Fact sheet

NAPLAN online – tailored test design

Background

In June 2012, the Australian Government Department of Education funded research into moving the National Assessment Program (NAP) from paper-based to online, computer-based assessments. This encompassed transitioning the National Assessment Program – Literacy and Numeracy (NAPLAN) online.

The Australian Curriculum, Assessment and Reporting Authority (ACARA) is conducting this research, which will inform decisions relating to the transition.

Understanding the tailored test

The initial phase of research in 2012 examined how the test delivery mode (whether paper or computer) affected student performance across year levels. The bulk of the research, undertaken in 2013, focused on the enhanced test design for assessment of reading and numeracy in NAPLAN. In particular, the research examined the feasibility of a form of 'computerised-adaptive' testing – to enhance the targeting of NAPLAN tests to the individual student's ability and learning needs. This research also investigated how students interacted and engaged with these computerised adaptive tests.

Computer adaptive testing and the 'tailored test design'

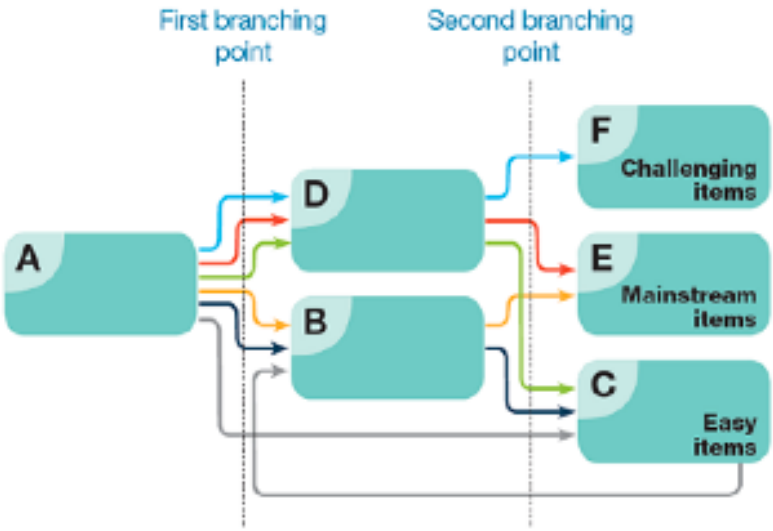
In computer-adaptive testing, a computer algorithm adjusts the difficulty of the tests to match the ability of each student. ACARA proposes that future NAPLAN online tests implement a multistage adaptive test design – where test difficulty is adjusted after a student provides responses to a set of items – also known as ACARA's 'tailored test design'.

This proposed tailored test design:

- allows for better control over the administration and structure of the final tests (including item content and cognitive demands)
- allows better control over the exposure of items compared to designs in which test difficulty is adjusted after each item.
- enables students to preview and review items and to change their responses.
- represents a solution that will both provide adequate tailoring of tests to students' learning needs, and
- is feasible in terms of logistical and cost requirements for the development, implementation and long-term maintenance of future NAPLAN assessments.

How it works

The proposed tailored test design consists of three stages and has two branching points.



The coloured arrows illustrate all of the proposed NAPLAN test 'pathways'

To complete a test, each student goes through three sets of questions or testlets.

Each testlet is representative of the whole test in terms of knowledge and content coverage. Consequently, each student is assessed at the same level of domain breadth, regardless of the test 'pathway' taken.

In practical terms, the tailored test design can help students who might be struggling with items in testlet A to engage with the rest of the test. This test pathway takes students who correctly answer few, if any, items in testlet A directly to testlet C. This provides these students with an early opportunity to respond to the easiest testlet and thus re-engage with the test. Once these students respond to testlet C, they are routed to testlet B so that they get an opportunity to demonstrate the extent of their knowledge.

Aims of the tailored test design

- deliver more engaging tests to all students including high- and low-performing students
- increase precision in measuring student's proficiency across the whole ability range
- provide more accurate and timely diagnostic information about student learning needs
- assess broader knowledge and a wider range of curriculum content, without increasing the test length
- strengthen the vertical scaling of tests across different year levels and enhance the longitudinal equating of tests across different testing cycles – thus increasing the long-term stability of NAPLAN assessment scales.

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