

## USING EXPERIENTIAL LEARNING TO TEACH EVALUATION SKILLS

**Linda Wulff-Risner**, Graduate Student  
**Bob Stewart**, Professor  
University of Missouri-Columbia

### Abstract

*The primary purpose of the study was to compare two experiential teaching methods on developing skills in evaluating and placing conformation and performance classes of horses. A secondary purpose was to examine outcomes for two age groups of participants. The study utilized a quasi-experimental two factor design. Data were collected and analyzed to test for significant differences between teaching techniques and age of participants. Participants were randomly assigned to two groups. One group was taught using live animals and the second group was taught using video simulated techniques. There was a significant difference in scores for both teaching technique and age groups for the conformation, but not for the performance classes. Participants taught in the simulated situation scored higher as did the 12 to 18 year old group. The findings suggest that visual techniques are effective and warrant the development of high quality materials.*

Experiential education is the process that links education, work, and personal development. As education has become more accessible to all people there has been a corresponding need for educational methods that translate the abstract ideas of academia into the concrete practical realities of people's lives (Kolb, 1984). Kolb proposed that experiential learning theory is a holistic integrative perspective on learning that combines experience, perception, cognition, and behavior.

Experiential education is not a new movement in the field of education. There are numerous scholars who have proposed learning models with the characteristics of experiential learning. John Dewey is considered to be the most influential educational theorist of the twentieth century (Kolb, 1984). As early as 1938, Dewey believed that "there is an intimate and necessary relation between the processes of actual experience and education" (Dewey, 1938, pp 19-20). Dewey believed that textbook problems most often were not real problems to students and that school learning should be an experientially active, not passive affair (cited by Kolb, 1984). Dewey supported learning experiences in which learners are directly in touch

with the realities being studied, rather than simply reading about, hearing about, or talking about these realities. When experiential learning techniques are used as contributors to the creation of a learning environment that maximizes learners' skills in learning from their own experience, the full potential for learning can be realized (Kolb & Lewis, 1986).

There has been tremendous growth in the movement towards experiential education in the 1970-1990's. This growth has been validated by numerous reports and national studies which have called for education which more closely links cognitive learning and skills needed for employment (Kraft, 1986). The school-to work transition movement offers real hope for three-fourths of all students, those who will never earn a four-year college degree (Stone, 1994).

Kolb (1984) described three characteristics of experiential learning. First, learning is best conceived as a process whereby concepts are derived from and modified by experience, not in terms of outcomes. Next, learning is a continuous process grounded in experience. Third, the process

of learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world.

Joplin (1981) defined an experiential education activity as one where a real life, work-based experience was followed by an opportunity for a structured reflection on the experience. It is this structured reflection that helps a learner understand the implications of the activity and how it can be applied to more general situations.

Dewey developed his “experiential theory of education” based on the scientific method of inquiry (Adams & Reynolds, 1986). The scientific method of inquiry is the basis of the problem-solving approach to instruction used in secondary agriculture departments in Missouri.

Experiential learning activities can be developed in many situations. One situation in agricultural programs involves the teaching of livestock evaluation or judging skills. Judging implements the experiential learning process and concept of “do, apply, reflect”. The student experiences the judging situation, reflects on the information available, processes that information, generalizes concepts previously learned to the situation, and finally makes a decision by applying concepts learned.

Bruner (1966) outlined three major modes of learning: the enactive (direct experience), the iconic (pictorial experience), and symbolic (highly abstract experience). The enactive or direct learning is comparable to the pupil actually judging horses. The iconic can be related to the learning of horse judging through the use of slides, videos, and pictures. Dale’s (1969) “Cone of Experience” described a visual analogy to show the progression of learning experiences from direct first-hand participation to pictorial representation to purely abstract, symbolic expression. Gagne (1977) illustrated the levels of complexity in intellectual skills. In order to solve problems the learner must

have rules and defined principles that are based on concrete concepts. In order to learn concrete concepts, the learner must be able to discriminate.

The teaching method is a critical aspect of the learning situation. Dale’s (1969) Cone of Experience is based on the degree of abstraction in each teaching technique. The degree of abstraction has to do with the amount of immediate sensory participation involved. The more sensory participation involved, the more enjoyable the learning experience (Dale, 1969). In teaching horse judging skills to youth, there would be more sensory participation involved when using live animals; however, high quality video tapes could provide substantial participation on the part of the learner.

Gibbons & Hopkins (1986) contended that there was such a wide range of different programs referred to as experiential that the term lacks meaning. In order to clarify experience based education they created a scale of experientiality. The scale developed by Gibbons & Hopkins translates the aspects of experiential learning into five modes, with each mode representing a major increase in the fullness of experience involved. According to their scale, the experiential learning activities utilized in this study were in the lower two levels of experientiality. The classroom teaching technique utilized a simulated experience with participants learning from slides, pictures, and videos. The live animal teaching technique involved both a spectator experience and an exploratory experience.

While it is possible to classify experiential education activities using either Dale’s Cone of Experience or Gibbons & Hopkins scale of experientiality, it is difficult to verify that experiential education actually has the impact expected. There is little hard evidence about the impact of experiential education programs on participants (Hedin, 1980). Hedin stated that “Little effort has been made to test systematically

the assumptions underlying the recommendations or to investigate empirically which specific forms of experiential programs may be the most effective in realizing the hypothesized benefits” (p.3).

More recent literature is filled with testimonials, journals, case studies, and other data indicating the positive impact of experiential programs on participants; however, there have been very few experimental or even quasi-experimental research studies that have examined outcomes (Kraft, 1986).

There is considerable evidence in the literature as to the value of experiential education and the use of judging activities to develop the life skills of critical thinking and decision making. There is also evidence as to the efficacy of using audio visual and other simulation techniques in educational situations. However, there appears to be a need to investigate the effectiveness of using classroom teaching techniques such as video tapes, slide sets, and printed matter when teaching horse evaluation skills as opposed to the use of live animal comparisons. This study focused on skills in horse judging acquired by participants involved in two different learning environments. Both learning environments were experiential; however, different teaching techniques were used to present the concepts.

### **Purpose of the Study**

The primary purpose of the study was to compare two experiential teaching methods on learning outcomes of 8-18 year old students. A secondary purpose of the study was to examine outcomes for two age groups of participants. The learning outcomes evaluated included skills in evaluating and placing conformation and performance classes of horses.

The study was organized to address the following research questions (related null hypotheses were developed):

1. Will participants in the classroom teaching setting achieve the same level of skill in evaluating conformation of horses as the participants who learn using live animals as measured by placing scores achieved in a contest situation?
2. Will participants in the classroom teaching setting achieve the same level of skill in evaluating performance classes of horses as the participants who learn using live animals as measured by the placing of scores achieved in a contest situation?
3. Will participants in different age groups achieve the same level of skill in the evaluation of conformation and performance classes of horses?

### **Methods/Procedures Used**

A quasi-experimental design was selected for this study. Cook & Campbell (1979) described quasi-experimental in the following manner:

Quasi-experiments are experiments that have treatments, outcome measures, and experimental units, but do not use random assignment to create the comparisons from which treatment caused change is inferred. Instead, the comparisons depend on non-equivalent groups that differ from each other in many ways other than the presence of a treatment whose effects are being tested. The task confronting persons who try to interpret the results from quasi-experiments is basically one of separating the effects of the treatment from those due to the initial non-comparability between the average units in each treatment group; only the effects of treatment are of research interest (Cook & Campbell, 1979, p.6).

The population for this study was secondary agriculture and/or 4-H students aged 8-18 from

central Missouri who were involved in the study of judging horses. The participants of the study formed a purposive sample. A purposive sample is characterized by the use of judgment and a deliberate effort to obtain representative samples by including presumably typical areas or groups in the sample (Kerlinger, 1973, p. 129). The participants included 98 students aged 8-18 who participated in a workshop on horse judging in February, 1994. For purposes of analysis, participants were divided into two age groups. The younger group included participants aged 8 to 11 and the older group included participants aged 12 to 18.

The experimental treatment involved the use of two different experiential teaching techniques to teach established concepts. The lesson plan for both workshop teaching techniques contained the same concepts and the same length of time spent on each topic. The lesson plan included concepts on judging conformation and performance classes and preparation and presentation of oral reasons. The first treatment group learned through the use of live animals and viewed demonstrations of the concepts presented using live animal comparisons. The second treatment group received classroom instruction through the use of charts, photographs, video tapes, and slides. While care was taken to make the basic instruction the same, the instruction was provided in two different environments by two different instructors. Both presented possible limitations as it was cold in the area of live animal instruction and, while well qualified, the instructors had different types of teaching experience.

The quasi-experimental study used a repeated measure on one factor (time). The independent variable was teaching technique. There were two dependent variables: conformation scores and performance scores. The repeated measures were the pre-test scores on conformation and on performance.

Outcome measures were assessed using the placing scores of participants in a contest situation.

The contest was run according to National Horse Judging Team Coaches Association guidelines (1990, pps. 1-24). The placing scores were tabulated on a scale of 1-50, with 50 being a placing that matched the official judge exactly. "Cuts" were assigned by the official judge. Cuts were deducted for a placing different than the official and were based on the severity of the discrepancy as outlined in the Official Handbook of the National Horse Judges Team Coaches Association (1990, pps. 18-19).

An analysis of variance procedure for a two factor design was used to test the hypotheses with the alpha level set at .05. The general linear model procedure was used to adjust for unequal cell size. The factorial design was used to simultaneously determine the independent and interactive effects on the dependent variable (Christensen, 1985).

### Findings

Data for the study were collected under contest conditions at two workshops on horse judging. The students ranged in age from 8 to 18 years of age. As shown in Table 1, the majority of participants in both groups were ages 12-18.

The first two null hypotheses were developed to determine if there was a significant difference in the pre-test and post-test scores of participants

Table 1. Number of Participants by Age and Group

	Conformation/Performance	
Classroom		
8-11 year olds	17	6
12-18 year olds	34	25
Live animal		
8-11 year olds	19	9
12-18 year olds	28	25

between two teaching techniques: classroom and live animals on the skills associated with judging conformation or performance classes.

The hypothesis was stated as follows:

HO,: There is no significant difference between pre-test and post-test scores of participants who learned using classroom teaching techniques and scores of participants who learned using live animal teaching techniques on the variable conformation score.

The ANOVA procedure, as reported in Table 2, produced a  $F$  value of 6.56 ( $p > .01$ ) which was significant. Therefore, the hypothesis was rejected. There was a significant difference in the post-test minus pre-test score for conformation between the groups. Examination of least square means in Table 3 shows that the amount of change in score of participants in the classroom teaching group were significantly higher than for participants in the live animal teaching group (14.20 vs 8.41). Null hypothesis HO, was stated as follows:

HO,: There is no significant difference between pre-test and post-test scores of participants who learned using classroom teaching techniques and scores of participants who learned using live animal teaching techniques on the variable performance score.

The ANOVA as reported in Table 2 produced a  $F$  value of 1.10 ( $p > .30$ ). The null hypothesis was not rejected. There was not a significant difference between teaching techniques on the dependent variable of performance score. The least square means are reported in Table 2.

Null hypotheses three and four were developed to determine if there were significant differences between the scores of two age groups in judging conformation and performance classes.

HO,: There is no significant difference between pre-test and post-test scores of participants when grouped by age (S-1 1 years old and 12- 18 years old) on conformation scores.

The ANOVA as reported in Table 2 produced a  $F$  value of 5.99 ( $p .01$ ). The null was rejected.

Table 2. ANOVAs for Conformation and Performance Scores

Variable	df	ss	ms	f	p>f
<b>Confirmation</b>					
Teaching Technique	1	769.25	760.24	6.56	.01
Age	1	694.42	694.91	5.99	.01
Teaching Technique x Age	1	56.60	56.60	.49	.49
Error	94	10897.97	115.94		
<b>Performance</b>					
Teaching Technique	1	122.58	122.58	1.10	.30
Age	1	12.06	12.06	.11	.74
Teaching Technique x Age	1	6.98	6.98	.06	.80
Error	60	6699.98	111.67		

There was a significant difference between the increase in scores for age groups. Examination of the least square means in Table 3 shows that the 12-18 year olds scored significantly higher than the 8-11 year olds (14.07 vs. 8.54). As reported in Table 2, there was not significant interaction between age and teaching technique.

Table 3. Least Square Means Pre-Post-Test Scores for Conformation and Performance

Variable	Least Sq. Mean	Std. Error
Confirmation		
Technique	14.20	1.61
Classroom	8.41	1.59
Live animals		
Age		
8-11	8.54	1.61
12-18	14.07	1.59
Performance		
Technique		
Classroom	2.24	2.05
Live animals	-1.08	2.41
Age		
8-11	.06	2.78
12-18	1.10	1.51

HO<sub>4</sub>: There is no significant difference between pre-test and post-test scores of participants when grouped by age on performance scores.

The AVOVA as reported in Table 2 produced a *F* value of 0.11 (*p* .74). The null hypothesis was not rejected. There was not a significant difference between age groups for the variable performance scores.

## Conclusions

Based on the findings of this study and contingent upon the limitations, the following conclusions were drawn.

1. Students can learn conformation judging skills equally well, if not better, through the use of audio-visual aids including video tapes and slides as opposed to the use of live animals.
2. Students can learn performance judging skills equally well from the use of audio-visual aids including video tapes and slides as opposed to the use of live animals.
3. Older students learn skills associated with judging conformation more quickly than do students age 11 and under.

## Implications

Students in the classroom teaching group learned more about judging conformation than students in the live animal teaching group. This could be explained by the nature of the subject. Selection criteria for judging conformation is very specific, the criteria are prioritized and the criteria are concrete; therefore, the structure offered by the classroom teaching could benefit learning. During live animal evaluation there are many more distractions which divert the judges attention from evaluating and prioritizing specific criteria. By using audio-visual aids the instructor can illustrate desired principles without distractions.

Horse judging skills can be successfully taught using audio visual aids such as video tapes and slides. The horse judging team coach can use audio visual aids to teach judging concepts without transporting the students and making arrangements for horses to practice on. This can save significant time and money. While students can effectively learn judging skills through the use of audio visual

techniques, there could be a lowered motivation to learn if this was the only teaching technique used.

While it was expected, the analysis confirmed that older students had higher scores than younger students on performance classes. However, there was not a significant interaction between teaching technique and age. This was an expected outcome as the level of instruction was judged to be more appropriate for the older participants. It is interesting to note that age was not a factor in the performance classes. This perhaps underscores the subjectivity and difficulty associated with teaching those concepts.

The skills associated with teaching evaluation of performance events are indeed more difficult to teach. The criteria tend to be more ambiguous with less clear cut priorities about what is important. In addition four animals are involved and the judge and the participants may not view the same behaviors during the course of the class. Therefore, the criteria may be applied in different ways. This could explain in part the finding of no significant difference in the performance scores after participation in the workshop.

Overall, the findings of this study suggest that the efficacy of audio visual techniques in teaching horse judging skills should warrant the development of more and better videos and slides which can be used in teaching judging skills. Development of these teaching materials could be more cost effective than transporting students to judge live horses.

### References

Adams, A., & Reynolds, S. (1986). The long conversation: Tracing the roots of the past. In R. Kraft and M. Sakofs (Eds.) The Theory of experiential education (pp. 45-52). Boulder, CO: Association for Experiential Education.

Bruner, J.S. (1966). Toward a theory of instruction. Cambridge, MA: Harvard University.

Christensen, L.B. (1985). Experimental methodology. Boston: Allyn and Bacon, Inc.

Cook, T. D. & Campbell, D. T. (1979). Quasi-experimentation: Design & analysis issues for field settings. Boston: Houghton Mifflin.

Dale, E. (1969). Audiovisual methods in teaching (3rd ed.). New York: The Dryden Press.

Dewey, J. (1938). Experience and education. New York: Collier Books

Gagne, R.M. (1977). The conditions of learning. New York: Holt, Rinehart and Winston.

Gibbons, M. & Hopkins, D. (1986). How experiential is your experience-based program. In R. Kraft & M. Sakofs (Eds.), The theory of experiential education (135-140). Boulder, CO: Association for Experiential Education.

Hedin, D. (1980). Evaluating experiential learning. Chancre, 2-9.

Jones, W. E. (1991). Value of the youth horse judging programs. Journal of Equine Veterinary Sciences, 11(6), 365-366.

Joplin, L. (1981) On defining experiential education. Journal of Experiential Education. 4 (1), 17-20.

Kerlinger, F. N. (1973). Foundations of behavioral research. New York: Holt, Rinehart & Winston, Inc.

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Kolb, D. A. & Lewis, L. H. (1986). Facilitating experiential learning: Observations and reflections. New Directions for Continuing Education, 30, 99-107.

Kraft, R. J. (1986). Towards a theory of experiential learning. In R. Kraft and M. Sakofs (Eds.), The theory of experiential education (7-38). Boulder, CO: Association for Experiential Education.

National Horse Judging Team Coaches' Association. (1990). Official handbook. Available from D. Bartlett, Box 7621 NCSU, Raleigh, NC 27695.

Stone, J. R. III, (1994, September). Experiential learning and school-to-work transition. The Agricultural Education Magazine, 6-11.