

**ZMATH 2016a.00409**

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**The influence of test mode and visuospatial ability on mathematics assessment performance.**

Math. Educ. Res. J. 27, No. 4, 423-441 (2015).

Summary: Mathematics assessment and testing are increasingly situated within digital environments with international tests moving to computer-based testing in the near future. This paper reports on a secondary data analysis which explored the influence the mode of assessment – computer-based (CBT) and pencil-and-paper based (PPT) – and visuospatial ability had on students' mathematics test performance. Data from 804 grade 6 Singaporean students were analysed using the knowledge discovery in data design. The results revealed statistically significant differences between performance on CBT and PPT test modes across content areas concerning whole number algebraic patterns and data and chance. However, there were no performance differences for content areas related to spatial arrangements geometric measurement or other number. There were also statistically significant differences in performance between those students who possess higher levels of visuospatial ability compared to those with lower levels across all six content areas. Implications include careful consideration for the comparability of CBT and PPT testing and the need for increased attention to the role of visuospatial reasoning in student's mathematics reasoning.

*Classification:* D63 U73 C43

*Keywords:* secondary data analysis; computer-based testing; visuospatial ability; mathematics assessment  
doi:10.1007/s13394-015-0143-1