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Performance assessment tasks in the TIMSS study:
can we learn from them?

A thesis presented in partial fulfilment of the requirements
for the degree of
Master of Educational Studies
in Mathematics at Massey University

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1998
ABSTRACT

Within the context of the reform of curricula in the education system, assessment methods and activities are also being reformed. There has been little research into the new methods and activities of assessment or of the impact these methods and activities will have on both the learning of students and the assessment of that learning. The International Association for the Evaluation of Educational Achievement (IEA) in its comparative study, the Third International Mathematics and Science Study (TIMSS), included some hands-on investigations, called performance assessment tasks, as some of the activities that assessed student learning. The student performances on two of the mathematics performance assessment tasks, dice and packaging were examined in this thesis, particularly in relation to student performances on some of the multiple-choice tasks also used in the study. In addition, the performances of some subgroups of the 207 standard three and 276 form three students who attempted each task were compared. The subgroupings were based on student responses to questions on gender, ethnicity, language of home, socio-economic status, and value of mathematics.

Many students were found to perform differently when their performances were compared in the multiple-choice and performance assessment questions that had similar content. Students were more likely to give no response to the performance assessment tasks than the multiple-choice tasks, particularly at the standard three level. For some, but not all, of the performance questions there was a smaller difference between the educationally disadvantaged subgroups of students and their peers, when compared with the differences between them on the multiple-choice tasks.
ACKNOWLEDGMENTS

Many people have contributed, in different ways, to the completion of this thesis. Firstly, I wish to thank the staff of the Comparative Education Research Unit within the Ministry of Education, particularly Steve May and Megan Chamberlain, for supplying the data files and answering my questions promptly. I also wish to thank the many friends who kept me sane, listened to me moaning, looked after Paul, and generally kept me going.

Thanks to Glenda Anthony who supervised and guided me through the challenges of the thesis work.

Finally, to Graham, my friend, husband, severest and kindest critic, thank you for all the accommodations and contributions you have made to a thesis which was harder to give birth to than Paul.
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