

# COMPARING AND CONTRASTING STATISTICAL AND MATHEMATICAL MODELLING – A STUDY OF THE ROLE OF DATA

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Data is depicted as a central part of the modelling cycle as “the epistemological basis for the different sub-processes” (Blomhøj & Kjeldsen, 2006, p. 166) and as a crucial role as a driver for the inquiry process and a unique component of the media to be studied (Chevallard, 2019). To question and study data are vital for statistical inquiries leading to statistical modelling and the development of statistical literacy and reasoning. Similar aims can be said for mathematical modelling where modelling can drive the learning of mathematics. According to Chevallard (2019) can data both be quantitative and qualitative in nature (possibly gathered as part of the inquiry or modelling process).

We compare and contrast existing research regarding statistical and mathematical modelling with an emphasis put on the role of data and how data may shape the inquiry and modelling processes conducted by students. Our main focus is two Danish Study and Research Paths (SRP; Chevallard, 2006) studying the real-world problems of ‘health and physically activity’ with grade five students (Østergaard & Larsen, submitted) and ‘facial recognition system’ with upper secondary school students (Jessen, 2022). We found, how the dynamic data visualisation tool, TinkerPlots, and the dynamic geometry software, GeoGebra, drew students’ learning processes and were crucial milieus; to generate first hypotheses, to question and explore students’ collected data and answers found in media and, hence, as a condition for the questioning and media-milieu dialectics.

We further elaborates on the development and implementation of SRP in classrooms, and we question specific views of interaction between teachers and researchers and investigate the hypothesis that research could work as an integrated part of paradidactic infrastructure (Miyakawa & Winsløw, 2013), such as in the format of lesson study and other forms of teacher–researcher collaborations.

## References

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