



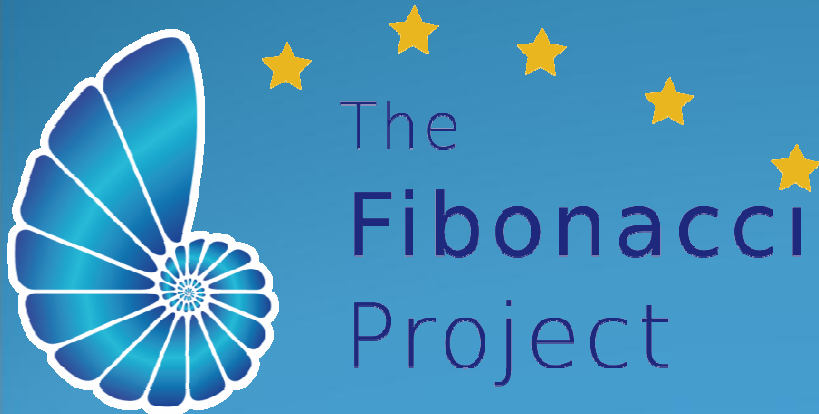
Center for
Science Education
and Training

i-best
Inquiry-Based Education
in Science and Technology



Enhancing Science Learning by IBSE

Ana Gostinčar Blagotinšek
University of Ljubljana
Faculty of Education
Ljubljana, Slovenia



The
Fibonacci
Project

DISSEMINATING INQUIRY-BASED SCIENCE
AND MATHEMATICS EDUCATION IN EUROPE



Why Science?

- Low esteem of science in the society
- Low esteem of science among pupils
- Low esteem of science among teachers

- Low and declining enrolment in science studies
- Lack of competent young scientists
- Low science literacy

Why Science?

- Supporting sustainable development
- Coping with every-day HI-TECH environment
- Responsible citizenship



IBSE – inquiry based science education

- Imitates scientific inquiry: Practicing systematic approaches, used by scientists, in an effort to answer questions of their interest
-
- is the process of searching for patterns and relationships in the world around us starting from PUPILS' EXPERIENCE and observation
- Science becomes relevant, stimulating, integrated, and accessible to everyone



Why IBSE?

- Competencies for life-long learning
- Ownership of the learning process
- Responsibility for one own learning and knowledge
- Emotional involvement

IBSE

- Basic parts of a scientific investigation: A problem, procedure, interpretation; followed by
- Reflection and transfer

Pupils are doing inquiry, when they:

- are engaged with “scientific” question,
- give priority to evidence,
- formulate evidence-based explanations,
- communicate and justify explanations.

(NRC, 2000)

Planning IBSE lesson

- Link scientific concept to pupils' life (make learning relevant and usefull)
- Engage pupils in planning
- Setting goals :
 - development of process skills (observing, inferring, classifying, measurement, questioning, analyzing and interpreting data),
 - combining processes with scientific knowledge,
 - development of critical thinking
 - Language development

A teaser for a start

- Commercial says

Ugg boots (or Bavaria Wooltex bedlinen) warm you in the winter and cool you in the summer.

Do you agree?

- A. Yes, because they are made of special Australian wool.
- B. No, they neither warm nor cool you.
- C. They warm you in cold, but not cool you when it is hot.
- D. They can cool you, but can not warm you.

- LET US FIND OUT!

IBSE (inquiry-based science education)

- Countries with a long tradition report favourable results:
 - good impact on learning outcomes
 - acquired skills are transferable across curricula (language)
 - increase of interest and appreciation of science, teaching and learning science
 - improved social skills.

IBSE step - by - step

- Start with teacher-lead variants within familiar topics
- Move towards more student-lead versions gradually
- Educators can help providing examples, guides, worksheets, ...



Center for
Science Education
and Training

I-best
Inquiry-Based Education
in Science and Technology



Enhancing Science Learning by IBSE International conference on “Science Education in School”

Thank you!

ana.gostincar@guest.arnes.si

ana.gostincar@pef.uni-lj.si



The
Fibonacci
Project

DISSEMINATING INQUIRY-BASED SCIENCE
AND MATHEMATICS EDUCATION IN EUROPE