DynaMAT
Preliminary Courses of AT team

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Remembering materials

1. DGS – optics
2. DGS – extreme values in geometry
3. Fractals – limits of series
4. GPS – aviation (interpreting graphs)
5. GPS – GeoCaching (geometry)

Preliminary course 1 description

- In-service teacher training day in Vienna
- Duration: 2 hours
- Participants: 27 in-service teachers
- Materials tried out: Lens, Extreme values

Preliminary course 1 feedback

- Lens
  - Very good for physics teachers
  - Useful context (math teachers)
  - To improve: Explanation why hyperbolic lens is ideal lens (construction of hyperbola, eventually also construction of parabola, with GeoGebra)
- Extreme Values
  - Classic content in unusual way
  - Nice tasks
  - To improve: Calculus with CAS

Preliminary course 2 description

- Pre-service teacher seminar
- Duration: 7x1.5 hours
- Participants: 11 pre-service teachers
- Students had DynaMAT materials from all partners to choose from
- Materials tried out: Fractals, GeoCaching, Aviation
- Other partners' materials tried out: Tall Tree (DK), Geometry on the Playground (SK)

Preliminary course 2 feedback part 1

- Fractals
  - Beautiful and interesting, even for less talented
  - How to fit into curriculum?
  - To improve: Better explain logo code
  - To improve: Better explain step from real to complex case (Julia and Mandelbrot sets)
- GeoCaching
  - Very interesting for most students
  - Most have smartphones and can do this
  - Good explanation how GPS works
  - To improve: Hints for tasks (interpreting data)

Preliminary course 2 feedback part 2

- Aviation
  - Fear that it is mostly interesting for male students did not turn out to be true
  - Very much real-life
  - Tasks are explained well
  - Problem: Can not use smartphone-GPS while flying
  - To improve: Tasks for the non-flying section (walking, biking, hiking)

Preliminary course 2 feedback part 3

- Tall Tree (DK)
  - Many students reported similar observations (mainly tall houses or towers), or reverse problem (you are at the tall tower, how do you find e.g. your house?)
  - Shows how to use math for something useful
  - To “improve”: localizing the context (i.e. for AT course, use tree in Vienna ...)

Preliminary course 2 feedback part 4

- Geometry on the Playground (SK)
  - Very realistic context
  - Large variety of objects
  - Good idea to create their own tasks; can less talented (school) students do it?
  - Didn’t like constructing traffic signs in GeoGebra
  - To improve: More explanations for the GeoGebra constructions (e.g. shadow)

To do

- Make improvements on materials, using feedback
- Use materials in e-learning context (next semester)
- Finalize translations (during summer)