An Activity for Teaching Heat Concept to Visually Impaired Students

Aydin KIZILASLAN*, Mustafa SOZBLIR* & S. Levent ZORLUOGLU**
*Ataturk University, Department of Mathematics & Science Education, Erzurum, Turkey
**Artvin Çoruh University, Department of Mathematics & Science Education, Artvin, Turkey

INTRODUCTION

Visual impairment is a decreased ability to see to a degree that causes problems not fixable by usual means. Concept in science and mathematics have been found inaccessible to students with visual impairment due to use of figures, equations and graphs. Teachers can make the world of science more accessible to students with visual impairments through collaboration and specific adaptations in both the science classroom and laboratory by providing students with a variety of opportunities to explore and examine real materials closely or use models.

Science materials may include talking devices, tactile charts, reading materials, etc. But traditionally science teaching mostly depends on visual instruction. But distinction must be made between compensatory skills and functional skills so that students with visual impairments can access the expanded core curriculum in addition to the core academic curriculum of general education.

METHOD

This study aimed to develop an activity, as part of a large project, which is accessible to visually impaired students in teaching heat concept which is found difficult to comprehend even by the sighted students. For this purpose we have designed an activity based on using tactile materials for making science more accessible to 8th grade students in a special school for visually impaired. Participant of this activity was six students including a blind student.

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Students</th>
<th>Gender</th>
<th>Visual acuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Male</td>
<td>Blind</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Male</td>
<td>Low vision</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Male</td>
<td>Low vision</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Male</td>
<td>Low vision</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Male</td>
<td>Low vision</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Male</td>
<td>Low vision</td>
<td></td>
</tr>
</tbody>
</table>

Teaching materials and activity was designed toward ‘heat’ concept in line with the determined needs, and these designed teaching materials and activities were applied to 8th grade students with visually impaired.

RESULTS AND DISCUSSION

- Visually impaired students will typically need variety of assistance to explore and examine real materials or models together with some adaptations in the environment in order to let students having safe and full access to science.
- This study aimed to develop an activity to visually impaired students in teaching heat concept. For this purpose we have designed an activity based on using tactile for making science more accessible to 8th grade students in a special school for visually impaired.
- The activity basically consists of simple, economical and easily accessible everyday materials.
- Two plastic bottles, one of which includes warm water and the other includes cold water was given to every students to hold them with their each hands. Then were questioned about relative decrease and increase the temperature of hands through inquiry based questions during the following 10 minutes.
- Before the activity, participants were interviewed to see their conceptual understanding of heat. There were typical misconceptions among the students about heat.

REFERENCES