

Assessing practices and reported efficacy measures of primate conservation education programs

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Fig. 1. Programs targeted a wide variety of primate populations including lemurs and; Fig. 2. vervet monkeys (K. Kling)



Fig 3. Educational sign at Tsimbazaza Zoo, Antananarivo, Madagascar. (K. Kling)

Introduction

• Due to its professed ability to change the knowledge, attitudes and behaviors of its participants, primate conservation education programs (PCEPs) are important means of addressing the global threats facing non-human primate (NHP) populations [1, 2, 3].

• Commonly cited best practices and recommendations for PCEPs include longevity [4], local involvement [5], collaboration [2], and evaluation [6].

– Longevity: Maintaining continuously-operating PCEPs [4] and lengthening individual participant involvement [6] increases knowledge gains for participants and strengthens community support [7].

– Local Involvement: Encouraging participant involvement through participation in program decisions [8] or through incentives—providing employment [9], entrepreneurial opportunities [10], cost-efficient and eco-friendly technologies [10] and non-economic goods and services [11]—can increase project success.

– Collaboration: Exchanging ideas and materials with other educators and others introduces new perspectives and skillsets to a PCEP [2; 8], and can reduce operating costs [12].

– Evaluation: Evaluation is an often-cited necessity for PCEPs [12] but one which is largely underutilized [13] and unestablished [3].

• To-date, no study has surveyed PCEPs to determine the extent to which practitioners utilize these best practices or to quantify which practices yield the greatest conservation impacts.

Study Objectives

1. Conduct a census of PCEPs to establish scope of practice.
2. Determine the form of and extent to which PCEPs apply suggested best practices of program longevity, local involvement, collaboration, and evaluation.
3. Assess relationships between best practices and program efficacy.

Methods

• An online survey of 30 questions was distributed to 147 PCEPs between March 2013 to January 2014, with 43 programs responding.

• Survey distribution was in compliance with the University of Texas at Austin's Human Subjects Institutional Review Board

- Participants identified through searching for the terms “education” and “conservation education” in the Primate Info Net Directory, Primate Lit Database and by reviewing American Society of Primatology Small Conservation Grant and International Primatological Society Conservation Grant recipients
- Survey questions gathered information regarding 1) the general characteristics and scope of PCEPs; 2) traits associated with program longevity, community involvement, collaboration; 3) formal methods of evaluation; and 4) noted improvements to participant attitudes/behaviors (‘participant efficacy’), community attitudes/behaviors (‘community efficacy’), and reductions to existing threats to primate populations (‘threat efficacy’).

• Relationships between best practices and efficacy measures were tested with a Fisher's Exact test

- Due to small sample sizes, a significant relationship was reported at an $\alpha = 0.10$.

Results

- The largest portion of respondents were research scientists (54.5%) while 20.9% identified as teachers.
- Most programs used a mix of passive and active educational methods, with passive methods used more commonly (Table 1).
- The greatest challenge reported by PCEPs was access to funding (65.8%); self-conducted fundraising and donations from private individuals provided funding for over half of programs.

Table 1. Education materials and strategies utilized by primate conservation education programs. Responses indicated both whether a program used a particular material/strategy and whether that material/strategy was one of their top 3 most commonly utilized methods (N_i = 38).

Passive Education Material or Strategy	Programs	Top Three	Active Educational Material or Strategy	Programs	Top Three
Pamphlets, posters or other printed material	32	10	Workshops	28	7
Video, audio or other multimedia presentations	29	11	Guided habitat walks	27	4
Lectures to children	28	6	Games	22	4
Educational materials (i.e. lesson plans)	28	9	Ecological projects (i.e. replanting)	21	4
Lectures to adults	27	6	Participant involvement in research	16	3
Library or conservation and/or primate-related material	15	4	Theater (i.e. skits)	13	1
Comic and/or picture books	14	3	Personal interactions with primates	12	1
Television or radio programs	12	2	Nature clubs	11	1

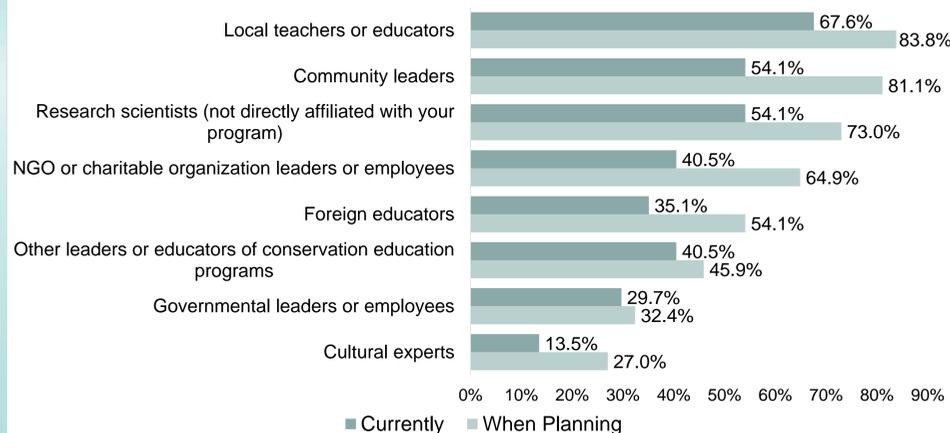


Figure 1. Resources/Collaborators consulted in planning and execution phases of primate conservation education programs (N = 37 programs).

- **Longevity:** Most programs had been in place from 5-10 years while individual participant involvement length varied, with the largest portion for several years (27.8%). Longer programs did not report efficacy measures with greater frequency than shorter programs (Table 2).
- **Local Involvement:** Programs that provided at least one economic incentive (51% of all programs) reported improvements to participant attitudes more frequently than those that did not ($p = 0.03$).
 - Introduction to cost-efficient technologies was the most commonly provided economic incentive (37.1%) while ecotourism employment and entrepreneurial opportunities both occurred in 8.6% of programs.
- **Collaboration:** Programs that collaborated with other conservation education programs (45.9% of all programs) reported reductions to primate threats more frequently than programs that did not collaborate ($p = 0.07$).
 - The most frequently collaborated with source were local teachers; all collaboration took place more during planning than during program execution (Figure 1). Obtaining educational materials was listed as a major challenge by 36% of all PCEPs.
- **Evaluation:** 72.1% of programs utilized formal evaluations, with 86.7% of evaluating programs (N=31) targeting participant attitudes and 53.3% targeting behaviors. The most common evaluation method was surveys, with <1/3 using other methods.

Table 2. Relationship between the reported efficacy of primate conservation education programs and characteristics relating to their longevity, local involvement, and collaborative activities. Efficacy responses were broken into three categories: positive changes to participant attitudes, positive changes to participant behaviors and observed decreases to threats to primates. Sample sizes varied depending upon how many survey respondents both evaluated the efficacy measure of interest and answered the question relating to the program characteristic of interest.

	Reported Efficacy Measure (P-value (N))		
	Attitude	Behavior	Threat
Longevity Tests	Do programs that have been running for greater cumulative time (5+ years) report greater efficacy?		
	0.27 (26)	0.55 (16)	1 (21)
Local Involvement Tests	Do programs that involve participants for longer periods of time (>1 week) report greater efficacy?		
	0.26 (23)	0.52 (14)	0.6 (17)
Collaboration Tests	Do programs that provide at least one economic incentive report greater efficacy?		
	0.03 (25)	1 (15)	0.67 (21)
Collaboration Tests	Do programs that provide at least one non-economic incentive report greater efficacy?		
	1 (24)	1 (15)	0.4 (21)
Collaboration Tests	Do programs that provide employment through ecotourism or entrepreneurial opportunities report greater efficacy?		
	0.63 (24)	1 (14)	1 (19)
Collaboration Tests	Do programs that report collaboration with other conservation education programs report greater efficacy?		
	0.15 (26)	0.59 (17)	0.07 (20)
Collaboration Tests	Do programs that report collaboration with cultural experts report greater efficacy?		
	1 (25)	1 (16)	0.6 (19)

Conclusions

- An increased emphasis on active education methods, such as nature clubs, which have noted success [16], could help provide increased participant involvement alongside traditional passive methods.
- **Longevity:** Given the lack of relationship between program efficacy and longevity, further research is needed. While long-term participant involvement in PCEPs has led to participant improvements [8], it has also been shown to have no effect [14] and short-term involvement provides the benefit of a wider reach [15].
- **Local involvement:** Programs that provided economic incentives reported improvements to participant attitudes more frequently than those that did not. Research into best-practices of economic incentive use is recommended in order to maximize benefits and prevent negative effects.
- **Collaboration:** Collaboration among conservation educators was positively associated with program efficacy, but is a strategy used by less than half of PCEPs. We suggest increased collaboration to include sharing of educational materials and greater training of research scientists in community conservation and participatory education.
- **Evaluation:** Formal program evaluations, while widely used, were largely limited to participant surveys and targeted behavior changes less frequently than changes to attitudes and knowledge. Increased commitment by PCEPs to formative evaluation and adaptive management is warranted.

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