

## CAREER TRAJECTORY IN ACADEMIC LEADERSHIP: Experiences of Graduates of the Food Systems Leadership Institute (FSLI)

### Abstract

Launched in 2005, the Food Systems Leadership Institute (FSLI) is a 2-year leadership development program primarily focused on academic leaders. As of spring 2020, FSLI has enrolled 15 Cohorts, training a total of 347 Fellows. In 2020, a review of the graduated cohorts was undertaken to understand both the range of institutions served by FSLI and the career trajectory of the 319 graduated Fellows who participated in Cohorts 1-14. A total of 78 different organizations have enrolled FSLI participants, including 79% of the 1862 Land Grant Universities, 68% of the 1890 Land Grant Universities, and 12% of the 1994 Institutions, in addition to fewer participants from non-Land Grant public universities, government institutions, industry, and institutions located outside of the U.S. FSLI has served participants from 84% of the US and Territories. The review showed that 46% of Fellows in Cohorts 1-14 advanced into higher positions of academic administration and they filled 169 new hierarchical positions, including college-level, university-level and system-level administration positions in higher education. Similar trajectories were found in industry-organizations, although in smaller numbers. In all, 470 administrative and leadership positions have been filled in these organizations by the 319 members of the cohorts reviewed. While career progression is a limited measure of leadership success, this brief review supports the hypothesis that participation in the FSLI program contributes to the careers of the enrolled participants.

### Introduction

For decades, leadership development has been a significant investment of public-serving organizations from public health (Halverson, Mays, Kaluzny, & House, 1997; Institute of Medicine, 1988; Institute of Medicine, 2003a; Institute of Medicine, 2003b; Umble et al., 2005; Uno & Zakariasen, 2010; Fernandez & Steffen, 2013; Fernandez, Noble, Jensen & Steffen, 2014; Fernandez, 2017), to health care (Chaudry, Jain, McKenzie, & Schwartz, 2008; Cummings, MacGregor, Davey, Wong & Lo, 2010; Gifford, Zamuto & Goodman, 2002; Lattore & Lumb, 2005; Levinson 2002; Loop

2009, Fernandez, Noble, Jensen, & Chapin, 2016), to higher education (Sugden, Valania, & Wilson, 2013; Williams & Olsen, 2009; Fernandez, Noble, Jensen, Martin, & Stewart, 2016; Lamm, Sapp, & Lamm, 2018). Leadership training even extends to the inclusion of student populations (Belcher et al., 2015; Baughman & Bruce, 2011; Rosenberg, Zuber, Kerman, Fernandez, & Margolis, 2018). Using a meta-analysis of 335 independent leadership programs conducted over 63 years (1951-2014), Lacerenza et al. (2017) concluded that leadership training is even more effective than previous meta-analyses indicated. In conducting

a systematic review of leadership programs for physicians, Frich and colleagues found that several elements lead to increased effectiveness, including face-to-face delivery at an onsite location, incorporation of feedback, practice-based learning with multiple delivery methods, and spaced training sessions (Frich, Brewster, Cherlin & Bradley, 2015); findings which were echoed by other reviews (Lacerenza et al., 2017; Sonnino 2016). McAlearney's (2010) examination of executive leadership development in US health systems concluded that the most effective programs lead to lasting change in employee behavior and leadership capacity. Indeed, work by Fernandez et al. (2016) found that physicians' mastery of leadership competencies addressed in an onsite, face-to-face program with practice-based experiential learning that also incorporated assessment feedback were "sticky" in that participants rated their skills 6-months post program as remaining statistically significantly higher, and their use of those skills similarly remained higher to a statistically significant degree as compared to pre-training ratings. Collaborative leadership is an increasingly important capability in a world facing dual challenges of a pandemic and world-wide civil unrest. Programs like the Public Health National Leadership Institute have demonstrated success in developing collaborative leaders and strengthening national networks of leaders to improve public health (Umble et al., 2005).

Higher education offers programs to develop academic leaders at several stages and across several areas of academia (Lamm et al., 2018; Fernandez et al., 2016; Crandall, Espinosa, Gangone, & Hughes, 2017; Levine, Gonzalez-Fernandez, Bodurtha, Skarupski, & Fivush, 2015; Tsho et al., 2019). In particular, colleges that teach food-systems-related content, often generally referred to collectively as colleges of agriculture, have been especially invested in leadership development, including offering degree programs in Agricultural Leadership. The Association

of Public and Land Grant Universities (APLU), along with the Cooperative Extension system and the Agricultural Experiment Station (research) system and academic programs, have a long history of providing leadership training to early-career public institution faculty through programs such as the National Extension Leadership Development Program (NELD) and the Experiment Station Committee on Organization and Policy (ESCOP) and the Academic Committee on Organization and Policy (ACOP), which was formerly known as the ESCOP/ACOP Leadership Development Program. After 15 years of service, these various leadership programs were consolidated in 2004 to form what is now known as LEAD21 (<http://lead-21.org/>). The LEAD 21 is a year-long, multi-convening program for faculty emerging as leaders in the land-grant university system and has been shown to be effective (Lamm et al., 2018). Another academic-based leadership development program is the American Council on Education's ACE Fellows Program, which is considered to be one of the most successful mentoring and longest running academic leadership programs in the United States (Grotrian-Ryan, 2015). This program pairs a single aspirant to higher education administrative roles with a seasoned and established current leader.

In 2003, the Board on Agriculture Assembly of the APLU collaborated with the WK Kellogg Foundation to establish a program designed to serve food system leaders at a stage of leadership development that fell between the LEAD21 program and ACE Fellowship. Through a competitive process, they awarded the Food Systems Leadership Institute (FSLI) grant to the University of North Carolina System to develop and establish the Institute and to recruit the first class of Fellows. The program was launched in 2005. This program is offered through a collaboration of North Carolina State University, The Ohio State University, and for Cohorts 1-6 the University of Vermont and for Cohorts 7-16 the California Polytechnic State University in San Luis Obispo. The FSLI program is

overseen by a Commission appointed through the APLU. In academic environments, minimum qualifications for participation include serving for at least three years at a position comparable or higher than Department Chair/Head. Overall the program enrolls academic leaders serving as Chairs/Heads, Directors, Assistant/Associate Deans, Deans, Provosts and Presidents. FSLI enrolls about 25 Fellows annually into the program and has enrolled 15 cohorts as of spring 2020. Fellows come primarily from institutions of higher learning, and to a lesser extent from government (federal and state), and food/nutrition-related corporations. While Fellows are typically residents of the United States, Fellows from Canada, Guam, and Singapore have also attended. Fellows have attended from public, land-grant, non-land grant, and private academic institutions.

The FSLI is based in adult learning theory and addresses personal, organizational, and food systems leadership via 20 defined competencies that guide the curriculum (see Table 1). Each competency is addressed multiple times throughout the program. Previous research assessing FSLI Fellow learning and leadership skill implementation in three alumni cohorts supported the hypothesis that FSLI Fellows gain knowledge and skills in the program, with statistically significant gains in perceived learning and reported use of the skills focused on in the program,

and that these changes are sustained for years post-graduation (Fernandez, et al, 2016).

One of the perennial questions about investments in leadership development has been the return on investment and impact of the training on both organizations and the participants themselves (Geerts, Goodall, & Agius, 2019). For example, in reviewing the literature on leadership training programs for physicians in academic medical centers, Straus and colleagues questioned the merely modest effects of leadership training seen (Straus, Soobiah, & Levinson, 2013), although their conclusions were refuted by the later study of Lacerenza, et al (2017). For some programs, these outcomes have been difficult to quantify beyond participant satisfaction. Certainly, mounting a quality program incurs significant resources, including financial and time, on the part of the program administrators through program planning (Bryan, 2008), execution, evaluation, and assessment. Participation in such programs is also a considerable commitment on the part of the participants. Thus, it is crucial to understand how participation in these programs impact the individuals completing them and serve the organizations supporting them.

Table 1.  
20 Leadership Competencies Addressed in the Food Systems Leadership Institute.

<i>Core Leadership Skills</i>	<i>Organizational Leadership Skills</i>
Self-Awareness	Creating and Impacting Organizational Culture
Communication	Systems Thinking
Negotiation	Bench Building/Succession Planning
Conflict Management	Change Management
Visioning	Stakeholder Analysis
Innovation	Futuring
Emotional Intelligence	Collaboration
Thinking Politically	Innovation
Reflective Leadership	Advocacy
Career Management	Food Systems Thinking

\*Definitions of these competencies have been previously published (Fernandez, et al 2016)

While the previous studies of the FSLI provide some insight into skills learned and use of those skills, they do not give concrete insight into an ultimate outcome of academic leadership development programs: the career trajectory of participants, which organizations have benefitted, and how program alumni are serving their organizations. The classic Kirkpatrick Four-Level Training Evaluation Model (Kirkpatrick & Kirkpatrick, 2006) (Figure 1) serves as a theoretical guide for assessing the FSLI program and helps provide insight into possible return on investment for this type of leader development approach. Continuous surveys have shown participants' positive reaction to the program, which aligns with Level I (reaction), as documented in routine internal program evaluations (unpublished data). Level II (learning) has been documented and published as noted above (Fernandez et al., 2016). FSLI examines Level III (changes in behavior) through individual leadership project-related work, which is the main focus of the second year of the FSLI program. Completed FSLI leadership projects are available on the FSLI website (FSLI.org) and are not included in this analysis. Kirkpatrick's Level IV relates tangible outcomes due

to improved leadership behavior. While there are many strategies to measure outcomes for any such program, the question of the career trajectory of program alumni has been raised in several studies of leadership development efforts (Straus et al., 2013; Nowling et al., 2018). While it is a simple matter for a program to tout the endorsement of enthusiastic alumni, following up on the subsequent career paths of all the alumni who participated in a program can provide a much richer picture. To gain such insight into Kirkpatrick's Level IV: Results, the FSLI team undertook an examination of the career trajectory of all FSLI participants who had completed the 2-year training program as of the end of 2020 (Cohorts 1-14). The goal was to understand which type of institutions (1862s, 1890s, public, private, tribal, etc.) the program had served over the first fourteen years and the steps in career progression of participants observed after entering the FSLI program.

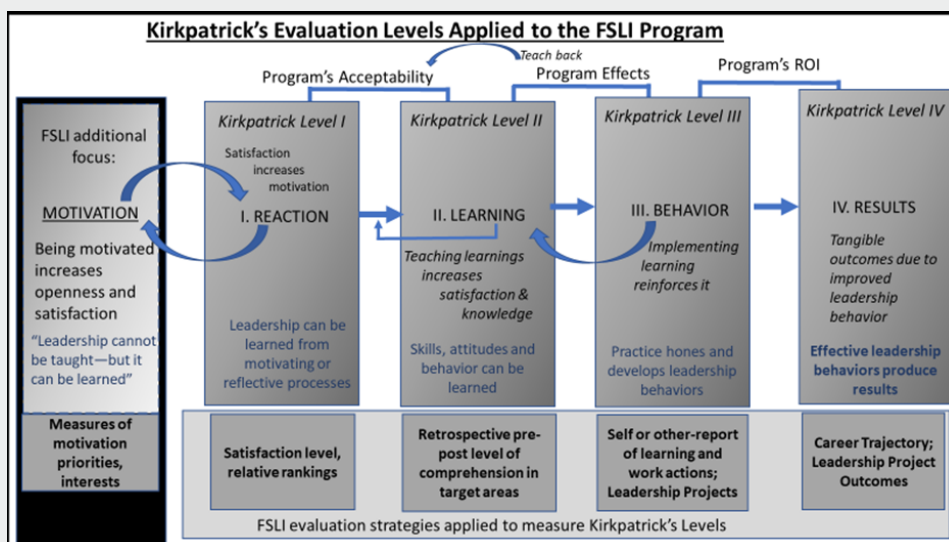


Figure 1. The Kirkpatrick Evaluation Levels Applied to the FSLI Program.

## Methods

From January-June 2020, the FSLI leadership team initiated a review of the history of leadership positions and current employment of Fellows, specifically focusing on participants in cohorts 1 through 14. Cohort 1 entered the program in October of 2005, graduating in November of 2007 and Cohort 14 entered the program in October of 2018, with a graduation date of November 2020. This review investigated the career pathway tracing cohorts 1-14 at the time of this review (January-June 2020). At that time, FSLI had enrolled 347 Fellows between the years of 2005-2019, for a total of 15 Cohorts. At the time of this review, 14 Cohorts had graduated or were near graduation from the program and were included, which represents 319 program Fellows who were included in this analysis.

Data gathered at entry into the program includes name, gender, title, institution, leadership statement, letters of nomination and recommendation. No data is gathered on age, race or ethnicity of participants during the application phase or after enrollment. The FSLI program does not discriminate on the basis of age, gender, race, ability, sexual identity, etc.

Program staff investigated the current status of past participants by following up directly with alumni and for those who had changed positions but had not notified the FSLI office, by engaging in web-based searches of their current and past academic, industry, or government institutions to document career trajectory and current position or status. One

Fellow withdrew from FSLI before completing the first year of the program, one Fellow passed away prior to completing the program and three Fellows failed to complete program requirements within four years of initiating the program (data not included). A team of three program staff investigated and cross-checked career trajectory information followed by three members of the research team reviewing and coding the data for analysis. Data were both tabulated via Microsoft Excel and cross-verified by hand-counting.

## Results

A total of 319 individuals (94 women, 225 men) graduated from the first 14 cohorts of the FSLI program by November 2020. The review indicated that a diverse body of institutions have been served by the FSLI program, including land grant and non-land grant institutions, public universities, private universities, professional organizations, historically black colleges and universities (HBCUs), tribal colleges, and industry (see Table 2). Seventy-eight different institutions, universities and organizations and 84% of U.S. states have sent Fellows to the FSLI. Fellows have also come from Canada, Guam, Singapore, and the U.S. Virgin Islands. Of the APLU-member institutions, 45 (79%) of the 1862 Land Grant Institutions, 13 (68%) of the 19 minority-serving 1890 Land Grant Institutions, and 4 of the (12.5%) 32 Native American-serving institutions have sent Fellows to the program (Table 2). Eight organizations sent more than 11 Fellows.

Table 2.  
Organizations Served in the Food Systems Leadership Institute Program\* .

<b>Institution Type</b>	<b># Alumni</b>	<b># Institutions Served (%)</b>
1862 Institutions	199	45 (79%)
1890 Institutions	33	13 (68%)
1994 Institutions	4	4 (12.5%)
	<b># Alumni</b>	<b># Institutions Served</b>
Non-Land Grant Institutions	8	3
Other public institutions	6	2
Corporate institutions	15	3
Government Institutions	4	4

\*data covers Cohort 1-14, years 2005-2020

Participants in FSLI have served in a broad range of leadership capacities across the spectrum of institutions of higher education, and to a lesser extent, in other settings, such as government, non-profit or industry sectors (see Table 3).

Table 3.  
Career Trajectory of the Food Systems Leadership Institute Program Alumni

<b>Highest Organizational Position Achieved in Career: Enrollment Status vs. Post-FSLI Initiation-to-Date (Summer 2020) for Cohorts 1-14</b>			
Organizational Position	Enrollment Level of FSLI Fellows	Advancement Post- FSLI Enrollment	Absolute number of administrative positions filled by FSLI Fellows from the start of FSLI experience to summer 2020
<b>ACADEMIA</b>			
Dean	18	36	54
College-Level Administration (not Dean)	81	33	114
Director/Assoc Director, etc. (not Dean)	71	21	92
Department Level (Chair, Head, Assoc. Chair or Assoc Head)	103	13	116
University-Level Administration*	10	43	53
<i>*Included in the above: (Provost)</i>	<i>(0)</i>	<i>(8)</i>	<i>(8)</i>
<i>*(Chancellor or President)</i>	<i>(1)</i>	<i>(8)</i>	<i>(9)</i>
System Level Administration (President, Provost, etc.)	0	4	4
<b>TOTAL</b>	<b>283</b>	<b>150</b>	<b>433</b>
<b>INDUSTRY/GOVERNMENT</b>			
Chief Executive	0	2	2
Vice President	0	4	4
Directors/Heads:	1	4	5
Section/Senior Manager	11	1	12
Senior Scientists	3	3	6
Government	3	5	8
<i>Total Industry &amp; Government</i>	<i>18</i>	<i>19</i>	<i>37</i>
<b>TOTAL</b>	<b>301*</b>	<b>169</b>	<b>470</b>

\*data covers Cohort 1-14, years 2005-2020

Of the 319 program Fellows graduating from the first 14 Cohorts, 301 came from academic settings. Of these, 18 sat in Dean positions upon entering FSLI and 71 entered the program as Directors or Associate/Assistant Directors (not combined with a Dean title). A further 103 entered as department Chairs or Heads and 4 as Associate Chair, while 81 held Associate/Assistant Dean titles at the College level. In addition,

10 Fellows held University titles such as President (n=1), Vice Chancellor (n=4), Associate/Vice Provost (n=4), or Special Assistant to the President (n=1) (Table 2). A total of 14 Fellows held a variety of titles other than those above or were from industry (n=15) or federal or state government positions (n=3).



Between the time of entry into the FSLI program and the time of this review, an additional 36 Fellows had been named to Dean positions at least once, eight had been named as Chancellor or President (local level), and eight were named as Provosts. In total, 146 Fellows had been named to college-level or university-level posts, and four had been named to system-level posts, contributing to a total of 150 newly appointed positions in higher academic administration. These positions included such titles as Associate Dean (n=28), Director (as separate from Dean) (n=21), Vice President (as separate from Dean, n=6), Vice Provost (n=9), among others. Of the 18 participants entering the program as they served in leadership roles from non-academic environments, 9 moved into positions of even higher authority and influence, including titles such as Global Vice President (n=1), Vice President (n=4), President/CEO (n=2) and Director/Head (n=4), United States Presidential Appointee (n=1), among other titles. In addition, a small number of Fellows (n=6) took industry positions or government leadership positions as they moved out of academia and a smaller number (n=3) moved into leadership positions with national non-profit organizations. As would be expected, some people filled more than one role as they advanced in their careers. In total, 136 individuals advanced (42.6%).

## Discussion

The Food Systems Leadership Institute was initially conceived to “focus on leadership for food systems and the inclusion of cultural change within land-grant universities toward broader and more inclusive food systems perspectives” (online document, 2003). The program was envisioned as targeting Deans, Associate or Assistant Deans, Associate or Vice Provosts, Department Heads, and Faculty with prior leadership experience and training, who were seeking middle and upper-level university administrative positions. Initially the vision was more limited than the interest in the program, and ensuing years saw Fellows entering from outside Land Grant and public institutions as well as from outside the United States.

Through basing the FSLI program on best practices in the leadership field, including offering a broad array of leadership and psychological assessment tools, ongoing executive coaching, a personal implementation science leadership project, featuring nationally recognized speakers on topics of current importance, and grounding this learning in a broad and diverse food system perspective, the program provides a range of skills based in competencies identified by the FSLI planning team (Bryan, 2008) and operationalized by the FSLI leadership team (Fernandez et al., 2016). Previous reports of skill development and use of skills by FSLI participants (Fernandez et al., 2016) supports the hypothesis that Fellows gain relevant skills to a significant degree, and they then use those skills to impact the organizations and communities they serve.

These data indicate that 42.6% (136 of the 319) of participants completing the FSLI program experience a change in position within at least a few years of engaging in the program. A total of 169 advancements were noted across all sectors, including government, industry and professional organizations. While it is possible that enrollment in such a rigorous program as the FSLI naturally attracts highly ambitious individuals, internal confidential documentation of development and career goals gathered during the first few months of the program fail to corroborate that hypothesis (unpublished data). Overwhelmingly these leaders portray their learning goals as a desire to become a better leader for the positions they currently fill rather than expressing desires to leave those roles in favor of the next move up the career ladder. While the FSLI is designed to provide the tools and skills that both help improve current leadership capacity and the capacity to advance career-wise, the authors do not suggest that the program can compensate for lack of ambition. Certainly a few (less than 15%) do state their goals as career advancement, however the authors believe that the data support the hypothesis that when provided the skills, encouragement, self-reflection, coaching, mentoring and networking opportunities in combination with completing challenging individual leadership projects

that embrace a system lens, that individuals discover both interest in and talent for those roles and greater confidence to pursue those opportunities.

Leaders trained via the FSLI program have held a wide array of positions in higher education: this career follow-up study found that 169 positions were newly filled by FSLI alumni and a total of 433 academic leadership positions have been filled (and 470 leadership positions overall) by the 319 Fellows completing the program from Cohorts 1-14. Some of the Fellows remained in their original positions while others followed a trajectory of moving through steps such as Associate Dean, Dean, Vice Chancellor, Provost, or President/Chancellor positions (at both the local and system level). Some FSLI Fellows have held dean-Level or university-Level administration positions at more than one university since their FSLI participation. Some have moved from academia to industry or between academic and government positions.

Authors have asserted that creating thought diversity (Fernandez 2007; Fernandez & Fernandez, 2012) in groups requires curated training to boost those unique leadership skills. Lipman points out that thought diversity, particularly with respect to gender diversity, additionally requires one-third of the leadership team to be women (Lipman, 2019), a perspective echoed by Tarr-Whelan (Tarr-Whelan, 2011). These authors propose that when that tipping point is reached, the discussion topics women generate are attributed to them (as opposed to other team members) and gain traction across the team. While numbers of women participants varied across each particular cohort year, in total nearly one-third (29.5%) of the FSLI participants have been women.

The Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) program targets senior women faculty in US and Canadian schools of health professions and has repeatedly shown that participants experience significant improvement in such leadership skills as communication, negotiation, conflict management and financial management, among others (Dannels et al., 2008; Levine et al.,

2015; McDade, Richman, Jackson & Morahan, 2004). Similarly, investigations into the LEAD21 program indicated improvements in change leadership ability in the faculty participants (Lamm 2018). Leadership skill competency and use data from the women participating in the FSLI program were not separated in previous studies, however in this data set, 51 (30.2%) of the total positions representing advancements for FSLI program alumni were held by women. While an institution-specific women's leadership program for physicians showed an incredibly high rate of subsequent promotion (84%) for participants (Nowling et al., 2018), these positions primarily included academic rank rather than the type of leadership positions focused on in this review. In this review, the only promotions examined were those for college-level or higher institution-wide positions. While in a relative sense there are many opportunities for talented individuals to achieve a promotion in academic rank at universities across the country, there are relatively few higher administrative leadership positions available across the country in academia, industry or government, regardless of the talent of the individual.

While FSLI seeks diverse cohorts according to other measures and the enrolled cohorts do represent diversity, specifics are unavailable as that data was never intentionally requested from the participants themselves. Nearly 68% of the 1890 Land Grant institutions have participated in the program, which is slightly below parity with the participation rates of the 1862 Land Grants (79%). The program has been less successful in reaching the 1994 Tribal College system with just four of those schools sending Fellows in the first 14 cohorts. In this way the FSLI is similar to other leadership programs seeking to expand the capacity of specific underrepresented groups (Sonnino, 2016; Belcher et al., 2015).

## Limitations

Participation in the FSLI program is not a sole predictor nor a sole causal factor in the career progression of these talented individuals. However,



it is interesting to note the degree to which these individuals move to positions of higher authority and influence, particularly given a short time frame for many. While Fellows in early program cohorts had the benefit of up to a decade of time for their careers to mature, Fellows in Cohort 13 had only a few months post-graduation for job changes to take place before the time of this review and Cohort 14 was experiencing their final few months of program enrollment. A longer time frame might have shown an even greater extent of progression of more recent cohort participants. Further, this review did not systematically analyze a wide array of leadership roles, such as serving on boards, running new programs, leading task forces, serving on special committees, etc., which might have revealed a far greater range of leadership engagement on the part of the FSLI Fellows. Such broad definitions of “leadership roles” outside those of formally recognized hierarchical structures have been shown in other fields to lead to very high levels of career progression and advancement post-leadership training (Umble et al., 2005). It is likely that limiting “career progression” to strictly hierarchical steps under-estimates the extent to which alumni are using the skills they learned in the program. Certainly, a study of physician leadership reported that 62% of participants indicated they had received a promotion, had a change of job, or had taken on new leadership roles since completing the program during the previous year--and 100% of those respondents also indicated that the leadership development program prepared them either “very much so” or “somewhat” for their new opportunity (Fernandez et al., 2016).

Even with reaching out to alumni directly and engaging in web-based searches to follow and verify position changes, challenges remained to accurately tracking the career progression of FSLI alumni, not an uncommon experience for universities and colleges in tracking their own graduates as well. In general, only the current and/or highest achieved position are listed in institution-based informational sites about individuals, which can lead to undercounting positions filled during intervening years of the career

journey. Thus, it is possible that this inventory of career progression actually undercounts the positions and contributions of the program graduates. And lastly, in a study such as this it is quite impractical to contrast career progression against a control group. FSLI is not a research study and participants are neither randomized nor blinded to the intervention (e.g. training) they receive. Certainly, other individuals who have never attended FSLI also achieve positions in administration in higher education. This review does not intend to contrast those individuals against FSLI Fellows, but rather this study attempts to investigate the subsequent experience of program alumni and the types of institutions served through various leadership roles in those institutions. Program Fellows are not expected to “move up” on the career ladder; however, should that be their desire the program team attempts to support their aspirations through appropriate training, mentoring and executive coaching.

While useful, career progression is a rather compressed metric, particularly in academic circles. Simply considering the dean-level in universities for example, for every Dean position there are between (on average) 8-12 Department Chairs/Heads in a typical college of the types that participate in FSLI. The limited number of career slots existing into which individuals can advance compresses the utility of this metric in particular and should be used very cautiously as any kind of judgement on leadership success of the individual or of the program. Yet, limited as that measure is, career progression is one available metric by which an impact of a leadership development program can be measured and thus it is a commonly used framework (Umble et al., 2005; Fassitto, Maldonado, & Hopkins, 2018; Frich et al., 2015; Rosenman, Shandro, Ilgen, Harper & Fernandez, 2014; Straus et al., 2013, Fernandez et al., 2016). While participation in the FSLI cannot be concluded to be a causal factor in their career success, nevertheless when these data are examined through the Kirkpatrick lens and are combined with previously published data of skills gain and use (Level II), the publicly available information about

the Personal Leadership Projects (FSLI.org) (Level III), and the data presented here on career progression (Level IV), the hypothesis that the skills building and networking experience of FSLI gives Fellows a definite advantage in the process finds some support. Our data in the government and corporate sector are limited by the few institutions served since FSLI is primarily an academic-focused program, with few seats afforded to non-academic professionals. Although these enrollment numbers are low in these two categories, those Fellows credit their FSLI experience with relevant and impactful learning (personal communications, program evaluations) and a very high proportion of participants from the industry sector in particular successfully achieve a higher career status post-program.

## Conclusion

The Food Systems Leadership Institute has served hundreds of participants as it sought to fulfill the mission entrusted to it by the APLU and the W.K. Kellogg Foundation. Given the career trajectory of participants post their enrollment into FSLI, coupled with the previously published data on Fellow learning and skills development, the Food Systems Leadership Institute provides a path for serious career development of enrolled Fellows and contributes to the advanced preparation of academic administrators across a wide-spectrum of institutions of higher education. Thus, we believe this data, coupled with previously published studies of the FSLI program, support the conclusion that the APLU, the participating institutions, and the participants themselves have benefitted from a substantial return on their investment in leadership development for academic leaders through the FSLI program.

## References

- Baughman, K.N. & Bruce, J. (2011). The unique leadership needs of minority student populations: Crafting a leadership identity. *Journal of Leadership Education*, 10(2), 97-115.
- Belcher, H.M.E., Stone, J.D., McFadden, J.A., Hemmingson, T.A., Kreutzer, C., Harris, L.G., Wheeler, B.Y., Van Osdel, J., Avila, M., Yorker, B., Hoffman, B.R., Turner-Musa, J.O. (2015). Evaluating Maternal and Child Health and Leadership Competencies in Emerging MCH Leaders: The MCHC/RISE-UP Experience. *Maternal and Child Health Journal*, 19, 2560-2567.
- Bryan, M.F. (2008). Prioritizing core competencies for food system leadership. Unpublished master's thesis manuscript, University of North Carolina, Chapel Hill, NC.
- Chaudry, J., Jain, A., McKenzie, S., & Schwartz, R.W. (2008). Physician leadership: The competencies of change. *Journal of Surgical Education*, 65(3), 213-220. doi:10.1016/j.jsurg.2007.11.014
- Crandall, J.R., Espinosa, L.L., Gangone, L.M., Lind Hughes, S. (2017). Looking Back and Looking Forward: A Review of the ACE Fellows Program. American Council on Education, 2017.
- Cummings, G.G., MacGregor, T., Davey, M., Lee, H., Wong, C.A., Lo, E., Muise, M., Stafford, E. (2010). Leadership styles and outcome patterns for the nursing workforce and work environment: A systematic review. *International Journal of Nursing Studies*, 47(3), 363-385. doi:10.1016/j.ijnurstu.2009.08.006
- Dannels, S.A., Yamagata, H., McDade, S.A., Chuang, Y-C., Gleason, K.A., McLaughlin, J.M., Richman, R.C., Morahan, P.S. (2008). Evaluating a Leadership Program: A Comparative, Longitudinal Study to Assess the Impact of the Executive Leadership in Academic Medicine (ELAM) Program for Women. *Academic Medicine*, 83(5), 488-495
- Fassitto, M., Maldonado, Y., Hopkins, J. (2018) A long-term follow up of a physician leadership program. *Journal of Health Organization and Management*. 32(1), 56-68. doi: 10.1108/JHOM-08-2017-0208.
- FastTrack Leadership Library, online at WeTrainLeaders.com. Accessed February 12, 2020.
- Fernandez, C. (2007). Creating thought diversity: The antidote to group think. *Journal of Public Health Management and Practice*, 13(6), 670-671. doi:10.1097/01.PHH.0000296146.09918.30
- Fernandez, C.S.P., & Steffen, D. (2013). Leadership for public health. In L. Shi, & J. A. Johnson (Eds.), *Novick and Morrow's Public Health Administration: Principles for Population-Based Management* (3rd ed., pp. 241-265). Santa Barbara, CA: Jones and Bartlett Publishers.
- Fernandez, C.S.P., & Fernandez, R. (2014). *It-Factor Leadership: Become a Better Leader in 13 Steps*. Chapel Hill, NC: FastTrack Leadership.
- Fernandez, C.S.P., Noble, C.C., Jensen, E., Steffen, D. (2014). Moving the Needle: A retrospective pre- and post-analysis of improving perceived abilities across 20 leadership skills, *Maternal and Child Health Journal*, 19(2), 343-52. doi: <http://link.springer.com/article/10.1007/s10995-014-1573-1>.
- Fernandez, C.S.P., Noble, C.C., Jensen, E.T., Martin, L., Stewart, M. (2016). A retrospective study of academic leadership skill development, retention and use: The experience of the Food Systems Leadership Institute. *Journal of Leadership Education*. 15(2), 150-71.

## References

- Fernandez, C.S.P., Noble, C.C., Jensen, E.T., Chapin, J. (2016). Improving leadership skills in physicians: a six-month retrospective study. *Journal of Leadership Studies*, 9(4), 6-19. DOI:10.1002/jls.21420.
- Fernandez, C.S.P., Noble, C., Jensen, E. (2017). An examination of the self-directed online leadership learning choices of public health professionals: the MCH PHLI experience. *Journal of Public Health Management Practice*, 23(5), 454-460. doi: 10.1097/PHH.0000000000000463
- Frich, J.C., Brewster, A.L., Cherlin, E.J., Bradley, E.H. (2015). Leadership development programs for physicians: a systematic review. *Journal of General Internal Medicine*, 30(5), 656–674.
- Geerts, J.M., Goodall, A.H., Agius, S. (2019). Evidence-based leadership development for physicians: A systematic literature review. *Evidence-based leadership development for physicians: A systematic literature review. Social Science & Medicine*, 246, 112709. doi: 10.1016/j.socscimed.2019.112709.
- Gifford, B.D., Zammuto, R.F., Goodman, E.A. (2002). The relationship between hospital unit culture and nurses' quality of work life. *Journal of Healthcare Management / American College of Healthcare Executives*, 47(1), 13-25.
- Grotrian-Ryan, S. (2015). Mentoring Functions and their Application to the American Council on Education (ACE) Fellows Leadership Development Program. *International Journal of Evidence Based Coaching and Mentoring*, 13(1), 87-105.
- Halverson, P.K., Mays, G., Kaluzny, A.D., House, R.M. (1997). Developing leaders in public health: The role of executive training programs. *The Journal of Health Administration Education*, 15(2), 87-100.
- Institute of Medicine (U.S.) Committee for the Study of the Future of Public Health. (1988). *The future of public health* National Academy Press. Retrieved from [http://books.nap.edu/openbook.php?record\\_id=1091&page=R2](http://books.nap.edu/openbook.php?record_id=1091&page=R2)
- Institute of Medicine (U.S.) Committee on Assuring the Health of the Public in the 21st Century. (2003a). *The future of the public's health in the 21st century*. Washington, DC: The National Academies Press. Retrieved from [http://books.nap.edu/openbook.php?record\\_id=10548&page=R2](http://books.nap.edu/openbook.php?record_id=10548&page=R2)
- Institute of Medicine (U.S.) Committee on Assuring the Health of the Public in the 21st Century. (2003b). *Who will keep the public healthy?: Educating public health professionals for the 21st century*. Gebbie K., Rosenstock, L., Hernandez, L. (Eds.). Washington, D.C: National Academies Press. Retrieved from [http://books.nap.edu/openbook.php?record\\_id=10542&page=R2](http://books.nap.edu/openbook.php?record_id=10542&page=R2)
- Kekäle, J. (2003). Academic leaders as thermostats. *Tertiary Education and Management*, 9(4), 281-298. doi:10.1080/13583883.2003.9967110
- Kirkpatrick, D.L., & Kirkpatrick, J. (2006). *Evaluating Training Programs: The Four Levels* (3rd ed.). San Francisco: Berrett-Koehler Publishers, Inc.
- Lacerenza, C., Reyes, D. L., Marlow, S. L., Joseph, D. L., & Salas, E. (2017). Leadership Training Design, Delivery, and Implementation: A Meta-Analysis. *Journal of Applied Psychology*, 102(12), 1686 –1718.

## References

- Lamm, K.W., Sapp, L.R., Lamm, A.J. (2018). A Longitudinal Evaluation of Change Leadership within a Leadership Development Program Context. *Journal of Leadership Education*, 17(3), 121-134. doi:10.12806/V17/I3/R7
- Lattore, P., & Lumb, P. D. (2005). Professionalism and interpersonal communications: ACGME competencies and core leadership development qualities. Why are they so important and how should they be taught to anesthesiology residents and fellows? *Seminars in Anesthesia, Perioperative Medicine and Pain*, 24(3), 134-137. doi:10.1053/j.sane.2005.07.006
- Levine, R.B., Gonzalez-Fernandez, M., Bodurtha, J., Skarupski, K.A., Fivush, B. (2015) Implementation and Evaluation of the Johns Hopkins University School of Medicine Leadership Program for Women Faculty. *Journal of Women's Health*, 24(5), 360-366.
- Levinson, W., D'Aunno, T., Gorawara-Bhat, R., Stein, T., Reifsteck, S., Egner, B., Dueck, R. (2002). Patient-physician communication as organizational innovation in the managed care setting. *American Journal of Managed Care*, 8(7), 622-630.
- Lipman, J. (2019). *That's What She Said: What Men and Women Need To Know About Working Together*. Harper Collins, NY.
- Loop, F. (2009). *Leadership and Medicine*. Gulf Breeze, FL: Fire Starter Publishing.
- McAlearney, A.S. (2010). Executive leadership development in U.S. health systems. *Journal of Healthcare Management*, 55(3), 206-22.
- McDade, S.A., Richman, R.C., Jackson, G.B., Morahan, P.S. (2004). Effects of Participation in the Executive Leadership in Academic Medicine (ELAM) Program on Women Faculty's Perceived Leadership Capabilities. *Academic Medicine*, 79(4), 302-309.
- Nowling, T.K., McClure, E., Simpson, A., Sheidow, A.J., Shaw, D., Feghali-Bostwick, C. (2018). A Focused Career Development Program for Women Faculty at an Academic Medical Center. *Journal of Women's Health*, 12, 1474-1481. doi: 10.1089/jwh.2018.6937.
- Online document (2003). LEADERSHIP DEVELOPMENT FOR THE 21st CENTURY: LEAD 21--Linking Research, Academics, and Extension. n.d. srpln.msstate.edu › plc › lead; accessed December 19, 2019. n.d. LEAD21.org; Accessed February 12, 2020.
- Rosenberg, A., Zuver, D., Kermon, S., Fernandez, C.S.P., Margolis, L. Reflections on the contributions of self-advocates to an interdisciplinary leadership development program for graduate students in health affairs, *Disability and Health Journal*, 11(2), 293-297.
- Rosenman, E.D., Shandro, J.R., Ilgen, J.S., Harper, A.L., Fernandez, R. (2014). Leadership training in healthcare action teams: a systematic review. *Academic Medicine*. 89(9), 1295–1306.
- Sonnino, R.E. (2016). Health care leadership development and training: progress and pitfalls. *Journal of Healthcare Leadership*, 8, 19–29.

## References

- Straus, S.E., Soobiah, C., Levinson, W. (2013). The impact of leadership training programs on physicians in Academic Medical Centers: a systematic review. *Academic Medicine*, 88(5), 1–15.
- Sugden, R., Valania, M., & Wilson, J. R. (2013). *Leadership and cooperation in academia: Reflecting on the roles and responsibilities of university faculty and management*. Cheltenham: Edward Elgar Publishing. doi:10.4337/9781781001820
- Tarr-Whelan, L. (2011). *Women Lead the Way: Your Guide to Stepping up to Leadership and Changing the World* (Berrett-Koehler, 2009, 2011).
- Tsoh, J.Y., Kuo, A.K., Barr, J.W., Whitcanack, L., Merry, I, Alldredge, B.K., Azzam, A.N. (2019). Developing faculty leadership from ‘within’: a 12-year reflection from an internal faculty leadership development program of an academic health sciences center. *Medical Education Online*, 24(1), 1-7. doi: 10.1080/10872981.2019.1567239
- Umble, K., Steffen, D., Porter, J., Miller, D., Hummer-McLaughlin, K., Lowman, A., Zelt, S. (2005). The national public health leadership institute: Evaluation of a team-based approach to developing collaborative public health leaders. *American Journal of Public Health*, 95(4), 641-644. doi:10.2105/AJPH.2004.047993
- Uno, H., & Zakariasen, K. (2010). Public health leadership education in North America. *Journal of Healthcare Leadership*, 2010, 11-15. doi:10.2147/JHL.S9727
- Williams, R. L., & Olsen, S. (2009). Leadership development in higher education. In J. C. Knapp, & D. Siegel (Eds.), *The business of higher education volume 1: Leadership and culture*. Santa Barbara, CA: Greenwood Publishing Group.