Reasonable adjustments in assessment for students with visual impairment: What are they?

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Disability Standards

Reasonable adjustments

*General principles*

(i) Consultation

(i) Balance of interests of all parties

(i) Meaningful participation and opportunities and choice

(i) Not if unjustifiable hardship
Assessment

General principles

(i) Assessment of learning
(ii) Assessment for learning
(iii) Assessment is for learning
(iv) Assessment as learning
(v) Formative assessment
(vi) Summative assessment
(vii) Validity
(viii) Reliability

Core question: How do we know what students know?
Students with Visual Impairment

- Many forms
- Differing severity
- Differing impact
- Differing impact on knowledge structures
Curriculum

• Prep to Years 10
  – New Australian Curriculum (perhaps): Foundation Year Mathematics
    • Geometry
      – ‘Use direct and indirect comparisons to decide which is longer, heavier or holds more, and explain reasoning in everyday language’
    • Shape
      – ‘Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment’
• Starting point—age appropriate curriculum
  • Adjust pedagogy, materials, assessment
  • Adjust content
Recent research has shown that blind people who knew simple geometric shapes when handled physically were not able to identify the shapes visually following surgery that restored their sight. While their brain adapted quickly after gaining vision to combine their prior mental knowledge with new physical knowledge, the research showed that their prior knowledge construction of shape when blind was different from that of sighted people. With accommodations using physical shapes, blind students may get shape items on standardized tests correct, but their knowledge and reasoning are not the same as those of students without visual impairment.

Curriculum Senior Years

• General mathematics Years 11 to 12
• Consumer mathematics

Use of spreadsheets:
  – use a spreadsheet to display examples of the above computations when multiple or repeated computations are required; for example, preparing a wage-sheet displaying the weekly earnings of workers in a fast food store where hours of employment and hourly rates of pay may differ, preparing a budget, or investigating the potential cost of owning and operating a car over a year.

• Algebra and matrices
  – use matrices for storing and displaying information that can be presented in rows and columns; for example, databases, links in social or road networks
Abraham Nemeth  
Blind mathematician

‘Blind from the age of six weeks old, Nemeth began taking night classes in mathematics at Brooklyn College in the early 1940s. In 1946, having mastered all the undergraduate courses on offer, he volunteered to teach extra sessions on calculus to students who had been forced to leave their studies for wartime service and now wished to catch up. To avoid any ambiguity, teacher and pupils followed a simple oral code of Nemeth’s own devising. Hence, \((A+B)/C = X\) would be spoken aloud as “\((\text{start frac}) A \text{ plus } B \text{ over } C \text{ (end frac)} \text{ equals } X\)”. Later, Nemeth would develop this oral method into a coherent teaching protocol, which he christened “Mathspeak”. At that time, the primary Braille for mathematical equations in the United States was the Taylor Code, developed by the English mathematician Henry Martyn Taylor in 1917. Nemeth, however, found the Taylor Code inadequate for the rigours of calculus. He therefore began developing a personal notation, analogous to his system for dictating problems aloud. This meant that a sighted transcriber familiar with the code would not need any knowledge of mathematics in order to render a problem correctly.’

The Telegraph, 10 December 2013
Disability Standards and Adjustments to Assessment

Conflicting messages: Part 3 Reasonable adjustments 3.4

(2)(c): the effect of the adjustment on the student, including the effect on the student’s:

(i) ability to achieve learning outcomes; and
(ii) ability to participate in courses or programs; and
(iii) independence;…

(3) [reasonable test] provider is entitled to maintain the academic requirements of the course or program, and other requirements or components that are inherent in or essential to its nature.

Note … provider may continue to ensure the integrity of its courses or programs and assessment requirements and processes [for award]
Disability Standards and Adjustments to Assessment

Part 6 Curriculum: 6.2

(1) education provider must take reasonable steps to ensure that the course or program is designed in such a way that the student is, or any student with a disability is, able to participate in the learning experiences (including the assessment and certification requirements) of the course or program, …

6.3 Compliance

(a) curriculum, teaching materials, and the assessment and certification requirements for the course or program are appropriate to the needs of the student and accessible to him or her…

(f) the assessment procedures and methodologies … are adapted to enable the student to demonstrate the knowledge, skills or competencies being assessed.
Some cases:

*BI v Board of Studies* [2000] NSWSC 921. (*preStandards*)
(attention deficit hyperactivity disorder), denied additional time in a New South Wales Higher School Certificate examination in English that he had argued would enable demonstration of a higher standard of achievement, state policy at that time, completion of a required practice test showed he could achieve an ‘average’ standard under the set time frame. The state argued that more time might advantage the student.

*Hurst and Devlin v Education Queensland* [2005] FCA 405; *Hurst v State of Queensland* [2006] FCAFC 100
On appeal: to ‘cope’ was not synonymous with to ‘comply’, and evidence was that Tiahne Hurst needed AUSLAN signing for optimal outcomes.

*Beanland v State of Queensland and Anor*, [2008] QADT 5 (‘*Beanland*’).
Student with cerebral palsy and cortical visual impairment wanted to study foreign language in Years 11 and 12. He enrolled in a private school while the public high school was still working through option. Challenges to QSA regarding content and standards.
Adjustments

(i) Assessment of learning?
(ii) Assessment for learning?
(iii) Assessment is for learning?
(iv) Assessment as learning?
(v) Formative assessment?
(vi) Summative assessment?
(vii) Validity?
(viii) Reliability?

Core issues

What is the ‘critical function of the curriculum’?

Formative assessment:
• identifying student learning for feedback

Summative assessment:
• equivalence for equity, validity, reliability
• concerns with fairness
• no advantage in having an impairment
  – “does the disabled examinee have any capability for adapting to standard test administration conditions?” (Phillips, 1994)
Equitable assessment under the Standards

The goal
• Fair and equitable require that ‘no individual student is favoured over another in demonstrating what they know or understand’, or, ‘Would the assessment outcome [be] different under other’ assessment conditions or forms? (Camilli, 2013)

The limits
• Standards allow for limits
• Further question may be
  – What gain in performance is reasonable to require adjustments?
  – How much improvement is necessary to make an adjustment worthwhile?
    ‘The degree of boost and its implications for validity is currently an unexplored area’ (Cawthon et al., 2009)
Food for thought

VI Scenario: NAPLAN

Year 5 student Sam, ‘highly proficient Braille skills, regularly uses a Braille typewriter’

Adjustments: Braille, Extra time

… Sam’s school principal, in discussions with him and his parents, decided an extra 10 minutes per half hour of the Writing test was appropriate, 15 minutes extra for the Language Conventions and Reading tests and 20 minutes extra for the Numeracy test.

Nester (1993)
“At least double time” needed for visually impaired test takers for a short test; complex tests involving computation require considerably more time

Ragosta and Wendler (1992)
Two to three times standard time needed
Recommendations

• Critically examine the curriculum for the ‘critical function’?
• Establish equivalence.

As a young 11-year-old blind student, Jack McPadden, interviewed during a dance exhibition (he also holds a junior black belt in a martial art), recently said:

‘… I can do basically anything that a sighted person can do, as long as it is modified for me, I could even fly a plane—someone just needs to direct me. Something that should not even be asked is, can he? Of course he can. Absolutely.’ (Kahn, 2011)
Recommendations

• Encourage teachers to be brave and experiment with different assessment forms, feedback, questioning and time
• Undertake classroom experiments by offering students without VI the same assessment experiences as the students with VI are offered (e.g. more time, oral forms of demonstration of evidence, technology assessment)
• If all students do better, a better (more valid) form of assessment for all
• If students with VI improve more than students without VI, taken as evidence the assessment is more appropriate for these students
• Offer trial opportunities with no time limits to examine optimal performance times
  • I’d love to share the outcomes
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