Geographical and mobile information technologies and phenology in European Schools: state of the art

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Introduction

PhenoloGIT is a major trans-European project which aims to design, build and test a collaboratively created educational environmental information platform, supported by state-of-the-art mobile technology and Geographical Information Technologies (GIT). It is intended to be used by teachers and students in primary and secondary schools across Europe. A needs analysis and best practice review were undertaken in order to reveal current uses of GIT and mobile digital technologies in gathering phenological data by schools across four European countries: Spain, Denmark, Lithuania and the United Kingdom. Phenology is the study of the timing of recurring biological events in the animal and plant world, the causes of their timing with regard to biotic and abiotic forces, and the interrelation among phases of the same or different species (Lieth (1974)).

Method

Semi-structured interviews with fifteen teachers were undertaken in total across all four countries. All teachers were operating at the equivalent to UK Key Stage 2 (Primary, ages 7-11), and Key Stage 3 (Secondary, ages 11-14).

Key Findings

Nature (How is phenology seen as a relevant study for curricular activities?)

Phenology is relevant to teaching all life and physical sciences, particularly biology, geology, ecology and geography.

Specific curriculum areas with links to phenology include:

- climate change
- plant reproduction and life cycles
- monitoring grounds to measure seasonal changes
- impact of seasonal change on biological processes

Technology (How are GIT and mobile technologies used in science lessons?)

- 56% of teachers in partner countries have experience of using Geographical Information Technology in school education i.e. Google Earth, ArcGIS
- Mostly used for discreet projects, not integrated into programmes
- Data recording i.e. Nature’s Calendar; FenoDato
- Mobile devices - mostly smart phones with GIS/GIT apps

Pedagogy (How does the PhenoloGIT ethos fit into personal teaching philosophies?)

- Majority of teachers in partner countries are familiar with phenology and would be confident to teach it
- No connection between use of GIT and country, teacher age, length of experience or subject specialism - it’s personal!
- Majority of teachers believe that GIT could be useful
- PhenoloGIT will motivate and encourage pupils to work

References: