# HOW PROSPECTIVE PRIMARY SCHOOL TEACHERS INTERPRET PUPILS' SOLUTIONS TO A FAIR GAME TASK

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It is broadly accepted that teachers' mathematical knowledge is crucial to foster teaching competences related to the organization of mathematical content and the understanding of how students learn mathematics. Recent research suggests that many prospective teachers share common biases in probabilistic reasoning with their students (Batanero et al., 2016; Chernoff & Russel 2012; Prodromou, 2012). Characterising the components of teachers' knowledge of probability will enable the design of appropriate materials and effective activities for teacher education (Batanero et al., 2016).

The aim of this paper is to assess the competence of prospective primary school teachers to interpret pupils' solution to a fair game problem and to recognise proportional reasoning in their mathematical practices. This research was conducted with 116 prospective primary school teachers at a Spanish university. The written answers were analysed using content and descriptive analysis methods. To assess the cognitive facet of didactical-mathematical knowledge and competence, the participants analysed the correctness degree of different pupils' solutions to a probability problem concerning the fairness of a chance games, and identified the proportional reasoning involved or not, as a relevant mathematical element of pupils' mathematical thinking when solving this type of task. Our results reveal the difficulties in interpreting and justifying the correctness of pupils' solutions to a fair game problem, as well as in identifying proportional reasoning in their answers. The information gathered can be used in the design of training programmes focused on working on the facets of teachers' knowledge in order to guarantee an adequate teaching-learning process.

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