

# CONSTRUCTIVIST APPROACHES IN THE EDUCATION OF FUTURE TEACHERS, CASE OF GEOMETRY

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Much of the existing research relating to students training to teach particularly in Primary schools often shows that they have a weak mathematical background and lack of understanding of the subject. This often results in them disliking and having a fear of the subject and later teaching pupils facts and algorithms to commit to memory and reproduce them in solutions to standard problems. We feel strongly that this just continues the vicious circle we see happening in many schools and which culminates in our students disliking and fearing mathematics and then passing on these emotions to the many pupils they will teach throughout their career. This phenomenon does not just apply to student teachers but to many teachers already working in the school system. Therefore it is necessary to prepare courses which can be used in initial and in-service education of teachers to address this problem.

The authors' institution has re-designed several of the mathematics and mathematical education courses offered to our primary and secondary student teachers so that they are taught using constructivist teaching principles. It is hoped that by getting them to work in the way in which they could work with their pupils, they will be convinced of the benefits of the constructivist principles and apply them in the classroom.

The poster will take examples from the area of geometry, using grid-paper as a vehicle for learning, and show how to develop a simple initial idea into a range of sophisticated geometrical ideas. The poster will show how the tutor engenders the students' natural curiosity by posing relevant problems. This in turn gets the students to raise problems in response to the work they are doing. The tutor does not pass on ready-made knowledge but asks further questions and guide classroom discussion. It will also be shown how the students have taken more responsibility for their own learning and how they have experienced the excitement and joy of gaining new knowledge. This approach changes the students' attitude towards mathematics and their way of thinking about the subject. We intend to include examples which show the unpredictability of working in this way and how different groups have reacted differently to the same initial stimulus. The authentic episodes from the University classrooms in the poster will illustrate the constructivist principles outlined above.

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## References:

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