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# BiMathTutor – The program for further training of new tutors in University Mathematics

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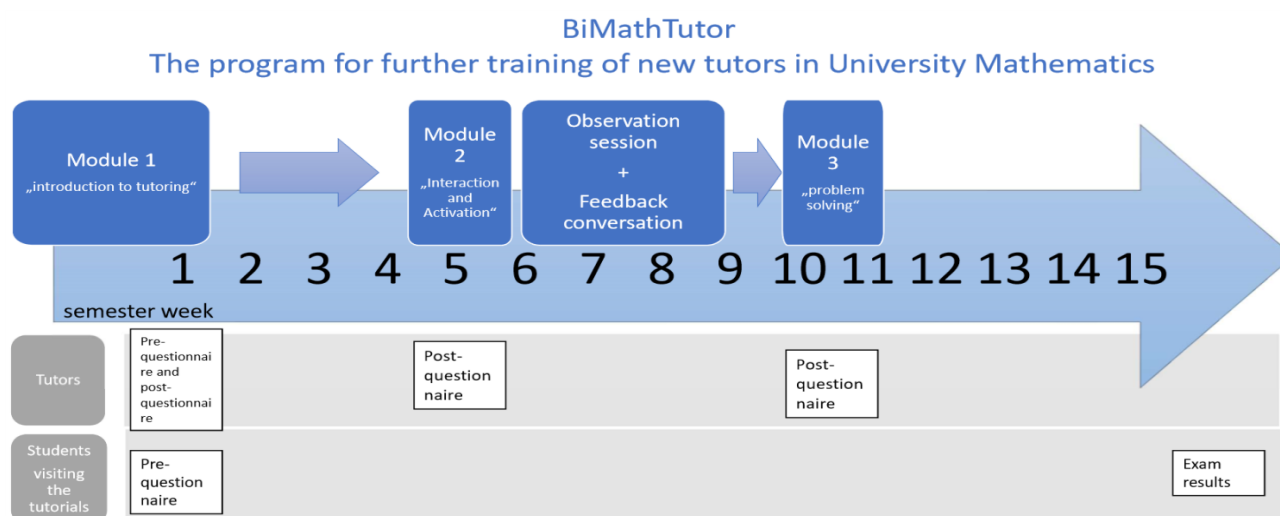
*In the Faculty of Mathematics at Bielefeld University, new tutors have to attend the further training BiMathTutor, which took place for the first time in the winter term 2017. At this program, they learn about the essentials of teaching. This program is being researched to the effects on tutors and their students. The poster presents the theoretical framework, the concept of BiMathTutor, the research design and first results.*

*Keywords: 1. Teacher's and student's practices at university level, 7. Preparation and training of university teachers, 4. Novel approaches to teaching.*

## INTRODUCTION

In this paper, we focus on the development of a further training for tutors. The main aim of a further training for tutors is to improve teaching skills and students' learning. In most cases, the tutors are experienced students who are interested in passing down their knowledge and, of course, earning some money to support themselves. These teaching skills should be based on a qualification program to establish and maintain standards of teaching and learning.

In the Faculty of Mathematics at Bielefeld University, starting in October 2017, new tutors have to attend the program for further training called "BiMathTutor" (Bielefeld Mathematics Tutor Program). This program has been reformed over the past year and evaluation is happening under different aspects, namely, the change of attitude towards teaching, the expectations of the tutors of what is important for the tutorials and the effects of "BiMathTutor" on the exam results of the students attending the tutorials (see figure 1).



**Figure 1: Time table of BiMathTutor**

## RESEARCH QUESTIONS

The object of research are the effects of is the tutor program. Hence, the research questions for the survey are the following:

1. How do new tutors assess the further training?
2. What expectations do students visiting the tutoring class have?
3. What is the grade of effectiveness of the further training on the students' exam performance?

The first hypothesis is that new tutors will know the typical process and the organisational aspects of a tutoring class, will be able to write and apply a horizon of expectation, will execute different methods to engage students in a learning process, will establish characteristics of a good tutoring class, will be aware of students' difficulties dealing with university mathematics and will investigate their own strengths and weaknesses. On the second research question, one will expect that students have the goal to pass the exam. They will not be aware of the learning process involved and the possible simplification by a tutor, who attended BiMathTutor. The third hypothesis is that the further training has an effect on the students' exam result.

## THEORETICAL FRAMEWORK

The theoretical framework is still in process of elaboration. The design of BiMathTutor was made by Dee Fink's theory "Designing courses for significant learning" (2003). The key components "Learning goals", "Teaching and Learning activities" "Feedback and Assessment" have to be in unison. Additionally, the situational factors must be considered.

## DATA COLLECTION

The flowsheet (see figure 1) shows the different elements of the intended surveys. Module 1-3 and the observation session plus feedback conversation is stated on the top. The semester week shows a typical semester at Bielefeld University. There are two general cohorts, one being the tutors and the other being students visiting the tutorials. We have several times of measurement indicated by black bordered boxes. The study uses a combination of quantitative and qualitative methods. The sample size of the tutor survey is  $N_1=24$ . The sample size of the student survey is  $N_2= 597$ . The test instruments are in form of questionnaires and exam results.

## REFERENCES

Fink, L. D. (2003). A self-directed guide to designing courses for significant learning. *University of Oklahoma*, 27.