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PEDAGOGICAL CONTENT KNOWLEDGE AND MOTIVATION – PROBABILITY AS A TOPIC IN PRIMARY TEACHER EDUACTION

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In our research project we investigate the question as to which instructional settings are particularly suitable for acquiring pedagogical content knowledge in probability in the context of primary teacher education. In doing so, we give special attention to the participating pre-service teachers' motivation.

THEORETICAL BACKGROUND

Teachers' pedagogical content knowledge is crucial to students' learning outcomes (e.g. Baumert et al., 2010). In the German-speaking part of Switzerland, the topic of probability has recently been incorporated into the curriculum for primary school. To date, however, there is – even worldwide – only scant experience in terms of how probability can be successfully imparted in primary teacher education (e.g. Stohl, 2005). Concerning the acquisition of pedagogical content knowledge, not only the quality of subject-specific training is decisive, but also whether students can and equally want to take advantage of the learning opportunities offered to them (e.g. Lipowsky, 2009). In this regard, there are two major impact factors that are pertinent to student learning: prior content knowledge/pedagogical content knowledge *and* motivation.

THE STUDY

The study aims to answer the following question: Which instructional settings in initial teacher education serve the purpose of imparting the topic of probability from the perspective of subject pedagogy, so that as many students as possible can benefit as much as possible, if their motivation is taken into consideration as well? The sample of the study consists of pre-service primary teachers ($N_{2015} = 241$; $N_{2016} \approx 260$).

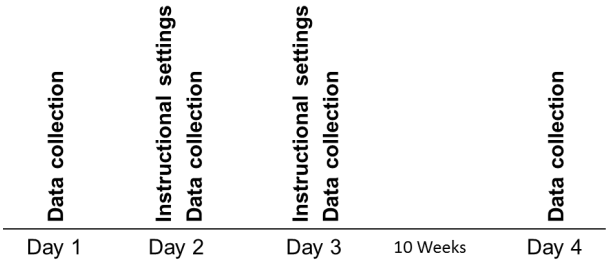

Figure 1: *Study design and schedule.*

Figure 1 illustrates the design and the schedule of the study. It is an experimental longitudinal field study with four points of data collection. By means of questionnaires we recorded, among others, the participating students' pedagogical content knowledge in probability, and their motivation. The participants were randomly assigned to one of five instructional settings (four of them covering probability, one of them dealing with another mathematical topic).

References

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