

A Longitudinal Evaluation of Change Leadership within a Leadership Development Program Context

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Abstract

The need for individuals capable of leading change has become pronounced based on the changes occurring within the higher education system. The purpose of this study was to examine if participation in the LEAD21 leadership development program, a national leadership program for faculty emerging as leaders in the land-grant university system, changed participant levels of change leadership. The longitudinal analysis included comparisons across members of three classes in the LEAD21 program, as well as the aggregated data from all three years. Results indicated overall level of change leadership rose by an average of 28.8%. Additionally, the study established benchmarks for pre-program and post-program levels of change leadership. Leadership educators can use the results to inform future leadership education initiatives. Furthermore, the study presents a Leading Change Scale that may be appropriate for future leadership program evaluations. Ongoing evaluations of leadership programs are encouraged.

Introduction

The ancient Greek philosopher Heraclitus observed “Life is Flux” which has evolved into the well-known maxim, “the only thing that is constant is change.” It is from this perspective that all individuals must, as a matter of practicality, understand and appreciate change. This is the premise of Alan Deutschman’s (2007) book, *Change or Die: The Three Keys to Change at Work and in Life*. Change should be embraced by everyone, otherwise life is an unending struggle to find contentment (Deutschman, 2007).

In addition to the recommendations of authors such as Deutschman (2007) that all individuals embrace change as constant, other authors have specifically identified the need for leaders to be particularly attuned to change. For example, Heifetz and Linsky (2002) noted, “Leadership would be a safe undertaking if your organizations and communities only faced problems for which they already knew the solutions” (p. 13). Leaders must be adept at

identifying, and capitalizing, on change.

Consistent with Heraclitus' observation, change has been evident in almost all contemporary industries and organizations; however, even by most standards, the higher education system has experienced an unprecedented amount of change (Creative Destruction, 2014). For example, there has been a social shift whereby institutions of higher education are now under increasing pressure to demonstrate their value and importance (Kellerman, 2012). Additionally, there has been the need to improve infrastructure, resources, and amenities while also making educational options more affordable for learners (Creative Destruction, 2014). The changes and competing priorities have resulted in an environment where institutions generally struggle to adequately address their new reality (Heifetz & Linsky, 2002; Lamm, Lamm, Rodriguez, & Owens, 2016).

The need for individuals capable of leading change has become pronounced in the higher education system (Zusman, 2005). As an entity within the broader higher educational system, a need for leaders within the land-grant university system (LGUS) has also been identified (Lamm, Lamm, & Strickland, 2013; Lamm, Sapp, & Lamm, 2016). However, despite the importance of leaders within the higher education system, and particularly individuals capable of leading change within the LGUS, there has been a limited amount of research to determine the current capacity amongst LGUS leaders to lead change and whether interventions are available to develop this capacity (Lamm et al., 2016).

Based on the National Leadership Education Research Agenda 2013 – 2018 priority area two, leadership education should “develop means for leadership education monitoring and evaluation” (Andenoro et al., 2013, p. 10). Evaluation of accountability and outcomes is becoming an increasingly important aspect of leadership development: “programmatic monitoring and evaluation are critical for leadership educators to consider as they attempt to determine if their practice is achieving the desired outcomes” (Andenoro et al., 2013, p. 10). The study presented here was intended to provide a rigorous evaluation of the LEAD21 leadership development program's effectiveness in developing change leadership capacity among leaders in the LGUS. Leadership educators can use the results and the evaluation process as a starting point to “encourage open dialogue and collaborative research efforts that develop methods of monitoring and evaluation to create formative, summative, and developmental processes to establish a standard of quality for Leadership Education programs” (Andenoro et al., 2013, p. 10).

Theoretical Framework

Change leadership. Change is a prominent theme within the leadership literature. For example, Schein (1995) identified a primary characteristic of a leader as someone who can act as a change agent. From a broad perspective, change tends to be integrated into the context of leadership based on the ongoing need for leaders to both acknowledge the need for change and assist those that they are leading to embrace change. Therefore, leaders can be considered pathfinders (Leavitt, 1986) and mobilizers (Javidan & Dastmalchian, 1993) who can spark the membership (or those they lead) to action (Gross, 1961). The literature is consistent regarding the importance for leaders to understand how to lead and manage change (Javidan &

Dastmalchian, 1993; Schein, 1995).

In addition to the need for leaders to acknowledge change and lead others through the change process, the literature also indicates leaders should acknowledge their positionality within the change process. Specifically, that change is sometimes initiated from external sources; however, change can also occur from internal sources, including the leader. The need for leaders to be capable of leading change has been consistent in the literature. For example, Hook (1943) identified of event-making as a key leadership characteristic, whereas House, Hanges, Javidan, Dorfman, and Gupta (2004), more recently identified assertiveness as an important leadership characteristic. Effective leaders tend to be those that have the self-awareness to understand how their own change style influences how they themselves deal with change (Schein, 1995).

Individuals who are effective at leading change also understand how and why people react differently to change. In addition to the internal awareness and insight necessary to lead change, effective leaders are also attuned to the change process as experienced by others (Goleman, Boyatzis, & McKee, 2002). Leaders are expected to be instruments of action (Barnard, 1946) who can sell change (Tannenbaum & Schmidt, 1958).

Extending beyond the need for personal awareness, and awareness of those they are leading, leaders must also be aware of the context for change to be effective. For example, the ability to advocate (Haiman, 1951) and create conditions (McGrath, 1964) have been identified as characteristics of effective change leadership. Acknowledging the context for change may also require a leader to undertake a more reformist (Paige, 1977) perspective whereby the institutional context is acknowledged and directly addressed. In this regard, the effective change leader may also be considered an animator (Schein, 1995), or someone capable of eliciting a desired change response within the given context.

Leadership development programs. Despite the pervasiveness of leadership development programs, there continues to be ongoing criticism of the effectiveness of such programs in improving participants' leadership capacity (Burbaugh, Seibel, & Archibald, 2017; Kellerman, 2012; Kets de Vries & Korotov, 2012). One of the more contentious areas of debate is related to whether leadership ability is a function of innate ability (McCrae et al., 2000) or is a result of developed capacity (Goleman, Boyatzis, & McKee, 2002; Grant, 2013). The innate ability perspective asserts that leadership is a set of observed behaviors that are a consequence of brain function or neuro-configuration (Caspi, Roberts, & Shiner, 2005; McCrae et al., 2000; Srivastava, John, Gosling, & Potter, 2003). However, the developed capacity perspective asserts that behavior patterns, such as leadership, can be learned based on an individual's desire to change (Begley, 2007).

Most leadership development programs are associated with the developed capacity perspective (Goleman et al., 2002; Grant, 2013; Kellerman, 2012). This perspective is consistent with other development programs. For example, Gladwell (2008) found "...the closer psychologists look at the careers of the gifted, the smaller the role talent seems to play and the bigger the role preparation seems to play" (p. 38). Additionally, Goleman et al. (2002), observed, "When it comes to building leadership skills that last, motivation and how a person feels about learning matter immensely" (p. 99). Previous empirical research has found that individuals who

choose to participate in the LEAD21 leadership development program generally have the necessary attitude and motivation to develop the desired leadership capacity (Lamm et al., 2013).

The LEAD21 leadership development program is focused on the “needs for leadership development of faculty, specialists, program and team leaders, research station and center directors, district and regional directors, department heads and chairs, and others in land grant universities’ colleges of agricultural, environmental, and human sciences and NIFA” (Sapp, 2014, para. 1). Specifically, the program focuses on developing capacity within four areas: leading change, collaboration, conflict management, and effective communication. Program participants are nominated to participate in the program based on the emergence as leaders within the LGUS. Throughout the program, “Leadership competencies are enhanced using a combination of exposure, information, knowledge and practice” (Sapp, 2014, para. 2).

Previous research and evaluations conducted with the LEAD21 program have found the program has been successful in meeting its intended goal of increasing the leadership capacity of participants. For example, transformational leadership, as measured by the transformational leadership inventory (Podsakoff, MacKenzie, Moorman, & Fetter, 1990), increased by an average of 8% within a LEAD21 program class (Lamm et al., 2016). The previous results indicated the LEAD21 program has been effective at developing leadership capacity among participants; however, as recommended within the literature, additional studies will help to determine whether other areas of leadership capacity are being developed, as well as help to quantify the amount of capacity development associated with participation in the program overall (Lamm et al., 2016).

Purpose & Research Objectives

The purpose of this study was to examine if participation in the LEAD21 leadership development program changed participant levels of change leadership. The study was driven by the following research objectives:

1. Describe the participants’ levels of change leadership prior to completing LEAD21.
2. Describe the participants’ levels of change leadership after completing LEAD21.
3. Determine if there is a difference in level of change leadership prior to completing LEAD21 and after completing LEAD21.

Methods

The study employed a descriptive and causal-comparative research design to address the research purpose and objectives. The causal-comparative method was selected based on the expectation that a cause, participation in the LEAD21 leadership development program, would be associated with an anticipated effect, specifically, differences in reported levels of change leadership (Kirk, 1995; Lamm et al., 2016). Changes in levels of change leadership were measured using a pre-test and post-test (Brown & Terry, 2013).

The population of interest was participants in the LEAD21 leadership development program during three classes: 2013-14, 2014-15, and 2015-16. This population was selected as it represented classes of participants that had completed the program using consistent curriculum

and evaluation criteria. Within this population of interest, all program participants were employed in the LGUS including 1862 institutions, minority serving institutions (including 1890, 1994, 2008, and U.S. territory institutions), and employees at the National Institute of Food and Agriculture (NIFA). Demographic data and institution affiliation of participants can be found in Table 1.

Table 1. *Demographics and Institutional Affiliation of Participants*

Characteristic	2013-14		2014-15		2015-16		Overall Combined 2013-16	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<i>Sex</i>								
Male	52	59.1	42	51.2	44	51.8	138	54.1
Female	36	40.9	40	48.8	41	48.2	117	45.9
<i>Institution</i>								
1862 Institution	71	80.5	69	84.1	66	77.6	206	80.8
Minority Serving Institution	12	13.8	11	13.4	17	20.0	40	15.7
NIFA	5	5.7	3	3.7	2	2.4	10	3.9

Data were collected using a researcher-developed scale. The scale, named the Leading Change Scale, consisted of five items. The five items were: I am aware of the areas I need to focus on to more appropriately manage change, I know why people react to change differently, I know how my personal change style influences how I deal with change, I know how different people react to change, and I understand how change occurs inside the Land-grant system. Individuals indicated their response on a five-point, Likert-type scale. Possible responses to each item included: 1 – *Strongly Disagree*, 2 – *Disagree*, 3 – *Neutral*, 4 – *Agree*, 5 – *Strongly Agree*. A Leading Change Scale score was calculated by summing each of the five-statement scores and dividing by five.

A panel of experts knowledgeable in leadership development, program evaluation, and survey design reviewed the scale for internal validity (Crocker & Algina, 1986). Reliability and internal structure validity was analyzed *ex post facto* and the scale was found to be adequate based on existing social science standards for internal consistency (Cortina, 1993; Schmitt, 1996; Streiner, 2003). When all three classes were aggregated, the combined results had a Cronbach's α of .81 for both the pre-test and the post-test. Cronbach's α values for both pre-tests and post-tests for each class as well as the overall combined analysis are provided in Table 2.

Table 2. *Internal Consistency Reliability*

Item	Pre-test	Post-test
	α	α
Overall Combined (2013-16)	0.81	0.81
2013-14	0.83	0.78
2014-15	0.84	0.80
2015-16	0.76	0.84

A census of all 255 participants representing the three classes from 2013-14, 2014-15, and 2015-16 was conducted. As part of the program evaluation process, respondents were contacted by e-mail using a tailored design method (Dillman, Smyth, & Christian, 2008) and asked to respond to the online questionnaire. The LEAD21 program is nine months long and includes three sessions. A session consisted of between four and six days of training. The pre-test was administered two weeks prior to the start of each class. The post-test was administered approximately one month after the third and final session. Only responses that included both a pre-test and post-test score were analyzed to mitigate potential data interpretation bias (Agresti & Finlay, 2009). Response rates ranged from 73.9% to 100% and were acceptable based on established social science and questionnaire based research response rate standards (Baruch & Holtom, 2008). Specific response rates by class and pre-test or post-test are presented in Table 3.

Table 3. *Response Rates*

Item	Pre-test		Post-test	
	<i>n</i>	%	<i>n</i>	%
Overall Combined (2013-16)	236	92.5	211	82.7
2013-14	88	100.0	65	73.9
2014-15	73	89.0	72	87.8
2015-16	75	88.2	74	87.1

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 24. Descriptive statistics were calculated for objective one and two. Additionally, a one-way between subjects ANOVA was also conducted to compare effect of group on level of change leadership based on class conditions. For objective three, a paired-samples *t*-test was conducted (Ary, Jacobs, Sorensen, & Razavieh, 2010). A level of significance of .05 was established *a priori*; however, a Bonferroni adjustment was made to account for four *t*-tests, consequently the level of significance was set to .0125 (Shaffer, 1995).

Results

The Leading Change Scale was used to address all three research objectives. Level of change leadership for individuals prior to participating in the LEAD21 program used the scale scores from the pre-test to reach the first objective. The overall combined Leading Change Scale had a minimum score of 1.40 and a maximum score of 5.00 ($M = 3.28$, $SD = .66$). The class from

2015-16 had the highest leading change mean pre-test score. Results of the one-way between subjects ANOVA conducted to compare the effect of group on level of change leadership, based on class conditions, indicated there was not a significant effect of group on change leadership for the class conditions [$F(2, 233) = 0.98, p = .38$]. The mean, standard deviation, minimum, maximum, and overall combined leading change scores for all three individual classes are presented in Table 4.

Table 4. *Leading Change Scale Scores – Pre-test*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Overall Combined (2013-16)	236	3.28	0.66	1.40	5.00
2013-14	88	3.24	0.63	1.60	4.80
2014-15	73	3.23	0.75	1.40	5.00
2015-16	75	3.37	0.59	1.80	4.60

The second research objective was addressed by measuring individual levels of change leadership after completing the LEAD21 program. The overall combined Leading Change Scale had a minimum score of 2.80 and a maximum score of 5.00 ($M = 4.25, SD = .47$). The class from 2013-14 had the highest leading change mean post-test score. However, a one-way between subjects ANOVA was conducted to compare the effect of group on level of change leadership based on class conditions. There was not a significant effect of group on change leadership for the class conditions [$F(2, 208) = 0.84, p = .43$]. The mean, standard deviation, minimum, and maximum scores for all three individual classes, as well as overall combined leading change are presented in Table 5.

Table 5. *Leading Change Scale Scores – Post-test*

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Overall Combined (2013-16)	211	4.25	0.47	2.80	5.00
2013-14	65	4.30	0.42	3.60	5.00
2014-15	72	4.20	0.50	2.80	5.00
2015-16	74	4.25	0.49	3.00	5.00

To address the third research objective, a paired-samples t-test was conducted to compare the mean levels of change leadership in pre-test and post-test conditions. There was a significant difference in the scores for the overall combined leading change analysis in pre-test ($M = 3.30, SD = .65$) and posttest ($M = 4.25, SD = .47$) conditions; $t(210) = -17.97, p < .001$. Additionally, results indicated there were statistically significant score increases in Leading Change Scale scores for all three classes between pre-test and post-test conditions. The overall combined analysis indicated a 28.8% increase in change leadership from pre-test to post-test. The 2013-14 class had the largest observed increase (31.1%), followed by the 2014-15 class (29.6%), and the 2015-16 class (26.1%). Additional results and analysis are presented in Table 6.

Table 6. Descriptive Statistics and *t*-test Results for Leading Change Pre-test and Post-test

Outcome	Pre-test		Post-test		<i>n</i>	95% CI for	<i>t</i>	<i>p</i>	<i>df</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		Mean Difference			
Overall Combined (2013-16)	3.30	0.65	4.25	0.47	211	-1.05, -0.85	-17.97	.000	210
2013-14	3.28	0.61	4.30	0.42	65	-1.21, -0.83	-10.78	.000	64
2014-15	3.24	0.74	4.20	0.50	72	-1.16, -0.75	-9.24	.000	71
2015-16	3.37	0.59	4.25	0.49	74	-1.04, -0.73	-11.56	.000	73

Conclusions, Implications, and Recommendations

According to trends that are expected to continue, institutions of higher education will require ongoing commitment to embracing and adapting to change (Creative Destruction, 2014). Additionally, “colleges of agriculture will be challenged to transform their role in higher education and their relationship to the evolving global food and agricultural enterprise” (National Academy of Sciences, 2009, p. 1). Effective leadership has been identified as one of the most successful mechanisms for addressing change of this magnitude generally (Heifetz & Linsky, 2002) and within higher education settings more specifically (Kerr & Gade, 1986) including the LGUS (Lamm et al., 2013). However, “given the importance of leadership and the dearth of strong leaders, no institution can afford the development of leadership from within” (Mead-Fox, 2009, p. 7). Consequently, leadership development programs such as the LEAD21 program provide an opportunity to supplement internal efforts to develop leaders that can address these changes (Lamm et al., 2016).

According to the literature, “in the world of higher education, there is a palpable sense that the pool of qualified and interested leadership candidates is shrinking” (Mead-Fox, 2009, p. 1). However, the emergent challenges and limited supply of leaders present an opportunity for effective leadership development programs, such as the LEAD21 program (Sapp, 2014). When leadership development programs can clearly align capacity building to specific needs, there is an opportunity for such programs to have a significant impact (Kellerman, 2012). However, the challenge is that all too often leadership development programs do not do an adequate job of evaluating their impacts and determining if their efforts and interventions are appropriate (Kellerman, 2012).

When completed appropriately, monitoring and evaluation activities can have measureable impacts on the programs they are intended to assess (Patton, 2008). When leadership development programs like LEAD21 have clear programmatic outcomes, a rigorous evaluation can provide a robust measure of effectiveness (Rossi, Lipsey, & Freeman, 2004). Additionally, the consequential validity or practical value associated with such evaluations and measures can be improved when there is a sufficient investment in establishing content validity with any evaluation measure at the onset (Messick, 1989).

The results of this study are linked to the leading change content area within the LEAD21 program (Sapp, 2014). Specifically, the study sought to determine whether the LEAD21 program was improving participants' capacity to lead change within the LGUS. Examining results from a longitudinal perspective including three classes helps to establish additional validity to the findings (Crocker & Algina, 1986). Overall, the results indicated the program has been very effective in increasing participants' capacity to lead change. When the results for all three classes were aggregated, the overall combined average increase was 28.8%. This result, and statistical significance of the change, indicated the LEAD21 program is doing a very good job of increasing change leadership capacity among participants. Based on the observed results, it is recommended the LEAD21 program curriculum serve as a model to other leadership development programs that are dedicated to increasing change leadership capacity among leaders in higher education, and the LGUS in particular. Furthermore, evaluation of the remaining three LEAD21 content areas is also recommended.

In addition to the overall finding associated with objective three of the study, the first two objectives were also addressed. For objective one, describing participants' levels of change leadership prior to completing LEAD21, the results indicated there was a consistent level of change leadership among individuals that are participating in the LEAD21 program prior to participation. Consequently, it is recommended program leadership determine whether the existing curriculum is appropriate for this level of existing change leadership. Specifically, if the current curriculum is intended for individuals with a lower level of expected change leadership, the interventions and developmental opportunities may be too rudimentary and thus missing an opportunity to maximize development. However, if the current curriculum is intended for a more advanced audience, the developmental opportunities may be limited due to an inability for participants to immediately understand and process material (Knowles, 1984). The results of this study have implications for other leadership development programs as well, specifically the importance of periodically assessing the level of competence associated with prospective participants relative to the level of competence associated with the curriculum.

The results associated with objective two indicated the curriculum is doing a consistently good job of increasing the perceived level of change leadership capacity among participants. If there are adjustments to the curriculum associated with the findings, a recommendation would be to evaluate the consequence of any such adjustments. Establishing a standard over three classes provides a robust benchmark for future investigation.

Although not a specific objective for the study, a noteworthy finding was the validity of the Leading Change Scale developed as part of the evaluation process. The results of the study indicate the scale has content validity, response process validity, and internal structure validity (Messick, 1989). Content validity was established by grounding the scale within the existing literature. Specifically, the scale was based on the change leadership characteristics that have been identified previously. Additionally, the scale was reviewed by a panel of experts, and adapted to the specific context for which it was intended (Crocker & Algina, 1986). Response process validity was established by issuing the scale to multiple audiences at multiple times. There were no issues with confusion or intent of items therefore response process validity was established (Crocker & Algina, 1986). Lastly, internal structure validity was established based on internal consistency measures, specifically Cronbach's α . Across six administrations of the

instrument all results were acceptable (Cortina, 1993; Schmitt, 1996; Streiner, 2003). Based on the results of the study it is recommended that the Leading Change Scale serve as a valid measure of change leadership within leadership development contexts.

Although the results of the study are statistically significant, it is necessary to identify a number of limitations associated with the results. A primary limitation is the self-reported data associated with the data. Future research is recommended to collect and analyze a more comprehensive set of change leadership data. For example, triangulation of self-reported results in combination with observations from both followers and supervisors may provide a more comprehensive measure of change leadership. An additional limitation is the audience for the study. The results are only applicable to the three classes of participants from the LEAD21 program. Future studies are recommended to determine whether the Leading Change Scale observations are consistent among a random set of LGUS faculty, and whether any changes in scale score are specifically attributable to the LEAD21 program.

Despite the noted limitations of the study, the results and process are intended to provide both insights and a set of benchmarks for leadership educators, especially those interested in evaluating the effectiveness of leadership development programs. The use of a valid scale in combination with tests of statistical significance provide a robust foundation from which to make recommendations.

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