

# Measurement of leadership skills development among veterinary students and veterinary professionals participating in an experiential leadership program (the Veterinary Leadership Experience)

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## OBJECTIVE

To evaluate outcomes associated with an experiential leadership program (the Veterinary Leadership Experience [VLE]) among participants 1 year after program completion.

## SAMPLE

157 veterinary students and 61 veterinary professionals who participated in the 2015 or 2016 VLE.

## PROCEDURES

Participants completed various instruments to assess emotional intelligence, psychological flexibility, resilience, and client-communication skills prior to (pretest) and 1 year after (posttest) attending the VLE; pretest and posttest findings were compared for all but client-communication skills, for which only posttest responses were analyzed. An additional posttest instrument assessed the impact that the VLE had on key knowledge areas (ie, self-awareness, self-management, social awareness, relational competence, communication skills, and conflict management skills) and overall impact.

## RESULTS

1 year after completing the VLE, participants reported that the program had a high impact on all key knowledge areas; the impact on social awareness and overall impact was significantly higher for veterinary students than for veterinary professionals. Veterinary professionals reported a greater increase in emotional intelligence after program completion than did veterinary students. For each assessed client-communication skill, the percentage of veterinary professionals who reported increased confidence in that skill after program completion was lower than the corresponding percentage of veterinary students. Resilience and psychological flexibility scores did not increase after program completion.

## CONCLUSIONS AND CLINICAL RELEVANCE

Assessment of the effectiveness and long-term outcomes of experiential leadership programs is important to understanding whether such programs are having the intended effect. Veterinary students and veterinary professionals who were assessed 1 year after completing the VLE reported improvements in leadership skills foundational to the program. (*J Am Vet Med Assoc* 2019;255:1167–1173)

**T**he need to develop leadership competencies in veterinary students and veterinary professionals has been highlighted by commentators<sup>1–3</sup> and national working groups.<sup>4,5</sup> As a result, many veterinary organizations sponsor various leadership development programs. The list of attributes, competencies, and skills that underpin effective leadership is lengthy and includes foundational skills related to emotional intelligence, communication skills, resilience, and conflict management.<sup>2,3,6–8</sup>

## ABBREVIATIONS

AAQ-II	Acceptance and Action Questionnaire-II
RSA	Resilience Scale for Adults
TEIQue-SF	Trait Emotional Intelligence Questionnaire-Short Form
VLE	Veterinary Leadership Experience

The VLE, which is grounded in servant leadership and was developed to target these foundational leadership skills, grew out of Washington State University's Cougar Orientation and Leadership Experience for veterinary students entering the College of Veterinary Medicine. After 3 successful years as a veterinary student program, the VLE was developed as a separate event in 2003 to include students and faculty members from veterinary schools and colleges in the United States and other countries, private practitioners, and industry partners. In 2010, the VLE moved under the auspices of a newly created nonprofit organization, the Veterinary Leadership Institute, but remained an annual 5-day program that combines didactic presentations, facilitated small and large group interactions, experiential activities, personal reflection, and group debriefings. In 2015, the curriculum

was revised to organize the program around the 4 key pillars of emotional intelligence, communication skills, resilience, and conflict management under an umbrella of personal and servant leadership. More recently, psychological flexibility and growth mindset have become important programmatic concepts.

The VLE is held in a camp-type setting, surrounded by nature, to encourage participants to step away from their “typical” life, focus on well-being, and explore who they are as individuals and leaders. Participants are introduced to the 4 pillars of the program and the concept of “Challenge by Choice,” designed to provide participants a safe growth environment in which to challenge themselves through the activities. Each participant receives a manual that outlines the curriculum, poses daily reflective questions, and guides learning. Topics include the personality dimensions from the Myers-Briggs Type Indicator, listening skills, social awareness, self-management, empathy, and wellness.

Participants work in groups of 10 to 12 (veterinary students and veterinary professionals combined) to promote an individualized learning approach and development of close relationships among group members. Each group has 2 or 3 facilitators who are trained to actively engage participants in reflective dialogue, promote team building, and create physically and emotionally safe spaces; most facilitators are veterinarians who have previously attended the VLE. These groups focus on experiential learning activities through the use of nonstrenuous physical group activities (eg, navigating obstacle courses) designed to challenge individuals to work together to accomplish a task. Facilitators choose activities to maximize learning and the application of leadership concepts by their groups and follow up with debriefing and processing sessions to link experiences to didactic information. Didactic information is presented in a discussion format, with technology and skits used to make the material engaging and relevant. Large group activities provide opportunities to build social networks and enhance servant leadership capabilities. Participants are also provided with free time for reflection, fun, and socialization. The well-being of participants is supported by 2 consultants with training in psychology.

Although numerous leadership development opportunities exist for veterinary students and veterinary professionals, there is a paucity of research assessing the outcomes of such programs.<sup>9</sup> One study<sup>10</sup> showed that 21 students who completed an elective 5-day leadership course rated themselves as more effective leaders than their nonparticipant peers. Additionally, several studies<sup>11–18</sup> have shown the influence of leadership development programs on specific abilities such as communication and resilience-related skills. To the authors’ knowledge, no reports have been published regarding the influence of leadership development programs on emotional intelligence—a central concept in leadership training, effective veterinary practice, and personal health and well-being.

Given the increasing number of veterinary leadership programs, it would be important to assess their effect on leadership skills development among participants. Thus, we sought to assess leadership skills development among participants 1 year after VLE program completion. Specifically, our research was guided by the following questions:

1. Did participants report an impact on their knowledge of self-awareness, self-management, social awareness, relational competence, communication skills, and conflict management skills?
2. Did measures of emotional intelligence, psychological flexibility, and resilience change for participants?
3. Did participants report increased confidence in specific client-communication skills?

We hypothesized that the VLE would affect all measured constructs over time. Further, we hypothesized that the veterinary students and veterinary professionals would differ in their outcomes, given their different levels of professional development.

## Materials and Methods

### Participants

At the time of the study, veterinary schools accredited by the Council on Education of the AVMA were invited to choose 2 students and 1 or more faculty members to attend the VLE each year. Each veterinary school selected participants on the basis of their own individual selection criteria. Other potential veterinary applicants (ie, private practitioners and industry partners) learned about the VLE from the Veterinary Leadership Institute website and from Veterinary Leadership Institute speakers who attended regional and national continuing education meetings.

In 2015 and 2016, VLE participants were provided an overview of the study and invited to enroll; all participation was voluntary and no exclusion criteria were used. Written informed consent was obtained from participants on arrival at the VLE.

Prior to the start of the program, participants completed an initial (pretest) set of survey instruments that collected background information and assessed emotional intelligence, psychological flexibility, resilience, and client-communication skills. A follow-up (posttest) set of instruments was sent to each participant 1 year after program completion, regardless of whether they had participated at the pretest point. In addition to the instruments from the pretest set, the posttest set also included a survey to assess the impact that the VLE had on key areas of knowledge (eg, self-awareness, self-management, and social awareness) and overall impact of the program. The resilience assessment was included with the pretest and posttest instruments provided to 2016 VLE participants only. Pretest instruments were completed on paper in 2015 and on paper or via an online survey platform<sup>a</sup> in 2016. All posttest instruments were completed via

the online survey platform. Procedures for the study were approved by the Institutional Review Board of Utah State University.

### Collected information

**Background information**—At the pretest point, participants were asked to complete a survey designed to collect general demographic and other information, such as age, gender, ethnicity or race, role in the profession (eg, veterinary student, faculty member, industry partner, or private practitioner), and amount of time in their role.

**Emotional intelligence**—At both assessment points (pretest and posttest), the TEIQue-SF<sup>19</sup> was administered to assess emotional intelligence. The TEIQue-SF was chosen because of previous validation of the instrument, its ability to broadly assess emotional intelligence (rather than 1 facet of the construct), and its reasonable overall length (30 items). This instrument consisted of 4 subscales: well-being (eg, self-esteem, trait happiness, and trait optimism), self-control (eg, emotion regulation, stress management, and impulsiveness), emotionality (eg, emotion perception, emotion expression, trait empathy, and relationships), and sociability (eg, social awareness, emotion management, and assertiveness). Each item on the TEIQue-SF was rated on a 7-point Likert scale (range, 1 = strongly disagree to 7 = strongly agree). Ratings were summed to create subscale and total scores, with higher scores indicating greater emotional intelligence. Internal consistency reliability (ie, how well items measure the same construct) of the TEIQue-SF total score at pretesting was 0.87, where 1.0 indicates perfect agreement.

**Psychological flexibility**—At both assessment points, the AAQ-II<sup>20</sup> was administered to assess psychological flexibility and growth mindset. Each of the 7 items on this instrument were rated on a 7-point Likert scale (range, 1 = never true to 7 = always true). Ratings were summed to create a total score, with lower scores (< 24) indicating greater psychological flexibility. Although there is no established cutoff for the AAQ-II, a total score exceeding a range of 24 to 28 is associated with higher levels of distress. Internal consistency reliability of the AAQ-II total score at pretesting was 0.85.

**Resilience**—At both assessment points (for 2016 program participants only), the RSA<sup>21</sup> was used to measure the ability of participants to tolerate stress and maintain mental health along the dimensions of personal competence, social competence, personal structure, family coherence, and social support; it was selected on the basis of previous validation of the instrument, its broad assessment of resilience (including contextual factors such as social support), and its reasonable overall length (33 items). Each item on the RSA was rated on a 5-point Likert scale (the direction of the positive and negative attributes of the anchor points for each item varied to reduce acquiescence

bias). Ratings were summed to create a total score, with higher scores indicating greater resilience. Internal consistency reliability of the RSA total score at pretesting was 0.87.

**Client-communication skills**—At both assessment points, participants were asked to indicate their degree of agreement or disagreement with 13 items regarding their client-communication skills. These items were derived from a 5-year study<sup>11</sup> that identified the most important communication competencies that veterinary students believed they should acquire by graduation. Items were rated on a 5-point Likert scale (range, 1 = strongly disagree to 5 = strongly agree), with higher scores indicating greater confidence in one's communication skills. There were no subscale or total scores for measurement of communication skills.

At the posttest point only, participants were asked to indicate whether (yes or no) their confidence in these communication skills had increased as a result of the VLE. These dichotomous posttest data were the only client-communication skills data included in the analysis; the pretest data were not analyzed.

**Impact on key knowledge areas**—At the posttest point only, participants were asked to rate the impact that the VLE had on key areas of their knowledge (ie, self-awareness, self-management, social awareness, relational competence, communication skills, and conflict management skills). Additionally, 1 item asked participants to assess the overall impact that the VLE had on them. Items were rated on a 7-point Likert scale (range, 1 = no impact to 7 = significant impact).

### Statistical analysis

Descriptive statistics (ie, mean, SD, and frequency distribution) were calculated for scores obtained with each instrument that involved a Likert scale. The scores for each key knowledge area were categorized as high (5 to 7), moderate (4), or low (1 to 3) for descriptive purposes; the distribution of scores (uncollapsed) for each knowledge area was compared between veterinary students and veterinary professionals with a 2-tailed  $\chi^2$  test. For the TEIQue-SF (emotional intelligence), AAQ-II (psychological flexibility), and RSA (resilience), mean total scores (pretest and posttest) for participants that had scores available for both assessment points were compared with the paired *t* test (overall and for veterinary students and veterinary professionals separately); subscale scores were similarly compared for the TEIQue-SF. For each measured client-communication skill, the frequency with which participants reported increased confidence in that skill (ie, a "yes" response) was compared between veterinary students and veterinary professionals with a 1-tailed  $\chi^2$  test to test the hypothesis that veterinary students would be more likely to report increased confidence in that skill than would

veterinary professionals. All analyses were performed with statistical software.<sup>b</sup> Values of  $P < 0.05$  were considered significant.

## Results

### Participants

Overall, 157 (77 in 2015 and 80 in 2016) veterinary students and 71 (41 in 2015 and 30 in 2016) veterinary professionals participated in the VLE during the study period. All 157 (100%) veterinary students (mean [SD] age, 24.4 years [4.0 years]) and 61 of 70 (86%) veterinary professionals (41.0 years [8.9 years]) completed the set of instruments at the pretest point. Most veterinary students and veterinary professionals identified as female (123/157 [78%] and 43/61 [70%], respectively). Among the 157 veterinary students, ethnicity or race was reported as white ( $n = 134$  [85%]), Asian (9 [6%]), African American (5 [3%]), multiracial (3 [2%]), Middle Eastern (2 [1%]), or Hispanic or Latino (1 [1%]) or was not reported (3 [2%]). Among the 61 veterinary professionals, ethnicity or race was reported as white ( $n = 51$  [84%]), African American (3 [5%]), Asian (2 [3%]), or Middle Eastern (1 [2%]) or was not reported (4 [7%]). Most veterinary students (68/157 [43%]) were in their second year of veterinary school, and veterinary professionals had been in their current positions for a mean of 7.9 years. A total of 58 veterinary students and 27 veterinary professionals completed the instruments at the posttest point.

### Emotional intelligence, psychological flexibility, and resilience

Among the 218 participants (157 veterinary students and 61 veterinary professionals) who participated at the pretest point, 67 (31%; 45 veterinary students and 22 veterinary professionals) completed the TEIQue-SF and AAQ-II at both assessment points (pre-

test and posttest) and 30 (14%; 21 veterinary students and 9 veterinary professionals) completed the RSA at both assessment points.

The mean total scores (pretest and posttest) for the TEIQue-SF (emotional intelligence), AAQ-II (psychological flexibility), and RSA (resilience) and the mean subscale scores (pretest and posttest) for the TEIQue-SF were summarized (**Table 1**). Resilience and psychological flexibility scores for all participants did not change significantly between assessment points. For veterinary students and veterinary professionals, there was a significant increase between assessment points in the TEIQue-SF total score and the TEIQue-SF sociability subscale score. Between the pretest and posttest TEIQue-SF, the emotionality subscale score increased significantly for veterinary students and the self-control and well-being subscale scores increased significantly for veterinary professionals.

### Client-communication skills

Among the 85 participants who completed the posttest assessment of communication skills, the highest percentage reported increased confidence in the ability to tolerate the client's point of view, display empathy for a client, and establish and maintain rapport with a client as a result of the VLE (**Table 2**); these results were consistent between veterinary students and veterinary professionals. A high percentage (> 60%) of students reported increased self-confidence for most communication skills; the percentage reporting increased confidence was lowest for the ability to control facial expressions (44%) and engage in appropriate small talk (59%). For each communication skill, the percentage of veterinary professionals who reported increased confidence in that skill as a result of the VLE was lower than the corresponding percentage for veterinary students.

**Table 1**—Mean (SD) emotional intelligence\*, psychological flexibility†, and resilience‡ scores as reported by VLE participants before (pretest) and 1 year after (posttest) completing the 2015 or 2016 program.

Assessment	All participants (n = 85)			Veterinary students (n = 58)			Veterinary professionals (n = 27)		
	Pretest	Posttest	P value§	Pretest	Posttest	P value§	Pretest	Posttest	P value§
Emotional intelligence subscales									
Well-being	34.8 (5.5)	35.7 (6.3)	0.13	35.0 (6.0)	35.4 (7.0)	0.58	34.4 (4.4)	36.2 (4.6)	0.03
Sociability	28.1 (5.8)	30.3 (5.0)	< 0.001	28.6 (6.1)	30.9 (5.0)	0.002	27.0 (5.0)	29.0 (4.6)	0.02
Self-control	28.0 (4.8)	29.2 (5.1)	0.01	28.4 (4.4)	29.1 (5.4)	0.24	26.9 (5.5)	29.4 (4.5)	0.01
Emotionality	39.3 (6.6)	41.1 (6.8)	0.008	39.1 (5.8)	41.2 (6.8)	0.01	39.6 (8.1)	40.9 (7.0)	0.35
Emotional intelligence (total)	151.8 (18.9)	159.3 (19.7)	< 0.001	152.8 (19.4)	159.6 (21.7)	0.002	149.8 (18.0)	158.5 (16.0)	0.003
Psychological flexibility (total)	20.1 (8.4)	18.8 (8.0)	0.06	20.8 (8.9)	19.4 (8.7)	0.11	18.7 (7.2)	17.6 (6.0)	0.36
Resilience (total)	127.4 (16.5)	127.6 (17.9)	0.94	130.2 (17.1)	129.0 (20.2)	0.57	120.8 (13.8)	124.3 (11.3)	0.51

\*Measured with the TEIQue-SF.<sup>19</sup> Each item was rated on a 7-point Likert scale (range, 1 = strongly disagree to 7 = strongly agree); ratings were summed to create subscale and total scores, with higher scores indicating greater emotional intelligence. †Measured with the AAQ-II.<sup>20</sup> Each item was rated on a 7-point Likert scale (range, 1 = never true to 7 = always true); ratings were summed to create a total score, with lower scores indicating greater psychological flexibility. ‡Measured with the RSA.<sup>21</sup> Each item was rated on a 5-point Likert scale (the direction of the positive and negative attributes of the anchor points for each item varied); ratings were summed to create a total score, with higher scores indicating greater resilience. §The paired *t* test was used for these comparisons.

Scores for the TEIQue-SF and AAQ-II were obtained for both assessment points (pretest and posttest) for 67 participants in both years (45 veterinary students and 22 veterinary professionals); scores for the RSA were obtained for both assessment points for 30 participants in 2016 only (21 veterinary students and 9 veterinary professionals).

**Table 2**—Number (%) of VLE participants who reported increased confidence\* in 13 specific client-communication skills 1 year after completing the 2015 or 2016 program.

Communication skill	All participants (n = 85)	Veterinary students (n = 58)	Veterinary professionals (n = 27)	P value†
Listen effectively	55 (65)	42 (72)	13 (48)	0.04
Tolerate client's point of view	66 (78)	48 (83)	18 (67)	0.08
Control facial expressions	33 (39)	25 (43)	7 (26)	0.10
Communicate effectively with angry client	56 (66)	42 (72)	14 (52)	0.08
Establish and maintain rapport	62 (73)	45 (78)	16 (59)	0.11
Communicate assertively in the consultation	56 (66)	42 (72)	14 (52)	0.08
Engage in appropriate small talk	47 (55)	34 (59)	12 (44)	0.15
Gain client's trust	59 (69)	43 (74)	15 (56)	0.11
Recognize how bonded a client is to their pet	48 (56)	38 (66)	12 (44)	0.015
Respond to an unexpected question	51 (60)	35 (60)	15 (56)	0.45
Display empathy	66 (78)	48 (83)	18 (67)	0.08
Negotiate a mutually acceptable treatment plan	48 (56)	37 (64)	11 (41)	0.047
Use appropriate eye contact	49 (58)	40 (69)	8 (30)	0.002

\*Participants indicated whether (yes or no) their confidence in these communication skills increased. †A 1-tailed  $\chi^2$  test was used to compare values between veterinary students and veterinary professionals to test the hypothesis that veterinary students would be more likely to report increased confidence in that skill than would veterinary professionals.

**Table 3**—Self-assessed impact\* of the VLE on 7 key areas of knowledge and the overall impact as reported by participants 1 year after completing the 2015 or 2016 program.

Impact, by area of knowledge	All participants (n = 85)		Veterinary students (n = 58)		Veterinary professionals (n = 27)	
	No (%) with response	Mean (SD) score	No (%) with response	Mean (SD) score	No (%) with response	Mean (SD) score
Self-awareness		5.8 (1.2)		5.9 (1.2)		5.6 (1.3)
Low	3 (4)		2 (3)		1 (4)	
Moderate	6 (7)		4 (7)		2 (7)	
High	76 (89)		52 (90)		24 (89)	
Self-management		5.4 (1.3)		5.5 (1.3)		5.2 (1.5)
Low	5 (6)		3 (5)		2 (7)	
Moderate	14 (16)		9 (16)		5 (19)	
High	66 (78)		46 (79)		20 (74)	
Social awareness†		5.6 (1.2)		5.7 (1.1)		5.4 (1.3)
Low	4 (5)		2 (3)		2 (7)	
Moderate	8 (9)		8 (14)		0 (0)	
High	73 (86)		48 (83)		25 (93)	
Relational competence		5.5 (1.2)		5.6 (1.1)		5.2 (1.3)
Low	4 (5)		2 (3)		2 (7)	
Moderate	10 (12)		7 (12)		3 (11)	
High	71 (84)		49 (84)		22 (81)	
Communication skills		5.6 (1.1)		5.8 (1.1)		5.3 (1.2)
Low	3 (4)		1 (2)		2 (7)	
Moderate	14 (16)		9 (16)		5 (19)	
High	68 (80)		48 (83)		20 (74)	
Conflict management		5.5 (1.3)		5.7 (1.2)		5.1 (1.2)
Low	7 (8)		4 (7)		3 (11)	
Moderate	8 (9)		4 (7)		3 (11)	
High	70 (82)		49 (84)		21 (78)	
Overall impact†		6.2 (1.0)		6.7 (1.0)		5.9 (1.1)
Low	3 (4)		2 (3)		1 (4)	
Moderate	3 (4)		1 (2)		2 (7)	
High	80 (94)		56 (97)		24 (89)	

\*Impact for each item was rated by participants on a 7-point Likert scale (range, 1 = no impact to 7 = significant impact). A low impact was defined as a score of 1 to 3, moderate impact as a score of 4, and high impact as a score of 5 to 7. †The distribution of scores (uncollapsed) between veterinary students and veterinary professionals differed significantly for impact on social awareness ( $P = 0.02$ ) and overall impact ( $P = 0.04$ ); a 2-tailed  $\chi^2$  test was used to compare the distribution of scores between groups for each knowledge area.

### Impact on key knowledge areas

Among the 85 participants at the posttest point, the VLE had a high impact on all areas of knowledge, with mean scores ranging from 5.1 to 5.9 and the

percentage of high scores (ie, 5 to 7) ranging from 78% to 93% (**Table 3**). The impact on social awareness and overall impact were significantly higher for veterinary students than for veterinary professionals;

the impacts on the other areas of knowledge were comparable between veterinary students and veterinary professionals.

## Discussion

The present study was intended to begin to answer the call for evidence of the effectiveness of leadership development programs for veterinary students and veterinary professionals. To our knowledge, this was the first attempt to evaluate a leadership program by use of established instruments and, more importantly, to assess outcomes associated with program participation 1 year after program completion. As evidenced here, it was possible to enhance leadership skills through the VLE and evaluate long-term outcomes of program participation. The measurable outcomes in several areas (eg, high overall impact on key areas of knowledge and increases in emotional intelligence) among participants generally supported our hypotheses that the VLE would influence leadership skills.

A first important step in the development of any new skill is the acquisition of knowledge; with that knowledge, people become aware of specific skills that they lack and may become motivated to change. The results of the present study indicated that participants acquired knowledge and were influenced in areas that serve as pillars for the VLE. Veterinary students generally reported more of an impact on key areas of knowledge than did veterinary professionals, which was not surprising given students' developmental level, high investment in the role of learner, and relative inexperience in the profession. Interestingly, the overall impact of the VLE was rated higher by participants than each of the specific areas of knowledge that were assessed. This suggested that some of the impact of the VLE was beyond our assessment ability. Additional research is needed to better understand the impact of the program on various areas of knowledge and the differential impact on various participants.

The observed increase in emotional intelligence among participants 1 year after completing the program was compatible with the heavy consistent focus that the concept and its various subdomains were given during VLE. This increase was greater for veterinary professionals than for veterinary students, which could have mirrored the shift in recent years to a higher focus on nontechnical skills in veterinary school curricula (ie, veterinary professionals may not have had educational training in emotional intelligence domains comparable to that of veterinary students).<sup>22</sup> Although many participants also reported that their confidence in specific client-communication skills had increased as a result of the VLE, the percentage that reported increased confidence in each specific skill was consistently higher for veterinary students than for veterinary professionals. The communication skills questions targeted client-veterinarian interactions, including some particularly challenging situations (eg, angry clients), which

many veterinary students may not have previously experienced. Being exposed to challenging professional conversations in the context of the VLE was an opportunity for veterinary students to consider what they would do, which may have increased their confidence in their client-communication skills. On the contrary, veterinary professionals likely had numerous previous opportunities to engage in challenging conversations and, effective or not, found ways to engage that have provided at least some success. Nevertheless, most participating veterinary professionals (> 50%) reported increased confidence in 7 of the 13 assessed client-communication skills.

Resilience and psychological flexibility scores of participants did not increase 1 year after VLE program completion, contrary to our hypothesis. As a complex, higher-order construct that includes a number of specific subdomains, resilience may be more difficult to influence during a fairly brief learning experience. It was also possible that the assessment was not sensitive enough to capture changes in resilience that occurred. Similarly, the program may have lacked sufficient focus on the topics of psychological flexibility and growth mindset, or these topics may have been unclearly defined for participants. Although psychological flexibility and growth mindset were discussed during the VLE, these topics were often discussed indirectly (eg, as a mechanism to try a new skill or behavior). The lack of an observed increase in resilience and psychological flexibility scores among participants in the present study could inform curricular changes such as greater intentionality in the use of important skills (eg, growth mindset and resilience behaviors) during debriefing sessions and other parts of the program. Specifically, psychological flexibility could be framed as a way to learn, grow, and adapt to multiple situations, people, and challenges.

The present study had several limitations. First, the generalizability of the findings to all veterinary professionals and veterinary students may be limited. Participants who attended the VLE made the decision to invest their time, energy, and, for some, money in the training. Consequently, as a group, those who participated in the VLE may have differed from those who did not. Second, posttest data were available for only 85 of 218 (39%) study participants. Participants who felt more impacted by the VLE may have been more inclined to complete the posttest instruments. Third, our data were limited by the instruments chosen. Perhaps in an area such as resilience, the RSA was not sufficiently sensitive to capture small changes. Nevertheless, we believe the present study has taken a meaningful step by beginning the process of evaluating a leadership program and seeking to specify and assess outcomes.

The same rigor and evidence-based approach that is expected in veterinary medicine should be applied to veterinary leadership development programs. As the veterinary profession moves toward making leadership development a priority, it follows that these programs should be evidence based, with

outcome data used to improve future programs for tomorrow's leaders. The results of the present study demonstrated that it was possible to assess important leadership skills among VLE participants 1 year after program completion and that program participation enhanced skills for both veterinary students and veterinary professionals.

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## Footnotes

- a. Qualtrics XM, August 2017, Qualtrics, Provo, Utah.
- b. SPSS Statistics, version 24.0, IBM Corp, Armonk, NY.

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