., & Hair Jr., J. F. (2014). Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. *Journal of Family Business Strategy*, 5, 105-115. <http://dx.doi.org/10.1016/j.jfbs.2014.01.002>.
- Sayyadi, S., & Sarvtamin, H. T. (2011). Organizational commitment in educational departments. *Interdisciplinary Journal of Contemporary Research in Business*, 3(2), 1326-1337.
- Segaro, E. L., Larimo, J., & Jones, M. V. (2014). Internationalisation of family small and medium sized enterprises: The role of stewardship orientation, family commitment culture and top management team. *International Business Review*, 23, 381-395. doi:10.1016/j.ibusrev.2013.06.004.
- Smeenk, S., Eisinga, R., Teelken, J., & Doorewaard, J. (2006). The effects of HRM practices and antecedents on organizational commitment among university employees. *The International Journal of Human Resource Management*, 17:12, 2035-2054. doi:10.1080/09585190600965449.
- Strang, S. E., & Kuhnert, K. W. (2009). Personality and leadership developmental levels as predictors of leader performance. *The Leadership Quarterly*, 20, 421-433. doi:10.1016/j.leaqua.2009.03.009.
- Takahashi, K., Ishikawa, J., & Kanai, T. (2012). Qualitative and quantitative studies of leadership in multinational settings: Meta-analytic and cross-cultural reviews. *Journal of World Business*, 47, 530-538. doi:10.1016/j.jwb.2012.01.006.

- Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics & Data Analysis*, 48, 159–205. doi:10.1016/j.csda.2004.03.005.
- Tsaousis, I., Nikolaou, I., Serdaris, N., & Judge, T. (2007). Do the core self-evaluations moderate the relationship between subjective well-being and physical and psychological health? *Personality and Individual Differences*, 42, 1441–1452. doi:10.1016/j.paid.2006.10.025.
- Tuuk, E. (2012). Transformational leadership in the coming decade: A response to three major workplace trends. *Cornell HR Review*. Retrieved November 17, 2012, from Cornell University, ILR School site: <http://digitalcommons.ilr.cornell.edu/chrr/25>
- Wallace, E., Chernatony, L. d., & Buil, I. (2013). Building bank brands: How leadership behavior influences employee commitment. *Journal of Business Research*, 66, 165-171. doi:10.1016/j.jbusres.2012.07.009.
- Wang, X.-H., & Howell, J. M. (2012). A multilevel study of transformational leadership, identification, and follower outcomes. *The Leadership Quarterly*, 23, 775–790. doi:10.1016/j.leaqua.2012.02.001.
- Wu, W. W. (2010). Linking Bayesian networks and PLS path modeling for causal analysis. *Expert Systems with Applications*, 37, 134–139. doi:10.1016/j.eswa.2009.05.021.
- Yee-Loong Chong, A., & Bai, R. (2014). Predicting open IOS adoption in SMEs: An integrated SEM-neural network approach. *Expert Systems With Applications*, 41, 221-229. doi:10.1016/j.eswa.2013.07.023.
- Yukl, G. (2008). How leaders influence organizational effectiveness. *The Leadership Quarterly*, 19, 708–722. doi:10.1016/j.leaqua.2008.09.008.

Zhang, H., Kwan, H. K., Zhang, X., & Wu, L.-Z. (2012). High core self-evaluators maintain creativity: A motivational model of abusive supervision. *Journal of Management*, 1-24. doi:10.1177/0149206312460681.