Dr. Anjeela D Jokhan
Associate Dean (Learning & Teaching)
Faculty of Science and Technology
The University of the South Pacific
Fiji

ARE LABORATORY COURSES STILL RELEVANT IN THE 21ST CENTURY?
HOW CAN WE MANAGE LABORATORY COURSES WITH DECREASING RESOURCES?

The University of the South Pacific scenario

Some thoughts:
- Do laboratories achieve what they intend to?
- The usefulness of simulated experiments
- Should students be allowed to search for answers themselves outside of the lab

ARE LABORATORY COURSES STILL RELEVANT IN THE 21ST CENTURY?
- In the 1970’s - the need for laboratory classes was not questioned
- In the 1980’s - some questions began to emerge
- Since then there have been two schools of thought on this

There is merit in asking these questions
- However we need to keep the following in mind:
  - the particular discipline (biology, medicine, chemistry, engineering etc)
  - background of the students (their previous experience - schooling, cultural, social - these determine how students learn)
  - level of technological support available
  - the availability of other relevant resources
Laboratories provide:

- Investigative learning opportunities. Teachers require this kind of time to achieve the learning objectives in science.
- An inquiry teaching opportunity and the potential for life-long learning qualities in students.

**Effective Full-time Equivalent students**

<table>
<thead>
<tr>
<th>Discipline</th>
<th>EFTS</th>
<th>% of the total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>173</td>
<td>1.5</td>
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<tr>
<td>Humanities</td>
<td>1,523</td>
<td>14.0</td>
</tr>
<tr>
<td>Science</td>
<td>2,349</td>
<td>21.0</td>
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<tr>
<td>Law</td>
<td>501</td>
<td>4.5</td>
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<tr>
<td>Social Science</td>
<td>3,974</td>
<td>36.0</td>
</tr>
<tr>
<td>Pre-Degree</td>
<td>2,507</td>
<td>23.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11,117</td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Background of the students:**

- Poor understanding of English
- Poor communication skills
- Diverse cultural background – common factor is not to question, not to investigate or initiate critical thinking
- Poor school facilities – lack of books so very little pictorial support, lack of equipment, students mostly do theory only in science
- Lack of advanced technology (no internet in most schools)

**How can we best teach these students?**

- Lectures
- Tutorials
- Laboratory classes
  - Independent work
  - Critical thinking
  - First-hand experience with lab equipment

**Resource Implications**

- Resource intensive
- Time intensive

USP sees this to be a vital component of the teaching of science and continues to support it.
Questions to ask:
- How long can an institution sustain this?
  - increasing demand in other areas
  - Decreasing number of science students (although this is not the case at USP so far)
  - the need for better use of resources
  - the availability of other options

Thank you