

University Students May Be Better Prepared for Life after Working with Horses



Patricia A. Evans¹
Utah State University
Logan, UT 84322

Kathi Jogan², Nancy Jack³, Aaron Scott⁴
University of Arkansas
Fayetteville, AR 72701

Clay A. Cavinder⁵
Texas A and M University
College Station, TX 77843

Matt McMillan⁶
Sam Houston State University
Huntsville, TX 77341

Sandy Gagnon⁷
Montana State University
Bozeman, MT 59717

Karen Waite⁸
Michigan State University
East Lansing, MI 48824

Abstract

Many students enter equine programs with intentions of pursuing a career in the equine industry but will ultimately obtain a career in another field. Faculty should evaluate the effectiveness of developing students in non-horse related skills which will benefit them regardless of future career paths. An Institutional Review Board (IRB) approved survey was administered to students from six universities enrolled in a semester-long training course in an effort to determine changes in perceived interpersonal skill levels for nine criteria. For all criteria, a positive improvement was reported. When combining responses across schools, a trend suggesting that traditional students gained less from the courses than non-traditional students on all outcomes was revealed. Using t-tests to compare students by gender, males were found to have greater gains than females in all life skills analyzed, but only Verbal Communication was statistically significant. Finally, applying trend analyses, students were compared on all outcomes by level of prior experience. On nearly all

criteria, students with the least experience perceived the greatest gains and students with the most experience perceived the smallest gains. However, only on the outcomes of Patience and Non-Verbal Communication were these trends statistically significant.

Introduction

One of the universal mission statements for higher education is to teach skills which will help students achieve success. Many institutions of higher education offer programs that teach life and work skills including interpersonal and communication skills necessary to obtain and maintain employment. Research supports the claim that communication instruction is critical to students' future personal and professional success (Morreale and Pearson, 2008). Levine (2005) suggested that colleges should offer classes that cover topics like entrepreneurialism and leadership. In 2007, Tarpley, Warnick and Diemler showed that indicators of employability include the ability to exhibit leadership and the development of

¹Assistant Professor, Animal, Dairy and Veterinary Sciences Department, 4815 Old Main Hill; Tel: 435-797-2142; Email: pat.evans@usu.edu

²MS, Animal Science Department, Tel: 479-236-4768; Email: kjogan@uark.edu

³Assistant Professor, Animal Science Department, Tel: 479-575-4380; Email: njack@uark.edu

⁴Doctoral Student, Educational Statistics, Tel: 479-575-3951; Email: ajscott@uark.edu

⁵Assistant Professor, Animal Science Department, Tel: 979-845-7731; Email: cac@tamu.edu

⁶Assistant Professor, Department of Agricultural and Industrial Sciences, Box 2088; Tel: 936-294-1214; Email: mlmo18@shsu.edu

⁷Associate Professor, Department of Animal and Range Sciences, 228 Linfield Hall; Tel: 406-994-6623; Email: agnon@montana.edu

⁸Academic Specialist, Animal Science Department, 1287 Anthony Hall; Tel: 517-432-0383; Email: kwaite@msu.edu

University Students

important life skills for desirable behavior. Sternberg (2007) indicated that students lack, and their colleges and graduate schools evidently did not teach them, certain important skills, attitudes and values involved in being good citizens and successful leaders.

Many studies report factors which influence employers hiring decisions. In 1979, Young found that nonverbal communication skills of female job applicants, regardless of work history, influenced hiring decisions; thus, finding nonverbal style had a statistically significant effect on hiring decisions. Recently, suggestions have been made that a need exists for analyzing life skills in curriculums (Butterwisch and Benjamin, 2006).

Findings from various studies indicate that individuals who pursue employment in agriculture need to possess a variety of skills. There are indications that colleges of agriculture need to do a better job of preparing students in non-technical areas which can broadly be termed leadership skills (Jimmerson, 1991). According to another study, employees and students both perceived interpersonal and communication skills very important in pursuing careers in agribusiness (Radhakrishna and Bruening, 1994). Barkley (1991) found that communication, problem solving, and management skills were needed by students pursuing employment.

Participation in 4-H programs is positively related to perceived leadership life skill development (Boyd, Herring and Briers, 1992). In this study, t-test analysis revealed that members of 4-H had statically significant higher perceptions of life skills development than non-4-H members. Members of 4-H additionally rated themselves higher when it came to working with groups, understanding self, communicating, making decisions and leadership. Garton, Miltenberger and Pruett (2007) evaluated 4-H camp life skills activities and also reported a positive effect on the life skills of campers. The Wilcoxon Signed Ranks tests showed significant changes in all seven items related to leadership development, especially in those activities deemed assertive leadership activities.

Clearly, the research supports the need to prepare students for the future by helping them improve life skills. The purpose of this study was to determine if students enrolled in an equine training course perceived a positive or negative shift in selected life skills during the semester, and if student's age, gender, university attended or previous horse experience was correlated to any perceived life skills

shifts. The life skills analyzed in this study consisted of assertiveness with others, patience, awareness of own body energy, understanding verbal and non-verbal communication, social confidence, confidence with authority figures, confidence as a leader, and self awareness.

Five research questions were pursued in this study: (1) Do students differ in their perceived gains on any of the life skills outcomes by school? (2) Do students differ in their perceived gains on any of the life skills outcomes by gender? (3) Do students differ in their perceived gains on any of the life skills outcomes by age group? (4) Do students differ in their perceived gains on any of the life skills outcomes by experience level prior to the course? (5) Is there an association between the number of young horses a student has started and trained and their gain in life skills?

Materials and Methods

Six universities administered an IRB approved survey to students enrolled in semester-long Equine Behavior and Training courses. The survey was designed to collect demographic data and assess student perception of selected life skills. It was reviewed for face validity. Two survey instruments were given to enrolled students. At the beginning of the course, students were asked demographic questions including age, gender, overall horse experience and number of young stock trained prior to participating in the course. Students completed the second half of the survey at the end of the course. This instrument was designed to measure the perceived level of various life skills and any shifts in perception of these life skills. Students were asked to assess where they perceived themselves prior to taking the course and after completing the course on nine life skills using a 10-point Likert-like scale.

Results and Discussion

Analyses were conducted for each of the five research questions. After presenting descriptive

Table 1. Frequencies and percentages of demographic and experience characteristics of students by school

Variable	UAF	MSU	MOSU	SHSU	TAMU	USU	Total
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
<i>Gender</i>							
Male	4 (23.5)	0 (0.0)	4 (36.4)	6 (42.9)	2 (8.7)	3 (33.3)	19 (22.6)
Female	13 (76.5)	10 (100.0)	7 (63.6)	8 (57.1)	21 (91.3)	6 (66.7)	65 (77.4)
<i>Age Group</i>							
Traditional	14 (82.4)	14 (100.0)	10 (90.9)	10 (71.4)	19 (82.6)	4 (44.4)	67 (79.8)
Non-Trad.	3 (17.7)	0 (0.0)	1 (9.1)	4 (28.6)	4 (17.4)	5 (55.6)	17 (20.2)
<i>Experience Level</i>							
Novice	4 (23.5)	0 (0.0)	2 (18.2)	1 (7.1)	5 (21.7)	2 (22.2)	14 (16.7)
Intermediate	12 (70.6)	5 (50.0)	5 (45.5)	8 (57.1)	10 (43.5)	5 (55.6)	45 (53.6)
Advanced	1 (5.9)	5 (50.0)	4 (36.4)	5 (35.7)	8 (34.8)	2 (22.2)	25 (29.8)
<i>Total</i>	17 (20.2)	10 (12.0)	11 (13.1)	14 (16.7)	23 (27.4)	9 (10.7)	84 (100.0)

statistics by school for general characteristics of the students, each question is addressed independently.

The descriptive statistics in Table 1 provide a broad overview of the general characteristics of the students comprising the classes at each university. There was considerable variability in the proportion of students across courses by gender and by age group. All schools had a large female to male ratio, two-to-one or greater in almost all cases, and in one case no male students were enrolled. This pattern is seen by age group as well, where all of the schools except Utah State University (USU) had more traditional (18 -22 years of age) students who were

enrolled in their courses. Finally, regarding experience, in all cases the majority of students indicated an intermediate level of experience with horses. More importantly, in all schools but one, University of Arkansas, Fayetteville (UAF), between roughly one-fourth and one-third of students had advanced experience with horses prior to the course.

Review of these variables guided how subsequent hypotheses were tested and their associated analyses were carried out. It is clearly not reliable to analyze gender, age group, or experience level differences within each school on the various outcomes, especially given their low numbers in many cases.

However, it is possible to analyze these variables across all schools in the sample. Therefore, only in the first analysis are schools compared to one another. All subsequent analyses are based on the combination of responses of students across all schools.

Research Question 1:

Do students differ in their perceived gains on any of the life skills outcomes by school?

To address this question, a series of t-tests were run to compare each school to all other schools by outcome variable, controlling for an overall Type-I error of .05. Additionally, Hedge's g was calculated for each comparison to provide a measure of practical difference. Each outcome with statistically significant results is discussed separately below per table. Where no significant results were found, outcomes are discussed together.

Upon review of Table 2, it is clear that there were only two significant differences found among all outcome variables. In both cases, students from the school that differed from students attending the rest of the schools perceived their gains to be substantially lower overall.

Assertiveness

The largest mean gain by far was seen at Sam

Table 2. Descriptive statistics, independent t-tests, and effect sizes by school

Life Skill/School	N	Min. Gain	Max. Gain	Mean Gain	SD Gain	t	g
<i>Assertiveness</i>							
UAF	16	0	5	1.75	1.53	0.89	0.19
MSU	10	0	2	1.10	0.88	-1.50	-0.51
MOSU	11	-2	3	0.37	1.21	-3.10**	-1.01
SHSU	14	0	4	2.22	1.31	2.03	0.60
TAMU	22	0	6	1.64	1.50	0.41	0.10
USU	8	0	3	1.50	1.16	0.46	0.17
Total	81	-2	6	1.53	1.41	-	-
<i>Patience</i>							
UAF	17	0	6	2.70	1.76	1.37	0.37
MSU	10	0	4	1.80	1.67	-0.66	-0.22
MOSU	11	0	5	2.14	1.31	-0.05	-0.02
SHSU	14	-5	7	2.64	3.03	0.70	0.20
TAMU	23	0	5	1.96	1.49	-0.70	-0.17
USU	9	0	3	1.33	0.87	-2.55*	-0.90
Total	84	-5	7	2.16	1.85	-	-
<i>Body Energy</i>							
UAF	16	0	8	2.75	2.02	1.18	0.33
MSU	10	0	4	2.20	1.55	-0.07	-0.02
MOSU	11	0	6	2.14	1.89	-0.78	-0.25
SHSU	14	-1	8	2.64	2.33	0.09	0.03
TAMU	23	0	5	1.96	1.61	-1.62	-0.40
USU	9	1	6	1.33	2.11	1.64	0.58
Total	83	-1	8	2.24	1.92	-	-
<i>Non-Verbal Comm.</i>							
UAF	17	0	4	2.53	2.35	0.85	0.23
MSU	10	0	3	1.40	1.07	-2.01	-0.68
MOSU	11	-1	4	1.82	2.04	-0.58	-0.19
SHSU	14	0	6	1.93	1.00	-0.64	-0.19
TAMU	23	0	6	2.09	1.98	-0.10	-0.02
USU	9	1	4	2.89	1.90	1.33	0.47
Total	84	-1	6	2.12	1.85	-	-

* ≤ .05 ** ≤ .01 *** ≤ .001

University Students

Houston State University (SHSU). However, it was not significant. Only one comparison, Montana State University (MSU), was significant, where the gain was very small relative to the average gain. In practical terms, this resulted in a gain of one full standard deviation, or 1.41 points, less than the average gain.

Patience

Sam Houston State University (SHSU) and University of Arkansas (UAF) saw the largest average gains in patience, however, neither was found to be significantly greater than the average

gain across schools. USU, however, did see an average gain significantly lower than sample average. The average gain for Utah State (USU) students was nearly one and a half standard deviations below the average gain of students from all other schools.

Body Energy and Non-Verbal Communication

No significant differences were found between any of the schools' average gains and the average gain for body energy or non-verbal communication skills. Overall, on both outcomes, the average gain was comparatively large across nearly all schools, most

being near or above two points. Additionally, UAF saw the largest and second largest average gains on these two outcomes, which confirms the student reports of their prior experience with horses summarized in Table 1. Over 90% of SHSU students reported they had either intermediate or advanced levels of experience prior to the course, and perceived having comparatively large gains in body energy and non-verbal communication skills.

Verbal Communication, Social Confidence, Authority, and Self-Awareness

Among the final four life skills assessed, no significant differences were found between the average gain of any single school and the average gain of remaining schools combined. The largest mean gain overall was in self awareness and the smallest mean gain was in authority. For verbal communication and social confidence, UAF students reported the largest gains. This fits with earlier descriptive analyses from Table 1; where over 90% of the students reported having either novice or intermediate levels of experience with horses prior to the course.

Research Question 2:
Do students differ in their

Table 2. Cont'd

Life Skill/School	N	Min. Gain	Max. Gain	Mean Gain	SD Gain	<i>t</i>	<i>G</i>
<i>Verbal Comm.</i>							
UAF	17	0	6	2.18	2.01	2.02	0.55
MSU	10	0	3	1.00	1.05	-0.78	-0.26
MOSU	11	0	4	0.86	1.23	-1.14	-0.37
SHSU	14	0	4	1.79	1.05	1.54	0.45
TAMU	23	0	7	0.96	1.64	-1.47	-0.36
USU	9	0	3	1.11	0.93	-0.75	-0.26
Total	84	0	7	1.35	1.52	-	-
<i>Social Confidence</i>							
UAF	17	0	7	1.76	2.17	1.07	0.29
MSU	10	0	3	1.10	1.20	-0.41	-0.14
MOSU	11	0	4	0.77	1.17	-1.17	-0.38
SHSU	14	0	4	1.64	1.28	0.91	0.27
TAMU	23	0	7	1.13	1.71	-0.57	-0.14
USU	9	0	3	1.11	1.05	-0.36	-0.13
Total	84	0	7	1.29	1.58	-	-
<i>Authority</i>							
UAF	16	0	4	1.00	1.26	-0.26	-0.07
MSU	10	0	3	1.00	1.25	-0.20	-0.07
MOSU	11	-1	4	0.55	1.29	-1.36	-0.44
SHSU	14	0	6	1.71	1.77	1.52	0.45
TAMU	23	0	6	0.87	1.49	-0.85	-0.21
USU	9	1	4	1.56	1.01	1.06	0.37
Total	83	-1	6	1.08	1.42	-	-
<i>Self-Awareness</i>							
UAF	17	0	8	1.94	1.85	0.42	0.11
MSU	10	0	4	1.50	1.65	-0.54	-0.18
MOSU	11	0	6	1.50	1.83	-0.57	-0.18
SHSU	14	0	5	2.14	1.56	0.85	0.25
TAMU	23	0	6	1.30	1.69	-1.54	-0.38
USU	9	1	6	2.78	1.86	1.84	0.65
Total	84	0	8	1.78	1.75	-	-

* ≤ .05 ** ≤ .01 *** ≤ .001

perceived gains on any of the life skills outcomes by gender?

Again, independent t-tests were employed for each outcome. This time, however, the outcomes were summed across all schools. Only in Verbal Communication was there a significant difference found between male and female gain averages (Table 3). Males perceived significantly higher gains than females on this life skill. While not statistically greater, on average, males had higher perceived gains across the remaining life skills than females.

had higher average perceived gains in all other life skills areas.

Research Question 4: *Do students differ in their perceived gains on any of the life skills outcomes by experience level prior to the course?*

To pursue this question, ANOVA's were run for each of the outcome variables, and were conducted as trend analyses, as the independent variable is on an ordinal scale. There was a linear trend among the three levels of experience for nearly all life skills outcomes. However, as shown in Table 5, only two of these were found to be significant, patience and non-verbal communication. Whether significant or not, however, the trend was in the expected direction, where in nearly all cases, those with the least amount of prior experience had the greatest average perceived gain in each of the life skills, those with a medium amount of prior experience had less of a perceived gain and those with the greatest amount of prior experience had the lowest average perceived gain in life skills after the course.

Research Question 5:

Is there an association between the number of young horses a student has started and trained and their gain in life skills from the course?

As the number of young horses is a categorical rank-ordered variable where each category represents a range, the Spearman Rank correlation was used to investigate this research question. Four categories were used to represent number of experiences, 0 = No Experience, 1-2 = Little Experience, 3-5 = Moderate Experience and 6 or More = Considerable Experience. It was expected that there would be a negative relationship between these two variables, in that the more young horses a student had worked with, the lesser degree of gain in life skills they would perceive to gain from the course.

Four correlations were conducted, one for each of the life skills chosen to be used for this research question, including authority, assertiveness, verbal communication and body

Table 3. Descriptive statistics and t-tests of perceived life skills gains by gender

Life Skill Variable	Males			Females			t
	N	Mean Gain	SD Gain	N	Mean Gain	SD Gain	
Assertiveness	18	1.89	1.60	63	1.43	1.35	-1.22
Patience	19	2.47	1.78	65	2.07	1.87	-0.84
Body Energy	19	4.14	2.36	64	2.45	1.73	-1.69
Non-Verbal Comm.	19	2.47	2.12	65	2.02	1.76	-0.95
Verbal Communication	19	2.05	1.58	65	1.51	1.45	-2.35*
Social Confidence	19	1.63	1.67	65	1.19	1.55	-1.07
Authority	19	1.00	1.33	64	1.11	1.45	0.29
Self Awareness	19	2.21	2.32	65	1.65	1.54	-0.98

* ≤ .05 ** ≤ .01 *** ≤ .001

Research Question 3: *Do students differ in their perceived gains on any of the life skills outcomes by age group?*

Independent t-tests were used to investigate this question. No significant differences were found between traditional and non-traditional students (Table 4). However, traditional students did perceive gains to be lower on all outcomes but two, social confidence and authority. Non-traditional students

Table 4. Descriptive statistics and t-tests of perceived life skills gains by age group

Outcome Variable	Traditional			Non-Traditional			t
	N	Mean Gain	SD Gain	N	Mean Gain	SD Gain	
Assertiveness	65	1.46	1.40	16	1.81	1.47	-0.89
Patience	67	2.16	1.93	17	2.18	1.51	-0.04
Body Energy	66	2.06	1.80	17	4.11	2.94	-1.70
Non-Verbal Comm.	67	2.01	1.78	17	2.53	2.1	-1.03
Verbal Communication	67	1.32	1.55	17	1.47	1.42	-0.36
Social Confidence	67	1.34	1.67	17	1.11	1.11	0.64
Authority	66	1.11	1.50	17	1.00	1.06	0.33
Self Awareness	67	1.62	1.61	17	2.41	2.15	-1.42

* ≤ .05 ** ≤ .01 *** ≤ .001

Table 5. Descriptive statistics and trend analyses of perceived life skills gains by prior experience level

Outcome Variable	Novice			Intermediate			Advanced			F
	N	Mean Gain	SD Gain	N	Mean Gain	SD Gain	N	Mean Gain	SD Gain	
Assertiveness	12	1.75	1.06	45	1.73	1.53	24	1.04	1.27	2.06
Patience	14	3.00	1.66	45	2.30	1.69	25	1.44	2.02	6.82*
Body Energy	13	2.38	0.77	45	2.58	2.16	25	1.56	1.76	1.63
Non-Verbal Comm.	14	2.43	1.70	45	2.51	1.94	25	1.24	1.48	4.02*
Verbal Communication	14	1.71	1.68	45	1.46	1.62	25	0.96	1.71	2.23
Social Confidence	14	1.64	1.95	45	1.41	1.65	25	0.88	1.13	2.12
Authority	14	1.07	0.92	45	1.20	1.66	24	0.85	1.15	0.17
Self Awareness	14	2.21	1.37	45	1.97	1.88	25	1.20	1.58	3.11

* ≤ .05 ** ≤ .01 *** ≤ .001

energy. All correlations were found to be small, according to Cohen's (1988) criteria, and none were found to be statistically significant. It is important to note, however, that three of the four life skills, (authority, verbal communication and body energy) were negatively correlated with horse experience ($r = -0.03$, $r = -0.19$, and $r = -0.05$, respectively), in line with what was expected. The only correlation in the positive direction was for assertiveness, where $r = 0.03$. To be sure, however, based on the significance tests, none of the correlations could be said to be any different from zero.

Previous studies have attempted to evaluate the impact of 4-H programs and other related activities on the future career choices of individuals (Gamon and Dehegedus-Hetzel, 1994; Ward, 1996). This study had the same goals in mind as it was conducted to find out if people specifically working with horses could improve upon basic life skills through brief interactions in a university horse training class. Although the findings of the current study do not significantly define that life skills were improved, it did define that trends exist as improvements were perceived to have been achieved through equine related interactions. The thought that horses can improve student's patience, understanding, self-confidence, and thinking skills is consistent with beneficial improvements seen from individuals with disabilities through their work with horses and through their integration into horse programs (Brady and McKee, 2005). Additionally, animal interaction as a means to providing therapeutic enhancement of at-risk children has proved to be beneficial (Weigel et al., 2002). The results of our study do provide evidence that students can benefit from horse related training programs, but does warrant further study of the perceived benefits of these students later in life to more clearly define how these types of courses may aid improvement of the previously mentioned skills. The enhancement of basic life skills should be the goal of all teaching

institutions so that the student becomes a better person and thus a better employee or employer. Finally, providing research which establishes evidence or suggests that programs providing interaction with horses can improve upon life-skills will put equine teaching programs more in demand.

Summary

Due to the wide range of careers sought by equine majors after graduation, equine faculty may want to discuss life skills that may be gained in their programs.

Students completing semester-long equine behavior and training courses perceived positive shifts in life skills needed for successful employment. As found here, these benefits may vary by age, gender, or amount of previous horse experience. Overall, students at all of the schools demonstrated a positive shift in perceived life skills from the beginning of the course to the end. Males perceived a significantly higher gain than females in verbal communication skills. There were not significant differences between traditional and non-traditional students, although traditional students perceived gains to be lower on all outcomes but two, social confidence and confidence with authority figures. As expected, the students with the most horse experience prior to the course indicated smaller perceived gains than students entering with less experience. It is not inferred that participation caused higher life skills levels. However, since practicing leadership skills are included in equine training courses, it can be concluded that life skills may have been strengthened and enhanced, especially for students lacking a high level of these skills.

Limitations of this study

Changes in life skill levels observed could be attributed to other events during the semester. In order to control for extraneous variables and reduce measurement error, students should be assessed on their life skills prior to the beginning of the course and then re-assessed at the end of the course. Additionally, in order to more precisely estimate the effects of the course on life skills and to ensure sufficient statistical power, an adequate sample size should be obtained.

Literature Cited

Barkley, A. 1991. What skills do graduates need? NACTA Journal 35(2): 53-57.
 Boyd, B.L., D.R. Herring, and G.E. Briers. 1992.

- Developing life skills in youth. *Journal of Extension* 30(4): 16-17, 20.
- Brady, C.M., and K.E. McKee. 2005. Accommodating you with disabilities in 4-H horse programs. *Journal of Extension* [On-line] 43(2).
- Butterwick, S. and A. Benjamin. 2006. The road to employability through personal development: A critical analysis of the silences and ambiguities of the British Columbia (Canada) life skills curriculum. *International Journal of Lifelong Education* 25(1): 75-86.
- Cohen, J. 1988. *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Gamon, J.A. and O.P. Dehegedus-Hetzel. 1994. Swine project skill development. *Journal of Extension* [On-line] 32(1). Available at: <http://www.joe.org/joe/1994june/rb5.html>.
- Garton, M.S., M. Miltenberger, and B. Pruett. 2007. Does 4-H camp influence life skill and leadership development? *Journal of Extension* 45(4): FEA 4.
- Jimmerson, R.M. 1991. Teaching leadership: Principles and approaches for an undergraduate leadership course. *NACTA Journal* (35)2:50-53.
- Levine, M. 2005. College graduates aren't ready for the real world. *The Chronicle of Higher Education* B11-B12 F 18, supplement.
- Morreale, S.P. and J.C. Pearson. 2007. Why communication education is important: The centrality of the discipline in the 21st Century. *Communication Education* (57)2: 224-240.
- Radhakrishna, R.B. and T.H. Bruening. 1994. Pennsylvania study: Employee and student perceptions of skills and experiences needed for careers in agribusiness. *NACTA Journal* (38)1: 15-18.
- Sternberg, R. July 2007. Finding students who are wise, practical and creative. *The Chronicle of Higher Education*. Available at: <http://chronicle.com/weekly/v53/i44/44b01101.htm>.
- Tarpley, R.S., B.K. Warnick, and W.L. Diemler. 2007. Life skills through agricultural education. *The Agricultural Education Magazine* 79(4): 26-8.
- Ward, C.K. 1996. Life skill development related to participation in 4-H animal science projects. *Journal of Extension* [On-line] 34(2) Available at: <http://www.joe.org/joe/1996april/rb2.html>.
- Weigel, R.R., B. Caiola, and L. Pittman-Foy. 2002. 4-H animal care as therapy for at-risk youth. *Journal of Extension* [On-line] 40(5).
- Young, D.M., E.G. Beier, and S. Beier. 1979. Beyond words: Influence of nonverbal behavior of female job applicants in the employment interview. *Personnel and Guidance Journal* 57(7): 346.