



Field Visit Bayreuth

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The German Programmes SINUS and SINUS-Transfer and their Connections to the Fibonacci Programme







SINUS Philosophy

"Realistic problems instead of mechanical computing, individual and independent learning instead of stubborn formula training. These are the characteristics of math teaching in SINUS. ..." Weekly newspaper DIE ZEIT, 50/2004

The German Programme SINUS ("Increasing the Efficiency of Mathematics and Science Instruction") aims a problem-oriented approach of collaborative and school based professional development.



Central Characteristics



The Framework: Eleven Modules

The modules are based on research on learning and teaching, describe opportunities and ways to successfully change and develop teaching and learning.

- 1. Developing a task culture
- 2. Working in a scientific manner
- 3. Learning from mistakes
- 4. Securing basic knowledge
- 5. Cumulative learning
- 6. Experiencing subject boundaries and interdisciplinary approaches
- 7. Promoting girls and boys
- 8. Promoting student co-operation
- 9. Autonomous learning
- 10. Assessing progress: monitoring and feedback
- 11. Quality assurance and development of general standards for all types of schools



Central Characteristics



The Concept Meets the Requirements of the Federal Structure of Germany

- Maintaining variety and individuality
- Common key points
- Keeping independent from different curricula:
- The way of teaching is the main focus of SINUS-Transfer, no guidelines for special contents are made.





Structure of Organisation

• Central co-ordination:

- Subject specific and pedagogical support
- Development of materials for teacher training and classroom instruction (together with teachers), e. g. module explanations
- Organisation of central training meetings

• State and set co-ordinators:

They guide and structure the work within the program.

• School sets with pilot school:

 Experienced teachers from the pilot school support colleagues at set schools and encourage the cooperation of teachers and between set schools.

Evaluation

- Central: questionnaire, interviews, portfolio
- Internal: student evaluation and self evaluation (not committed, free decision for every teacher and/or school)
- Central information and communication server





How did/does SINUS work?

Conversion and Adaptation on the Local Level

- Preselecting and structuring on regional level, integration in existing programmes and initiatives
- Maintaining individuality, strengthening the teamwork locally and regional:
 - Analyzing strengths and weaknesses
 - Bringing out main points within the eleven modules
 - Developing suitable concepts and materials in teamwork within school teams or school set
 - Strong collaboration between teacher training, instruction and evaluation: Further development of teaching and learning by continuous feedback.





How did/does SINUS work?

Promoting Processes of Cooperative Quality Development in Schools

- Teachers are encouraged
 - to reflect critically and in a cooperative manner their teaching and the learning processes of their students,
 - to identify and discuss pedagogical problems and issues,
 - to test various concepts within the classroom,
 - to discuss evaluation results.
- Experienced teachers (from pilot schools) cooperate and monitor the new teachers.





How did/does SINUS work? Regular Training Courses for Disseminators

- Continuous feedback and new impulses are given within national conferences and/or central conferences.
- Experts from Germany and abroad report and offer workshops.
- Discussion of evaluation results
- Discussion and training of new strategies:
 - Educational standards
 - New forms of marking and assessment
 - Method training





Results of the Evaluation 2005







Results of the Evaluation 2005

Satisfaction: negative aspects







Results of the Evaluation 2005

Motivation for Participation







Results of the Evaluation 2005

Impressions about the cooperation among SINUS teachers







External Effects of the SINUS-Transfer Programme

- National educational standards have been developed implementing ideas of the SINUS programme .
- Main results of the programme have found entrance into curricula, training and instruction development concepts as well as text books.
- Co-ordinators and instructors of the programme are team members in many committees.
- Provable successes can be seen, e.g. in PISA studies or national tests.