

DEVELOPING RISK LITERACY AT SECONDARY LEVEL

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Risk-related questions and decisions under uncertainty determine everyday live. Thus, Gigerenzer & Meder (2014) call for fostering statistical thinking towards acquiring risk literacy in school. However, risk literacy has hardly found entrance into current curricula, particularly in Germany. The project *RisK-Design* addresses this gap by a design-based research approach (Bakker, 2019) of a lesson series to develop risk literacy in stochastics at Grades 9 and 10. Risk can be defined as both the probability and the expected value of an unwanted event, but risk is also relevant in decision-making related to statistical distributions. Risk literacy manifests in statistical reasoning within processes of risk decision-making and the manner statistical ideas as well as the own relation to risk are considered. Our research focuses on processes of decision-making providing a space for statistical reasoning. The questions are: *What are design principles for a lesson series that foster risk literacy? What are the facets of risk literacy? Which conditions promote the development of risk literacy in these settings?* We answer them by an iterative process of elaborating and exploring lesson designs in natural class settings including teachers as co-designers. We collected data in three iterative trials. Trials 1 and 2 took place in grade 10 of the same school allowing a first revision of the design by a delay of Trial 2. In Trial 3, the lesson designs were adapted to Grade 9 of another school culture. Data consist of video recordings of two focus groups and class discussions, students' worksheets and field notes in each class. Theoretically, inferentialism introduced by Brandom (2000) guides our design and our data analyses. An initial design principle to develop risk literacy requires the lessons to address multiple risk contexts (e.g., games, money, health) provided by various diagrams. Risk literate students handle risk situations based on statistical ideas; but they need a discursive classroom culture with space for open arguing. Teacher's confident handling of students' open-ended responses is a condition for practicing risk literacy since individual risk models are of huge importance. Results will provide a local theory related to a reference design of how to foster risk literacy.

Acknowledgement

University of Bremen, scholarship for *Duale Promotion*, center of ZfLB.

References

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