Preliminary Announcement

**The Ninth International Research Forum
on Statistical Reasoning, Thinking, and Literacy (SRTL-9)**

July 26th to August 1st, 2015

Hosted by the University of Paderborn, Germany

Location: Waldhotel Nachtigall in Paderborn - Schloss Neuhaus

Conference Theme:

**Reasoning about Models and Modelling
in the Context of Informal Statistical Inference**

All models are wrong, but some are useful.
George Box (1979, p. 202)

The SRTL-9 Forum will build on and expand the work discussed at previous SRTL gatherings. Our previous work has focused on reasoning about "big statistical ideas" such as data, variability, distribution (aggregate view of data), informal statistical inference, context, samples and sampling and more recently uncertainty. Our discussions suggest that further ideas and pedagogical approaches related to models and modelling are relevant and important to study to allow us to better integrate and/or extend previous work in the context of reasoning about informal statistical inference (ISI). Furthermore, modelling has been suggested as a possible bridge between data and chance, formal and informal pedagogies, helping students to reason about ISI, uncertainty, context, data and distribution, variability, the aggregate and more (Garfield & Ben-Zvi, 2008). "Statisticians … have a choice of whether to access their data from the real world or from a model of the real world" (Graham, 2006, p. 204). Recent developments in technology (e.g., *TinkerPlots 2*) can support integrating exploratory data analysis approaches and probabilistic models, which allow for experimentation (e.g., improving models, simulations) and generation of data (e.g., drawing samples from a model) for learning informal inferential reasoning (IIR).

These developments provide new stimulus for growth in the rethinking and study of the role of models and modelling in helping students develop statistical reasoning. This topic is relevant and important at all levels of schooling, even in the early years. However, we are aware also that, "one of the most overworked words in statistics education and mathematics education is 'model'. Appearing in a variety of dissimilar contexts, its usage is at best unclear,

and at worst, inappropriate" (Graham, 2006, p. 194). Therefore we exclude issues such as "mental models", and invite focused contributions that study one or more of the following themes *in relation to statistics education*:

- Why bring models and modelling into the research and practical arenas at all? (e.g., what are philosophical, historical, epistemological and/or practical reasons for introducing models and modelling in statistics education research? how is mathematical modelling the same and/or different than statistical modelling?)

- According to G. Box some models are useful: What are the utilities and purposes of model and modelling? what is a model / modelling for?

- How does reasoning about models and modelling develop in the context of learning to make ISIs from data?

- What are rudimentary ideas of models and modelling and how are they expressed among young students? (e.g., what is a model? what does it mean to model?)

- How are ideas related to models and modelling understood and used by students in making ISIs? (e.g., what ideas are needed to understand and use models? what does it mean "to understand a model?")

- What are innovative tasks, tools, or sequences of instructional activities that may be used to help these ideas emerge?

- How can technology help to develop students' reasoning about models and modelling in the context of making ISI?

- What are ways to assess reasoning about models and modelling?

- What new approaches can be used to help teachers develop students' reasoning about models and modelling?

- What new ideas and considerations regarding models and modelling have or will emerge as a result of prevailing trends in the discipline of statistics (e.g., computation, exceedingly large data sets, Bayesian analysis, etc.)?

Expression of interest to attend the conference can be submitted before **September 1, 2014** to **srtl2015@gmail.com**. Participation in the SRTL Forum can be as a *presenter* or as a *discussant*.

Presenters are asked to send a brief letter of introduction of yourself and a two-page overview of the work relevant to the theme of the Forum, addressing: introduction, literature review and/or theoretical framework, methodology, expected results, and your practical and theoretical contribution to the theme.

Discussants are experienced SRTLers who will actively participate in all sessions and discussions and will have time to share their own reflections and comments in a panel on the concluding day. Discussants are asked to send a brief letter with a formal expression of interest.

SRTL-9 Local Organizers:

Rolf Biehler (Biehler@math.upb.de), Daniel Frischemeier (dafr@math.upb.de), and Susanne Podworny (podworny@math.upb.de) from the University of Paderborn, Germany.

SRTL-9 Location

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http://www.waldhotel-nachtigall.de/

References

Graham, A. (2006). *Developing thinking in statistics*. London: Paul Chapman Publishing.

Garfield, J., & Ben-Zvi, D. (2008). Learning to reason about statistical models and modeling. In J. Garfield & D. Ben-Zvi, *Developing students' statistical reasoning: connecting research and teaching practice* (pp. 143-163). Springer.