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A SUMMARY OF RESEARCH ACTIVITIES IN CHANCE
AND DATA BY MEMBERS OF THE PME 20,
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Research in stochastics focused on conception and cognition (including misconceptions), assessment issues and the influence of social and cultural factors. The following lists the reports from PME on statistical education. Jenny Way (Australia) examined strategies that young children use for comparing two types of random generators. Her conclusions generated much discussion about the fundamental nature of chance and whether the recognition of equivalent representations implied intuitive conceptual understanding. C. Batanero (Spain) presented results from a large study of over 300 secondary students' use of heuristics and biases, while Kath Truran (Australia) reported on the use of the same heuristics by younger children. E. Fischbein (Israel) reported that the evolution of probabilistic misconceptions with age is rather divergent. Graham Jones (USA) outlined a large study to determine conceptions of randomness and independence using SOLO taxonomy to analyse responses and make use of the results to inform instruction. John Truran (Australia) presented results about the independence of random generators and misconceptions of young children, including the tendency to assume equal likelihood. Concepts of "independence" and "equal likelihood" appeared in several of the presentations. R. Peard (Australia) claimed that the assumption of equal likelihood when none exists is a type of misconception that is distinct from the others reported in the literature, and is widespread. It was noted in the discussion that in some recent research reports in the field the term "fairness" is used to mean "equally likely", when in fact "mathematical fairness" does not imply this. Furthermore, childrens' informal use of the term usually does not imply equal probability. Most introductory courses in probability start with equally likely situations and it was suggested that further research should be undertaken to examine whether this is an appropriate pedagogy.

In the field of Statistics Education, research focused on the provision of service courses, statistical innumeracy and cultural factors. John Truran in discussing service courses for economics students spoke of the "social conflict" generated by the modern approach of the "intelligent interpretation of data" in a society that does not encourage critical reasoning. Sue Gorton (Australia) described difficulties in the provision of service courses for nurses and

psychologists while Linda Gatusso (Canada) discussed data handling in service courses in which no "mathematics" was required.

A common question in the discussion of such courses was how much mathematics is needed to be able to use statistics. Can one, for example, use a Chi-squared test effectively without any knowledge at all of probability distributions? It was agreed that further research in this area is needed.