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**Development and validation of a computer-administered number sense scale for fifth-grade children in Taiwan.**

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Summary: To investigate the structure of number sense and then to assess its uses in fifth-grade children's number sense development, a computerized number sense scale was developed and evaluated. The findings of the study indicate that the newly developed scale, with four dominant factors identified and reconfirmed, is internally consistent and substantially valid. It can be reliably used as a screening measure for a quick check of students' number sense development via online self-assessment. Compared with our previous study, both qualitative and quantitative changes were detected in students' number sense development at different grades. The qualitative change in number sense development is manifested in different numbers of factor components produced at different grades. The quantitative change is manifested in different amounts of factor variance explained at different grades. Furthermore, among the four aspects of number sense, Taiwanese students perform best on recognizing the relative number size yet relatively worse on judging the reasonableness of computational results. (Contains 4 tables.) (ERIC)

*Classification:* C83 D63

*Keywords:* test validity; Taiwan; grade 5; program validation; test construction; psychometrics; mathematics tests; screening tests; computer assisted testing; number concepts; number systems; numbers; numeracy; item analysis; pretests posttests; rating scales

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