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Science linking with School School linking with Science

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SCHNAU – Pupils Develop Learning Assignments for Biology and Chemistry

LEADING INSTITUTION

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SCIENTIFIC CO-OPERATION PARTNERS

University of Klagenfurt, Institute of Instructional and School Development, Carinthia
University of Klagenfurt, Austrian Educational Competence Centre (AECC) for the
Teaching of German, Carinthia
University of Vienna, Austrian Educational Competence Centre (AECC) Biology
University of Graz, Institute of Chemistry, Styria

SCHOOLS INVOLVED

BRG Klagenfurt-Viktring, Carinthia
BG/BRG Mössingerstrasse, Klagenfurt, Carinthia
BG/BRG Lerchenfeld, Klagenfurt, Carinthia



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Austrian Federal Ministry of
Science and Research

SCHNAU – Pupils Develop Learning Assignments for Biology and Chemistry regarding their Personal Learning Style and Gender Aspects

Participants

7B-Class of BG/BRG Lerchenfeld, Klagenfurt

5A-Class and 6C-Class of BRG Viktring, Klagenfurt

5A-Class und 5C-Class of BG/BRG Mössingerstraße, Klagenfurt

Supervision and coordination are accomplished by a team of the Regional Centre of Science Instruction at University College of Teacher Training, Carinthia.

Project Leadership: Mag. Sigrid Holub

Supervisors and teachers: Mag. Judith Horn, Mag. Peter Holub, Dr. Helga Voglhuber

Scientists involved: Univ.Prof. Dr. Peter Posch, Ass.Prof. Dr. Gertraud Benke, Dr. Ulrike Baum, Mag. Elfriede Witschel

Work on the Project

What the simple title implies, was very exciting for the students but not at all simple. They experienced what for them was a totally new form of learning and investigating. In groups of pupils with similar learning styles and in single sex groups, they developed designs for scientific teaching units for lower-grade students and in part implemented the designs in lower-grade classes.

In the second project year, a small group of exceptionally interested students finalized these teaching units for publication. Periodically, the teams gave feedback to each other acting as “critical friends”.

In two writing workshops they reflected on both project years and recorded their impressions in form of two short reports.

Two research questions were examined in the context of the projects:

What effects do groups of similar learning styles have on the work process? Are teaching units which were developed by groups of girls different from those developed by groups of boys?

The Role of the Scientists

The project was accompanied educationally by teams of the Regional Centre of Science Instruction of the Teacher Training College and scientifically by members of the Institute of Instructional and School Development. The teams used several methods of data collection (observation, video recordings of group work, interviews, interest questionnaires etc.).

The Results

Early on, it became clear, that the success of the project lay, to a high degree, in the work process itself, that is, in the experiences of the participating students, teachers and supporting scientists.



The combination of instruction and research imparted to the students that their work was taken seriously. Teachers were immediately drawn into educational research and were able to let the research results flow directly into their professional work. To the scientists it gave direct access to instructional development processes. The findings support the thesis that in certain phases of science instruction, gender homogeneous groups offer benefits to girls, if they contribute to building self-confidence and competency awareness.

The arrangement of groups according to similar learning styles did not have the expected impact – neither on the work process nor on its products. This was shown in the carefully designed evaluation of this element of the project. A composition of groups with similar learning styles possibly offers them too little challenge for constructive exchange.

Voices on the project

Students

“I also believe that our result was so good because we really discussed the material.” (Giuliana Ölsinger)

“I think that the project is a total success because it is a masterpiece itself and the results we achieved will surely be useful for future projects of this kind”. (Alexander Pöcheim)

“It was indeed surprising, how long it takes to achieve so little. To be fair, one has to admit that what we achieved shows high quality.” (Willi Auer)

Teachers

“The intensive involvement with exceptionally interested students is already an important concern in itself. To support them, to experience more about their learning and to reflect on it, I consider as groundbreaking.” (Peter Holub)

“At times, students should also be offered the opportunity to work on material of this sort as part of regular instruction. Teachers who want to permit this for their classes should be offered assistance in these efforts.” (Sigrid Holub)

Scientists

“Personalisation of instruction has become one of the most serious challenges for schools. The SCHNAU-Project is an important step to gain experience and substantive knowledge about the learning environments necessary for self-directed work on complex issues in science.” (Peter Posch)


“The project SCHNAU offers interesting insights in issues of long-term group work. It has highlighted differences in approaches to deal with the learning tasks, and resulting issues that may arise in group work. In the course of the study, differences between girls and boys were illuminated. The study offers valuable suggestions for teachers who want to carry out long-term projects with group work.”

(Gertraud Benke)

Website

<http://www.ph-kaernten.ac.at/organisation/institutezentren/sekundarstufe/nawi/sparkling-science/>





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