CHING-SAN LAI

23. A STUDY OF 1ST GRADERS’ SCIENCE LEARNING ON BIODIVERSITY AT THE TAIPEI ZOO, TAIWAN

ABSTRACT

The purpose of this study is to promote students’ science learning and understanding on biodiversity by integrating zoo resources and biodiversity issues into learning activities. A total of 439 elementary 1st graders participated in this study. Teaching activities include classroom discussions on the topics, animals and biodiversity issues, and a one-day field trip to the Taipei Zoo, Taiwan to enable students to gain experiential insights on biodiversity. Results of the study were as follows: 97.3% of students were satisfied with the field trip, 58.8% obtained a greater understanding on animals, and 54.9% on biodiversity; 55.8% of students were willing to re-visit the Taipei Zoo in the near future. The top five favourite animals identified were the elephant, panda, giraffe, koala, and zebra. Students were able to demonstrate their strategies for the biodiversity conservation of these animal groups. The results of the study indicated that science teaching integrated with zoo resources and biodiversity issues had significantly influenced the learning outcomes of 1st graders in a positive way.

KEYWORDS

Biodiversity, Field Trip, Informal Science Learning, Science Education, Zoo

INTRODUCTION

In recent years, the trend of the world’s science education reform has focused on hands-on and minds-on science learning. In addition, informal science education has received much attention for improving students’ science learning (e.g. Knapp, 2000; Pugh & Bergin, 2005; McCoy et al., 2007). Zoos and other informal science education sites can provide students with different learning opportunities and experiences. Lind (1995) indicated that a trip to a zoo can be a terrific way for young children to learn about animals, especially using planned learning experiences. Teaching activities at a zoo allow children to develop knowledge about animals and environmental awareness in a safe environment while fostering the development of social skills (Pringle et al., 2003).

Anderson et al., (2003) pointed out that learning experiences outside school should be understood and fully appreciated by science educators. Kisiel (2006) argued that most teachers struggle with finding a way to connect that learning with
their classroom curriculum. Some strategies have been used by teachers and science educators to help students’ learning at zoos, but much more efforts should be done for the teaching and learning at zoos.

The year 2010 is proclaimed by the United Nations as the International Year of Biodiversity (Taiwan Biodiversity Information Network, 2009). It is a celebration of life on earth and of the value of biodiversity for our lives. This year’s theme is “Biodiversity is life, biodiversity is our life”. A zoo is a wonderful place with rich educational resources to allow students to explore the natural world and promote development of concepts about animals, ecology, and biodiversity. Students’ scientific learning and science inquiry should begin in the zoo. The purpose of this study is to promote students’ science learning and biodiversity understanding by integrating zoo resources and biodiversity issues into learning activities.

METHODOLOGY

A total of 15 classes of 1st graders participated in this study. Teaching activities include classroom discussions on the topic, animal and biodiversity issues, and a one-day field trip to the Taipei Zoo, Taiwan to allow pupils to gain more experiential insights on biodiversity. Students were guided by teachers and volunteer parents. Instruments used were questionnaire on students’ learning at Taipei Zoo and study sheets. During their post-visit, students were asked to fill up the questionnaire.

The questionnaire consists of eight questions to gather information such as the number of visits to the Taipei and other zoos, and the students’ level of their learning at the Taipei Zoo. The study sheets have three open-ended questions about their learning of animal and biodiversity conservation at Taipei Zoo. A total of 439 copies of the data sets were judged valid for the study.

RESULTS AND DISCUSSION

Results of Questionnaire Survey at Taipei Zoo

212 of the 439 1st graders were males. Tables 1 and 2 show the number of visits to Taipei Zoo and other zoos.

<table>
<thead>
<tr>
<th>No. of Visits</th>
<th>1st time</th>
<th>2–6 times</th>
<th>7–10 times</th>
<th>11 times &amp; above</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (n)</td>
<td>42</td>
<td>133</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>%</td>
<td>67.7</td>
<td>44.3</td>
<td>48.0</td>
<td>48.1</td>
</tr>
<tr>
<td>Female (n)</td>
<td>20</td>
<td>167</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>%</td>
<td>32.3</td>
<td>55.7</td>
<td>52.0</td>
<td>51.9</td>
</tr>
<tr>
<td>Total (n)</td>
<td>62</td>
<td>300</td>
<td>50</td>
<td>27</td>
</tr>
</tbody>
</table>

The lowest frequency of visits to Taipei Zoo is between 2 to 6 times for both boys (44.3%) and girls (55.7%) while the highest is 11 times and above (Table 1).