The Role of Environmental Education in Biodiversity Conservation: A Comparative Study in the Protected Areas of Nepal

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The term environmental education did not appear in conjunction with each other until mid 1960’s.

Many were involved with the developing of the term.

Among many:

Stapp et al. (1969): aimed to produce a citizenry that is knowledgeable concerning the biophysical environment.....

Palmer (1998): is the process of recognizing values and clarifying concepts in order to develop skills....
Past Research

Education:


Environmental Education:

“Conservation issues require a diverse range of skills .....” Jacobson (1995) and Kessler et al. (1998)

Environmental Education Program (EEP) Evaluation:

“regular program evaluation..” Ehrenfeld (2000) and Kleiman et al. (2000)

“Students can and do share their learning attitudes with their parents...” Ballantyne et al. (2001)
But...

Park/People Relationship:

• “Collaboration and communication with the surrounding local communities….” Ledec & Woodland (1990), Brandon & Wells (1992)

• Community-based wildlife conservation and buffer-zone management have been adopted to address conflict between people and protected areas.
Conservation in Nepal

- Began in 1950s
- First wildlife law was published in Nepal in 1957
- In 1964, a rhino sanctuary was declared in Chitwan which was later called Chitwan National Park (CNP)
- In 1973, National Parks and Wildlife Conservation Act
Environmental Education in Protected Areas of Nepal

Three major organizations:

- Department of National Park and Wildlife Conservation (DNPWC)
- National Trust for Nature Conservation (NTNC)
- World Wildlife Fund (WWF)
Despite the Work....

- From 2001 to 2006 at least 120 rhinos were poached in and around Chitwan National Park (Martin et al. 2009)

- And the number in Bardia National Park dropped from 67 to 30 (Martin et al. 2009)

- Similarly, in 2008-2009, 17 rhinos were poached in CNP and 2 rhinos were poached in BNP (Martin et al. 2009)
- First National Park established in 1973
- Area 932sq.km and Buffer zone 767sq.km
- World Heritage Site in 1984
Established in 1976, largest National Park in the Terai region
- Area 968 sq.km and Buffer Zone 327 sq.km
Environmental Education

Socio Demographics

Environmental Attitude

Environmental Behavior
Measurement

- Socio-demographic factors (age, income, ethnicity, sex)
- Environmental Education
- Environmental Attitudes (Index of 14 items)
- Environmental Behavior (Index of 13 items)
# Measurement

Socio-demographic factors (age, income, ethnicity, sex)

## 1. Personal Information:

I.  
   a. Respondent Name:  
   b. Age group:  
      - 18-25  
      - 26-35  
      - 36-50  
      - 51-70  
      - over 70  
   c. Sex:  
      - Male  
      - Female  
   d. Family Size:  
   e. Family structure:  
      - Joint  
      - Nuclear  
   f. Ethnicity:  
      - Tharu  
      - Newar  
      - Brahman  
      - Chettiri  
      - Other  
# Measures for Environmental Education

## Section D

### Participation in Environmental Education Program

Below are some of the activities you might have conducted. Please circle a number to express your opinion in 5-point scale. You can choose Not applicable (NA) if the activity is irrelevant for you.

| Statement                                                      | Never (1) | Seldom (2) | Occasionally (3) | Often (4) | Always (5) | Not Applicable (NA) |
|                                                               |           |            |                  |           |            |                    |
| I participate in Environmental Education Program              | 1         | 2          | 3                 | 4         | 5          | NA                 |
| I participate in programs conducted by schools                | 1         | 2          | 3                 | 4         | 5          | NA                 |
| I participate in programs conducted by NGOs                   | 1         | 2          | 3                 | 4         | 5          | NA                 |
| I participate in programs conducted by INGOs                  | 1         | 2          | 3                 | 4         | 5          | NA                 |
Environmental Attitudes (Index of 14 items)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity is important to us</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>We need to conserve wildlife and biodiversity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Establishment of buffer zone was fruitful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Education on biodiversity is needed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Conservation education program in the buffer zone has been beneficial</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

It is the responsibility of local people to protect the environment.
Environmental Behavior (Index of 13 items)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never (1)</th>
<th>Seldom (2)</th>
<th>Occasionally (3)</th>
<th>Often (4)</th>
<th>Always (5)</th>
<th>Not Applicable (NA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have participated in Conservation Program</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>I collect fuel woods from the forest</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>I kill wild animals if it comes to my farm/area</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>I will inform the authority if I know about the poachers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>I am involved in any anti-poaching activity/group</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>I will participate in education program related to biodiversity conservation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>NA</td>
</tr>
</tbody>
</table>
Methods
Results

Participation in EEP

Parks

Chitwan

Bardia

Did not participate

Did participate in EEP
Participation in institutional education program

Chitwan

- INGO's
- NGO's
- Schools

Bardia

- INGO
- NGO
- Schools
People who poach should be punished

![Attitude Chart]

- Chitwan
  - Agree: 100%
  - Disagree: 0%
- Bardia
  - Agree: 80%
  - Disagree: 20%
Conservation education program in the buffer zone has been beneficial.
I collect fuel woods from the forest

![Bar chart showing behavior in Chitwan and Bardia parks. The y-axis represents the percentage of people, with categories for 'Did not collect fuelwoods' and 'collected fuelwoods'. The bars show that more people in Bardia collected fuelwoods compared to Chitwan.](image-url)
I kill wild animals if it comes to my farm/area

![Bar chart showing behavior in Chitwan and Bardia parks.](image)
Summary

- Locals did participate in EEP but many of them were not aware of the program available to them.

- Locals participating in EEP in Bardia was higher compared to Chitwan.

- Most of them participated in programs conducted in school.

- Locals in Chitwan had a higher positive attitude when asked about conservation education in buffer zone being beneficial.
An overwhelming number of people of Bardia admitted that they collected fuel wood from the forest compared to Chitwan.

Also, in BNP, there is a large number of people who said they have killed wild animals that came to their farm in comparison to Chitwan.
Challenges
School of Life Sciences (Sols, ASU)
Graduate Professional And Student Association (GPSA)
Department of National Park and Wildlife Conservation (DNPWC, Nepal)
National Trust for Nature Conservation (NTNC, Nepal)
World Wildlife Fund (WWF, Nepal)
Communities at the Buffer Zone
&
My Lab mates