

IBSE AND YOUNG SCIENTIST



Ryslinge Efterskole

Vi vil lidt mere

Stine Caspersen- Denmark – Master of
science education from University of
Southen Denmark (SDU)

Context

- Denmark has a special kind of boarding school which opens a lot of possibilities, for the way science is being taught. In this kind of school there is time and resources to have lessons where we are not tied up to the national curriculum.
- In this frame I have my scienceclass, 5 hours each week



Young Scientist

– a national competition

Requirements

- Question from the students own curiosity – means problembased
- Experiments
- Concluison
- Scientific report – 10 pages
- Summary – 2 pages

The intention for Young Scientist

- The intention for young scientist is to find science talents and develop their interest and skills in science, technology and health



IBSE and duality of means and ends

Mean

Because IBSE is the students tool to fulfill the requirements for the competition.

If they want to win, they have to use this tool and they learn hopefully alot about their topic in their process

Ends

The primary goal is to teach the students a method whatever topic they adress.

Secondly is what they actually learn about their topic

What I did

Process

- The students themselves choose subject, method, design, and how they want to verify their experiments and compare their hypothesis with valid science.

Topics for this year

- Sleep
- Consequenses Smoking
- Parabens
- Transform brain activity to computerdata
- Exoskeleton
- Anger



This is chaos, - but not by using IBSE

- Im a supervisor in method
- I had 7 posters in the classroom describing each step in the process
 - Asking questions
 - Formulate hypothesis
 - Design your experiment
 - Complete your experiment
 - Analysis
 - Evaluate their project
 - Document



Stille spørgsmål

I denne fase gælder dét om at stille spørgsmål, som kan blive undersøgt systematisk. Spørgsmål der kan hjælpe dig på vej:

☐ Hvilke spørgsmål kunne du tænke dig at stille til det her?

☐ Hvad kunne du tænke dig at vide om det her?

☐ Kan du stille et spørgsmål som du kan finde et svar på?

ASSESSMENT

Asking questions

This aspect is about asking questions that can be investigated systematically.

Questions to guide the students:

- Which questions would you like to pose about this?
- What would you like to know about this?
- How could you pose this question, so that you may find an answer to the question?

The student can...

...pose a number of questions, but does not make a distinction between questions possible to investigate and questions not possible to investigate.

The student can...

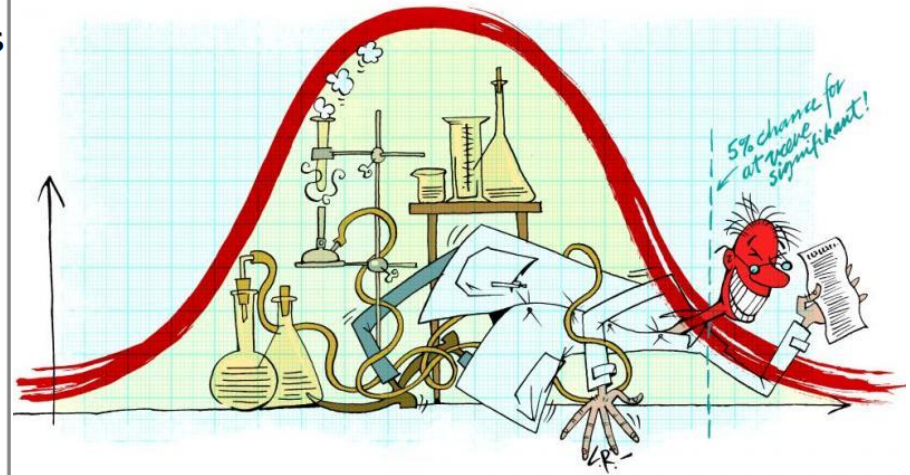
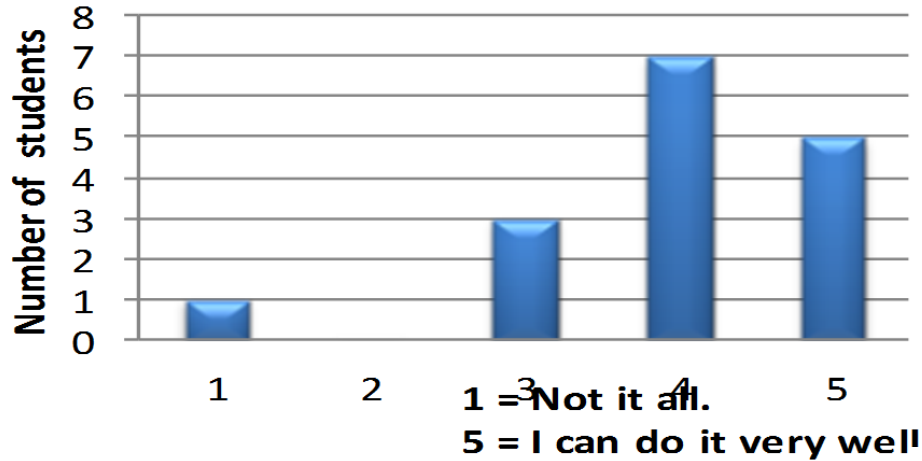
...with the support of others revise questions, so that they become possible to investigate.

The student can...

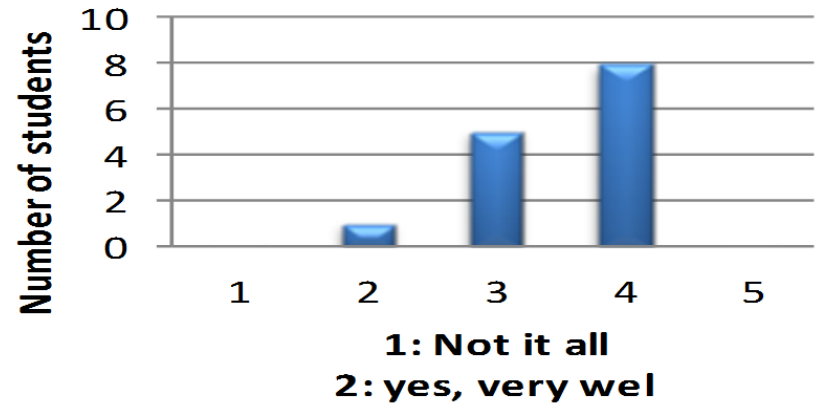
...revise own or others' questions, so that they become possible to investigate systematically.

Result of survey

1) I can formulate a hypothesis

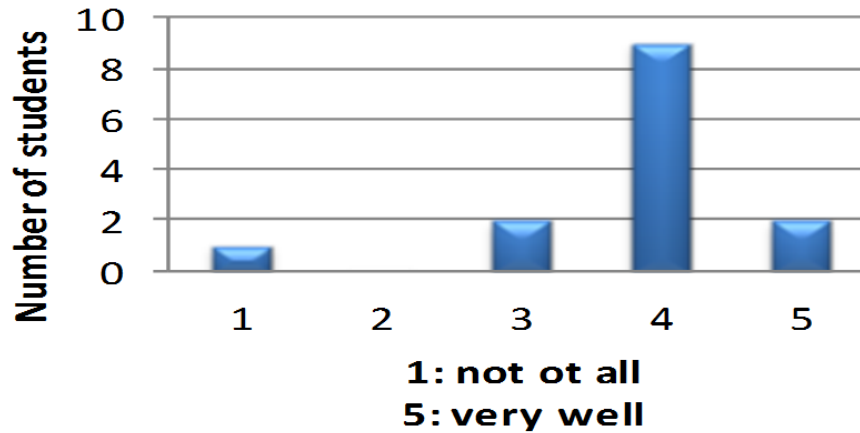


2) I can plan and design an experiment



Result of survey and interview

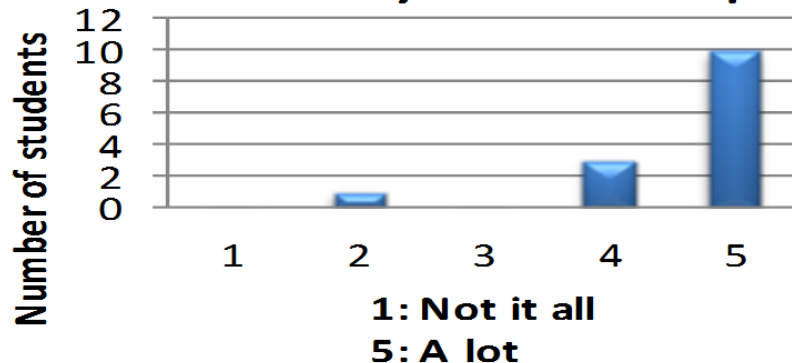
3) I can compare my results with my hypothesis



Interviews shows that the students in general are proud of their projects.

They have the experience that they have learned alot, - but are mentioning several things they could have done better.

4) I have learned something about my scientific topic



They are not mentioning that they did not win. But are focused on the benefits they find for their future education.

They want the posters as a goodbye gift

My conclusions and future plans

I'll do the same frame next year but need to be better in advising them in the process.

I'll like to do small IBSE projects before Young scientist – so they know the method a little bit.

Since we are not tied up to the national curriculum we are ending up with a recommendation instead of a mark for this subject



SUMMERY

- You have to be very strict in structure and method
- Trust the childrens potentiale and let them take responsibility
- Take a deep breath and let go
- Use a shedule for dialog in the process