Research on Mathematics Education: Possible Directions for Research in Singapore - a personal view

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The diverse nature and magnitude of research in the discipline means that there are many themes associated with current research. Consequently, rather than trying to identify these themes, I have focused this short article on one theme that seems to be both the basis of much of the published research as well having potential implications for research in Singapore.

The driving force for much of the research can generally be described as an effort to comprehend the process by which students come to know and understand. In order to do this researchers have used a variety of theoretical models to interpret data (for example, Solo taxonomy - Biggs and Collis, 1982, Cognitive Science - Davis, 1984; Constructivism - von Glasersfeld, 1984).

The research has focused on two key aspects: how students construct their own knowledge and how teachers use this knowledge to better help students' learning, often with studies involving both components. Although experiences, both formal and informal, will differ between countries, there is no reason to believe that, in general, students here develop concepts or misconceptions in different ways from those in other countries. In the light of this, while I think that replication of studies involving the nature of conceptual development of students in Singapore is valuable, I will focus on the later point, since it has the greatest implications for research in Singapore.

Therefore, much of this research needs to be replicated, with appropriate adjustments to the local situation. This will enable us to determine which implications are most appropriate to the local scene. While the results may be valid, modifying them to the local situation should be informed by local research. Replication of work that takes into account factors such as the use of tuition and language would be a fruitful area of research for Singapore, both in terms of local implications and extending knowledge, per se. For example, group discussion depends on the students' language skills and their comfort when discussing ideas in a classroom environment. In addition, the support given to students through extensive tuition and other extra-curricular work is not extensive outside this region, and would not be a factor in educational research undertaken in the West.

Conclusion

The research literature should inform practice. But all research is undertaken within a social and cultural context which makes the interpretation of results a far more complex activity in education than say, in pure science. As a group of researchers we can address the important issues raised in "effective teaching" by replicating, but not repeating, some of the research to determine how the ideas can be effectively adapted to the school situation in Singapore.

References

