‘GI-Pedagogy’
Innovative Pedagogies for Teaching with GIS

Online secondary geography teachmeet
21 September 2022
7.00pm-8.00pm
Innovative Pedagogies for Teaching with GIS

Contents

• About the project

• Innovative **Pedagogical model** for **Teaching with GIS**
  
  • **Toolkit** of innovative pedagogical approaches

• Teacher training **course**

• Case studies and a digital exhibition of the findings
Creating Vignettes / case studies

Gi Pedagogy: Concept Cube

S in GIS stands for system.
S in our model can also stand for steps of course and also scaffolding.
S can also stand for schema / schemata: the interconnected blocks of knowledge which are acquired at each level.
S is also about solutions to problems which GIS can help to produce.
And finally, the S can stand for the stories which are told using GIS: the narratives developed by teachers and learners.
Also S = sustainability

Our final thinking can be represented by this diagram:

You will notice the between each step - these represent opportunities for checking understanding before moving up, and also the opportunity to slide back down if required. Steps may also be missed out by groups who may have already acquired schema, but may also be visited several times during a lesson sequence.
Creating template ...

Step 1: Direct instruction / teacher facilitated stage
Step 2: Modelling / Scaffolding,
Step 3: Individual exploration
Step 4: Review - discussion
Step 5: Problem-solving
Step 6: Presentation/Assessment
Example 1

- Physical landscapes
- Age group 11-14 years

Gi Pedagogy: Concept Cube
Working memory:
Current learning schema

How does the physical landscape vary in different parts of the world?
### Working memory:
**Current learning schema**

<table>
<thead>
<tr>
<th>Great Mountain ranges</th>
<th>Lakes and Oceans</th>
<th>Coastal landscapes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location and names of continents</td>
<td>World oceans</td>
<td>Equator</td>
</tr>
<tr>
<td>Latitude and longitude</td>
<td>Different land uses</td>
<td>Ecosystems and biomes</td>
</tr>
<tr>
<td>Tropical Rainforest</td>
<td>Hot deserts</td>
<td>Cold environments</td>
</tr>
</tbody>
</table>

### Long-term memory:
**Prior learning schema**

<table>
<thead>
<tr>
<th>Great Mountain ranges</th>
<th>Lakes and Oceans</th>
<th>Coastal landscapes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name major mountain ranges</td>
<td>Landforms caused by coastal erosion</td>
<td>Landforms caused by coastal deposition</td>
</tr>
<tr>
<td>Named case-study (Holderness)</td>
<td>Landforms caused by river erosion</td>
<td>Landforms caused by river deposition</td>
</tr>
<tr>
<td>Named case-study (River Tees)</td>
<td>Landforms caused by glacial erosion</td>
<td>Landforms caused by glacial deposition</td>
</tr>
</tbody>
</table>

### Long-term memory:
**Future learning schema**

- How does the physical landscape vary in different parts of the world?
Example 2

- Windmills
- Age group 17-18 years

Checking understanding

VIGNETTE - WIND ENERGY

<table>
<thead>
<tr>
<th>Step</th>
<th>Identify a topic / story that is going to be told / explored using GIS</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teaching with GIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wind energy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Context / place in SoW: Sustainable development, energy transition (in K1-12 compulsory education topic)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Target age group: K11-12 = 17-18 y</td>
<td>100 min</td>
</tr>
</tbody>
</table>

**LOs** Learning objectives

- Define alternative energy
- Describe evaluate the possible impact of windmills
- Understand the nimb-y syndrome
- Interpreting maps
- Explain
- Describe, explain and evaluate possible influences on this location and distribution. Link to SDGs.

**Res** Key resources and embedded hyperlinks if appropriate

- ArcGIS online map
  - https://www.arcgis.com
- Other websites:
  - https://ourworldindata.org/renewable-energy
  - https://globalwindturbine.info
An online course for Teachers...

- Introduction to what geoinformation (GIS) is and why it should be used
- Innovative pedagogy and theoretical basis
- Sequencing and integrating geoinformation (GIS) into the curriculum
- Case-study examples of what good looks like
- Conclusion: ‘I - we – you’ section on creating and sharing ideas.

Multiplier Teacher Training event
St Mary’s University ➔ Thurs 17th Nov 22
sophie.wilson@stmarys.ac.uk

Any questions?

Website: www.gi-pedagogy.eu
Website

www.gilearner.eu
www.gi-pedagogy.eu