

Poster

TITLE

Profiles of Expressed Humility in Leadership

SHORTENED TITLE

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ABSTRACT

We examined expressed humility in leadership across a sample of business students and a sample of engineering students who were engaged in long-term project teams. Results robustly supported a three-profile solution as optimal. Differences were observed across the profiles in leadership self-efficacy and team performance, supporting validity of the profiles.

PRESS PARAGRAPH

From both research and practical standpoints, the interest in expressed humility has grown substantially. This is likely associated with humility being considered as a core organizational value. In the current study, we build upon the growing literature by examining expressed humility in leadership with a person-centered approach. This approach revealed that a three-profile solution was optimal, and invariant across two samples. Further, leadership self-efficacy and team performance, treated as an outcome of humility, demonstrated differences across all three profiles. Results further supported the importance of the expressed humility construct, but also help shed light on person-centered approaches to leadership.

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A newly emerging topic within the leadership literature is that of humble leadership or expressed humility (Ou, Tsui, Kinicki, Waldman, Xiao, & Song, 2014; Owens, Johnson, & Mitchell, 2013; Owens, Walker, & Waldman, 2015). Moreover, it is also quite common to find “humility” playing a foundational role in many organizations’ values systems. Humility can also be considered as critical for individuals tasked with leading organizations through challenging and turbulent environments (Morris, Brotheridge, Urbanski, 2005). In the current research, we examine humility as it pertains to leadership, by investigating Owens et al.’s (2013) expressed humility construct through a person-centered lens. This represents a novel perspective on expressed humility, and leadership in general, due to the transition from a traditional variable-centered to a person-centered analytical framework (described in further detail below).

With a focus on the interpersonal nature of expressed humility in organizational contexts, Owens et al. (2013) proposed a three-facet model of expressed humility. Expressed humility comprises a) viewing one’s self accurately, b) appreciating the strengths and abilities of others, and c) being open to learning and receiving feedback from others. Owens et al. further noted that these three dimensions reflect the common core of the expressed humility, and suggested that each would be moderately interrelated. The vast majority of research on expressed humility in leadership has, however, overlooked the possibility of heterogeneity and differential effects of each facet. For example, Owens and colleagues’ work only considered the aggregate expressed humility construct even though the definition has three components and is in fact a three-factor scale (e.g., Owens et al., 2013; Owens & Hekman, 2015).

Research on Expressed Humility

It has been suggested that humble types of individuals lead by acting with modesty, restraint, patience, mutuality, and care (Morris et al., 2005). Further, Morris and colleagues

proposed that humility is likely to result in leadership behaviors that parallel those of servant leaders, authentic leaders, and transformational leaders.

Owens et al. (2013) sought to establish a scale and definition of expressed humility to move research on the construct of humility forwards. After reporting psychometric evidence supporting their measure (overall $\alpha=.94$), they examined the nomological net of expressed humility and found that it positively related to modesty ($r=.62$), openness to experience ($r=.31$), emotional stability ($r=.49$), and core self-evaluations ($r=.34$). In addition, they found that their measure was positively related to Honesty-Humility ($r=.55$). The authors interpreted this as supporting the construct validity of their expressed humility measure.

Owens et al. (2013) also found that, across a series of studies, individuals high on expressed humility performed better even after controlling for general mental ability, conscientiousness, and self-efficacy. In addition, they found that individuals high on humility contributed more to their teams. Finally, regarding leadership they found that leaders who scored high on expressed humility fostered learning-oriented teams and had subordinates with higher engagement, job satisfaction, and retention. This initial work suggested that leader humility has an influence on subordinate performance, behavior, and attitudes and that being a more humble leader has a number of positive organizational outcomes. Building off this work, Owens and Heckman (2015) found that as humility spreads through teams, via a social contagion process and team performance appears to increase.

Person-Centered Approaches to Expressed Humility in Leadership

Providing partial rationale for the use of a person-centered approach, Owens et al. suggested that future studies investigating the differential effects across the facets would be a “function of the types of people” (p. 1532). Noting that distinct ‘types’ may exist underscores the

potential for heterogeneity. This closely corresponds to the underlying assumptions of person-centered analyses, which assume that individual cases emerge from different distributions of the underlying constructs. Therefore, a person-centered approach may be advantageous because it facilitates a closer alignment between the foundational theory of expressed humility and the analytical methods applied (cf. McLarnon, Carswell, & Schneider, 2015). Therefore, person-centered approaches may be well-positioned to contribute additional knowledge on the structure of humility, but also on the function and differential outcomes associated with membership in the discrete clusters of humility that emerge.

Background on Person-Centered Approaches

Person-centered approaches are gaining prominence in the organizational literature (i.e., Gabriel, Daniels, Diefendorff, & Greguras, 2015). Person-centered analyses (e.g., latent profile analysis [LPA]) focus on the relations between individuals, and by clustering together individuals who have similar values on a set of variables a “holistic, interactionistic” perspective is provided (Bergman & Magnusson, 1997, p. 291). LPA is a subclass of mixture models (McLachlan & Peel, 2000), which refers to the concept that data may be sampled from a heterogeneous ‘mix’ of underlying subpopulations, such that relations between focal variables may differ across subpopulations (see O’Neill, McLarnon, Xiu, & Law, 2016). Traditional variable-centered approaches (e.g., regression, factor analysis) focus on relations between variables and assume a single population (Bauer & Curran, 2004). Moreover, in contrast to factor analysis, which uses continuous latent variables, LPA infers the presence of a categorical latent variable, of which the different categories refer to discrete subpopulations. This categorical latent variable describes relationships between cases, and accounts for the heterogeneity of the focal indicator variables (Nylund-Gibson, Grimm, Quirk, & Furlong, 2014).

LPA is a more powerful technique that overcomes several shortcomings of other person-centered analyses, like cluster analysis. One issue is that of cluster enumeration, which can lead to difficulty comparing results across studies (Pastor, Barron, Miller, & Davis, 2007). LPA facilitates more criteria to assess model-data fit (see below). Furthermore, as LPA is nested within the general framework of structural equation modeling it is a more flexible technique. Although LPA has several advantages, it can still be considered an exploratory procedure (Marsh, Ludtke, Trautwein, & Morin, 2009). In the current study we use this general framework to examine profile similarity across samples (Morin, Meyer, Creusier, & Biétry, 2016). Together, we drew upon previous examples of LPA-based research (e.g., O'Neill, McLarnon, Hoffart, Woodley, & Allen, in press), to offer our first research question around exploring the optimal number of profiles, but also extend previous examples to explore cross-sample similarity of the profile solution:

Research Question 1. Are there distinct expressed humility profiles defined by varying levels of accurate self-view, appreciation of others, and teachability?

In order to examine the construct validity of the resulting profile solution, we considered differences in efficacy for leadership across the emergent profiles (see Nylund-Gibson et al., 2014). Efficacy for leadership was chosen for its central link to effectiveness as a leader (Hannah, Avolio, Luthans, & Harms, 2008). Thus, to provide insight into the nature of the resulting profiles we investigated the following research question:

Research Question 2. Do average levels of efficacy for leadership differ across the expressed humility profiles?

Given the social and interpersonal nature of expressed humility it was critical to investigate the function of profile membership in situations that required individuals to work

together as a team. Therefore, we also assessed the impact of expressed humility profiles on team task performance:

Research Question 3. Does the proportion of individuals with each profile within a team relate to team task performance?

Study 1

Method

Participants – Study 1

In this study there were 435 fourth-year business school students (51.5% male), enrolled in an upper-year management course. Additional demographic information was not collected, but there was no reason to expect that this sample comprised individuals differing from the average business student sample (i.e., early 20s).

Participants – Study 2

We also had a sample of 688 engineering students, randomly assigned into 3- or 4-member teams. Average age was 19.6 years, and 73.7% were male. Teams were together for the duration of the semester and were required to complete four design projects. The course was heavily team-based, as 80% of the course grade was determined by team projects.

Measures

Expressed Humility. The nine-item measure developed by Owens et al. (2013) was used. Each of the three dimensions of expressed humility was assessed with three items (e.g., accurate self-view: “I actively seek feedback, even if it is critical;” appreciation of others: “I take notice of others’ strengths;” teachability: “I am willing to learn from others”). Each item was rated on a 5-point scale (1 = *Strongly Disagree*; 5 = *Strongly Agree*). Evidence for reliability is presented in Table 1. The same items and response scale was used in both samples.

Efficacy for Leadership. As self-efficacy measures should be contextualized for particular domains (Bandura, 2006), we adopted Chen, Gully, and Eden's (2001) 10-item general self-efficacy measure to reflect a person's belief in their leadership ability. An example item is "I will be an effective team leader." Evidence for reliability is presented in Table 1. The same items and response scale was used in both samples.

Team performance. In Study 2, team performance was assessed with instructor-rated grades. Course instructors, blind to this study's hypotheses, provided team-level grades based on the quality of a comprehensive report documenting the design and testing of a biomimetic machine.

Analytical Procedure

Using *Mplus 7.4* (Muthén & Muthén, 2015) throughout, we first investigated the construct validity of the focal measures with confirmatory factor analyses (CFAs). Then, following previous applications of LPA (i.e., O'Neill, McLarnon, Hoffart, et al., in press) we explored optimal profile solutions by specifying a single-profile model, and then extracting additional profiles in subsequent analyses. LPAs were estimated with 10,000 random sets of starting values and 100 iterations for each random starting value set, and the best 100 were retained for a final stage of optimizations (Morin & Marsh, 2015).

Optimal LPA models were determined based on several indices (i.e., Nylund, Asparouhov, & Muthén, 2007): lowest Bayesian Information Criteria (BIC) and a bootstrapped likelihood ratio test (BLRT) *p*-value of less than .05, which assesses increment in fit between a *k* profile model and a *k*-1 profile model (McLachlan & Peel, 2000). Morin and Marsh (2015) suggested plotting information criteria values as an elbow plot to assist in model selection.

We then examined mean differences in leadership self-efficacy across each profile using *Mplus*' BCH procedure. The BCH procedure has been found to provide unbiased tests of mean differences (Asparouhov & Muthén, 2014). In Study 2 we additionally examined relations between profile membership and team performance by aggregating profile membership to the team-level and considering correlations between proportion of team members with each profile and performance. Similar approaches were used by Miron-Spektor, Erez, and Naveh (2011) and Barry and Stewart (1997).

Results and Discussion

Table 1 contains descriptive statistics and variable intercorrelations. Table 2 contains factor-analytic results demonstrating evidence of construct validity of the focal measures, as the hypothesized four-factor model (correlated factors of accurate self-view, appreciation of others, teachability, and efficacy for leadership) provided a superior fit to the data. As well, Table 3 contains the results of measurement invariance analyses across both samples. This was necessary to ensure comparability across samples; without, any comparisons across samples may be akin to comparing apples to oranges (McLarnon & Carswell, 2013). Sass (2011) suggested that changes in the comparative fit index (CFI) of less than .010 and/or changes in the root mean square error of approximation (RMSEA) of less than .015 support invariance. As changes in the CFI and RMSEA were below these guidelines, invariance was supported, facilitating valid cross-sample comparisons.

Model Fitting – Study 1. Table 4 provides the model fit indices for Study 1's LPAs. Examining the BIC and BLRT estimates was inconclusive as the BIC was not at a minimum up to the point where statistical errors accompanied estimation (i.e., in models with 5+ profiles) and the BLRT *p*-value was consistently <.05. However, the elbow plot of the information criteria

values (Figure 1) strongly indicated the three-profile model as optimal as the four-profile model was not associated with a substantial decrease in information criteria values and improved fit.

Figure 2 presents means of the expressed humility dimensions across the three-profile model. The first profile contained individuals with low scores on all three dimensions with a particularly low score on teachability, and was called *teachability-minor* (5% of sample). The second profile was characterized by relatively similar, yet moderate scores on each dimension. This profile was labeled *moderate* (61%). Individuals in the third profile had high levels of all three dimensions, with a dominant teachability score, and were referred to as *teachability-dominant* (35%). All accurate self-view, appreciation of others, and teachability means varied significantly (mean differences excluded zero from 95% CIs) across the three profiles, lending credibility to the distinctiveness of the profiles.

Model Fitting – Study 2. The model-fit results from Study 2 replicate those of Study 1: BIC continually decreased, and the BLRT p -value was $<.05$ (see Table 4). The elbow plot (Figure 3) strongly suggested that the improvement in fit offered by the four-profile model was trivial, however. Therefore, the three-profile solution was deemed optimal in Study 2. Figure 4 contains the means of the expressed humility dimensions, and given that it resembles the results from Study 1 we applied the same labels: *teachability-minor*, *moderate*, *teachability-dominant*. The proportions of the sample assigned to each profile were 5%, 57%, and 38%, respectively. Means of the expressed humility dimensions also varied significantly across profiles.

Profile Similarity. Based on the strong correspondence between the results of both samples, we next aimed to explore profile similarity through Morin, Meyer et al.'s (2016) approach. They proposed a series of analytical steps similar to those used to assess measurement invariance in CFA, but focus on whether a) the same number of profiles emerge (configural

similarity), b) the means (structural similarity) and c) variances are similar in each respective profile (dispersional similarity), and d) the proportion of membership in each profile is similar across samples (distributional similarity).

Table 5 provides the profile similarity results. At each step (equal means, equal variances, and equal proportions) the BIC decreased, supporting similarity at each step. Taken together, the three-profile solutions from Study 1 and Study 2 demonstrated strong evidence of similarity, and would suggest that the three-profile is equivalent across samples. Therefore, as a response to Research Question 1, there appears to be three distinct profiles of expressed humility in leadership that can be recovered across samples.

To assess the functional role of the expressed humility profiles on leadership self-efficacy we examined mean differences in efficacy across the profiles. Table 6 presents the means of efficacy for leadership across Study 1's three profiles. These results suggested statistically significant ($p < .025$) and meaningful differences in efficacy for leadership across the profiles. Those in teachability-dominant had the highest efficacy for leadership ($d_{\text{teachability-minor}} = .85$ [95% CI = .379–1.310]; $d_{\text{moderate}} = .56$ [95% CI = .35–.76]), followed by moderate individuals ($d_{\text{teachability-minor}} = .37$ [95% CI = -.08–.82]), and then by teachability-minor individuals. This underscores not only a positive relation between the expressed humility dimensions and efficacy for leadership, but also the advantage of comparatively high levels of teachability in relation to accurate self-view and appreciation of others. This provides evidence for the construct validity of the three-profile solution, and lends support to Research Question 2.

Table 6 also presents the means of efficacy for leadership across Study 2's three-profile solution. Similar to Study 1, differences in mean efficacy for leadership vary appreciably across the profiles, with those in teachability-dominant having the highest efficacy for leadership

($d_{\text{teachability-minor}} = 1.08$ [95% CI = .72–1.44]; $d_{\text{moderate}} = .44$ [95% CI = .28–.60]), and those in the moderate profile ($d_{\text{teachability-minor}} = .30$ [95% CI = -.04–.64]) having the second highest leadership efficacy beliefs. These findings strongly replicate those of Study 1, and provide additional support for Research Question 2.

In Table 7, we present correlational results pertaining to Research Question 3. We used correlation because we examined the proportion of team members with a given profile and its relation to team task performance. We found that teachability-minor was negatively related to performance, teachability-moderate was positively related to performance, and teachability-dominant was unrelated to team performance. Together, mixed results are presented in support of Research Question 3 and relations between expressed humility profiles and team performance.

Summary. Organizational interest in humility has grown with recent years, as individuals strive to lead their organizations through troubled and tumultuous times. In an effort to expand our knowledge of humility, we conducted two studies using a person-centered approach, in contrast to the typically-used variable-centered approach. This novel approach provided the opportunity to examine distinct ‘types’ of people. Through two studies, we sought to examine whether there were distinct profiles of individuals, and whether leadership efficacy differed among these profiles. Our results suggest that there are three distinct profiles, particularly relating to teachability, and that levels of leadership efficacy differ among these profiles. We also show that team performance is related to these different profiles.

Theoretical Implications. By examining humility from a person-centered approach, we extend the current discussion on humility. We suggest that a three-profile solution, consisting of teachability-dominant, teachability-moderate, and teachability-minor profiles may optimally characterize individuals’ expressed humility in leadership, as articulated through a holistic,

interactionistic perspective. We further extend this by suggesting that these profiles yield meaningful differences for leadership self-efficacy, such that teachability-dominant had the highest levels of efficacy. We also show that these profiles have implications for team performance, with a negative relation emerging between proportion of teachability-minor individuals and team performance.

Practical Implications. As humility is gaining increased interest from organizations, understanding how humility contributes to leadership is of importance to practitioners. High levels of teachability were found to be an advantage to individuals relative to accurate self-view and appreciation of others. Moreover, different profiles were related to team performance, in that advantages for team performance may be seen with an increase in the number of members with a moderate expressed humility profile. Therefore, organizations can begin to cultivate different aspects of humility for their organization. As organizations strive for better leadership, understanding possible profiles of leaders may better help organizations attain their desired, humble outcomes.

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Table 1

Correlation Matrix

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>Study 1</i>				
<i>1</i> Accurate Self-View	<i>.76</i>			
<i>2</i> Appreciation of Others	<i>.48</i>	<i>.83</i>		
<i>3</i> Teachability	<i>.48</i>	<i>.51</i>	<i>.88</i>	
<i>4</i> Efficacy for Leadership	<i>.22</i>	<i>.33</i>	<i>.30</i>	<i>.92</i>
<i>Mean</i>	4.00	4.09	4.30	3.67
<i>SD</i>	<i>.57</i>	<i>.54</i>	<i>.51</i>	<i>.48</i>
<i>Study 2</i>				
<i>1</i> Accurate Self-View	<i>.72</i>			
<i>2</i> Appreciation of Others	<i>.59</i>	<i>.85</i>		
<i>3</i> Teachability	<i>.50</i>	<i>.60</i>	<i>.92</i>	
<i>4</i> Efficacy for Leadership	<i>.23</i>	<i>.27</i>	<i>.26</i>	<i>.93</i>
<i>Mean</i>	4.00	4.01	4.30	3.56
<i>SD</i>	<i>.56</i>	<i>.61</i>	<i>.55</i>	<i>.56</i>

Note. Study 1 $n = 435$; Study 2 $n = 688$. All correlations significant at $p < .001$. Diagonal elements, in italics, present reliability estimates. Study 2 estimates provided are individual-level estimates, see Table 7 for team-level estimates.

Table 2

Confirmatory Factor Analyses

	χ^2	<i>df</i>	CFI	RMSEA	Comparison	$\Delta\chi^2$	$\Delta\chi^2$ <i>df</i>
<i>Study 1</i>							
Model 1	2290.91*	152	.741	.180 (.173 - .186)	--	--	--
Model 2	719.41*	151	.931	.093 (.086 - .100)	2 vs. 1	235.34*	1
Model 3	616.41*	146	.943	.086 (.079 - .093)	3 vs. 1 3 vs. 2	556.41* 71.20*	6 5
<i>Study 1</i>							
Model 1	4291.73*	152	.768	.204 (.198 - .209)	--	--	--
Model 2	1128.99*	151	.945	.099 (.094 - .105)	2 vs. 1	361.64*	1
Model 3	1003.94*	146	.952	.095 (.089 - .100)	3 vs. 1 3 vs. 2	888.36* 96.01*	6 5

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation, values in parentheses represent the 90% confidence interval (CI). Model 1 = single-factor model; Model 2 = two-factor model with all expressed humility items loading on a single latent variable, and all efficacy for leadership items loading on a single, correlated latent variable; Model 3 = hypothesized four-factor model. As *Mplus*' weighted least squares with mean and variance correction (WLSMV) estimator was used, the $\Delta\chi^2$ column provides the DIFFTEST (Asparouhov, & Muthén, 2006) nested model comparison between models noted in the Comparison column. * $p < .001$.

Table 3

CFA-Based Measurement Invariance Analyses

	χ^2	<i>df</i>	#fp	CFI	RMSEA	$\Delta\chi^2$	$\Delta\chi^2$ <i>df</i>	Δ CFI	Δ RMSEA
Configural	1323.56*	292	180	.953	.088	--	--	--	--
Metric	1307.77*	307	165	.954	.084	44.64*	15	+.001	-.004
Strong	1347.19*	349	123	.954	.079	93.04*	42	<.0004	-.005

Note. χ^2 c = scaling correction factor for χ^2 ; *df* = degrees of freedom; #fp = number of parameters estimated in each model; CFI = comparative fit index; RMSEA = root mean square error of approximation; $\Delta\chi^2$ column provides the DIFFTEST (Asparouhov, & Muthén, 2006) nested model comparison between increasingly restrictive models; $\Delta\chi^2$ *df* = degrees of freedom for $\Delta\chi^2$ test; Δ CFI = change in CFI estimate from less restricted to more restricted models (i.e., change in CFI from configural invariance model to metric invariance model); Δ RMSEA = change in RMSEA estimate from less restricted to more restricted model. * *p* < .001.

Table 4

Latent Profile Analysis Model Fit Indices

# Profiles	LL	LLc	#fp	AIC	CAIC	BIC	aBIC	Entropy	BLRT
<i>Study 1</i>									
1	-902.56	1.15	9	1823.20	1837.94	1859.88	1831.31	--	--
2	-861.39	1.36	13	1748.79	1770.08	1801.76	1760.51	.87	<.004
3	-796.64	1.21	17	1627.28	1655.13	1696.56	1642.61	.94	<.004
4	-778.59	1.12	21	1599.17	1633.58	1684.75	1618.11	.97	<.004
5 ^a	--	--	--	--	--	--	--	--	--
<i>Study 2</i>									
1	-1369.95	1.01	9	2757.90	2774.25	2798.28	2769.71	--	--
2	-1296.63	1.23	13	2619.26	2642.89	2677.60	2636.32	.92	<.004
3	-1112.19	1.09	17	2258.38	2289.28	2334.67	2280.70	.99	<.004
4	-1092.03	1.13	21	2226.07	2264.24	2320.31	2253.63	.93	<.004
5 ^a	--	--	--	--	--	--	--	--	--

Note. LL = model loglikelihood; LLc = scaling correction factor for loglikelihood; #fp = number of parameters estimated in each model; AIC = Akaike Information Criterion; CAIC = Consistent AIC; BIC = Bayesian Information Criterion; aBIC = sample-size adjusted BIC; Entropy = index of classification quality; BLRT = bootstrapped likelihood ratio test *p*-value. ^a Models with 5 or more profiles resulted in various statistical errors, suggesting the results were uninterpretable and represented inferior solutions.

Table 5

Study 1 and 2 Latent Profile Similarity

	LL	LLc	#fp	AIC	CAIC	BIC	aBIC	LRT	df
Configural	-2644.51	1.13	32	5353.03	5387.25	5512.89	5411.25	-- ^a	-- ^a
Structural	-2656.95	1.13	23	5359.57	5384.45	5474.47	5401.42	21.68*	9
Dispersional	-2663.98	1.11	20	5367.00	5389.72	5467.88	5404.35	11.05*	3
Distributional	-2664.82	1.12	18	5365.62	5385.31	5455.55	5398.38	1.66	2

Note. $n = 1092$. LL = model loglikelihood; LLc = scaling correction factor for loglikelihood; #fp = number of parameters estimated in each model; LRT = likelihood ratio test statistic, computed using LLc and Satorra-Bentler (Satorra & Bentler, 2001) correction; df = degrees of freedom for each LRT. ^a LRT is not available for the configural invariance model, as it serves as the baseline for the structural invariance model. * $p < .01$.

Table 6

BCH Tests of Equality of Efficacy for Leadership Means

	Teachability- Minor	Moderate	Teachability- Dominant	Overall $\chi^2(2)$
<i>Study 1</i>				
Efficacy for Leadership	3.43 _a	3.59 _b	3.85 _c	35.72*
<i>Study 2</i>				
Efficacy for Leadership	3.26 _a	3.47 _b	3.74 _c	43.37*

Notes. Different subscripts differ at $p < .050$. Overall χ^2 = global χ^2 test, with $df = 2$, for the equality of means across all three profile groups. * $p < .001$.

Table 7

Study 2 Team-Level Correlation Matrix

	1	2	3	4
1 Teachability-Minor	--			
2 Moderate	-.25**	--		
3 Teachability-Dominant	-.29**	-.86**	--	
4 Project Performance	-.18*	.15*	-.05	--
<i>Mean</i>	.06	.57	.38	93.56
<i>SD</i>	.14	.26	.26	6.45

Note. $n = 178$. Correlations proportion of team members characterized as having each profile (i.e., modal profile membership) and team performance. * $p < .05$, ** $p < .01$.

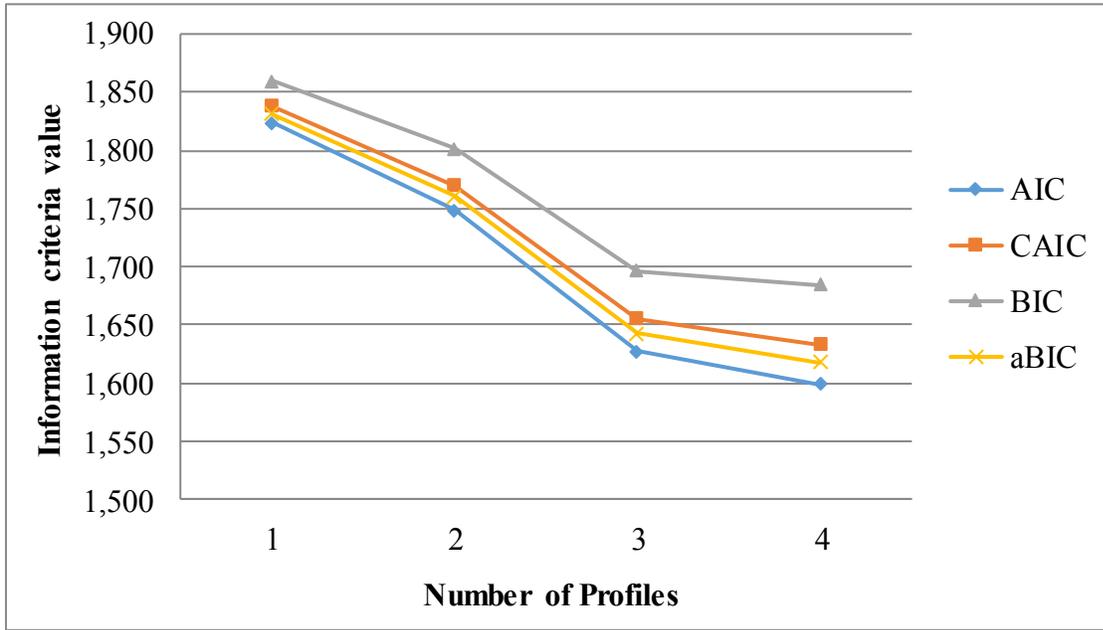


Figure 1. Elbow plot of Study 1 LPA information criteria values. AIC = Akaike information criteria; CAIC = consistent AIC; BIC = Bayesian information criteria; aBIC = sample-size adjusted BIC.

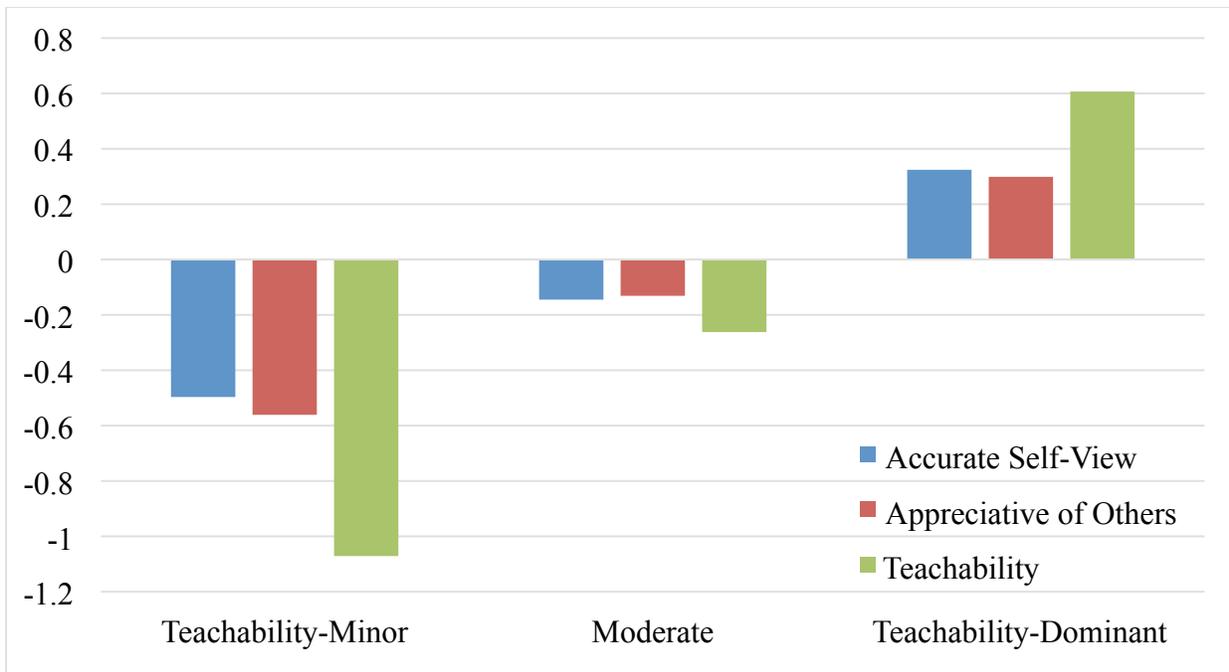


Figure 2. Profile of expressed humility means for Study 1’s three-profile solution. Results were standardized to assist with interpretation.

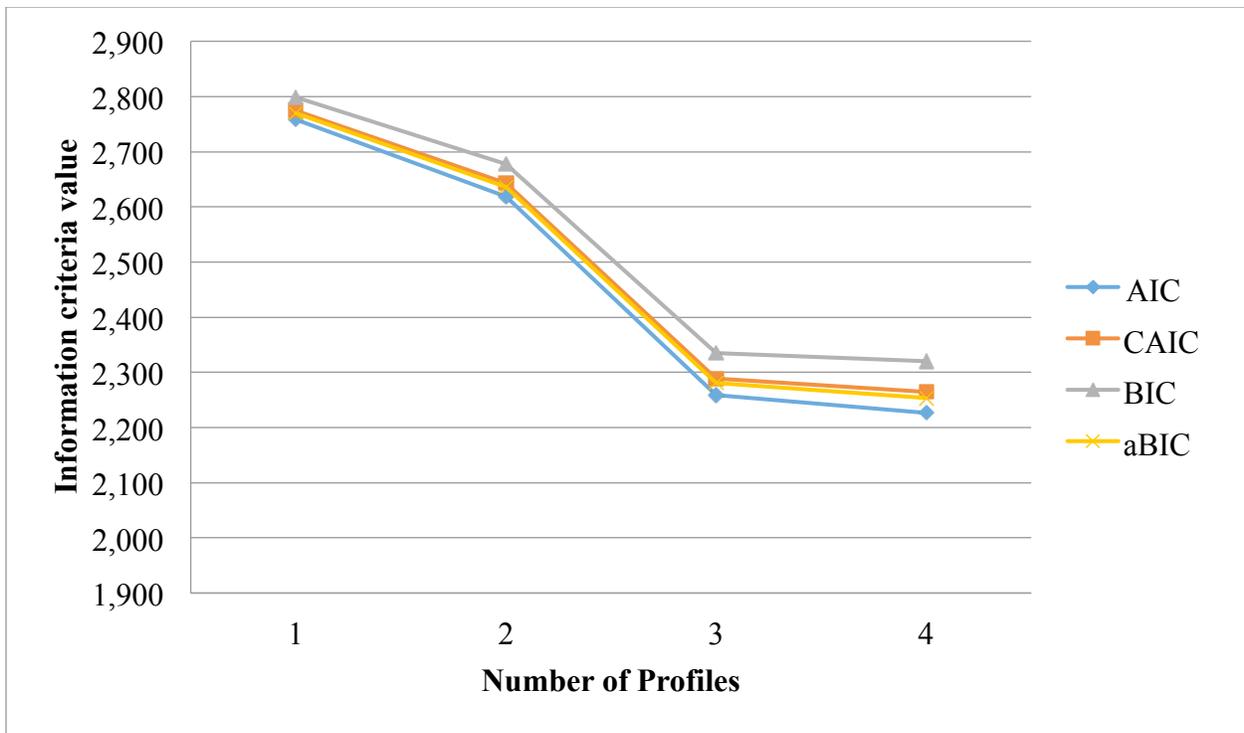


Figure 3. Elbow plot of Study 2 LPA information criteria values. AIC = Akaike information criteria; CAIC = consistent AIC; BIC = Bayesian information criteria; aBIC = sample-size adjusted BIC.

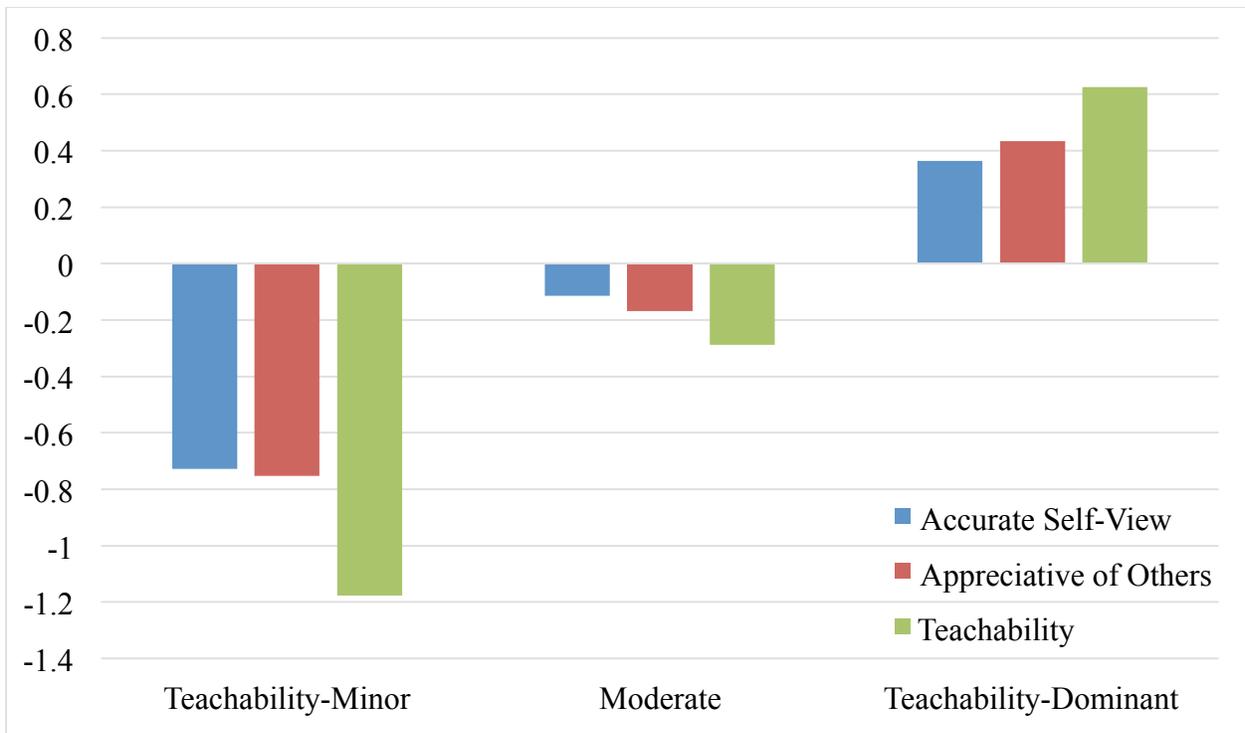


Figure 4. Profile of expressed humility means for Study 2’s three-profile solution. Results were standardized to assist with interpretation.