

Measuring Leader Identity: Conceptualization and Validation of a Multi-Dimensional Measure

Kate M. McCombs, Samford University / Brock School of Business, kmccomb1@samford.edu
Ethlyn A. Williams, Florida Atlantic University / Department of Management Programs
Stephanie L. Castro, Florida Atlantic University / Department of Management Programs
Bryan Deptula, Canalside Inn

Online published: July 2024

Print published: July 2024

Editors: Adam Szpaderski & CJ Rhoads

Authorship Roles and Conflict of Interest Statement is on file at the Journal of Leadership and Management offices, available on request. Contact editors@jleadershipmanagement.org

ABSTRACT

Leader identity, a sub-component of an individual's identity that reflects how one thinks of oneself as a leader, develops along four dimensions: strength, integration, meaning, and level of inclusiveness. Though conceptual work on leader identity suggests it is fundamental for individual leader development, existing measures of leader identity are limited and inconsistent. There is, therefore, a need for research primarily focused on validating a measure of leader identity across the four dimensions to aid the steady expansion of research and empirical synthesis in this area. In this research, we conduct three studies to build, refine, and validate a measure of leader identity. The three studies include a sample of 123 undergraduate students to evaluate content validity, a sample of 353 higher-level students – the majority of whom were working – to examine convergent and divergent validity, and finally a sample of 142 working adults to assess the criterion and predictive validity of the measure. Using these three studies, we introduce and validate a 16-item multi-dimensional Leader Identity Measure.

KEYWORDS

Scale development, Identity, Leader development, Leader Identity

Introduction

Research increasingly recognizes the critical role identity plays in developing effective leaders (Clarke, 2012; Day & Dragoni, 2015; Day & Harrison, 2007; Day, Harrison, & Halpin, 2009, Kragt & Day, 2020; Wallace, Torres, & Zaccaro, 2021). More recently, research has emphasized leader identity. Leader identity is one facet of an individual's overall identity (meanings an individual attributes to themselves as a unique person, group member, or inhabitant of a role) specific to leadership (Day et al., 2009). It is crucial for deep-level development and complex leadership maturity (Lord & Hall, 2005; Miscenko, Guenter, & Day, 2017). While historically leader development tended to focus on skill building rather than the development of one's leader identity (Muir, 2014), we now see human resource development in organizations moving their focus away from interventions, trainings, and skill building. Movement is towards more dependance on the individual's own self-direction, identification, and motivation (Torraco & Lundgren, 2020). This is part of the personal perspective of leadership, looking at who the leader truly is (Rennison, 2018), and this identity is crucial to understanding the practice of leadership (Sinclair, 2011; Rennison, 2018).

Understanding the development of one's leader identity is an essential step in exploring the growth trajectory of leaders from novice to expert leaders (Hannah, Woolfolk, & Lord, 2009; Haslam et al., 2022), yet progress has been limited (Clapp-Smith et al., 2019; Epitropaki et al., 2017). We believe

this may be due to the absence of a comprehensive measure of leader identity (Epitropaki et al., 2017; Vogel et al., 2021). In this research, we detail the development of a measure of leader identity that can benefit scholars and human resource development professionals alike. Data from this measure can be utilized at the organizational level to demonstrate the need for upper-level management organization-wide support for training, at the HRD level to build training modules, and at the individual level for self-awareness.

We begin by leveraging Hamond, Clapp-Smith, and Palanski's (2017) research synthesizing the literature on leader identity to inform the four dimensions of leader identity. This was our starting point to build a comprehensive measure of leader identity. Utilizing the work done on leader identity, we use a three-study design to develop and test a multi-dimensional scale we label the Leader Identity Measure. In Hammond et al.'s (2017) article, they reviewed the literature on leader identity and surmised that leader identity is comprised of four developmental dimensions: (a) *strength* of leader identity, (b) *integration* of leader identity with roles held, (c) *meaning* of what a leader is, and (d) *level of inclusiveness* in the view of oneself as a leader defined by group membership. While there is consensus in the field about these four key dimensions (Clapp-Smith et al., 2019; Miscenko et al., 2017; Zaar, Van den Bossche, & Gijssels, 2020), to date, early empirical research investigating the construct has tended to address only one or two dimensions at a time (Epitropaki et al., 2017; Hammond et al., 2017). The limited empirical work has led to disparate approaches with some research examining solely the strength of one's leader identity, others the meaning of one's leader identity, and still others suggesting outcomes of a developing leader identity without acknowledgment or clarity on what dimensions of leader identity are being examined. Without inspection of all four dimensions of leader identity, research is only capturing a portion of the narrative surrounding the development and influence of one's leader identity (Johnson et al., 2012; Miscenko et al., 2017). A leader identity is the "sub-component of one's identity that relates to being a leader or how one thinks of oneself as a leader" (Day & Harrison, 2007, p. 365). Epitropaki et al. (2017) note this dearth (in terms of piecemeal presentation of leader identity components), highlighting the high variability in measures employed to operationalize the identity processes. We suggest the primary reason for this deficiency is the absence of a psychometrically sound comprehensive measure of leader identity (Epitropaki et al., 2017; Vogel et al., 2021).

The lack of empirical work addressing all four dimensions of leader identity simultaneously limits our ability to understand leader identity and the various roles that each dimension might play in influencing leadership outcomes. It is important to be able to include measures with all four dimensions in a single study so that we can investigate potential differential effects (Epitropaki et al., 2017). With all four dimensions considered in one study, we can discover the relative importance of each for various outcomes (Hammond et al., 2017). For future research to grasp how individuals develop their leader identity, the differing trajectories that occur, and the influence it has on leadership outcomes, we must have the ability to accurately measure all dimensions. Accordingly, the main purpose of the present research is to build, refine, and validate a comprehensive multi-dimensional measure of leader identity, while also providing preliminary insights regarding the relative importance of each dimension.

Leader Identity Measures and Literature

Empirical work on leader identity has applied existing or ad-hoc measures of identity and one's self-concept to capture leader identity (Epitropaki et al., 2017). Most often utilized to capture leader identity has surprisingly been an unpublished dissertation. Most utilized has been Hiller's (2005) unpublished 4-item leader identity scale, which captures the extent to which an individual sees themselves as a leader (i.e., solely capturing the strength dimension). This scale has been utilized by Day and Sin (2011) in work examining leader developmental trajectories, Miscenko et al. (2017) considering leader identity development over the course of a leader development program, Kwok,

Shen, and Brown (2020) in research considering outcomes of formal leadership training, Middleton, Walker, and Reichard's (2019) research addressing the relationship between leader identity growth and learning goal orientation, and most recently Jiang et al., (2021) and Palanski et al., (2021) utilize Hiller's measure to assess leader identity with some acknowledgement of other components of leader identity. However, this measure only captures one component of leader identity, without regard to other important components of leader identity. Other research has created short ad-hoc measures to capture leader identity. For example, Shamir and Kark (2004) developed a single item to capture collective identification (i.e., "level of inclusiveness"), while Lee, Sondag, and Ashford (2016) developed a short 4-item scale capturing the importance of leader identity to one's overall identity (i.e., the dimension describing strength) – which has been utilized in published work (for example Lanaj, Gabriel, & Chawla, 2020). Other empirical research on leader identity utilizes existing measures to capture a portion of leader identity, for example, Chang and Johnson (2010) utilized the Levels of Self-Concept Scale (Selenta & Lord, 2005) to capture leader relational identity (i.e., the dimension describing level of inclusiveness) and Karellaia and Guillen (2014) adapted 6 items from Settles' (2004) measure to capture gender-specific social identity. None of these measures have been the focus of a validation study; none of these measures capture all four dimensions.

The examples noted above represent the variety of published, unpublished, adapted, one dimensional, or ad-hoc measures utilized to date in the leader identity literature – overall, they fail to assess all components leader identity, which is necessary to advance future research. In this work we leverage Hamond, Clapp-Smith, and Palanski's (2017) accepted research synthesizing the literature on leader identity to inform the four dimensions of leader identity. Given that leader identity is a vital component of the leader development process and a driver of subsequent leadership outcomes (Kwok et al., 2018; Kwok et al., 2020), our study focuses on developing a valid multi-dimensional measure of leader identity to help assess and measure leader identity and recruit and train individuals.

To review past research, the development within each dimension of leader identity ranges from low to high. The dimension 'strength' is the degree to which an individual identifies as a leader (Lord & Hall, 2005), developing from a low level of development (suggesting an individual does not believe they are a leader) to a high level of development (suggesting that an individual strongly identifies as a leader). 'Integration' is the extent to which an individual's leader identity is integrated within a global self-concept, developing from a low level of development (suggesting that the individual does not see him or herself as a leader in any context) to a high level of development (suggesting that the individual sees him or herself as a leader in a variety of contexts such as work, home, and church). The dimension 'meaning' describes an individual's understanding and definition of leadership (Brown, 2015), developing from a low level of development (referring to an individual holding an authoritative and dominant view of leadership) to a high level of development (referring to an individual holding a shared definition of leadership – viewing leadership as involving all individuals participating in leading through mutual commitments and shared meaning system) (Day, 2000). The dimension 'level of inclusiveness' refers to the extent to which the person's identity is grounded in group membership and develops from a low level focusing on individual skills, to a high level focusing on group members and the collective (Hammond et al., 2017).

Next, we discuss some variables related to and relevant to our understanding of leader identity. These will be assessed later on in this multi-phase study. First, self-awareness is important for developing leader identity and affects one's motivation to pursue leader development (Hall, 2004). For individuals to cultivate their overall leader identity, cognitive development of meta-competencies such as self-awareness is essential (Lord & Hall, 2005). Individuals' self-awareness enhances their ability to develop their understanding of leadership (Avolio & Hannah, 2008). The literature on self-awareness and development of self-constructs discusses the significance of individuals having the ability to connect knowledge from experiences and integrating this awareness into their self-perceptions (Hall, 2004). For individuals to develop in their leader identity and grow from a novice to

a developed understanding of leadership they must hold the ability to self-reflect and alter their previous views (Day et al., 2009). Therefore, self-awareness helps individuals develop their leader identity by providing them the ability to accurately perceive themselves, compare themselves with others, and evaluate experiences to create their leader identity.

An individual's general self-views and self-efficacy beliefs are an important aspect of one's overall self-concept (Bong & Skaalvik, 2003) and refer to an individual's overall beliefs in his or her ability to cope, perform, and be successful (Bandura, 2001; Judge & Bono, 2001). Specific to leadership is an individual's leader developmental efficacy, defined as one's confidence in his or her ability to develop as a leader (Reichard & Johnson, 2011; Reichard & Walker, 2016; Reichard et al., 2017). Research has suggested that leader developmental efficacy is important for leader development (Hannah et al., 2009). Leader developmental efficacy is a key motivational construct that is important for the leader's involvement and success in developmental programs (Reichard et al., 2017). Therefore, both leader identity and leader developmental efficacy are important for individual motivation to lead and involve oneself in developing as a leader (Guillen, Mayo, & Korotov, 2015; Reichard et al., 2017).

Self-leadership was examined as an antecedent in this research and is defined as the influence individuals have over themselves to implement self-direction and self-motivation strategies to perform a goal (Manz, 1986; Neck & Houghton, 2006). This is important in developing one's leader identity because self-leadership involves strategies important in developing their leader identity and successfully developing as leaders (Murphy et al., 2008). For example, the self-observation strategy of self-leadership is important for believing that one is a leader ('strength') and integrating that role in their life domains ('integration'), while the self-leadership strategy of evaluating beliefs and assumptions is important for developing the meaning of leadership ('meaning'), and an inclusive view of leadership ('level of inclusiveness').

Overall, leader identity influences a wide variety of organizational outcomes (i.e., Johnson et al., 2012; Kwok et al., 2020; Lanaj et al., 2020; Middleton et al., 2019; Miscenko et al., 2017; Rehbock et al., 2022). To stay ahead in the dynamic and competitive landscape that organizations are confronted with today, human resource development has begun to rely more on employee's self-directed leader development for success (Nesbit, 2012). Recent research has suggested that human resource development will need to go beyond formal leadership training methods, to focusing on the individual gaining a deeper, more developed leader identity and understanding the collective whole when leading (Dirani et al., 2020). An individual's motivation to engage in this self-directed learning is largely connected to the individual's intrapersonal concept, self-view, and identity (Boyce, Zaccaro, & Wisecarver, 2010; Reichard & Johnson, 2011). Therefore, understanding an individual's leader identity development is critical within this process.

Development and Test of a Measure of Leader Identity

We began by generating items and assessing the content validity of the measure and adjusting as needed to refine (Study 1). Next (Study 2), we collected a sample to assess construct validity using exploratory factor analysis (EFA) and interpreted loadings (Brown, 2006) as well as confirmatory factor analyses (CFAs) to evaluate the factor structure of the measure. In Study 2 we also evaluated convergent and discriminant validity of the measure. Lastly, we collected a two-wave sample to test concurrent and predictive validity (Study 3). Overall, our research contributes to the literature by providing a multi-dimensional measure of leader identity that can enable future research.

Item Generation

Utilizing Hammond et al.'s (2017) work as a foundation, our team of 4 researchers immersed ourselves in the literature, reviewing existing scales employed, and interviewing aspiring and developed leaders to assemble multiple items that we believed captured the 4 established dimensions

of leader identity. As part of a larger qualitative study on leader identity, we conducted 70 interviews with executive MBA students in the Southeastern United States - 37 females and 33 males, ranging in age from 21 to 58, with 2 to 38 years of work experience that also informed our measure's items (McCombs et al., in press).

First, to measure strength, we utilized Hiller's (2005) 4-item unpublished leader identity scale as these items overlapped with the findings from our qualitative study interviews on leader identity, and his scale has been employed in other published work (i.e., Day & Sin, 2011; Miscenko et al., 2017 to name a few). To capture 'strength' participants indicate 'the extent each item describes you': *I am a leader; I see myself as a leader; If I had to describe myself to others, I would include the word 'leader'; I prefer being seen by others as a leader* (Hiller, 2005).

Next, we created four items to capture the dimension of integration. Based on the format of the measure for 'strength', to capture the dimension 'integration' participants indicate 'the extent to which the items describe where you lead': *I lead in all areas of my life; I lead in everything I do; I lead in all domains of my life; I lead in every aspect of my life.*

Due to the increased complexity of the dimensions meaning and inclusiveness we initially generated 24 items with the intention of capturing high, medium, and low levels of development (Hammond et al., 2017). For the dimension of meaning, we generated 12 items to represent the theoretical representations of high, medium, and low levels of development [4 items each] (Hammond et al., 2017). Participants indicate the extent to which each item represents his or her definition (or meaning) of leadership, what being a leader means; example items that suggest high levels of development include: *collaborating with others of the organization; cooperating with others to achieve a shared goal.*

For the dimension 'level of inclusiveness', we generated 12 items to represent the theoretical representations of high, medium, and low levels of development (4 items for each level); example items capturing a high level of development include: *I lead because I want to help others; I lead because I want to do good for the members of the groups that I lead.*

After this process of item generation, the proposed leader identity measure consisted of 32 items: 4 representing 'strength' of leader identity, 4 representing 'integration' of leader identity, 12 representing 'meaning' of leader identity, and 12 representing 'level of inclusiveness' of leader identity. We then examined the content adequacy of the 32-item measure.

Study 1: Content Adequacy

The purpose of Study 1 was to empirically assess the content adequacy of the 32 items measuring leader identity described above. The respondents were asked to evaluate the item consonance with the theoretical definitions of the four dimensions (Schriesheim et al., 1993).

Method

Study 1 surveyed 123 undergraduate students (Schriesheim et al., 1993) in management courses enrolled in a large university in the Southeastern United States. Respondents were given a full page of directions concerning how they should complete the survey. Rating form instructions asked the respondents to put an X in one of five columns, indicating which definition the item best corresponded (strength, integration, meaning, inclusiveness, or none of the above). Further, they were advised that if the statement describes more than a single dimension, to place a 1 in the column that most describes it, a 2 in the column that next most describes it, and so on, and that they may characterize each statement using as many dimensions as they felt were appropriate. Respondents were given detailed definitions of the four dimensions. The sample was 54% female; respondents' ages ranged from 21 to 47 (mean was 28.52). The sample was 44% Caucasian, 18% African American, 19% Hispanic, 9% Asian, and 10% "other"; 85% of the sample was employed.

We conducted exploratory factor analysis (EFA) using principal axis factor analysis with oblimin rotation to examine factor loadings and the factor structure of the 32 items.

Results and Discussion

Our initial EFA revealed a number of cross-loadings, suggesting items overlapped. We therefore reviewed the definitions of the dimensions carefully and determined that the domains for meaning and inclusiveness could be adequately captured with statements describing being developed (established) on the identity dimension, given that the rating scale we employ later describes the extent to which the individual is developed in his or her leader identity, with the anchor (1) "not at all descriptive" representing a low level of development and the anchor (5) "extremely descriptive" representing a high level of development. Therefore, we retained 4 items per dimension, each capturing a high level of development, resulting in a 16-item measure.

We then conducted a new EFA and determined the number of factors, based on (a) eigenvalue-greater-than-one rule (Kaiser,1960), (b) the scree test (Cattell, 1966), (c) factor loadings of each item (McDonald, 1985), and (d) interpretability of obtained factors (Gorsuch, 1983). We found that the eigenvalue-greater-than-one rule, scree test, factor loadings, and interpretability of factors all suggested a 4-factor solution. The 4-factor model explained 63.20% of the total variance (see Table 1). Examination of the scree plot confirmed the 4-factor solution with a sharp horizontal line at 4 factors. Finally, based on each item’s factor loadings, all items appeared to load primarily on a single factor – each representing a unique factor corresponding with the Hammond et al. (2017) proposed 4 dimensions. Inspection of the pattern matrix revealed all items (except 1) loaded at the .40 level or higher onto only one factor (their intended factor). Cross loadings were .17 or lower. The exception was one item that loaded at .38 on its intended factor. Based on our review of the definition of the intended dimension ‘level of inclusiveness’ (cf. Hinkin,1998), this item was refined to capture the construct more precisely. The item was altered from “I lead because I want to help others” to “I lead because I want to help my group” – to better capture a high level of inclusiveness. All 16 items (4 per dimension) were retained. In Studies 2 and 3, we employed this 16-item Leader Identity Measure to further evaluate its validity.

Items	1	2	3	4
1. I am a leader	-.01	-.03	-.89	.06
2. Being a leader is cooperating with others to achieve a shared goal	.05	.82	.04	.12
3. <i>I lead because ...</i> I want to help others	-.07	-.07	-.03	-.69
4. Being a leader is collaborating within your group	-.01	.60	.02	-.12
5. I lead...In all domains of my life	.67	-.05	-.11	-.03
6. I see myself as a leader.	.04	-.03	-.88	.07
7. <i>I lead because...</i> I want to support the group in which I belong	.06	.04	.09	-.75
8. Being a leader is working with others within your group	-.05	.66	.00	-.11
9. I lead... In everything I do	.70	-.08	-.06	-.12
10. If I had to describe myself to others, I would include the word "leader."	.02	.03	-.66	.02
11. Being a leader is collaborating with others of the organization	-.03	.68	-.05	.01
12. <i>I lead because...</i> my actions can benefit the group to which I belong	.03	.09	-.03	-.61
13. I lead...In every aspect of my life	.80	.03	.07	.05
14. I prefer being seen by others as a leader	.00	.04	-.44	-.12
15. <i>I lead because...</i> I want to help others	.12	.17	-.07	-.38
16. I lead ...In all areas of my life	.81	.04	.02	.05
Post rotation eigenvalues for retained items	4.40	2.69	1.63	1.40
Percentage of variance explained	27.50	16.78	10.16	8.76

Note. Primary factor coefficients in bold. Extraction Method: Principal axis factoring with oblimin rotation method.

Table 1 Study 1: Exploratory Factor Analysis

Study 2: Factor Structure, Convergent, and Discriminant Validity

The purpose of Study 2 was two-fold. First, we aimed to cross-validate results for the proposed factor structure. Second, we aimed to assess the convergent and discriminant validity of the Leader Identity Measure. We examined convergent and divergent validity to compare leader identity with other measures in the nomological network – self-awareness and leader developmental efficacy. Our hope was that the measure of leader identity would be similar enough to these related constructs, but also provide evidence for the uniqueness of the new measure.

Part One: Factor Structure

To begin, we aimed to cross-validate the proposed four-factor structure of the 16-item measure. The construct leader identity is composed of 4 separate dimensions: strength, integration, meaning, and level of inclusiveness.

Hypothesis 1. The leader identity measure consists of four dimensions: (a) strength, (b) integration, (c) meaning, and (d) level of inclusiveness.

Part Two: Convergent Validity and Discriminant Validity

One method to establish convergent validity is to assess whether theoretically related constructs are also empirically related (Campbell & Fiske, 1959). Leader identity is theoretically similar to other self-view constructs; the question is to what extent? We assess the conceptual overlap of two self-view constructs: self-awareness and leader developmental efficacy.

Given the theoretical relationships between self-awareness and leader identity, we suggest the following hypothesis:

Hypothesis 2. The four dimensions of leader identity are positively correlated with self-awareness.

Given the theoretical relationships between the two constructs we suggest the following hypothesis:

Hypothesis 3. The four dimensions of leader identity are positively correlated with leader developmental efficacy.

We also expect the Leader Identity Measure to be distinct from these theoretically tied construct measures. While we expect similarities and correlations between measures capturing constructs within the nomological network, we also want to ensure all four dimensions are empirically distinct. Therefore, we examined not only convergent validity, but also discriminant validity, leading us to the following hypothesis:

Hypothesis 4. The four dimensions of leader identity are distinct from self-awareness and leader developmental efficacy.

Method

Participants and Procedure

A survey was sent to 393 students enrolled in higher-level (3000 level and above) courses in two universities in the Southeastern U.S. resulting in a final sample size of N = 353. The sample was 46.1% female and respondents ranged in age from 17 to 64 (mean = 25.59 years). The sample was 41% Caucasian, 10.7% African American, 20.4% Hispanic, 5.1% Asian, 7.9% other (15% not responding); 38.7% were employed part-time and 33.6% full-time (12.5% not currently employed and 15% not responding). Organizational roles varied with non-supervisory (50.1%), 1st level (16.3%), mid-level (9.9%), director (4.3%), and executive (2.8%) (16.5% not responding); respondents averaged 8 years of working experience.

Measures

We used the 16-item Leader Identity Measure to measure the four dimensions of leader identity: ‘strength’ ($\alpha = .90$), ‘integration’ ($\alpha = .96$), ‘meaning’ ($\alpha = .92$), and ‘level of inclusiveness’ ($\alpha = .93$). The instructions asked individuals to indicate to what extent each item describes either you (‘strength’), where you lead (‘integration’), your definition of leadership or what being a leader means (‘meaning’), or why you lead (‘level of inclusiveness’). The measure was rated on a five-point scale from “not at all descriptive” to “extremely descriptive.” Self-awareness was assessed using Neider and Schriesheim’s (2011) 4-item scale ($\alpha = .75$). Leader development efficacy was assessed by five-items adapted by Reichard et al. (2017) ($\alpha = .92$). These latter two measures were rated on a five-point scale from “strongly disagree” to “strongly agree.”

Data Analysis

First, we randomly split the original sample into two subsamples resulting in one sample that we used to conduct EFA ($N=174$) and another sample that we used to conduct CFA ($N=179$). Results of t-tests indicated no difference in key demographic variables between the 2 subsamples. We conducted EFA using principal axis factoring with oblimin rotation on the first subsample. We then used MPLUS (Muthen & Muthen, 2017) for confirmatory factor analysis to test the hypothesized four-factor model. Third, we examined CFA results in the full sample. Fourth, we examined convergent and discriminant validity in the full sample relative to self-awareness and leader developmental efficacy.

Results

Part One: Factor Structure.

The EFA results yielded a four-factor solution that accounted for 82.64% of the variables. All items loaded exclusively on the proposed factor with all factor loadings above .60, and all cross-loadings less than .23 (see Table 2). Second, several CFAs were conducted on the cross-validation sample. A 1-factor model was tested (all 16 items were constrained to one factor). The 1-factor model fit was poor: $X^2 = 1449.42$, $df = 104$, CFI = .47, TLI = .39, RMSEA = .29, and SRMR = .20. Then we tested the hypothesized 4-factor model. The 4-factor model provided a good fit to the data: $X^2 = 224.12$, $df = 98$, CFI = .95, TLI = .94, RMSEA = .09, and SRMR = .05. The chi-square difference tests comparing the two models ($\Delta X^2 = 1225.30$, $\Delta df = 6$) also support the 4-factor model. These results support Hypothesis 1 (Hu & Bentler, 1999) that the Leader Identity Measure consists of four dimensions (see Table 2).

We then cross-validated the factor structure on the full sample ($N = 353$) to replicate our findings for the 4-factor model (see Table 3 for detailed results). We compared the results of the 4-factor with a single factor model. Maximum likelihood estimation was utilized and the overall goodness-of-fit of the CFAs was evaluated. We found the 4-factor model showed good model fit and the 1-factor model showed poor fit. Factor loadings were all above .7. Disattenuated factor correlations ranged from .30 to .70. The results suggested the 4-factor model is superior to a 1-factor model, supporting Hypotheses 1.

Items	Integration	Meaning	Level of Inclusive.	Strength
Indicate 'the extent each item describes you'				
1. I am a leader	.04	.03	-.16	.76
2. I see myself as a leader	.04	.03	-.10	.80
3. If I had to describe myself to others, I would include the word "leader"	.12	-.06	-.04	.77
4. I prefer being seen by others as a leader	-.05	.01	.10	.82
Indicate the extent to which each item represents your definition (or meaning) of leadership.				
5. Collaborating with others of the organization	.00	.93	.12	.06
6. Cooperating with others to achieve a shared goal	-.03	.85	-.11	-.03
7. Collaborating within your group	.05	.90	.02	-.04
8. Working with others within your group	.01	.64	-.23	.03
Indicate the extent to which each item describes why you lead.				
9. I want to help my group	.01	.00	-.83	.03
10. I want to do good for the members of the groups that I lead	.02	.04	-.86	-.02
11. I want to support the group in which I belong	-.05	.03	-.86	.02
12. My actions can benefit the group to which I belong	.09	-.01	-.74	.07
Indicate 'the extent to which the items describe where you lead'.				
13. In all areas of my life	.85	.05	.00	.07
14. In everything I do	.91	-.03	.01	.01
15. In all domains of my life	.96	.02	.02	.02
16. In every aspect of my life	.98	-.01	-.03	-.06
Post rotation eigenvalues for retained items	8.04	2.87	1.30	1.00
Percentage of variance explained for retained items	50.26	17.96	8.15	6.27
Final Cronbach alpha reliabilities for retained items	.97	.92	.91	.90

Note. Primary factor coefficients in bold. Extraction Method: Principal axis factoring with oblimin rotation method.

Table 2 Study 2: Exploratory Factor Analysis of Split Sample

Models	X ²	df	CFI	TLI	SRMR	RMSEA
Model 1a 4- Factor model of Leader Identity Dimensions	246.05	98	.97	.96	.04	.07
Model 1b Factor model	2446.65	104	.52	.45	.21	.27
Model 2 5- factor Leader Identity Dimensions with Self-Awareness	396.55	160	.96	.95	.04	.07
Model 3 5- factor Leader identity with Leader Developmental Efficacy	535.77	179	.94	.93	.05	.08
Model 4 6- factor Leader identity with Self-Awareness and Leader Developmental Efficacy	720.17	260	.93	.92	.05	.08

Note. X²= Chi Square; df = degrees of freedom; CFI= Comparative fit index; TLI= Tucker Lewis Index; SRMR = Standardized root mean square residual; RMSEA = Root mean square error of approximation.

Table 3 Study 2: CFA Fit Indices for Full Sample

Part Two: Convergent and Discriminant Validity.

We used SPSS to examine the relationship between leader identity dimensions and other variables in the nomological network. See Table 4 for details. ‘Strength’, ‘integration’, ‘meaning’, and ‘level of inclusiveness’ dimensions all correlated with self-awareness (.42, .46, .45, .49 respectively) $p < .01$ and leader developmental efficacy (.55, .54, .40, .51 respectively) $p < .01$. Regarding convergent validity, we found support (Hypotheses 2 and 3).

Study Variables	Mean	SD	1	2	3	4	5	6
1. Strength	3.57	.88	.90					
2. Integration	3.51	.94	.68**	.96				
3. Meaning	4.15	.70	.33**	.31**	.92			
4. Level of Inclusiveness	4.24	.72	.45**	.43**	.63**	.93		
5. Self-Awareness	3.91	.58	.42**	.46**	.45**	.49**	.75	
6. Leader Developmental Efficacy	4.07	.71	.55**	.54**	.40**	.51**	.50**	.92

Note. ** Correlation is significant at the .01 level. (2-tailed). * Correlation is significant at the .05 level (2-tailed). Reliabilities appear in bold on the diagonal. Attenuated correlation matrix gathered from SPSS.

Table 4 Study 2: Means, Standard Deviations, and Correlations

Next, we wanted to ensure that our new measure of leader identity was empirically distinct from two conceptually related constructs, self-awareness and leader developmental efficacy. We assessed discriminant validity using a series of confirmatory factor analyses to examine the extent to which items associated with the Leader Identity Measure loaded uniquely on the proposed factors, in comparison to items of related constructs. For hypothesis 4, we assessed the discriminant validity between self-awareness, leader developmental efficacy, and the four distinct leader identity dimensions. We examined the fit of 3 different models in which leader identity items loaded on the four proposed dimensions and additional factor(s) contained items from additional measures. (Recall that model 1 evaluated the factor structure of the 4-dimension measure). In model 2, we evaluated 5 factors, with 4 dimensions of leader identity and self-awareness; in model 3, 5 factors with 4 dimensions of leader identity and one factor for leader developmental efficacy; and in model 4, 6 factors with 4 dimensions of leader identity, self-awareness, and leader developmental efficacy factors. Model fit was good for all three models (models 2, 3, and 4; see Table 3 for detailed results).

Further, utilizing the Model 4 results, we found the AVE of each latent construct ‘strength’ = .65, ‘integration’ = .85, ‘meaning’ = .75, ‘level of inclusiveness’ = .72, self-awareness = .51, leader developmental efficacy = .46 was higher than the highest squared correlation (.37) with any other latent variable (Fornell & Larcker, 1981). Therefore, based on the confirmatory factor analyses and the AVEs, Hypothesis 4 received support with distinct factors for the four leader identity dimensions, self-awareness, and leader developmental efficacy.

Study 2 Discussion

The results from part one of Study 2 indicate that, consistent with theory, leader identity is comprised of four dimensions. After establishing support for the factor structure, we tested several hypotheses addressing convergent and discriminant validity. Leader identity should correlate with related constructs as well as discriminate from established constructs within the nomological network. In part two of Study 2 as expected, we found support for convergent and discriminant validity with self-awareness and leader developmental efficacy. Overall, Study 2 supports the measure as a reliable 4-factor multi-dimensional 16-item measure. The validation results demonstrate the Leader Identity Measure is similar, yet distinct, from constructs within its nomological network. Finally, in Study 3 below, we assess the criterion-related validity of the measure.

Study 3: Criterion-Related Validity

The results of Study 2 support 4 factors ‘strength’, ‘integration’, ‘meaning’, and ‘level of inclusiveness’ representing leader identity. In Study 3, we cross-validated the four-factor model using a new independent working-employee sample and investigated the concurrent validity of leader identity by assessing one antecedent of leader identity and one outcome of leader identity.

We expect self-leadership to play a significant role in the development of one’s leader identity, catalyzing behaviors, and experiences that aid in the development of one’s leader identity. Thus, we hypothesize:

Hypothesis 5: Self-leadership is positively related to leader identity dimensions.

Research has suggested that leader developmental efficacy is an expected outcome of leader self-development practices (Bandura, 1997). As individuals develop in their leader identity, they will see themselves more as a leader and being a leader will be more central to their overall self-concept (Ibarra & Barbulescu, 2010; Lord & Hall, 2005). Their identity is important for the enactment of leadership behaviors (Reichard et al., 2017). As individuals develop in their belief and confidence in themselves as a leader (‘strength’), in all areas of their life (‘integration’), as well as develop in their understanding of the role and meaning of leadership and what it entails (‘meaning’ and ‘inclusiveness’), they will more intrinsically be motivated to continue to develop as a leader (DeRue & Ashford, 2010) and enact leadership. Therefore, as individuals’ leader identity becomes more developed and crucial to their overall self-concept, they will make deliberate efforts to enact leadership, hold favorable perceptions of leadership and grow more in their own belief in not only themselves as a leader but also confidence in their ability to continue to develop even more into the leader role. We suggest that developing leader identity across all four dimensions is crucial in developing leader developmental efficacy – leading us to the following hypothesis:

Hypothesis 6: Leader identity dimensions (a) strength, (b) integration, (c) meaning, and (d) level of inclusiveness will positively predict leader developmental efficacy.

Method

Procedure and Sample

Over a 6-month period, a survey was sent to employees working in a variety of organizations. The sample included a wide variety of participants with a mix of females and males, and a variety of positions from non-managerial to C-level executives. Removing missing data for demographics (10 respondents of merged time 1 and time 2 sample did not submit demographic information), the sample was 39% female, 74% Caucasian, ranged in age from 21 to 81 (mean = 43.56 years), and ranged in tenure from 1 to 50 years. The initial survey (survey 1) administered at time 1 contained the leader identity and self-leadership items with 142 respondents reporting leader identity and self-leadership. Then time 2 data collection occurred ninety days after the completion of survey 1 and resulted in 84 matched responses for examining leader developmental efficacy.

Measures

We utilized Houghton, Dawley, and DiLiell’s (2012) 9-item self-leadership questionnaire to capture self-leadership. The other measures were the same as previously discussed in Study 2. Cronbach’s alphas were .93 for the strength dimension, .97 for the integration dimension, .95 for the meaning dimension, and .93 for the level of inclusiveness dimension. Self-leadership and leader development efficacy alphas were .84 and .90, respectively.

Data Analysis

First, we conducted CFAs using ML estimation in MPLUS (Muthen & Muthen, 2017) to confirm the factor structure of the Leader Identity Measure. Next, we investigated the relationship between self-leadership, leader identity, and leader developmental efficacy using multiple regression.

Results

Our CFA findings were comparable to Study 3, with a good model fit for the data. Utilizing the full sample ($N = 142$), the 4-factor model of leader identity provided good fit: $X^2 = 255.45$ ($df = 98$), CFI = .94, TLI = .93, RMSEA = .11, and SRMR = .04. Factor loadings were above .7. Disattenuated factor correlations ranged from .24 to .77. Similar to Study 2, the one factor model of leader identity had a poor fit: $X^2 = 1615.24$ ($df = 104$), CFI = .41, TLI = .32, RMSEA = .32, and SRMR = .18.

Table 5 presents correlations, means and standard deviations. Supporting Hypothesis 5, regression results indicate that self-leadership was positively related to leader identity ‘strength’ $\beta = .42$, CI [.43, .92], leader identity ‘integration’ $\beta = .25$, CI [.15, .66], leader identity ‘meaning’ $\beta = .58$, CI [.55, .88], and leader identity ‘inclusiveness’ $\beta = .55$, CI [.43, .72]. For Hypothesis 6, we found support for 3 leader identity dimensions ‘strength’, ‘integration’, and ‘level of inclusiveness’ predicting leader developmental efficacy. For leader identity ‘strength’, we found $\beta = .47$, CI [.21, .49]; for leader identity ‘integration’, we found $\beta = .44$, CI [.20, .53]; for leader identity ‘meaning’, we found $\beta = .21$, CI [-.003, .45]; and for leader identity ‘level of inclusiveness’, we found $\beta = .38$, CI [.22, .74]. Because the confidence interval for meaning includes zero, only Hypotheses 6a, 6b, and 6d were supported.

Study Variables	Mean	SD	1	2	3	4	5	6
1. Strength	3.74	.96	.93					
2. Integration	3.60	.96	.57**	.97				
3. Meaning	4.34	.74	.43**	.29**	.95			
4. Level of Inclusiveness	4.48	.62	.49**	.35**	.60**	.93		
5. Self-Awareness	4.04	.61	.41**	.25**	.57*	.55**	.84	
6. Leader Developmental Efficacy	4.16	.72	.47**	.44**	.21	.38**	.26*	.90

Note. ** Correlation is significant at the .01 level. (2-tailed). * Correlation is significant at the .05 level (2-tailed). Attenuated correlation matrix gathered from SPSS

Table 5 Study 3: Means, Standard Deviations, and Correlations

Study Three Discussion

In summary, Study 3 further supports the Leader Identity Measure as a reliable and valid multi-dimensional measure (with four factors). Our findings for Hypotheses 5 and 6 further stress the importance of examining all four dimensions because one of the dimensions (meaning) was not a significant predictor of leader developmental efficacy. To this end, our final study provided evidence for the criterion validity of our Leader Identity Measure and suggested the importance of leader identity.

Summary and Discussion

We presented three studies that demonstrate the reliability and validity of a new measure designed to capture the four dimensions of leader identity. Based on a review of the literature and utilizing Hammond et al. (2017) as the foundation for establishing the 4 theoretical dimensions, we demonstrated that leader identity is a multidimensional construct. Further, this reliable measure can be utilized to evaluate individuals’ leader identity development in organizations. This measure, developed through three studies, demonstrated evidence of construct, convergent, and discriminant validity. Further, our last study emphasizes the importance of examining all four dimensions in research because the relative importance of each dimension can vary, depending on the outcome of interest.

This research has several strengths. First, to date, there has been no empirical examination of leader identity that includes all four theoretical dimensions nor research devoted to developing and validating a multi-dimensional measure of leader identity. This research consisted of three different studies using three separate samples that together, provide a reasonably comprehensive approach to

instrument development (Hinkin, 1998). Therefore, the resulting measure is quite rigorously validated and should be further examined in future research. Results indicate that the four factors are empirically and theoretically distinct, and thus each should be examined in research rather than examined as an average representing a global construct.

This research, however, is not without limitations. First, the measure has only been validated using three samples. Further studies are needed with varied populations and larger samples. Second, future research is needed to examine more varied antecedents and other outcomes of leader identity, for example, employee engagement, career outcomes, and work performance. Finally, multi-source reports of important work-place outcomes of leader identity should be examined.

Implications for Research and Practitioners

Researchers need a measure of leader identity in order to better assess the phenomenon and increase understanding of how to facilitate the emergence of leader identity (London & Sherman, 2021). While limited empirical work and vast conceptual and qualitative work has emphasized the importance of leader identity as a critical component of leader development and organizational outcomes, a measure that enables examination of all four dimensions of leader identity is necessary to allow future research to better understand the importance of this construct and its multi-dimensional nature. In summary, the Leader Identity Measure has the potential to identify employees that will likely be more effective as leaders, more prepared for leader development programs, and benefit the organization through impacts on a variety of workplace outcomes.

Notably, our studies provide initial evidence for the variable influence that each dimension might have on workplace outcomes. Leader identity influences leader development and effective leadership (Guillen et al., 2015; Miscenko et al., 2017), and our study found leader identity dimensions relate to outcomes to differing degrees. The distinctions are important because by differentiating leader identity dimensions, organizations can focus training and development on specific areas that may be deficient. Human resource development that focusses on the development of one's leader identity enables enhanced self-direction toward goal accomplishment (Nesbit, 2012). Those that self-identify as a leader are more likely to handle various leadership demands and situations appropriately, develop mental models of leadership networks around them and take on leadership roles (Wallace et al., 2021). Once individuals are highly developed in their leader identity, organizations could target these individuals for training, and being able to measure the level at which individuals are developed in their leader identity can aid in determining developmental actions organizations can take. Future research that seeks to understand more about leader identity dimensions will be important for further theory development explicating the importance of this development; and with a validated measure, we can encourage further empirical examination of the four dimensions.

Conclusion

Research has suggested the importance of leader identity in leader development and effectiveness (Haslam et al., 2022). Yet, most of the research has been limited to conceptual and qualitative work with limited empirical examinations of only one or two dimensions. Consequently, research questions focusing on leader identity and the impact of development across each dimension remain unanswered. Therefore, future research examining leader identity at the dimension level is warranted. Overall, our three studies demonstrated that the Leader Identity Measure is a valid and reliable tool to employ in studies that seek to understand its multiple components. Our hope is that this Leader Identity Measure will expand research opportunities for understanding leader identity, leader development, and resulting outcomes.

References

- Avolio, Bruce J., and Sean T. Hannah. "Developmental Readiness: Accelerating Leader Development." *Consulting Psychology Journal: Practice and Research*, vol. 60, no. 4, 2008, pp. 331-347. <https://doi.org/10.1037/1065-9293.60.4.331>
- Bandura, Albert. *Self-Efficacy: The Exercise of Control*. Macmillan, 1997.
- Bandura, Albert. "Social Cognitive Theory: An Agentic Perspective." *Annual Review of Psychology*, vol. 52, no. 1, 2001, pp. 1-26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Bong, Mimi, and Einar M. Skaalvik. "Academic Self-Concept and Self-Efficacy: How Different Are They Really?" *Educational Psychology Review*, vol. 15, 2003, pp. 1-40. <https://doi.org/10.1023/a:1021302408382>
- Boyce, Lisa A., Stephen J. Zaccaro, and Michelle Z. Wisecarver. "Propensity for Self-Development of Leadership Attributes: Understanding, Predicting, and Supporting Performance of Leader Self-Development." *The Leadership Quarterly*, vol. 21, no. 1, 2010, pp. 159-178. <https://doi.org/10.1016/j.leaqua.2009.10.012>
- Brown, Timothy A. *Confirmatory Factor Analysis for Applied Research*. Guilford Publications, 2006.
- Brown, Andrew D. "Identities and Identity Work in Organizations." *International Journal of Management Reviews*, vol. 17, no. 1, 2015, pp. 20-40. <https://doi.org/10.1111/ijmr.12035>
- Campbell, Donald T., and Donald W. Fiske. "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix." *Psychological Bulletin*, vol. 56, no. 2, 1959, pp. 81-105. <https://doi.org/10.1037/h0046016>
- Cattell, Raymond B. "The Scree Test for the Number of Factors." *Multivariate Behavioral Research*, vol. 1, no. 2, 1966, pp. 245-276. https://doi.org/10.1207/s15327906mbr0102_10
- Chang, Chu-Hsiang, and Russell E. Johnson. "Not All Leader-Member Exchanges Are Created Equal: Importance of Leader Relational Identity Level." *The Leadership Quarterly*, vol. 21, 2010, pp. 796-808. <https://doi.org/10.1016/j.leaqua.2010.07.008>
- Clapp-Smith, Rachel, et al. "Promoting Identity Development in Leadership Education: A Multidomain Approach to Developing the Whole Leader." *Journal of Management Education*, vol. 43, no. 1, 2019, pp. 10-34. <https://doi.org/10.1177/1052562918813190>
- Clarke, Nicholas. "Evaluating Leadership Training and Development: A Levels-of-Analysis Perspective." *Human Resource Development Quarterly*, vol. 23, no. 4, 2012, pp. 441-460. <https://doi.org/10.1002/hrdq.21146>
- Day, David V. "Leadership Development: A Review in Context." *The Leadership Quarterly*, vol. 11, no. 4, 2000, pp. 581-613. [https://doi.org/10.1016/s1048-9843\(00\)00061-8](https://doi.org/10.1016/s1048-9843(00)00061-8)
- Day, David V., and Lisa Dragoni. "Leadership Development: An Outcome-Oriented Review Based on Time and Levels of Analyses." *Annual Review of Organizational Psychology and Organizational Behavior*, vol. 2, no. 1, 2015, pp. 133-156. <https://doi.org/10.1146/annurev-orgpsych-032414-111328>
- Day, David V., and Michelle M. Harrison. "A Multilevel, Identity-Based Approach to Leadership Development." *Human Resource Management Review*, vol. 17, 2007, pp. 360-373. <https://doi.org/10.1016/j.hrmmr.2007.08.007>
- Day, David V., Michelle M. Harrison, and Scott M. Halpin. *An Integrative Approach to Leader Development: Connecting Adult Development, Identity, and Expertise*. Routledge, 2009.
- Day, David V., and H. P. Sin. "Longitudinal Tests of an Integrative Model of Leader Development: Charting and Understanding Developmental Trajectories." *The Leadership Quarterly*, vol. 22, 2011, pp. 545-560. <https://doi.org/10.1016/j.leaqua.2011.04.011>
- DeRue, D. Scott, and Susan J. Ashford. "Who Will Lead and Who Will Follow? A Social Process of Leadership Identity Construction in Organizations." *Academy of Management Review*, vol. 35, no. 4, 2010, pp. 627-647. <https://doi.org/10.5465/amr.35.4.zok627>
- Dirani, Khalil M., et al. "Leadership Competencies and the Essential Role of Human Resource Development in Times of Crisis: A Response to Covid-19 Pandemic." *Human Resource Development International*, vol. 23, no. 4, 2020, pp. 380-394. <https://doi.org/10.1080/13678868.2020.1780078>
- Epitropaki, Olga, et al. "Leadership and Followership Identity Processes: A Multilevel Review." *The Leadership Quarterly*, vol. 28, no. 1, 2017, pp. 104-129. <https://doi.org/10.1016/j.leaqua.2016.10.003>
- Fornell, Claes, and David F. Larcker. "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error." *Journal of Marketing Research*, vol. 18, no. 1, 1981, pp. 39-50. <https://doi.org/10.1177/002224378101800104>
- Gorsuch, Richard L. *Factor Analysis*. Erlbaum, 1983.
- Guillén, Laura, Margarita Mayo, and Konstantin Korotov. "Is Leadership a Part of Me? A Leader Identity Approach to Understanding the Motivation to Lead." *The Leadership Quarterly*, vol. 26, no. 5, 2015, pp. 802-820. <https://doi.org/10.1016/j.leaqua.2015.05.001>
- Hall, Douglas T. "Self-Awareness, Identity, and Leader Development." *Leader Development for Transforming Organizations: Growing Leaders for Tomorrow*, edited by David V. Day, Stephen J. Zaccaro, and Scott M. Halpin, vol. 153, pp. 176-196. Erlbaum, 2004.

- Hammond, Matthew, Rachel Clapp-Smith, and Michael Palanski. "Beyond (Just) the Workplace: A Theory of Leader Development Across Multiple Domains." *Academy of Management Review*, vol. 42, no. 3, 2017, pp. 481-498. <https://doi.org/10.5465/amr.2014.0431>
- Hannah, Sean T., Robert L. Woolfolk, and Robert G. Lord. "Leader Self-Structure: A Framework for Positive Leadership." *Journal of Organizational Behavior*, vol. 30, no. 2, 2009, pp. 269-290. <https://doi.org/10.1002/job.586>
- Haslam, S. Alexander, et al. "Reconciling Identity Leadership and Leader Identity: A Dual-Identity Framework." *The Leadership Quarterly*, 2022, 101620.
- Hiller, Nathan J. An Examination of Leadership Beliefs and Leadership Self-Identity: Constructs, Correlates, and Outcomes. [Unpublished doctoral dissertation]. Florida International University, 2005.
- Hinkin, Timothy R. "A Brief Tutorial on the Development of Measures for Use in Survey Questionnaires." *Organizational Research Methods*, vol. 1, no. 1, 1998, pp. 104-121. <https://doi.org/10.1177/109442819800100106>
- Houghton, Jeffrey D., David Dawley, and Tonya C. DiLiello. "The Abbreviated Self-Leadership Questionnaire (ASLQ): A More Concise Measure of Self-Leadership." *International Journal of Leadership Studies*, vol. 7, no. 2, 2012, pp. 216-232. <https://doi.org/10.1080/10705519909540118>
- Hu, Li-tze, and Peter M. Bentler. "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives." *Structural Equation Modeling: A Multidisciplinary Journal*, vol. 6, no. 1, 1999, pp. 1-55. <https://doi.org/10.1080/10705519909540118>
- Ibarra, Herminia, and Roxana Barbulescu. "Identity as Narrative: Prevalence, Effectiveness, and Consequences of Narrative Identity Work in Macro Work Role Transitions." *Academy of Management Review*, vol. 35, no. 1, 2010, pp. 135-154. <https://doi.org/10.5465/amr.35.1.zok135>
- Jiang, Xiaoqing, et al. "How Followers Create Leaders: The Impact of Effective Followership on Leader Emergence in Self-Managing Teams." *Group Dynamics: Theory, Research, and Practice*, vol. 25, no. 4, 2021, pp. 303-318. <https://doi.org/10.1037/gdn0000159>
- Johnson, Russell E., et al. "Leader Identity as an Antecedent of the Frequency and Consistency of Transformational, Consideration, and Abusive Leadership Behaviors." *Journal of Applied Psychology*, vol. 97, no. 6, 2012, pp. 1262-1272. <https://doi.org/10.1037/a0029043>
- Judge, Timothy A., and Joyce E. Bono. "Relationship of Core Self-Evaluations Traits—Self-Esteem, Generalized Self-Efficacy, Locus of Control, and Emotional Stability—With Job Satisfaction and Job Performance: A Meta-Analysis." *Journal of Applied Psychology*, vol. 86, no. 1, 2001, pp. 80-92. <https://doi.org/10.1037/0021-9010.86.1.80>
- Kaiser, Henry F. "The Application of Electronic Computers to Factor Analysis." *Educational and Psychological Measurement*, vol. 20, 1960, pp. 141-151. <https://doi.org/10.1177/001316446002000116>
- Karelaia, Natalia, and Laura Guillén. "Me, a Woman and a Leader: Positive Social Identity and Identity Conflict." *Organizational Behavior and Human Decision Processes*, vol. 125, no. 2, 2014, pp. 204-219. <https://doi.org/10.1016/j.obhdp.2014.08.002>
- Kragt, Daniel, and David V. Day. "Predicting Leadership Competency Development and Promotion among High-Potential Executives: The Role of Leader Identity." *Frontiers in Psychology*, vol. 11, 2020, article 1816. <https://doi.org/10.3389/fpsyg.2020.01816>
- Kwok, Norman, et al. "How Leader Role Identity Influences the Process of Leader Emergence: A Social Network Analysis." *The Leadership Quarterly*, vol. 29, no. 6, 2018, pp. 648-662. <https://doi.org/10.1016/j.leaqua.2018.04.003>
- Kwok, Norman, et al. "I Can, I Am: Differential Predictors of Leader Efficacy and Identity Trajectories in Leader Development." *The Leadership Quarterly*, 2020, article 101422.
- Lanaj, Klodiana, et al. "The Self-Sacrificial Nature of Leader Identity: Understanding the Costs and Benefits at Work and Home." *Journal of Applied Psychology*, 2020. <http://doi.org/10.1037/apl0000505>
- Lee, Jennifer, et al. "Why Not You? The Power of Adopting a Leader Identity." Paper presented at the Academy of Management meetings, Anaheim, California, 2016.
- London, Manuel, and George D. Sherman. "Becoming a Leader: Emergence of Leadership Style and Identity." *Human Resource Development Review*, vol. 20, no. 3, 2021, pp. 322-344.
- Lord, Robert G., and Rosalie J. Hall. "Identity, Deep Structure and the Development of Leadership Skill." *The Leadership Quarterly*, vol. 16, no. 4, 2005, pp. 591-615. <https://doi.org/10.1177/15344843211009632>
- Manz, Charles C. "Self-Leadership: Toward an Expanded Theory of Self-Influence Processes in Organizations." *Academy of Management Review*, vol. 11, no. 3, 1986, pp. 585-600. <https://doi.org/10.5465/amr.1986.4306232>
- McCombs, Kate, Williams, Ethlyn, and Deptula, Bryan. "So, You Think You're a Leader? Qualitative Study to Understand Patterns of Presentation and Symmetry Among Dimensions of Leader Identity." *Qualitative Research Journal* (in press).
- McDonald, Roderick P. *Factor Analysis and Related Methods*. Erlbaum, 1985.

- Middleton, Eric D., David O. Walker, and Ronald J. Reichard. "Developmental Trajectories of Leader Identity: Role of Learning Goal Orientation." *Journal of Leadership & Organizational Studies*, vol. 26, no. 4, 2019, pp. 495-509. <https://doi.org/10.1177/1548051818781818>
- Miscenko, Dustin, Hannes Guenter, and David V. Day. "Am I a Leader? Examining Leader Identity Development Over Time." *The Leadership Quarterly*, vol. 28, no. 4, 2017, pp. 605-620. <https://doi.org/10.1016/j.leaqua.2017.01.004>
- Muir, David. "Mentoring and Leader Identity Development: A Case Study." *Human Resource Development Quarterly*, vol. 25, no. 3, 2014, pp. 349-379. <https://doi.org/10.1002/hrdq.21194>
- Muthén, Bengt O., and Linda K. Muthén. *Regression and Mediation Analysis Using Mplus*. Muthén & Muthén, 2017.
- Murphy, Susan E., Ronald J. Reichard, and Scott K. Johnson. "Self-Regulation and Leadership: Implications for Leader Performance and Leader Development." *Leadership at the Crossroads: Leadership and Psychology*, vol. 1, 2008, pp. 250-264. <https://doi.org/10.1002/yl.20163>
- Neck, Christopher P., and Jeffrey D. Houghton. "Two Decades of Self-Leadership Theory and Research: Past Developments, Present Trends, and Future Possibilities." *Journal of Managerial Psychology*, vol. 21, no. 4, 2006, pp. 270-295. <https://doi.org/10.1108/02683940610663097>
- Neider, Linda L., and Chester A. Schriesheim. "The Authentic Leadership Inventory (ALI): Development and Empirical Tests." *The Leadership Quarterly*, vol. 22, no. 6, 2011, pp. 1146-1164. <https://doi.org/10.1016/j.leaqua.2011.09.008>
- Nesbit, Paul L. "The Role of Self-Reflection, Emotional Management of Feedback, and Self-Regulation Processes in Self-Directed Leadership Development." *Human Resource Development Review*, vol. 11, no. 2, 2012, pp. 203-226. <https://doi.org/10.1177/1534484312439196>
- Palanski, Michael E., et al. "Being a Leader and Doing Leadership: The Cross-Domain Impact of Family and Friends on Leader Identity and Leader Behaviors at Work." *Journal of Leadership & Organizational Studies*, vol. 28, no. 3, 2021, pp. 273-286. <https://doi.org/10.1177/15480518211005452>
- Rehbock, Sophia K., et al. "What Kind of Leader Am I? An Exploration of Professionals' Leader Identity Construal." *Applied Psychology*, 2022. <http://doi.org/10.1111/apps.12389>
- Reichard, Ronald J., and Scott K. Johnson. "Leader Self-Development as Organizational Strategy." *The Leadership Quarterly*, vol. 22, no. 1, 2011, pp. 33-42. <https://doi.org/10.1016/j.leaqua.2010.12.005>
- Reichard, Ronald J., and David O. Walker. "In Pursuit: Mastering Leadership through Leader Developmental Readiness." *New Directions for Student Leadership*, no. 149, 2016, pp. 15-25. <https://doi.org/10.1002/yl.20158>
- Reichard, Ronald J., et al. "Believing is Becoming: The Role of Leader Developmental Efficacy in Leader Self-Development." *Journal of Leadership & Organizational Studies*, vol. 24, no. 2, 2017, pp. 137-156. <https://doi.org/10.1177/1548051816657981>
- Rennison, Betina Wolfgang. "Theories of Leadership." *Journal of Leadership and Management*, vol. 3, no. 2, 2018, pp. 185-199.
- Sinclair, Amanda. "Being Leaders: Identities and Identity Work in Leadership." *Sage Handbook of Leadership*. Sage, 2011.
- Schriesheim, Chester A., et al. "Improving Construct Measurement in Management Research: Comments and a Quantitative Approach for Assessing the Theoretical Content Adequacy of Paper-and-Pencil Survey-Type Instruments." *Journal of Management*, vol. 19, no. 2, 1993, pp. 385-417. <https://doi.org/10.1177/014920639301900208>
- Shamir, Boas, and Ronit Kark. "A Single-Item Graphic Scale for the Measurement of Organizational Identification." *Journal of Occupational and Organizational Psychology*, vol. 77, no. 1, 2004, pp. 115-123. <https://doi.org/10.1348/096317904322915946>
- Selenta, Christopher, and Robert G. Lord. "Development of the Levels of Self-Concept Scale: Measuring the Individual, Relational, and Collective Levels." Unpublished manuscript, 2005.
- Settles, Isis H. "When Multiple Identities Interfere: The Role of Identity Centrality." *Personality and Social Psychology Bulletin*, vol. 30, no. 4, 2004, pp. 487-500. <https://doi.org/10.1177/0146167203261885>
- Torraco, Richard J., and Henrik Lundgren. "What HRD is Doing – What HRD Should Be Doing: The Case for Transforming HRD." *Human Resource Development Review*, vol. 19, no. 1, 2020, pp. 39-65. <https://doi.org/10.1177/1534484319877058>
- Vogel, Barbara, et al. "A Bibliometric Review of the Leadership Development Field: How We Got Here, Where We Are, and Where We Are Headed." *The Leadership Quarterly*, vol. 32, no. 5, 2021, article 101381.
- Wallace, David M., Eduardo M. Torres, and Stephen J. Zaccaro. "Just What Do We Think We Are Doing? Learning Outcomes of Leader and Leadership Development." *The Leadership Quarterly*, vol. 32, no. 5, 2021, article 101494.
- Zaar, Sandra, Piet Van den Bossche, and Wim Gijssels. "How Business Students Think About Leadership: A Qualitative Study on Leader Identity and Meaning-Making." *Academy of Management Learning & Education*, vol. 19, no. 2, 2020, pp. 168-191. <https://doi.org/10.5465/amle.2017.0290>