WS6 THE COMPLEXITY OF LEARNING TO REASON PROBABILISTICALLY

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NATURE AND TOPIC OF THE WORKING SESSION

This Working Group was formed at PME-NA 20 (see Maher, Friel, Konold & Speiser, 1998) and has convened annually at PME-NA each of the past five years (see Maher & Speiser, 1999; 2000; 2001; 2002). Through shared research, rich and engaging conversations, and analysis of instructional tasks, we have sought to understand how students learn to reason probabilistically.

AIMS OF THE WORKING SESSION

There are several critical aims that guide our work together. In particular, we are examining: (1) mathematical and psychological underpinnings that foster or hinder students' probabilistic reasoning, (2) the influence of experiments and simulations in the building of ideas by learners, particularly with emerging technology tools, (3) learners' interactions with and reasoning about data-based tasks, representations, models, socially situated arguments and generalizations, (4) the development of reasoning across grades, with learners of different cultures, ages, and social backgrounds, and (5) the interplay of statistical and probabilistic reasoning and the complex role of key concepts such as sample spaces and data distributions. Through our work, we have stimulated collaborations across universities and plan to engage in and support additional research related to the complexity of learning to reason probabilistically. Future research will seek to include the development of statistical notions that promote robust stochastical understanding among students and teachers.

PLANNED ACTIVITIES

During our sessions, we plan to collaboratively analyze videotape data of students' probabilistic reasoning on a technology-based task by using several different theoretical perspectives. From this analysis, we will generate authentic tasks that seem appropriate to elicit and extend students' probabilistic reasoning into a broader perspective that includes statistical reasoning. Group members may use these tasks in future research. Many of the members of this working session will undoubtedly be involved in the Stochastics Discussion Group, and vise versa. Our group will need to create a vision for how the international connections made within a larger PME setting can influence our work when we reconvene at PME-NA 26 in Toronto, 2004.