



Fostering Environmental Awareness: Montessori Pupils Investigate the Effects of Mass Tourism in the Dolomites



Promoting Attainment of
Responsible Research &
Innovation in Science
Education



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Out-of-school-learning: 6 days in the Dolomites

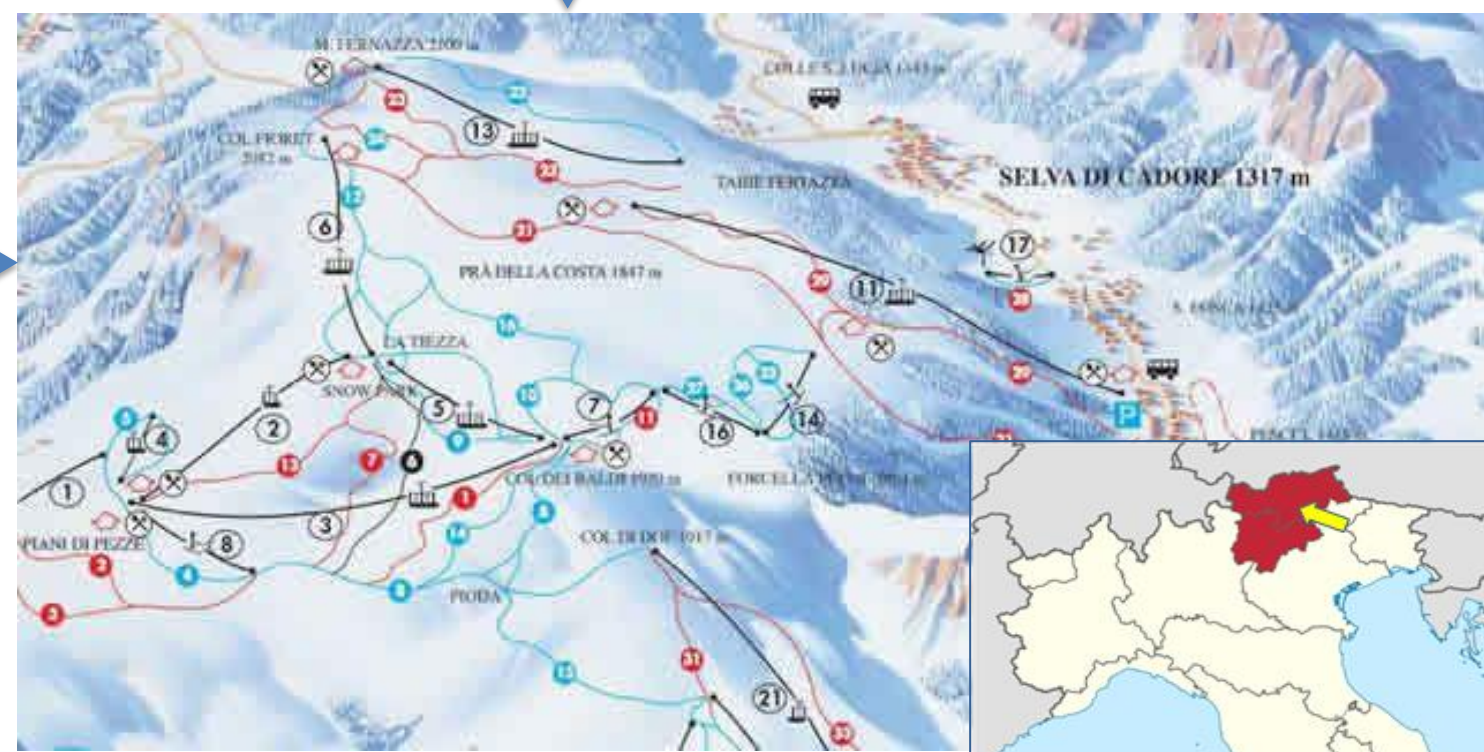
One of the **top 5**
skiing destinations
worldwide

South Tyrolean
Dolomites: on
average **over 2**
million skier visits
per year

Italy has the **5th**
highest number of
ski-lifts worldwide

UNESCO World
Natural Heritage Site
(2009)

...because of its
exceptional beauty,
unique landscape
and **scientific**
importance...



Sustainable tourism?

PARTICIPANTS & QUESTIONS

- **Five** volunteers from 11th-13th grade
- All **freely chose and designed their investigation** from a range of topics with different degrees of complexity

Wolff & Julius: Does the use of artificial snow and snow groomers on skiing slopes affect the diversity of plants and consequently of ground beetles?



PROJECT AIMS

Overall:

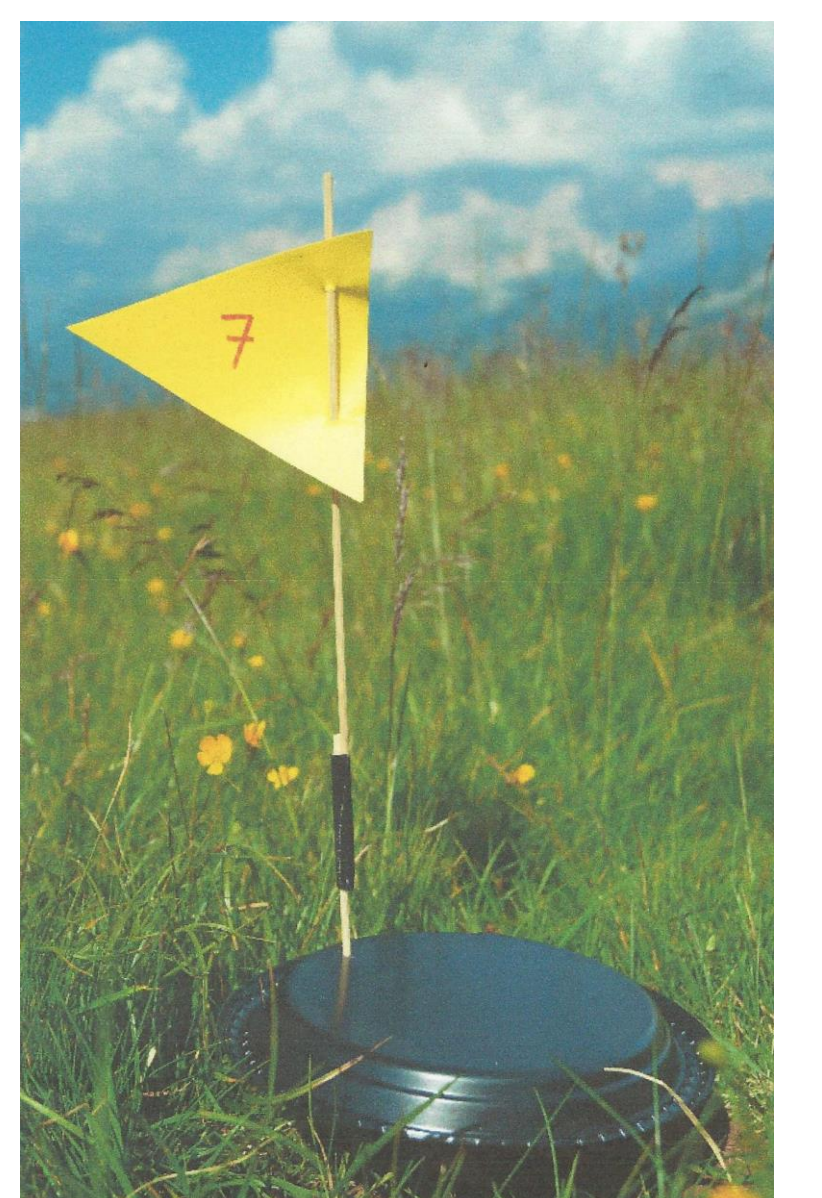
To design and establish a cross-curricular project with a **socio-scientific core aspect** - in accord with the **Berlin curriculum** and the principles of **Montessori pedagogy** for a 16-18 mixed age class

Montessori principles:

- 1) Focus on **practical work** and transferrable skills
- 2) High level of **choice**
- 3) Focus on **social responsibility**

Specific Aim in 2015:

To run a **trial** with a small number of pupils to inform further planning



RESULTS & DISCUSSION

During fieldwork

All pupils showed **good engagement and signs of intrinsic motivation**

- All pupils produced structured work schedules
- Most pupils kept working long after dinner
- Opportunities for (playful) social interactions between them visibly enhanced their engagement (e.g. their use of walkie-talkies)

After fieldwork

Pupils reported high levels of satisfaction both for the overall experience and their personal learning outcomes

- Results showed a **higher biodiversity** of plant and beetle species on skiing slopes!
- This triggered a series of speculations and questions on scientific methodology, research expectations and bias as well as personal lifestyle choices
- Pupils presented their outcomes in an open poster session to peers, parents and the local community

Future steps

Stronger inclusion of:
a) reflections on sustainability within pupils' investigations
b) social interactions and language skills

- Stronger focus on the impact of tourism and global warming on alpine ecosystems in the preparatory phase at school
- Involve a school from another country in order to:
 - ✓ further enhance motivation through socialising with new peers
 - ✓ further support the use of English