Developmental Readiness for Leadership: The Differential Effects of

Leadership Courses on Creating "Ready, Willing, and Able" Leaders

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Abstract

The development of effective leadership capacity involves multiple factors including increasing students' leadership self-efficacy, motivation to lead, and leadership skills. This study of 165 undergraduate students enrolled in an introductory leadership theory course explores the degree to which students report changes in these three areas of leadership from the beginning to the end of the course. Our analysis showed two important findings. First, students report significant gains in leadership self-efficacy, transformational and transactional leadership skill, and each measured form of motivation to lead at the conclusion of the course. Second, a closer examination shows that student learning is not across-the-board but, rather, differentiated. Students experience significantly different outcomes depending on their levels of self-efficacy and motivation to lead when they enter the course. These findings not only have broad implications for the way colleges and universities structure curricula around leadership development, but they also inform theoretical model-building regarding the process of student leadership development.

Introduction

Institutions of higher education have exhibited a strong commitment to leadership development since their inception, and have prepared professional and societal leaders for many years (Astin & Astin, 2000). Indeed, Marcketti and Kadolph (2010) stressed, "The importance of leadership education for today's undergraduate students cannot be underestimated" (p.131). Formal leadership education programs represent a growing academic field (Dugan & Komives, 2007), reflecting the shift in mission and objectives of higher education to train socially responsible, team-based leaders (Spralls, Garver, Divine, & Trotz, 2010). It is estimated that more than 1,000 higher education institutions offer leadership education programs of some sort (Riggio, Ciulla, & Sorenson, 2003), while many of these take the form of for-credit academic courses (Sessa, Matos, & Hopkins, 2009).

Although the emergence of both curricular and co-curricular leadership programs on college campuses can be readily documented, little empirical research has been conducted on student leadership development until about a decade ago (Zimmerman-Oster & Burkhardt, 1999). More recent studies conducted on the impact of comprehensive leadership programs in college indicated moderate benefits from structured efforts at leadership skill development (Burris et al., 2010; Dugan & Komives, 2010; Rosch, 2007). Several smaller, campus-based studies (Moore, Boyd, & Dooley, 2010; Sessa, Matos, & Hopkins, 2009; Williams, Townsend, & Linder, 2005) suggest measurable results from completing a semester-long course focused on leadership development. However, these studies were focused more on knowledge acquisition and reflective learning skills than on the development of *leadership capacity* within enrolled students. Moreover, despite the growing evidence that structured leadership programs can benefit students, little is currently known about the best methods for making such interventions (Posner, 2009), or even to what students attribute their learning (Allen & Hartman, 2009). As Posner pointed out, "Despite the plethora of leadership programs scattered across college campuses, scant empirical investigation has been conducted into the benefits of such education efforts" (p. 551).

While the evaluation of success of these programs is often justifiably focused on pedagogical methods (Eich, 2008; Moore, 2010; Spires & Hervey, 2011) or on the leadership paradigms utilized (Owen, 2012; Posner, 2009), there has been little focus on specific types of courses that lead to specific types of leadership development. Likewise, little emphasis has been afforded to the incoming attributes of students who enroll in various types of leadership courses. Past research indicates that students may be in different stages of identifying and engaging in the leadership process. Although some students may be aware of general leadership practices, they may not be confident enough to explore and engage in the process (Komives, Longerbeam, Owen, & Mainella, 2006).   Our study takes a comprehensive approach to the understanding of leadership capacity and acknowledges that students may be entering the learning environment with varying degrees of such capacity to lead. We utilize an increasingly popular university course, an introductory class in leadership theory open to students from diverse academic disciplines, as the setting for this research.

Framework for Leader Development

The development of leaders is often stated as a primary goal in many organizations, yet a validated general framework and theory for leader development does not exist, nor is there a method for determining who is developmentally ready to engage in such training (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009). Our research seeks to inform this gap between research on life span development and leadership education so that institutions of higher education and other learning organizations might better structure leadership education interventions. Thus, we combine related areas of human development literature in order to propose a theoretical model for leader development. These areas include identity development, skill development, self-efficacy, and motivation.

A review of studies on heritability and human development (Avolio and Hannah, 2008) concluded that 70% of leadership capacity is built through experience, not through genetic expression. Colleges and corporations alike have undertaken countless leadership development programming in an effort to teach people to become leaders (ASTD, 2010). However, the process of how leaders develop capability to lead effectively is in part linked to the readiness of the individual to engage in those developmental experiences (Avolio & Hannah, 2008). Part of such readiness is reflected in a students' tendency to identify themselves as leaders.

Komives and colleagues published initial research on student leadership identity development (LID) (Komives, Owen, Longerbeam, Mainella, & Osteen, 2005), in which they described a six-stage process of change in how students conceptualize leadership and their own leadership-oriented goals and actions. LID research links human development to a process of how students conceptualize the practice of leadership to assist educators in their facilitation of student leadership development (Komives et al., 2006). While this research was designed, in part, to create space for leadership educators and researchers to consider the psycho-social state of students entering into leadership programs in college, a general assumption pervades that students who participate are somehow "ready" for the various leadership curricula they encounter. Many experienced trainers know that this is often not the case. Adding to the complexity of matters, contemporary models of leadership depart from traditional (and conceptually simpler), industrial notions that equate leadership with formal position.

Theoretical Model – The "Ready, Willing, and Able" Leader

Post-industrial models of leadership acknowledge that possession of leadership capacity requires a combination of social awareness, collaborative skill, self-confidence, motivation, and inspiration (Faris & Outcalt, 2001; Rost, 1993). Our research is therefore founded upon a model of leadership capacity wherein we posit that effective contemporary leaders should possess competence in transformational and transactional leadership skill, exhibit a degree of leadership self-efficacy (e.g. confidence in engaging in leadership-oriented behaviors), and express a measure of motivation to lead others. We borrow our conceptualization of transformational and transactional leadership from the traditional model of transforming leadership first described by Burns (1978) and explained in detail by Podsakoff and associates (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). The concept of leadership self-efficacy was first described by

Murphy (1992) and thoroughly explained by Hannah and associates (Hannah, Avolio, Luthans, & Harms, 2008). We include the concept of motivation to lead, which was first presented by Chan and Drasgow (2001). They state that students' motivation to lead stems from three separate sources: their "affective-identity" motivation, which measures the degree to which they feel personally drawn to leading their peers, their "social-normative" motivation, which involves feelings of responsibility to others to lead their groups, and "non-calculative" motivation, which describes the degree to which students avoid conducting a self-centered cost-benefit analysis on the effects of leading on their own individual ends (Chan & Drasgow, 2001).

Figure 1 depicts our model, which we label a comprehensive possession of leadership capacity as "ready" (possession of leadership self-efficacy), "willing" (exhibition of motivation to lead), and "able" (possession of leadership skill). Without any one of these three capacities, leaders may fail to exhibit behaviors necessary for success in organizations. While skill is required for the potential of repeatedly successful behaviors, one's confidence in practicing the skill, as well as the motivation necessary to expend energy to display it, are simultaneously required for the behavior to emerge. Thus, our research seeks to understand how students combine leadership self-efficacy, motivation to lead, and leadership skill in their own development as emerging leaders. Therefore, we developed a theoretical framework that employs those three interrelated constructs (leadership self-efficacy, motivation to lead, and leadership skill) and describe the combination of the three as leadership capacity.

Figure 1. *Leadership Capacity: Being "Ready, Willing, and Able" to Lead*

Research Questions

This study represents an effort to determine the differential effects of an introductory leadership course on students' comprehensive leadership capacity, based on their incoming degrees of leadership skill, leadership self-efficacy, and motivation to lead.   The research discussed above led us to propose the following research questions:

- *Do students make developmental gains in leadership skill, efficacy, and motivation after completing an introductory leadership theory course?*
- *Do students who enter an introductory leadership theory course at different degrees of leadership self-efficacy and motivation report differing gains in various domains of leadership capacity?*

Methods

Population and Sample

Our research was conducted at a large, public, research-extensive institution in the Midwestern United States. The target population consisted of students enrolled in an introductory leadership theory course open to all students at the university. The course is the first in the sequence of required courses for the campus-wide Minor in Leadership Studies and is also a required course for students majoring in Agricultural Education. The course curriculum consisted of a survey of significant leadership theories organized around the chapters of the textbook *Leadership Theory and Practice, 5th Edition*, written by Northouse and published by Sage (2010). Although the course sections are taught by multiple instructors, the text and the curriculum are consistent.

Pre-test and post-test surveys were administered over two consecutive semesters in multiple sections of the introductory leadership theory course: Fall 2012 and Spring 2013. Students were given a pre-test on the first day of class and then a post-test on the final day of class. The time between pre- and post-tests was 15 weeks. In order to mitigate social desirability bias, survey administration was led by the principal investigator, not the course instructor. Survey participation was voluntary.

A total of 165 students completed both surveys, representing over 90% of all students enrolled across both semesters. Of those who participated, 65% (n=108) identified as female. Approximately 67% (n=111) identified as Caucasian, 10% (n=17) as Asian-American, 8% (n=13) as African-American, 3% (n=5) as Latino/a, 8% (n=12) identified as an international student, and 4% (n=7) did not identify their race. The course required no pre-requisite, but because the course is popular and quick to fill, most students were either in their third or fourth year of study.

Measures and Variables

A unique, 66-item survey instrument was created by combining scales associated with three well-established instruments: the Leader Behavior Scale (LBS) (Podsakoff, MacKenzie,

Moorman, & Fetter, 1990), the Self-Efficacy for Leadership (SEL) scale (Murphy, 1992), and the Motivation to Lead scale (Chan & Drasgow, 2001). Each scale is briefly described next.

The Leader Behavior Scale (LBS) is a 27-item instrument designed to measure generalized transformational and transactional leadership behaviors displayed within groups (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). The LBS serves as a popular measure of these behaviors (Yukl, 2010) and includes a broader conceptualization of transformational leadership than the more specified Full-range Model of Leadership Development (Avolio, 2010) measured by the Multi-Factor Leadership Questionnaire (Bass & Avolio, 1997). An example item measuring transformational (LBS_{form}) behavior within the LBS is, "I help other group members develop a team attitude and spirit among ourselves." An example of an item measuring transactional (LBS_{act}) leadership is, "I always give positive feedback when other group members perform well." Item responses include a 5-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree." Internal reliability within this study was strong, with Cronbach's alpha ranging from .71 to .89 for each pre- and post-test scale.

We assessed leadership self-efficacy with the Self-Efficacy for Leadership (SEL) scale, an 8-item instrument designed to measure a student's confidence in engaging in a leadership behavior within a group (Murphy, 1992). A sample item within the scale is, "I know how to encourage good group performance." Item responses ranged from "Strongly Disagree" to "Strongly Agree," and internal reliability was high, measured at .76 on both the pre-test and post-test.

Motivation to lead (MTL) is a crucial factor in predicting a wide range of positive behaviors in the business world and is defined as the intensity of effort and persistence in attempting to positively influence one's peers to achieve common goals (Chan & Drasgow, 2001). MTL has recently been shown to predict a person's occupancy of positions of influence within business (Arvey, Zhang, Avolio, & Krueger, 2007) and as a factor leading to the development of leadership-oriented expertise (Lord & Hall, 2005). Motivation to lead was measured by utilizing the Motivation to Lead (MTL) scale (Chan & Drasgow, 2001), a 27-item instrument divided into three nine-item subscales, each measuring a separate domain of ambition to engage in leadership behaviors. Affective Identity motivation (MTL_{AI}) measures the degree to which a person is personally drawn to leadership roles and includes items such as, "Most of the time, I prefer being a leader rather than a follower when working in a group." Social Normative motivation (MTL_{SN}) grows from a sense of duty or responsibility to others, and includes items such as, "People should volunteer to lead rather than wait for others to ask or vote for them." Non-Calculative motivation (MTL_{NC}) gauges the degree to which a person avoids rationally calculating the individual costs and benefits of holding a leadership position and includes items such as, "I never expect to get more privileges if I agree to lead a group." Similar to the other included scales, responses for the MTL fell within a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Internal reliability from previous research was acceptable, ranging from .65 to .91 (Chan & Drasgow, 2001). Our study resulted in marginally acceptable reliability coefficients, ranging from .54 and .55 on MTL_{NC} pre- and post-test scales to .80 on both MTL_{AI} scales.

Data Analysis

After determining mean scores across all students on pre-test and post-test measures, we conducted two separate analyses, each focused more specifically on students' incoming leadership self-efficacy (SEL) and affective identity motivation (MTL$_{AI}$). Within each analysis, we created "high-scoring," "median-scoring," and "low-scoring" sub-groups of participants, based on their pre-test scores. Students who scored 0.5 standard deviations above the grand mean pre-test score on the relevant scale (SEL or MTL$_{AI}$) were placed in the high-scoring group, while students who scored 0.5 standard deviations below the grand mean were added to the low-scoring group. Such placement resulted in groups of approximately the same size across each of the three groups. Within the MTL$_{AI}$ motivation to lead analysis, 44 students were placed in the group of "low-scoring," 64 in "median-scoring," and 58 in "high-scoring." Within the SEL analysis, the sample sizes were 46, 67, and 53 within the low, median, and high-scoring groups, respectively.

Within each of the two analyses, we determined if incoming scoring level might predict leadership gains over the course of the semester by conducting a set of paired-sample t-tests on each scale of leadership skill, self-efficacy, and motivation using each group's pre-test and post-test scores.

Results

Overall Means, Dispersion, and Course Effects

The overall means and dispersion statistics for each pre-test and post-test scale can be found in Table 1. On pre-tests, students scored highest on the measure of transactional leadership (4.05/5.00), while scoring lowest on the measure of non-calculative motivation to lead (3.55/5.00). After completing the introductory leadership theory course, students again scored highest on the measure of transactional leadership (4.16/5.00) and lowest on the measure of non-calculative motivation to lead (3.63/5.00).

Paired sample t-tests for each scale yielded significant results ($p<.05$), meaning that students' scores on each measure of leadership skill, self-efficacy, and all three measures of motivation to lead increased after completing the course. We also measured the effect size using Cohen's *d* (1987) for each significant result. The largest effects emerged in scores of leadership self-efficacy (LES) and transformational leadership (LBS$_{form}$), achieving moderate and small-to-moderate differences, respectively. The full results of these t-tests and effect size examinations can be found in Table 1.

Table 1. *Overall Leadership Score Means and Dispersion*

Scale	Pre-test μ	Pre-test SD	Post-test μ	Post-test SD	*t*	p	*d*
LBS$_{form}$	3.85	.32	3.96	.40	3.75	<.0001	.30
LBS$_{act}$	4.05	.52	4.16	.53	2.61	.01	.21
SEL	3.89	.51	4.11	.47	5.66	<.0001	.45
MTL$_{AI}$	3.65	.64	3.72	.62	2.08	.03	.11
MTL$_{SN}$	3.62	.45	3.74	.50	3.33	.001	.25
MTL$_{NC}$	3.55	.44	3.63	.45	2.36	.02	.18

Course Effects by Leader Self-Efficacy Categories

Placing students into high, median, and low scoring groups based on their SEL pre-test scores resulted in a mean SEL pre-test score of 4.44 within the high-scoring group, a mean of 3.88 within the group of median-scoring students, and a 3.26 mean for those in the low-scoring group. We then conducted paired-sample t-tests on all leadership scale scores for students in each of these three scoring categories. For students whose SEL pre-test scores placed them in the "low-scoring group," SEL scores emerged as the only significant change (p<.05) after completing the course and post-test. Within the SEL "median-scoring group," post-test scores on LBS$_{form}$, MTL$_{SN}$, and SEL emerged with significant increases. Students in the SEL "high-scoring" group saw significant rises in LBS$_{form}$, LBS$_{act}$, and MTL$_{NC}$ scores. Cohen's *d* was also calculated for each significant effect. The largest score change emerged with regard to SEL scores for students who entered the course with lower-than-average leadership self-efficacy: *d*=1.23, considered a "very large" effect (Cohen, 1987). The smallest significant effects were all limited to the students who entered the course with higher-than-normal SEL pre-test scores (*d*~.33, considered small-to-moderate). See Table 2 for a list of significant results and their respective effect sizes.

Table 2. *Significant Score Increases by Leader Self-Efficacy (SEL) Categories*

Category based on pre-test	Sig. Score Increase	t	p	d
High SEL	LBS_{form}	2.41	.02	.33
	LBS_{act}	2.25	.03	.36
	MTL_{NC}	2.07	.04	.31
Median SEL	LBS_{form}	3.20	.002	.47
	MTL_{SN}	2.79	.007	.39
	SEL	4.37	<.0001	.70
Low SEL	SEL	6.65	<.0001	1.23

Course Effects by Affective-Identity Motivation to Lead Categories

Placing students in three scoring groups based on their MTL_{AI} pre-test score resulted in a mean of 4.30 for the high-scoring group, 3.60 for the median group, and 2.84 for the low-scoring group. We then conducted paired-sample t-tests for each leadership scale. Table 3 displays each statistically significant result, along with their respective p values and effect sizes. For the high-scoring group (e.g. MTL_{AI} pre-test scores 0.5 standard deviations above the mean), LBS_{form} scores increased to a moderate extent, and MTL_{AI} scores, already inflated vis-à-vis their peers, also increased, to a small-to-moderate extent. Students in the median scoring group saw their SEL scores increase to a moderate-to-large extent, and their LBS_{form}, LBS_{act}, and MTL_{SN} scores increase to a moderate extent. For students in whose MTL_{AI} pre-test scores placed them in the low-scoring group, their MTL_{AI} scores increased to a moderate-to-large extent, and their SEL scores to a moderate extent.

Table 3. *Significant Score Increases by Affective-Identity Motivation to Lead Categories*

Category based on pre-test	Sig. Score Increase	t	p	d
High MTL_{AI}	LBS_{form}	3.14	.003	.47
	MTL_{AI}	-2.12	.040	-.28
Median MTL_{AI}	LBS_{form}	3.61	.001	.40
	LBS_{act}	3.29	.002	.35
	MTL_{SN}	2.67	.010	.31
	SEL	5.15	<.0001	.67
Low MTL_{AI}	MTL_{AI}	4.44	<.0001	.68
	SEL	3.60	.001	.51

Discussion

Our research sought to answer two related questions. The first was general to leadership development: *Do students make developmental gains in leadership skill, efficacy, and motivation after completing an introductory leadership theory course?* Second, we sought to look more deeply into developmental readiness for leadership: *Do students who enter an introductory leadership theory course at different degrees of leadership self-efficacy and motivation report differing gains in various domains of leadership capacity?*

Results from this study clearly demonstrate that, in general, students report significant gains in leadership skill, leadership efficacy, and motivation to lead over the course of an introduction to leadership theory class, at least in the context studied here. This lends support for the premise that completing a leadership course, even one focused on knowledge acquisition through learning seminal leadership theories, can result in students who are more "ready, willing, and able" to engage in leadership behaviors. Though these general findings add to the growing body of knowledge about the effects of leadership education interventions, they may mask the more specific findings based on students who enter a course at varying degrees of readiness to engage in the processes of leadership.

Students who enter with relatively low levels of leadership self-efficacy show no significant gains in leadership skill (neither transactional nor transformational) or motivation to lead of any type. However, they do show quite significant gains in their leadership self-efficacy. This may suggest that there is a threshold level of self-efficacy that must be achieved before other areas of leadership development are unlocked, which supports previous statements (Dugan,

2011; Hannah & Avolio, 2010) regarding the necessity for educators to attend to students' sense of self-efficacy prior to a focus on skill acquisition. Simply put, students lacking leadership self-efficacy may not be "ready" to engage in the processes of leadership.

To wit, students who enter the course with median levels of leadership self-efficacy make significant gains across all three areas of efficacy, skill, and motivation. That is, students starting the course in the mid-range for leadership self-efficacy make additional gains in efficacy while also acquiring additional transformational leadership skills and motivation to lead based on their sense of responsibility to the groups to which they belong.

Students entering with a higher degree of leadership self-efficacy than their peers, however, make different gains. Our data suggest that these students do not add significantly to their sense of leadership self-efficacy, but they do add both transformational and transactional leadership skills, and they make significant gains in non-calculative motivation to lead. This motivation-oriented finding is interesting inasmuch as it suggests that students who enter the classroom at the beginning of the semester already feeling confident as leaders leave the course more motivated to practice leadership even when they feel there is no obvious self-focused payoff. Advanced stages within the LID model describe leaders who comprehend the significance of working to build a healthy and sustainable process of leadership generation within groups (Komives et al., 2005), suggesting that a non-calculative motivation to lead may be significant in unlocking the potential for students to achieve these stages.

Differential results also are found across students who vary in the degree to which they see themselves as leaders of their peers (measured by MTL_{AI} scores). Data from this study suggest that students who enter an introductory theory course with low levels of MTL_{AI} make significant gains in this area (as can be expected) while also increasing their level of leadership self-efficacy. However, some of the significance of this finding may be explained by the moderate correlation between LES and MTL_{AI} (.54) found in our data.

For students who enter an introductory theory course with mid-range levels of MTL_{AI}, our results imply that they gain a comprehensive combination of leadership skill, motivation, and efficacy. More specifically, these students report significant gains in both transformational and transactional leadership skill as well as increase their confidence to practice leadership. In addition, students entering the course with mid-range motivation to lead because of their self-identity seem to be, by the end of the course, more motivated to lead for social normative reasons. That is, they have grown in their sense of responsibility to a group, and feel more strongly that they should practice leadership to aid in their group's success.

Finally, those students who start off an introductory leadership theory course already highly motivated to lead due to their self-identity as a leader also report scores that show improvements to their development, specifically in the domain of leadership skill. After completing an introductory theory class, students with high levels of MTL_{AI} report significant gains in transformational leadership skill. However, a counterintuitive finding is that students who enter a course with high MTL_{AI} see their MTL_{AI} scores *decrease.* One explanation could be that students who think of themselves as leaders, more so than their peers, discover through their learning that exercising leadership is more complex and difficult than they may have naively believed at the beginning of the course. This type of learning outcome is similar to those that

have been found in leadership development evaluations in other contexts, notably in educational outreach programs at the community level (Keating, 2011; Rockwell & Kohn, 1989).

Implications

Our results suggest that students entering a leadership course with low confidence or missing a perception of themselves as a leader seem to gain little *skill* through the course experience, yet leave with more confidence and a stronger self-identity as someone with leadership potential. Results also suggest that developing collaborative leadership-oriented attitudes (MTL_{SN} and MTL_{NC}) may only be developed once a baseline confidence in leading and sense of self as a leader are established. From a theoretical standpoint, the process of creating "ready, willing, and able" leaders that possess requisite levels of leadership self-efficacy, motivation to lead, and leadership skill may need to begin with the development of efficacy. Our findings imply that only after students feel confident in their practice of leadership can they learn to augment their skills and motivation to lead in ways that include the needs and desires of others.

For practitioners, this research may serve to highlight two important implications. First, students who choose to enroll in elective leadership courses may not all be similar on incoming measures of confidence and motivation to lead. A noteworthy spread of pre-test scores existed across the three measurement groups in both domains seen in this study. Leadership educators should therefore consider nuanced methods for providing individual students appropriate degrees of challenge and support for their leadership development. Early-semester assignments asking students to reflect on their own personal journey to become the leaders they are today allows both high-capacity and low-capacity students the chance to consciously focus on their incoming status and instructors to assess their class and plan accordingly. Second, practitioners should focus on the developmental sequencing of their programs and how they administer the "pipeline" of students who progress through them. While this research suggests that entry-level experiences might focus on issues of confidence and internal motivation, many students enter programs already possessing these aspects of leadership capacity. How might leadership educators assess students' incoming capacity and place them in programs accordingly? Several academic disciplines, for example, require students to complete an entrance exam for proper course placement. The field of leadership studies may not be to such an advanced state (Harvey & Riggio, 2011), yet one-size-fits-all programs and courses may result in gains for only certain types of students and not others. Providing students the ability to challenge themselves to the extent they see fit through elective opportunities may provide an important starting point. Overall, our study points to the emergence of a potential pathway to leadership development that begins with confidence-building and seeing oneself as a leader; only then can students develop the skills and group-focused motivation required to practice leadership from a post-industrial framework.

Limitations and Suggestions for Future Research

Though the current study yielded statistically significant results and relatively surprising effect sizes, future research in this area should make use of larger sample sizes collected from diverse educational environments and ideally include a control group so that predictive relationships can be analyzed. This research was conducted at a single institution and utilized students who elected to enroll in an introductory leadership course. Further, two results from this current study may be limited by the statistically conceivable fallacy of regression to the mean; statistically, it is probable that low-scoring students would score higher, and high-scoring students score lower, in repeated measures. Additionally, our results may look different if the research included co-curricular programs and leadership workshops that are more explicitly focused on skill-building without a theory emphasis, or included students from less selective (i.e. professionally-focused) backgrounds. Follow-up data collection is also necessary. Ideally, data collected from students long after the introductory course ended may yield different results, and we may very well reach important conclusions if we were to use a longitudinal program of study where responses can be tracked semester-over-semester. Nonetheless, the study outlined here provides potential insights to practitioners and scholars alike who seek to educate emerging, socially-responsible, collaborative leaders whom our post-industrial world craves.

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