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# Evaluating Extension Based Leadership Development Programs in the Southern United States

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**Abstract**

*The ability to evaluate and accurately articulate the outcomes associated with leadership development programs is critical to their continued financial and administrative support. With calls for outcome-based accountability, the need for rigorous evaluation is particularly relevant for those programs administered through the Cooperative Extension Service (CES). Using Bandura's (1977) Social Learning Theory, a robust evaluation of agricultural leadership development programs administered through the CES in the southern region of the United States was conducted. Several key findings are examined, specifically: program participant demographics match parity requirements for CES programming; program participants are highly satisfied with their program experience; and program participants have held a large number of leadership roles within their communities and industries.*

Keywords: leadership development, opinion leadership, Extension, evaluation

## Introduction

Since the mid-1960s agricultural leadership development programs (LDPs) have been providing opportunities for individuals involved in agriculture to cultivate their passion for leadership and the impact they can have in their industries and communities (Kellogg, 2000). Historically, these programs have focused on improving individuals' capacities to serve as leaders within the agricultural and natural resource (ANR) industry (Whent & Leising, 1992). In particular ANR LDPs have encouraged individuals to act as opinion leaders within their networks of influence (Chiarelli, Stedman, Carter, & Telg, 2010; Lamm, Lamm, & Carter, 2014).

Leadership development programming has been found to have numerous benefits for participants as well as the communities in which they live and work (Galloway, 1997). For example, an evaluation of a community LDP found participants had increased opportunities to network with other leaders and to identify projects to focus their collective efforts. The community benefitted from a large pool of concerned leaders that were able to focus their efforts towards making large positive changes within the community (Blair, 1988).

Whent and Leising (1992) found that graduates of the California ANR LDP identified major benefits as "increased personal contacts and interaction with classmates, increased leadership skills…interaction with government and agricultural leaders and increased awareness and understanding of other societies and cultures" (p. 38). Additionally, a research study with the Florida ANR LDP found participants tended to act as opinion leaders regarding critical ANR issues

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in their personal, professional, and community networks (Lamm et al., 2014). With programs in more than 28 states and over 7,200 alumni the potential benefit to individuals, the ANR industry, and the communities where individuals live is immense (Kellogg, 2000).

Approximately half of all ANR LDPs evaluated by the W. K. Kellogg Foundation in 2000 were operated out of the state land grant university system and were specifically associated with the Cooperative Extension Service (CES) administered through the university (Kellogg, 2000). More recently Kaufman, Rateau, Carter, and Strickland (2012) found that "most of the IAPAL [International Association of Programs for Agricultural Leadership] programs were housed within a university system, with more than half administered through their Land-Grant University's Extension system" (p. 129). The pairing of ANR LDPs delivered through a CES organization has an "ability to deliver needed education to producers who need it" (Sparks, 2014, para. 5). However, as CES programs ANR LDPs also have a responsibility to objectively evaluate their programs and provide evidence of programmatic worth (Lamm & Israel, 2011; Morera et al., 2014).

The Government Performance Results Act (GPRA) passed in 1993 and the Agricultural Research, Extension, and Education Reform Act (AREERA) passed in 1998 specifically address the legislative necessity for evaluation of CES programs. The GPRA targets how government tax dollars are being allocated with a focus on setting and measuring program goals, assessing performance, and holding funded programs accountable for results. These measures are intended to improve the tax paying public's confidence in government funded programs, inform program managers decisions regarding program effectiveness, as well as serve as a direct input to congressional funding decisions (Ladewig, 1999). Performance based budgeting legislation for government-funded programs was further reinforced with the enactment of AREERA. The new legislations required plans of work, integrated reporting, and progress reporting for further governmental funding (Ladewig, 1999).

The ability to evaluate and accurately articulate the outcomes associated with CES programs is critical to the continued financial and administrative support of those programs (Lamm, Israel, & Diehl, 2013). Additionally, evaluation data has been shown to ensure CES programs are relevant (Yang, Fetsch, McBride, & Benavente, 2009) and meeting the needs of their intended audience (McClure, Furhman, & Morgan, 2012). However, comprehensive evaluation of programs can be a challenge (Black & Earnest, 2009; Lamm et al., 2013).

The results reported here represent an evaluation of ANR LDPs administered by the CES within the southern region of the United States. The evaluation was designed to address the need for a more robust measure of objective performance outcomes associated with CES programs (Lamm, Israel, & Harder, 2011) as well as ensuring that ANR LDPs are engaging an appropriate audience (Broun, Nilon, & Pierce II, 2009). Furthermore, this research is directly supportive of priority area six of the National Research Agenda: American Association for Agricultural Education 2011 – 2015 (Doerfert, 2011), vibrant, resilient communities. ANR LDPs administered through the CES are uniquely positioned to provide a pipeline of community leaders. Agricultural educators will benefit by having a robust benchmark of results upon which to evaluate future educational interventions intended to improve community vibrancy and resiliency. The establishment of robust benchmarks further support priority area five of the National Research Agenda, efficient and effective agricultural education programs (Doerfert, 2011), "in order to provide evidence of program effectiveness, agricultural education programs must collect and maintain accurate data that describes the quality and impact of its programs and outreach efforts at all levels" (p. 25).

## Conceptual Framework

According to Morera et al. (2014) "Evaluation has evolved from being a necessity to being a priority in Extension" (p.73). Although legislation such as GRPA and AREERA may represent the necessity of CES program evaluation, they do not necessarily capture the priority (Lamm &

Israel, 2011). Effective evaluation has been shown to not only document program achievements, but also to contribute to a continuous improvement process where different aspects of the program are examined and adjusted as necessary (Frechtling, 2010; Patton, 2008).

Kirkpatrick's four-level evaluation model (1994) has been one of the most prominent evaluation models employed within learning environments; however, critics of the model indicate the model does not sufficiently account for contextual variables such as training participants themselves (Russ-Eft & Preskill, 2009). Theory-driven evaluation has been suggested as a means to improve the effectiveness, and utility, of program evaluation (Russ-Eft & Preskill, 2009). According to Smith (1994) theory-driven evaluation involves using a "program's rationale or theory as the basis of an evaluation to understand the program's development and impact" (p. 83). "Future learning, performance, and change evaluation models must include not only outcome variable but also the wide variety of variables affecting those outcomes" (Russ-Eft & Preskill, 2009, p. 97), consequently a synthesis of theory-driven and Kirkpatrick four-level models may be warranted.

## Social Learning Theory and the Kirkpatrick Four-Level Model

According to Black and Earnest (2009), participants in ANR LDPs "undergo learning activities that form social relationships. The participant's experiences occur through observation, modeling, cognition, and environment…these areas interact and lead to transformation within the individual, the organization, and the community" (p. 186). This process is consistent with Bandura's (1977) social learning theory (SLT). As represented in Figure 1, SLT represents the reciprocal interaction between an individual, the environment, and the individual's subsequent behavior (Bandura, 1977). For example, SLT would posit that an individual in a training, or leadership development, environment would be exposed to a program lead as well as other LDP participants. Individuals will learn not only from the program lead but also from each other. The collective experience of the lead, peers, and other environmental factors are layered into the broader context for LDP participants (Bandura, 1977). Based on these contextual observations, participant behavior would be expected to change; the modified behavior would then contribute back to the evolving context of the LDP by either being rewarded or punished; depending on the environmental consequence, the behavior may be reinforced or diminished (Bandura, 1977). After the LDP concludes, the participant behavior related to leadership-related tasks or roles would be expected to have changed accordingly (Bandura, 1977).

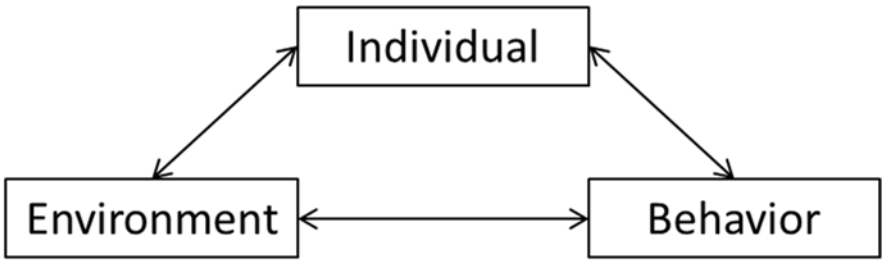


*Figure 1*. Social Learning Theory (Bandura, 1977)

For the more than 30 years SLT has been used as a theoretical underpinning to understand how and why individuals within organizations tend to function in similar yet unpredictable ways (Davis & Luthans, 1980). It is the cognitive process of the individual analyzing and making decisions based on the observations of the environment around them which leads to behavioral choices (Davis & Luthans, 1980). The process of observation and cognitive evaluation can also be understood as a form of ongoing vicarious learning (Manz & Sims, 1981). Bandura (1977) summarized the process by stating that,

> By observing a model of the desired behavior, an individual forms an idea of how response components must be combined and sequenced to produce the new behavior. In other words, people guide their actions by prior notions rather than by relying on outcomes to tell them what they must do. (p. 35)

In addition to organizational behavior (Davis & Luthans, 1980) and strategic management (Manz & Sims, 1981), SLT has also been found to be an appropriate model for educational settings (Crittenden, 2005).

## Individual

Adults choose to participate in learning programs for a variety of reasons (Strong & Harder, 2011). Students in all settings bring a variety of cognitive presets to a learning environment; we expect differences in "goals, values, motives, attitude, personality, and ability" (Crittenden, 2005 p. 961). However, consideration for the individual, and the role the participant plays within the learning context, has been absent within the existing Kirkpatrick four-level model approach (Russ-Eft & Preskill, 2009). However, a description of program participants has been identified as a meaningful evaluation measure within CES contexts, especially participant sex, race/ethnicity, and age (Guy, 2013).

Research has shown demographic antecedents of cognitive processes can help agricultural educators predict, inform, and improve, program efficacy (Lamm, Carter, Stedman, & Lamm, 2014). Agricultural educators can use demographic antecedents to make learning as personalized and effective as possible (Vincent & Ross, 2001). Additionally, these data may hold valuable programmatic insight as contextual variables (Russ-Eft & Preskill, 2009), and can help to ensure a diversity of perspectives are represented within a learning environment (Bandura, 1977).

## Environment

ANR LDPs have been found to have similar structures with the average program being 21 months long, including 12 seminars, and, on average, including 26 participants (Kaufman et al., 2012). Throughout the ANR LDP process, participants are exposed to a variety of social, political, and economic issues at the local state, national, and global levels (Lamm et al., 2014). Participants also have the opportunity to hear from, and interact with, emerging and established leaders across a number of industries and political positions. (Kaufman et al., 2012; Kellogg, 2000).

Throughout the process the program director must ensure the appropriate experiences are planned and executed and that those activities are satisfying to participants (Crittenden, 2005). Within learning contexts participant satisfaction has been identified as a necessary pre-condition for maximized development (Kirkpatrick, 1994). Therefore, understanding levels of participant satisfaction has been shown to provide valuable programmatic environmental insights (Galindo-Gonzalez & Israel, 2010). From an integration perspective, level one of the Kirkpatrick four-level evaluation model gathers participant reaction to, or satisfaction with, a training event (Kirkpatrick, 1994).

## Behavior

Behavioral outcomes associated with ANR LDPs tend to be accrued in two categories: impact on the participant and impact on the community (Carter & Culbertson, 2012). For the individual, participation in ANR LDPs has been shown to provide educational opportunities that improve participant knowledge and skill levels across a number of areas (Carter & Culbertson, 2012). Improved knowledge and skill has led to improved behavioral competence in a number of areas: critical thinking (Carter & Rudd, 2000), problem solving (Howell, Wir, & Cook, 1979), communication skills (Diem & Nikola, 2005), confidence (Carter & Rudd, 2000; Diem & Nikola,

2005; Howell et al., 1979), networking and team building skills (Earnest, 1996; Whent & Leising, 1992), and knowledge of other cultures (Diem & Nikola, 2005).

Previous research on participant behavior have tended to focus on self-reported data (Black & Earnest, 2009). According to Grove, Kibel, and Haas (2005) a more evidential measure of programmatic outcomes is an objective measure of the leadership roles participants have assumed. Level three of the Kirkpatrick four-level evaluation model specifically focuses on the degree to which participants apply what they learned following the training (Kirkpatrick, 1994). Consequently a quantitative measure of leadership positions may be an appropriate evaluative metric for Kirkpatrick level three within the behavior component of the programmatic theory, SLT.

## Conceptual Model

Based on recommendations within the literature a theory based evaluation of ANR LDPs was proposed (Russ-Eft & Preskill, 2009; Smith, 1994). The integration of the underlying programmatic theory, SLT, and associated evaluation measures is visually represented in Figure 2. In particular, the individual factor of SLT is to be evaluated using participant characteristics as recommended by Guy (2013); the environment factor is to be evaluated by Kirkpatrick level one, program satisfaction; finally, the behavior factor is to be evaluated by Kirkpatrick level three, assuming leadership roles.

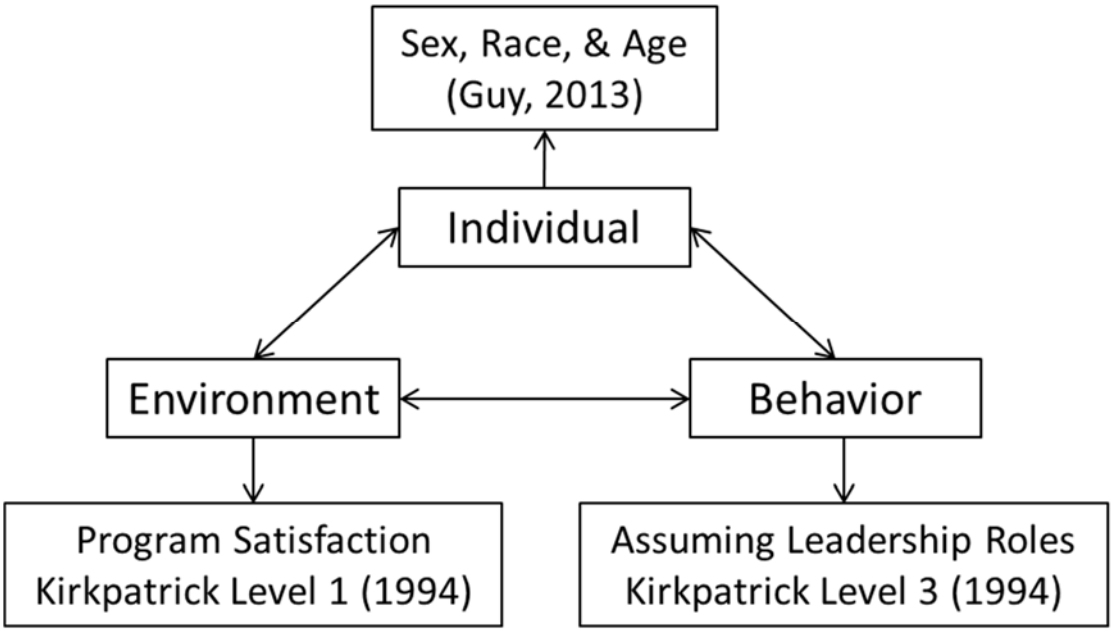


*Figure 2*. Conceptual model

## Purpose and Objectives

The purpose of this study was to evaluate ANR LDPs administered by the CES in the southern United States. The study sought to address the following research objectives:

1. Describe the characteristics of individual ANR LDP participants.
2. Describe the environmental perception among ANR LDP program participants through program satisfaction (Kirkpatrick level one).
3. Describe behavior and programmatic application of ANR LDP program participants through self-reported leadership roles (Kirkpatrick level three).

## Methods

A descriptive research design was employed to address the research objectives. Data were collected through an online survey administered to a sample of ANR LDPs within the population of interest, specifically, alumni and current participants of ANR LDPs administered through the CES in the southern United States.

### Sample, Procedures, and Data Analysis

A purposive sample was employed and included ANR LDPs that were active in the IAPAL organization and agreed to participate in the study. A purposive sample was deemed to be acceptable based on previous research indicating "purposive sampling has been useful in attitude and opinion surveys" (Ary, Jacobs, & Sorensen, 2010, p. 156), and "can produce reliable results since bias is contained even in severely heterogeneous populations" (Guarte & Barrios, 2006, p. 284).

The southern region was comprised of 15 states and territories identified by the United States Department of Agriculture (2014). These included: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Puerto Rico, and the Virgin Islands. Of the 15, there were 8 states that had active ANR LDPs associated with the IAPAL organization and constituted the sample for the study: Arkansas, Florida, Georgia, Kentucky, Louisiana, Oklahoma, Texas, and Virginia. Amongst the remaining programs not included in the sample, one state had an ANR LDP but was not active in the IAPAL organization: North Carolina; two states no longer had active ANR LDPs: Alabama and South Carolina; two states were in the process of establishing ANR LDPs, but were not active: Tennessee and Mississippi; and two territories had no identifiable ANR LDPs: Puerto Rico and the Virgin Islands.

Data were collected in the spring of 2014 using an online questionnaire developed in Qualtrics. Participants were contacted using Dillman, Smyth, and Christian's (2008) tailored design method. Participants were contacted using a standard procedure. First, the program director emailed a pre-notice to all program participants approximately one week prior to the survey. Second, the researcher sent an email invitation to each participant that contained a link to the survey, a requested response date, and the Institutional Review Board verbiage notifying participants that there were no penalties or compensation for participating or not participating. Third, one week after the survey invitation the researcher sent a reminder email to non-responders. Fourth, one week after the first reminder the researcher sent a second reminder email to non-responders. Fifth, two days prior to the survey end date the researcher sent a third reminder email to non-responders. Sixth, the researcher sent a fourth and final email to non-responders on the survey end date.

A total of 2060 questionnaire invitations were sent via email, with 286 returned based on inaccurate email addresses, for a net of 1774 potential respondents. A total of 960 questionnaires were completed for an overall response rate of 54%. Nonresponse analysis was conducted by comparing early and late respondents based on the recommendations of Lindner, Murphy, and Briers (2001). Participants that completed the survey prior to the first reminder message were considered early responders, whereas individuals that completed the survey after the third reminder message were considered late responders. No statistically significant differences between the two groups were observed. Consequently, non-response bias was not found to be an issue. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 21. Descriptive statistics were calculated for all subsequent demographic, environment, and behavior variables (Ary et al., 2010).

## Measures

**Individual.** Within the SLT framework, individual attributes were measured using demographic data obtained through respondent self-report. Specifically, individuals were asked to report their sex, race/ethnicity, and age. For the purposes of the study respondent race and ethnicity were defined as self-perceived membership in population groups that define themselves by cultural heritage, language, physical appearance, behavior, or other characteristics ("Standards", 1995, p. 26). In this study, race was defined as: American Indian or Alaska native; Asian or Pacific Islander; Black or African American; White; or Other. Ethnicity was defined as either Hispanic/Latino(a)/Chicano(a) or not. These categories were based on United States of America Office of Management and Budget standards for the classification of Federal Data on Race and Ethnicity ("Standards", 1995, p. 29).

Regarding age, respondents were asked to indicate the month and year that they were born. Based on the provided information, an approximate age at time of response was calculated. Additionally, respondents were asked to indicate the year they completed their ANR LDP. Based on the provided graduation year and year born an approximate age at graduation was calculated. The approximate age at graduation variable was created to provide additional programmatic insights (Rossi, Lipsey, & Freeman, 2004).

**Environment.** Program environment was measured through participant satisfaction with the program (Galindo-Gonzalez & Israel, 2010; Kirkpatrick, 1994). Participants self-reported program satisfaction using a researcher-adapted scale developed by Judge, Boudreau, and Bretz (1994). The original measure was found to have a Cronbach's α of .85. The scale was selected based on previous use within agricultural leadership research (Lamm, et al., 2014). The three-item scale assesses individual satisfaction (*yes* = 1, *no* = 0), how the individual typically felt about the program (1 = *least satisfied* to 5 = *most satisfied*), and finally percent of time satisfied (0% - 100%). The results from the three items were multiplied to calculate an overall construct score. Scores on the overall satisfaction construct ranged from zero to five. For example, an individual that indicated they were satisfied with the project team on the first question was coded as a one, if the individual then selected the most satisfied option the second question was coded as a five, in the final question if the individual indicated that they were satisfied with their program 85% of the time this was used as the final value. The index calculation would then be 1 x 5 x .85 or 4.25.

**Behavior.** Evaluations of measurable participant behaviors are some of the most robust mechanisms through which the CES can quantify impact (Franz & Townson, 2008). In this study, behavior was quantified by summing the number of leadership roles participants reported holding. Individuals were asked to indicate if they had held any leadership roles since completing their ANR LDP. If an individual indicated *yes,* a follow up question asked for the names of up to five organizations they had held a leadership role within. For each organization that an individual identified, they were asked to identify the type of leadership roles they had held. Individuals could select from a list of nine leadership roles: President, President-elect, Vice President, Secretary, Treasurer, Board Member, Committee/Activity Chair, Volunteer, or Other. For example, if an individual indicated that they had served one organization, their local Farm Bureau, a follow up question collected information regarding roles held within that organization. If the individual had served as a board member and a volunteer in the organization, a total of two leadership roles would be recorded. There were no weightings assigned to leadership role type, a count of responses was determined to be sufficient based on the research objectives (Agresti & Finlay, 2009).

## Results

### Individual Characteristics – Demographics

The sample was 74.3% ($n$ = 550) male and 25.7% ($n$ = 190) female. Based on respondent provided birth month and year, approximate age at the time of the study was calculated. The average age of respondents at the time of the study was 49 ($M$ = 48.84, $SD$ = 10.63), with a range of ages between 24 and 80. The average age at graduation from their ANR LDP was 39 ($M$ = 38.61, $SD$ = 8.37), with a range of ages between 22 and 65.

Examining ethnicity, 1.7% ($n$ = 16) of respondents identified themselves as Hispanic/Latino(a)/Chicano(a). In regards to respondents' race, 92.2% ($n$ = 676) identified themselves as White, 2.6% ($n$ = 19) identified themselves as Black or African American, 1.6% ($n$ = 12) identified themselves as American Indian or Alaska Native, one individual self-identified as Asian or Pacific Islander (0.1%), and 1.2% ($n$ = 9) identified themselves as Other. A complete description of participant demographics can be found in Table 1.

Table 1
*Demographics of Participants*

| Characteristic | *n* | % |
|---|---|---|
| *Sex* | | |
| Male | 550 | 74.3 |
| Female | 190 | 25.7 |
| *Current Age* | | |
| Under 30 | 20 | 2.8 |
| 30 to 39 | 138 | 19.3 |
| 40 to 49 | 198 | 27.7 |
| 50 to 59 | 235 | 32.8 |
| 60 to 69 | 116 | 16.2 |
| 70 and over | 9 | 1.3 |
| *Age at Graduation* | | |
| Under 30 | 92 | 13.4 |
| 30 to 39 | 316 | 45.9 |
| 40 to 49 | 205 | 29.8 |
| 50 to 59 | 65 | 9.4 |
| 60 to 69 | 11 | 1.6 |
| *Race* | | |
| American Indian or Alaska Native | 12 | 1.6 |
| Asian or Pacific Islander | 1 | 0.1 |
| Black or African American | 19 | 2.6 |
| White | 676 | 92.2 |
| Other | 9 | 1.2 |
| Hispanic Ethnicity | 16 | 2.2 |

### Environment – Program Satisfaction

The environmental perception among ANR LDP program participants was quantified vis-à-vis a measure of program satisfaction associated with level one of the Kirkpatrick model. Level of satisfaction with their ANR LDP, as reported by respondents, was calculated using the Judge et

al. (1994) scoring key. Of respondents, 95.6% ($n$ = 710) were satisfied with their ANR LDP. Individuals' feeling toward their ANR LDP had a minimum score of 1 and a maximum score of 5. Percentage of time satisfied ranged from a minimum of 2% to a maximum of 100% ($M$ = 87.74%, $SD$ = 13.40%). Program satisfaction scale scores had a possible range of zero to five. The ANR LDP satisfaction scale index had a minimum score of 0 and maximum score of 5.00 ($M$ = 4.00, $SD$ = 1.18). A complete description of participant response frequencies can be found in Table 2.

Table 2
*Satisfaction with Program*

| Item | *n* | % |
|---|---|---|
| *Satisfied Overall* | | |
| Yes | 710 | 95.6 |
| No | 33 | 4.4 |
| *Feeling Toward ANR LDP* | | |
| Very Dissatisfied | 3 | 0.4 |
| Dissatisfied | 11 | 1.5 |
| Neither Satisfied Nor Dissatisfied | 31 | 4.4 |
| Satisfied | 207 | 29.1 |
| Very Satisfied | 460 | 64.6 |
| *% of Time Satisfied* | | |
| Under 25% | 4 | 0.6 |
| 25% to 49% | 14 | 1.9 |
| 50% to 74% | 66 | 9.2 |
| 75% to 99% | 538 | 74.6 |
| 100% | 99 | 13.7 |

**Behavior – Assuming Leadership Roles**

To quantify behavior following participation in an ANR LDP, respondents were asked to indicate if they had served in leadership roles within professional organizations, their community, or as part of their personal life. Of the 633 respondents, 87% ($n$ = 550) indicated they had participated in at least one leadership role. If a respondent indicated they had held a leadership role, a second question prompted them to indicate up to five organizations within which they had held such a role. A total of 478 individuals documented one or more organizations. For each organization that an individual indicated as holding a leadership position within, a follow up question prompted them to indicate the type(s) of leadership position they held. A total of 439 individuals indicated they held at least one specific leadership role. Within each organization an individual could indicate up to nine different leadership roles. Total leadership roles were calculated by multiplying number of roles by frequency. Respondents had held a total of 2,778 leadership roles. Total leadership roles by type were calculated by multiplying role count by frequency. Respondents had served in board member roles the most ($n$ = 830), followed by presidencies ($n$ = 467). Results are displayed in Table 3.

Table 3
*Type and Number of Leadership Roles (n = 439)*

| Type and number of roles | *f* | % |
|---|---|---|
| Board Member | 830 | 29.9 |
| President | 467 | 16.8 |
| Committee/Activity Chair | 425 | 15.3 |
| Volunteer | 315 | 11.3 |
| Vice President | 241 | 8.7 |
| President-elect | 147 | 5.3 |
| Secretary | 136 | 4.9 |
| Treasurer | 119 | 4.3 |
| Other | 98 | 3.5 |
| Total | 2,778 | 100.0 |

## Conclusions, Recommendations, and Implications

Although there have been a number of studies evaluating individual ANR LDPs (e.g. Black & Earnest, 2009; Carter & Rudd, 2000; Whent & Leising, 1992) there has been a lack of studies focused on programmatic impacts of such programs within the broader context of CES. This is an understandable limitation given the complexity, accountability, and funding diversity within CES programs (Franz & Townson, 2008). Additionally, the observed uniqueness of program participants makes evaluation a challenge (Lamm et al., 2014). However, legislation such as GPRA and AREERA represent a mandate for all CES programs to track and report impacts and outcomes accurately (Lamm et al., 2013). Extending on previous research, which asked individuals to assess the capacity to act as a leader (e.g., Kelsey & Wall, 2003), this study asked for specific leadership roles held within organizations. Additionally, this study specifically addresses a need identified in previous agricultural education research to better understand agricultural and natural resource opinion leaders (Lamm et al., 2014) as well as supporting the National Research Agenda "in order to provide evidence of program effectiveness, agricultural education programs must collect and maintain accurate data that describes the quality and impact of its programs and outreach efforts at all levels" (Doerfert, 2011, p. 25).

### Individual

One measure of CES program impact is tracking the demographics of participants for later reporting to the National Institute of Food and Agriculture (Guy, 2013). Ideally it would be possible to articulate participant characteristics from program records; however, such records are frequently incomplete or unavailable. In the absence of such records, survey data and analysis can provide valuable insights (Rossi et al., 2004).

Based on the results of this study, the average participant was male (74%), white (92%), and in their late thirties at graduation ($M$ = 38.61, $SD$ = 8.37). Conducting a *post hoc* analysis relative to available USDA and Organization for Economic Co-operation and Development (OECD) data these results would indicate that ANR LDPs are maintaining necessary parity requirements for the targeted audience. Specifically, the OECD (2005) found that for every female employed in agriculture there were 30.5 males. Additionally, according to an analysis of the 2007 Census for Agriculture Race, Ethnicity, and Gender Profiles in the southern region of the United States, approximately 92.2% of all farms are operated by individuals that identify themselves as White (USDA, 2009). From an age perspective, in 2007 the United States Department of Agriculture (USDA) found that the average age of a farm operator in the United States was 57, an

increase from 54 in 1997. The census data would indicate that principal farm operators are aging and that the trend could result in a non-sustainable farming workforce, therefore the need to prepare the next generation of younger operators is paramount (USDA, 2007).

According to Bandura (1977), a diversity of individuals will ensure participants are exposed to a variety of viewpoints and can expand their social learning potential accordingly. These results also indicate that there tends to be a high degree of homophily, or participant similarity, within ANR LDPs. "Homophily limits people's social worlds in a way that has powerful implications for the information they receive, the attitudes they form, and the interactions they experience" (McPherson, Smith-Lovin, & Cook, 2001, p. 415). Although previous research indicated there were costs associated with greater diversity, such as increased group conflict and lower cohesion (Staples & Zhao, 2006), there are also well-established benefits. For example, although diverse groups "can lead to conflict, they also provide an opportunity to solve problems in unique ways" (Robbins & Judge, 2009, p. 310).

Audience parity is necessary but not sufficient to maximize the potential value associated with the individual aspect of SLT. "Homophily in race and ethnicity creates the strongest divides in our personal environments, with age, religion, education, occupation, and gender following in roughly that order" (McPherson et al., 2001, p. 415). ANR LDPs are encouraged to continue to recruit individuals from a variety of genders, races, and ages to ensure a variety of perspectives are represented. Current marketing and recruiting strategies may need to be analyzed to ensure an appropriately diverse audience is aware of opportunities for participation. Additionally, future research is suggested to specifically identify access barriers or facilitators across different audiences.

## Environment

Based on SLT, environmental factors that represent the situation-consequence construct in which a learner is situated have a direct influence on behavioral outcomes (Davis & Luthans, 1980). In particular, environmental conditions support or suppress a learner's ability to supply the necessary attention as well as retain the imparted material (Bandura, 1977). In this regard satisfaction was used as an environmental measure of learning environment (Crittenden, 2005). With over 93% of respondents indicating they were satisfied or very satisfied with their ANR LDP, program directors should be recognized for these outstanding results. As it relates to SLT, the high levels of environmental satisfaction should result in higher productivity, or desired behavioral outcomes (Robbins & Judge, 2009).

From a CES program evaluation perspective, the assessment of program environment measured though participant satisfaction is well established within the CES literature (e.g., Galindo-Gonzalez & Israel, 2010). The results from this study indicated that participants have been very satisfied with their ANR LDP, and consequently the learning environment is meeting their needs.

Agricultural educators can utilize these findings to further enhance programming efforts directed at professional audiences. The typical ANR LDP model of multiple in-person seminars where participants are expected to engage in the learning environment through experiential means provides empirical evidence for the efficacy of such teaching modalities. Furthermore, the results establish a benchmark of satisfaction that similar programs can use for comparison purposes.

## Behavior

Based on recommendations within the literature, an evidential measure of programmatic outcomes was employed, specifically an objective measure of the leadership positions participants have assumed after completing their ANR LDP (Grove et al., 2005). In particular a total 2,778 leadership roles were reported. Conservatively this would equate to 2.9 roles for each of the 960

respondents. Alternately, of the 960 respondents at least 46% had taken on a leadership position after completing their ANR LDP compared with 25.3% of United States citizens according to a Bureau of Labor Statistics report (2014). Although the 20% differential between groups is noteworthy, the lack of tests for statistical significance limits further interpretation.

Although a large number of leadership positions have been held, over half of respondents did not indicate taking on such a role following their participation in an ANR LDP. Based on this result more programmatic focus on assuming leadership positions is suggested. Additional research is recommended to follow up with those respondents that indicated that they have not taken on leadership positions in an attempt to identify barriers to doing so. Any programmatic barriers that are identified should be addressed through curriculum updates. Ongoing monitoring of intended behavioral outcomes amongst participants should provide one of the most robust evaluations of programmatic efficacy. Additionally, results indicated that participants are holding numerous leadership roles; however, what is unclear is how these results are impacted by participation in the ANR LDP. More rigorous longitudinal tracking of program alumni and requests for specific attribution of roles to programs is recommended.

## Limitations and Additional Recommendations

Although the researchers employed a number of best practices in conducting this research, there are limitations that must be addressed. First, the response rate obtained for this study is acceptable given established guidelines (Baruch & Holtom, 2008); however, it is lower than ideal (Dillman et al., 2008). Secondly, the results were limited to those individuals that were provided to the researcher by program directors. Since all ANR LDPs are run independently, there is no central database against which to confirm provided information.

Future research is recommended to extend beyond just those ANR LDPs that are administered through a state CES. A broader evaluation of ANR LDPs would provide greater visibility to the impact associated with such programs. Specifically, a review of programs administered through CES and non-CES systems, and from across all regions of the United States and internationally. Additionally, future research is suggested to investigate the antecedents of taking on leadership roles. Determining what the optimal conditions under which individuals take on leadership roles will help to inform agricultural educators develop the most appropriate and effective learning interventions possible.

In summary, the results of this evaluation are generally positive; however, some areas of opportunity have been identified. Recruiting a more diverse set of participants and trying to encourage all participants to take on future leadership roles are particularly noteworthy. The establishment of benchmarks within a theory-based evaluation framework should inform future ANR LDP data analysis. Ideally more robust evaluations will lead to more impactful ANR LDPs and ultimately a more equipped participant base that can serve as leaders within their communities and the agricultural industry.

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