Whiteboard Animation
Flipping UGFN1000 Classroom with Fun
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UGFN1000 In Dialogue with Nature (UGFN)
- Understanding the physical universe and biological world
- Reflecting on scientific knowledge
- Studying science-related classics/core texts

Mode of Teaching and Learning

Lecture
- Teacher introduces the background, author and main ideas of the text in a 45-min lecture

Challenge
- Unable to explain complicated concepts during the lecture time
- Difficult to find teaching materials on specific topics at the appropriate level of difficulty for all the students with diverse disciplinary backgrounds

Whiteboard Animation
- Student-centered and practical needs driven
- Tailor-made for the needs of specific issues in UGFN
- Bridging the knowledge gap between the text and discussion
- Step-by-step illustrations with voiceover narrations to explain complicated and abstract ideas
- 5-min short animation hosted online for self-paced learning
- Enriching students’ learning experience
- Attractive and fun

Production
1. Storyboard design
2. Whole-picture design
3. Voice-over production
4. Animation production
5. Post-production

Text Reading
- Students read the text on their own

Challenge
- Do not understand the complicated concepts and abstract ideas in the text

Micro-module 1: Scientific Enquiry of Life

What is life?

Does DNA determine you?

Micro-module 2: Scientific Enquiry of Mind

Where does our mind come from?

Assessment
Survey from over 200 students who watched the animation (Li et al. 2017)

<table>
<thead>
<tr>
<th>(1 strongly disagree)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>These animations are helpful for your understanding of the texts</td>
<td>0.6</td>
<td>1.4</td>
<td>7.1</td>
<td>37.4</td>
<td>42.1</td>
<td>11.4</td>
</tr>
<tr>
<td>These animations are helpful in clarifying the concepts of the discussed issues</td>
<td>0.6</td>
<td>0.9</td>
<td>5.8</td>
<td>35.9</td>
<td>45.7</td>
<td>11.0</td>
</tr>
<tr>
<td>These animations are helpful in gaining the knowledge of life and mind before tutorials</td>
<td>0.1</td>
<td>0.4</td>
<td>7.5</td>
<td>38.5</td>
<td>45.6</td>
<td>8.0</td>
</tr>
<tr>
<td>These animations have raised your interest in the discussed issues</td>
<td>0.5</td>
<td>2.0</td>
<td>10.2</td>
<td>36.0</td>
<td>44.4</td>
<td>7.0</td>
</tr>
<tr>
<td>Whiteboard animation is more interesting than lecture recording</td>
<td>0.5</td>
<td>1.1</td>
<td>12.3</td>
<td>37.6</td>
<td>39.9</td>
<td>8.7</td>
</tr>
<tr>
<td>The level of difficulty of these animations is appropriate</td>
<td>1.1</td>
<td>1.9</td>
<td>5.6</td>
<td>31.7</td>
<td>48.7</td>
<td>11.0</td>
</tr>
<tr>
<td>In general, I am satisfied with these animations</td>
<td>0.6</td>
<td>1.3</td>
<td>3.9</td>
<td>27.2</td>
<td>53.5</td>
<td>13.6</td>
</tr>
</tbody>
</table>

(These figures are in percentage)


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