

Evaluation Report

Academy for Conservation Training

2006

Presented to:
Zoo Atlanta

Joe E. Heimlich, Ph.D.
The Ohio State University/OSU Extension

The Academy for Conservation Training held its first institute in July 2006 in Chengdu, Sichuan, China. Headed by Zoo Atlanta Conservation Education Division and advised by a Steering Committee of highly regarded zoo educators in the U.S., this Institute was comprised of three week sessions: week one was a conservation education primer, week two was training in a particular educational strategy (camps), and week three was an implementation week for the participants.

The evaluation questions guiding the review of the academy were constructed to address the three goals of ACT:

1. To create a “train-the-trainers” opportunity for our partners at Chengdu Zoo to prepare them to teach the ACT workshop to their colleagues.
2. To provide CAZG educators the training and tools they need to design, implement and evaluate engaging and effective conservation education programs for key audiences.
3. To create a professional network for zoo educators in China.

Under each of the goals, several evaluation questions were included. Under goal 1:

- How satisfied were the participants with the workshop(s)?
- To what degree did the training/workshop/camp change their interest, engagement, intent, and where appropriate, comfort?
- What did participants learn (self report cognitive)?
- What are the skills participants believe they gained?
- What do participants intend to do when they return to their zoos?

Goal 2:

- What is the perceived value of the tools provided?
- What is the reported use of the tools provided?
- What is the perception of “camp” in terms of value, usefulness, practicality, etc?
- Do participants feel prepared to implement camp at their zoos?
- Were campers satisfied with the camp?
- What were the outcomes from the camp?

Goal 3:

- What are the perceptions of the “field” of zoo education in the participants?
- What are the perceptions of “role of self” in the profession of zoo education?

Data were gathered from participants, staff, camp participants, and zoo directors through a variety of means. The first data were obtained from zoo directors in China at a session conducted by Zoo Atlanta in May, 2006. Items on this questionnaire (see Appendix A for all instruments) were parallel to items that were on pre, midterm, and post measures of participants. Data were gathered from participants before the academy, at the beginning of the first day, and at the conclusion of each week’s program. Data were obtained from staff daily during the first week and post the institute. Findings are reported here in answer to the evaluation questions, rather than by instrument. The next section will provide instrument measures.

Instruments

Directors’ survey: a pre/post survey was developed for the one-day directors’ meeting held in April. These findings were presented in an earlier report. The data were used to help define some of the information needed from participants and to gauge the potential for the Academy.

Conservation Training Workshop Pre-measure; Conservation Training Workshop Post-measure; Camp Training Workshop Post-measure; Camp Implementation Post-measure

The pre and post conservation training workshops, the camp training and camp implementation workshops were all measured using as identical instruments as possible. The dominant exceptions were the retrospective pre scale and satisfaction scale (see below) and comfort in conducting a camp scales. The scales are identified below. Responses were anonymous as individuals created their own “codes” so that evaluators could match responses, but never link them to an individual. In some cases, the codes changed as there were mismatched coded instruments after each instrument application and therefore the N reduces over time. Each scale of the instrument is described below.

Satisfaction. (post only) The satisfaction scale was an eight item, summated scale with items covering preparation for work, information on zoo education, attention, information provided, learning experiences, meeting colleagues, professional and personal development. The scale had a very strong reliability of .896.

Affect toward animals and the role of zoos. The affect scale and subscales were summated scales with items related to animal welfare, care, compassion, zoo and individual responsibility to animals. Reliability on the affect scales overall was .896 (post measure). All scales had 7 points: 1 being polar negative, 7 being polar positive and 4 being neutral.

Perception of preparation. This scale was parallel to that of the affect and included 14 items. Reliability for this scale was .899.

Zoo education as a profession. There were three different points in the survey in which participants were asked questions regarding perceptions, beliefs, and intents related to zoo education as a profession. The findings are a synthesis across these three measurement points.

Agenda Evaluation: participants were provided with an agenda reconstructed to identify the primary sessions, scales for satisfaction with each, and space for comments.

Camp Participant pre and post measures: campers were given identical pre and post measures developed during 2005 for a pilot test of the camp program. The instrument was not modified for this use.

Agenda Evaluation

Before answering the evaluation questions, it is useful to explore the overall satisfaction with the Conservation Training program. Participants completed a session by session evaluation where they ranked the session (1-7) and made comments. Generally, every session was considered positive, with no mean scores below a 5.0 (4 would be neutral). Because of these strongly positive scores, the difference between the highest valued sessions and the least valued are relatively small.

The following chart shows the sessions that had median scores of 7 (which make the mode also 7). These would be the most consistently high scoring sessions.

Sessions with median scores of 7 (out of 7)

Session	Mean Score	Std Dev
What is ACT	6.19	1.35
What is biodiversity/Why is it important?	6.22	1.40
Learning styles	6.37	1.21
Teaching outdoors on zoo grounds	6.31	.89
Incorporating conservation messages into programs	6.17	1.17
Age appropriate instruction	6.17	1.18
Effective instruction: Classroom management	6.17	1.20
Evaluation of programs and exhibits	6.48	1.12
Tips for success: How to ensure program success	6.16	1.31
Inspiring staff and visitors to take conservation action	6.29	1.27
Interpreting controversial issues	6.29	1.27

With median and modes of 7, it would usually be likely that the standard deviations would be under 1.0. This is not the case as one respondent had very low scores for most sessions, but had a few sessions that ‘held together’ (science and application of science in the setting) as a pattern suggesting this individual did not feel most of the sessions were of quality. Clearly, this is a minority view, but one that needed to be explored to understand why the deviations were so high with means above 6 and medians of 7.

There were two sessions with median scores of 6.5: Exhibit interpretation (Mean 6.0) and Distribute resources for conservation education (Mean 6.15).

All remaining items had median scores of 6.0, which is exceptional. Some of these items did have modes of 7. These include:

Session	Mean	Std Dev
• Evolution of conservation education as central to zoo mission	5.98	1.35
• Principles of ecology	6.31	.76
• Environmental issues in China	5.66	1.67
• Empowering conservation messages	6.07	1.33
• Effective visitor education	6.11	1.03
• Assessing group needs	6.04	1.20
• Types of group programs	5.96	1.13
• Case study: How to create an education program	5.98	1.26

Items such as principles of ecology had very high means, but still had medians of 6 suggesting that the vast majority of respondents had 6 or 7 with few at 5 or below. The small deviation supports the interpretation that these are extremely strong sessions for all participants, but that other sessions (those above) were more consistently viewed as important for more participants with a few who felt the sessions much less valuable.

The remaining sessions all had median scores of 6, which show that the program as a whole was cohesive and consistent. It is not surprising then, that the scale reliability, used as a measure of cohesion, was .97 (extremely high suggesting covariance). Looking at covariance, many of the sessions did, indeed have high levels of covariance which suggests individuals tended to score sessions fairly consistently. The exceptions – those sessions for which covariance is low – include: principles of ecology, front end evaluation, informal education, teaching outdoors, facilitating zoo education profession in China, and partnerships. The session on budget had low covariance on all but one item: that of creating an education department which is tied conceptually to budgets. The different levels of covariance within each of the other sessions against the others, however, reveal many of the sessions do co-vary, but that the session topics are interwoven, suggesting interest and cohesion as much as parallel scoring.

There was no significant difference between session scores (Friedman's chi = 26.353, significance = .657). All sessions with the exceptions of principles of ecology, informal education, types of group programs, and how to create and educational program did hold together with significance using a Chi-square exploring of asymmetry.

Findings

Goal 1: To create a “train-the-trainers” opportunity for our partners at Chengdu Zoo to prepare them to teach the ACT workshop to their colleagues.

This goal was primarily met through the development and provision of the first week program on site at Chengdu Zoo. The degree to which the institute met the objectives of the program, however, is enumerated in response to the following evaluation questions.

- How satisfied were the participants with the workshop(s)?

The summated score of satisfaction for the participants was 6.54 out of 7.0 for the Conservation Training Workshop. This is a tremendously high satisfaction score and all median scores for items were 6 with the exception of “opportunity to meet other zoo educators in China” which had a median score of 7. Reliability on the scale was extremely strong (.896).

As noted above, the individual sessions were all rated very positively, indicating a high degree of satisfaction not only with the overall training program, but also with each component of the program.

- To what degree did the training/workshop/camp change their interest, engagement, intent, and where appropriate, comfort?

The first question on the instruments addressing this goal was related to attitudes toward animals and zoo educators’ roles. Data for this measure come from the parallel scales used for directors and educators.

Directors’ pre-attitude measure on a summated mean was a very strong 6.132 on a 7 point Likert-type scale. Following the one day workshop, the summated mean was 6.03 with mostly individuals who had not completed the pre-measure. There were insufficient matching pre-post to do a statistical paired test comparison, but the high scores both pre and post would suggest a tremendously strong support for education and a view that education can serve an important role in zoos in China. Interestingly, the post measure did reveal a consistent view of more opportunity for educational improvement than in the pre-measure (5.2 to 4.0) which would suggest the program met that goal.

For the directors, the strongest item score was for having a healthy collection which had a mean of 6.91 and a standard deviation of .27 pre and 6.89/.33 post. The lowest scores, and the only items for which there were negative scores, were post measure “education programs in my zoo are well defined” (3.56) and “education programs in my zoo are effective” (3.89) identifying growth potential for education’s role in the zoos. In the pre-measure, there was only one item that was negative and that was the same “education programs are well defined” which had a 3.87 entry mean.

Attitudes as measured by scales toward animals and role of zoos did not change significantly for the participants as a result of the conservation training program. All item scores were high (over 6.1) in both entry and exit, suggesting the participants entered with a strongly positive view of the role of zoos, conservation, and animal care. For most of the items, however, the post scores had lower standard deviations suggesting there was a more closely aligned view between participants. These same attitudes held constant through the third week with no significant differences in any of the scales. This suggests participants came with clearly formed, positive attitudes and those attitudes were supported through the program.

- What did participants learn (perceptive self report cognition)?

On the perceived measure score (post with retrospective pre), there was a pre-summated score of 4.32 with a standard deviation of 1.192. This suggests participants entered the academy with what they believe were slightly positive understanding of topics covered in the workshop. The deviation indicates that there is a fairly normal distribution for a 7 point scale. The post score summated mean was 6.43 with a standard deviation of .496. The gain of 2.17 was significant at the .001 level *a priori*, and the high kurtosis on the post score indicates that there was a very uniform sense of learning around the topics presented during the week.

In examining item scores (for purpose of comparison of gain scores only), gains ranged up to 2.68 (on a seven point scale). A gain of 2.7 is nearly 50% of the variance possible on a seven point scale which is a tremendous report of gain. All items did have positive, though slight in many cases, pre-reports which is supported by the types of discussions and experiences many of the participants reported. The largest gain reports were for items related to teaching outdoors, getting funded and getting started, reaching different audiences, and conservation education.

Regarding the topics covered during the conservation training, all had positive gain scores and were statistically significant. The summated entry score was slightly positive at 4.27 and the summated exit score was strongly positive at 6.38. There were a few topics that had negative entry scores: teaching outdoors (3.67), classroom management (3.79), getting funded/started (3.63), use of demonstration animals (3.82), and integrating education into the zoo (3.82). All exit scores were over 6. Even so, there was some variance: the weakest perceived exit topic was that of use of demonstration animals followed by classroom management and then principles of ecology and getting funding and getting started.

In terms of the camp program, the overall pre-camp training/implementation score on camp related topics was 4.26. The post camp training and implementation score was 6.38 and revealed a significant gain ($p=.000$) of 2.12 on a 7-point scale.

- What are the skills participants believe they gained?

A major focus of the training was on conducting a camp as a tool for education. The second and third weeks were devoted to camp, and there was a positive though not statistically significant shift in intent, preparation and comfort around conducting camp. The lack of significance is not an issue as the N was very small (17) of matched pre/post measures. Two of the gains were fairly strong: there was a 1.94 gain in feeling prepared to conduct camp and a 1.76 gain in intent to conduct camp. Both these items had negative means prior to the training (3.59 and 3.47 respectively). The post means are positive but not strong: 5.35 and 5.41 respectively. There was only a .7 gain in comfort doing a camp--the exit measure on comfort doing a camp is only slightly positive at a mean of 4.59 which suggests more could be done to increase confidence and comfort in planning and implementing a camp program. Overall, for these 17, the camp program training was positive, but appears to have left the participants with some concerns.

- What do participants intend to do when they return to their zoos?

One of the major indicators of sustained action is attitude toward the action. A post with retrospective pre measure was used to isolate “zoo education” from the larger attitudes measure used in the parallel scales. The pre measure of interest, pride, intent to change, etc., was clearly positive at 4.55 with a normal standard deviation of 1.01. The post measure summated mean score was 6.61 with a small deviation of .54. The gain score of 2.07 was significant at the .001 level *a priori*.

A major focus of the Academy was the training in a particular program that could provide revenue generation for the Conservation Education program: a zoo camp. Prior to the training, there was a very slightly positive intent to conduct a zoo camp (4.37, just above neutral). Post the camp training and the implementation week, the intent was a tremendously strong 6.52 with a median of 6.6. This significant ($p=.000$) gain of 2.15 is especially noteworthy given the participants who are not zoo educators who also provided strong indicators. These summated intent scores, however, should be compared to the affective items related to conducting a camp. Participants felt prepared (5.83) to do a camp at their zoo, and were satisfied with the information on conducting a camp (5.65). Likewise, they felt appropriate attention had been given to them during camp (5.43), overall the experience was satisfactory (5.14) and the quantity of information provided during camp (5.08) were all clearly positive. Compared, however, to the mean scores on the first week, these scores are surprisingly lower which could be a function of a bias of those who are *not* located in zoo education departments and intend to conduct camps. Also, many comments offered by the participants related to what they perceive as the potential barriers to implementation of any of the programs were lack of support from administration, and the uncertainty whether an education program could generate revenue.

- What were staff perceptions of the training program?

Each day, staff met after the training was complete for a debrief of the day. Specific issues were raised and managed through this process, but there were a few themes that emerged across the week.

First, time was an issue for each presenter. Every session *could* have been lengthened, but there was little that was able to be cut. Some adjustments in the schedule were made to shorten sections so that there could be more time spent in dialogue. This was especially important given that participants entered with much higher awareness of issues and concerns about visitor behavior at zoos than had been anticipated. Future classes may have a lesser degree of this familiarity, but time should be structured for more input and dialogue.

Second, participants were most fully engaged when participating in group activities. They were least engaged when groups were presenting report-backs. The most successful report-backs were those that required creativity in presentation rather than repeating what the group had discussed. Future courses may wish to consider how to engage the participants through increased small group work with fewer lengthy reporting periods.

Third, participants felt all the sessions were important. It is the role of the project team and the future training staff to identify the ways in which time can be expanded: not having translation will allow a fair proportion of time.

Fourth, there was over-dependence on PowerPoint presentations. The morning when the projector did not work was one of the most interactive periods during the training. Future training programs need to balance the use of PowerPoints with alternative teaching strategies. This concept was also reiterated in participant comments on the daily agenda feedback.

Goal 2. To provide CAZG educators the training and tools they need to design, implement, and evaluate engaging and effective conservation education programs for key audiences.

Ensuring that zoo educators have the cognitive framework for doing their work is an important component of the academy. Regarding the topics covered during the conservation training, all had positive gain scores (pre to post) and were statistically significant. The summated entry score was slightly positive at 4.27 and the summated exit score was strongly positive at 6.38. There were a few topics that had negative entry scores: teaching outdoors (3.67), classroom management (3.79), getting funded/started (3.63), use of demonstration animals (3.82), and integrating education into the zoo (3.82). All exit scores were over 6. Even so, there was some variance: the weakest perceived exit topic was that of use of demonstration animals followed by classroom management and then principles of ecology and getting funding and getting started.

One of the major foci of the Academy was training for, and implementing a Camp Program. Some of the satisfaction and skills are addressed above. Additional information on the camp follows.

After completing the training for doing a camp, participants then participated in conducting a camp for youth. Because of a duplication error, the baseline measures for camp items for the training week were omitted. At the conclusion of the camp program, a series of questions were asked for a summated measure of satisfaction in training for conducting a camp. The means for all eight items were above 5.57; medians for all eight items were 6 and modes for all but one were 6. The summated value score for conducting a camp program was 5.89 with a standard deviation of .71. The highest valued item was the opportunity to work with other zoo educators (mean score of 6.2). The lowest item was feeling prepared to conduct a camp (5.57).

Participants were asked pre and post the camp training program about factors that would effect the conduction of the camp program. Two of the three items showed significant differences pre to post (intent $p = .004$, prepared $p = .002$) while comfort was not significant ($p = .295$). There were magnitude gains on each of the pairs. The following table shows the means, standard deviations, and differences.

Item	Pre		Post		Gain
	Mean	Std Dev	Mean	Std Dev	
Intend to conduct a camp program	3.59	1.94	5.35	1.41	1.76
Prepared to conduct a camp program	3.47	2.12	5.41	1.66	1.94
Comfortable doing camp program	3.88	1.90	4.59	1.80	.7

All three items, however, are notably lower than the satisfaction scores with the training program from the first week. Also, this is the only category in which all pre measures are negative. This would suggest that even with the intensive training, a camp is a different type of activity and therefore participants have more reticence about their ability to implement the program.

When compared to the post with retrospective pre- measure used after the third week (camp implementation), the mean scores pre are identical to the pre-scores from the start of week 2. However, the post scores reveal a slight difference. Related to intent, there was no statistically significant gain with a mean post score of 5.26 (down from 5.35 at the end of the second week). There were significant gains ($p = .000$ for both) in feeling prepared (5.47 versus 5.41 after week 2) and in comfort in conducting a camp (4.53 down slightly from 4.59). That intent to conduct a camp was not significant could be related to the participants who are not in positions in their zoos to conduct camps: they feel prepared and comfortable, but are not planning to implement.

Regarding overall satisfaction, participants were also positive, but slightly less so than for the conservation education program (week 1). The item means ranged from 5.58 to 6.21 with medians for all items of 6 and modes of 6 for all but two items which had modes of 7 (prepared to conduct a camp and information on conducting a camp). As feeling prepared to conduct a camp was the lowest mean score and one of the highest mode scores, there is a split in the group of most feeling well prepared but several feeling far less so with 3 negative scores and 6 slightly positive scores.

Camper Satisfaction.

One indicator of success on goal 2 is the outcomes from the applied tool (camp) that was a component of the training. To this end, camp participants completed pre and post measures for the camp experience that had been developed for the pilot camp in 2005.

Analyses were run on all participants, and on those who were paired pre/post only. There was no difference of magnitude on any pre and post measures between the two groups except to note that those for whom there were both pre and post measures were generally slightly higher (negligible, but consistent) in both pre and post scores. Because the scores were consistent, only the matched scores (n=45) are being used for this report.

There were six items used to measure perceived knowledge of the participants. Upon entry, the summated mean was 5.06 (out of 7); the exit mean was not a statistically significant gain to 5.74 (.68). The individual items had a range of 4.32 (the social lives of animals) to 5.53 (things you can do to protect the environment) entry and 5.41 (results of keeping wild animals as pets) to 6.09 (things you can do to protect animals) exit. Individually, all items except one were significant pre to post. The exception was “things you can do to protect the environment” which is the only item that does not explicitly relate to animals. This might suggest that the item be removed as the item itself is too broad and does not necessarily connect in the campers’ minds related as directly to the theme of the camp.

The subscale related to care for wildlife had, as a whole, a statistically significant gain score ($p=.003$) of 5.32 to 5.63. No item, however, had a statistically significant difference by itself. This could suggest that there was inconsistency in some individual’s responses which affected items (which is verified through some individual response patterns that were done in definite patterns) but that would, across the items, be revealed as predictable (significance at the scale level). This indicates that it is important to look at the scale about caring as a whole, rather than items; that said, there are some items that appear more problematic.

For example, “Going swimming in a lake” is difficult to connect to caring (I believe it was used as an indicator for caring about water quality, but that is not clear) and items related to “protecting” which has a different connotation of activity than caring about spending time in nature which, along with caring about an individual animal were the only two items in the subscale that were statistically significant by themselves.

The third subscale was similar in that the scale as a whole revealed a statistically significant different (4.69 to 5.05) with $p=.000$. The items, however, were not significant by themselves. This could again relate in great part to unevenness of items (visit a park which is easy and had a gain of 5.88 to 6.24 compared to encourage others to help animals which is very difficult [influencing others] which had a negligible gain of 2.74 to 2.77, still negative. The range of responses on these items would indicate that the behavioral messages toward these behaviors were *not* explicit in the program, but are a

general environmentally responsible intent measure as opposed to an intent related to the camp experience.

Overall, there is a positive gain from pre to post on all three scales and on most items. This suggests that the camp experience does provide the framework for the campers to obtain the desired messages. The inconsistencies in the items do prove to be problematic.

Goal 3. To create a professional network for zoo educators in China.

As a major outcome for the project is to create a professional network for zoo educators in China, each measure used included markers for attitudes toward zoo education, the role of education in the zoo, and the view of zoo education as a profession.

Attitudes toward zoo education at entry were 4.55, or slightly positive. Upon completion of the conservation training workshop, the attitudes had shifted to an extremely positive 6.61 (gain of 2.06). This was a statistically significant shift which is also revealed in the reduction of standard deviation from 1.01 to .54.

There were two points in the instruments in which the participants were asked subscale questions regarding the perception of zoo education as a profession. In both subscales, there was a statistically significant gain from pre to post (in the matched t, $t=8.116$, $p<.05$) with pre-summated scores of slightly positive 4.55 and 4.37, to strongly positive 6.61 and 6.52 after the conservation training program. These reveal gain scores of 2.06 and 2.15 (more than a 33% positive shift in the response curve).

The measure was repeated for the third week of the Institute (camp program). There were no significant differences pre to post for this week but as the matched $N=17$, significance measures would be difficult to obtain. There was, however, a consistent gain in magnitude and a tremendous decrease in standard deviations suggesting that although uneven, there is an even more positive orientation toward zoo education as a profession by the end of the third week. The final week had gains from 1.19 to 1.89 on all the subscale items.

Entering the Academy, participants had fairly high expectations about what they would obtain during the training program. Sample comments include “steps of conservation education;” “effective way to communicate with visitors;” “effective way of communication—connecting the zoo, the visitors, and the animals;” and “Change our zoo traditional way of education.” There were many specific needs identified such as programming for youth, learning about audiences, There were also a fair share of broader, more philosophic questions such as “how to get the public to think more positively about zoos through education programs” and how education programs “will lead to increased revenues.” A continual subtheme was that of caring which was also dominant at the end of week three when comments related to getting “children to care about” animals, habitat, wildlife, nature.

The comments by participants all three weeks reflect the importance of the community of practice. Many of the comments related to “getting to know other zoo educators” or “working with zoo educators” and similar comments related to meeting and working with peers as of the most important outcomes of the week. Interestingly, however, from the first week to the third week, the types of activities participants would be willing to undertake for a zoo education profession in China diminished, suggesting that with increased focus on specific activities requiring a tremendous amount of work, individuals began to doubt their ability to undertake additional responsibilities.

One very interesting trend emerged across the three weeks related to 1) what individuals need to do upon return and 2) barriers to implementing what they’ve learned. The numbers of comments related to use of influencing skills on directors *and* other staff increased. Likewise, the number of comments suggesting that the largest barriers would be directors or other staff also increased. This appears to indicate that the need for influencing skills increases as more in-depth information is presented and more concrete conservation education skills are practiced.

Another interesting shift in comments from participants transpired from the first week to the end. The first week comments included a dominant use of the term conservation education (CE) as a larger umbrella and in reference to the field (e.g. “work for the improvement of CE in China” and “report to leaders about this ACT training; help him understand the importance of CE and the situation of CE both in China and abroad”). At the end of week 3, dominant comments related to what youth will enjoy from the camp and implementation tools learned during the second two weeks. These shifts reflect the different foci of the weeks as designed and suggest that there might need to be a refocus at the end of the camp experience back to the larger discussion of the field and the profession. Conservation education action was reduced from larger impact ideas and collaboration to focusing within the zoo, thereby suggesting the focus at the end of the training was too localized to meet the goal of the zoo profession in China.

Conclusions

Goal 1: To create a “train-the-trainers” opportunity for our partners at Chengdu Zoo to prepare them to teach the ACT workshop to their colleagues.

Overall, this goal was successfully met. Building on the support of zoo education by zoo directors, the ACT workshop was viewed by participants and staff as successful. By all measures, participants were satisfied, challenged, and left with the intended learnings. The “creation” aspect of the ACT appears successful; however, the transfer of the Academy and the development of future Academy offerings must be carefully considered and observed. There is the likelihood that “novelty” affected both the enrollment in, and the outcomes from the Academy as offered.

Goal 2: To provide CAZG educators the training and tools they need to design, implement and evaluate engaging and effective conservation education programs for key audiences.

This goal is harder to identify as having been met. Certainly, the outcome measures indicate success, but the only solid measure of the application of skill was in the presentations provided at the end of the first week, and the experience in the third week. Neither of these settings was evaluated in hard, quantitative means. However, the group presentations were well documented by staff as being exemplary and complete, indicating application across the groups. The ultimate test will be participants' perceptions after several months back on the job.

Goal 3: To create a professional network for zoo educators in China.

In terms of affective support and intent, this goal was tremendously successful. The support for maintaining such an association, however, is a different challenge. Infrastructure changes beyond the scope of this evaluation are being implemented and if the infrastructure is sufficient, the intent and energy of the participants around a professional network (and a view of zoo education as a profession) is substantial enough to move the process ahead. The interest and commitment of individuals to a professional network far exceeded all expectations.

Recommendations

- Revamp the curriculum as per the daily debrief sessions to restructure time and focus.
- Increase the level of interactivity in sessions to fill the time saved in translation.
- Minimize the introductory information as attitudes and values of participants are already high upon entry.
- Monitor future programs to ensure attitudes and knowledge levels upon entry remain consistent.
- Continue to use the Academy as a tool for supporting the profession of zoo education in China. Revise the emphasis during the camp training and implementation to continue to focus to some degree on building the profession rather than focusing solely on building individual skills.
- Given the level of interest and knowledge upon entry and the interest and satisfaction with the training program, it would make sense to begin constructing a curriculum for building upon the basics of the Conservation Training and the Camp Training.
- The greatest gain scores of the evaluation were in the informal and nonformal teaching sessions. This suggests there is great opportunity for increasing educators' skills through additional information, skill building sessions, and

application of teaching adults, teaching outdoors, and use of hands-on, discovery, inquiry, and other pedagogies and andragogies.

- The evaluations for the next round should include fairly complete rubrics for the presentations which could be used to better determine the skills and understandings of the participants.
- The importance of influencing skills is recognized by participants more as time goes by. Therefore, there should be greater emphasis on influencing skills *and* more time spent helping participants develop these skills through practice, mock sessions, role play, and the like.
- The focus of participants, as indicated by comments, moved from a constant use of “conservation education” at a larger level, to, by the end of week three, a focus on specific implementation challenges and contexts. For the Academy, it is recommended that the focus be *broadened back to conservation education* as the period ends so that participant energy and cohesion built across the time is maintained and commitments to the field do not wane.
- Future academy workshops should consider ways to partner participants (with past participants or contemporaries) for the purpose of commitment to implementation of alternative practices and follow-up on the implementation.