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# Online Assessment Tools: Do They Work for Students with Disabilities?

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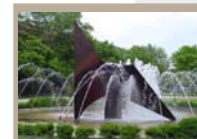
Distance Education and Learning Technology Applications

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***“Assessment is the engine that drives student learning”***

**.... Cowan, 1998**



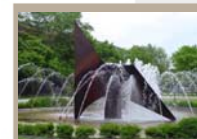
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# Question

Do Online Assessment tools provide a valid assessment of a broad spectrum of learners?



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# Role of Assessment in Education

- Measure student learning and monitor student progress
- Assess teaching: pedagogy, course content and instruction materials
- Evaluate program effectiveness





# Assessment Tools

- Quiz instruments
- Classroom response systems
- Portfolios systems
- Online polls and surveys
- Collaboration spaces and tools





# *Seven Principles for Good Practice*

## *Implementing the Seven Principles for Good Practice in Undergraduate Education*

*....Chickering & Ehrman*

- Give prompt feedback
- Emphasize time on task
- Communicate high expectations
- Respect diverse talents and ways of learning



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# *Spectrum of Learners*

Learners include people with:

- A range of learning, processing, physical and sensory constraints
- Different learning styles
- Language constraints

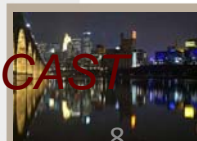




# *Universal Design Principles*

## *Universal Design for Learning recommends*

- **Multiple means of representation**, to give learners various ways of acquiring information and knowledge
- **Multiple means of expression**, to provide learners alternatives for demonstrating what they know
- **Multiple means of engagement**, to tap into learners' interests, offer appropriate challenges, and increase motivation







# *Assessment of a Broad Spectrum of Learners*

## Requires

- Flexible ways to measure student learning
- Flexible methods and materials for presentation of information
- Flexible methods for expression and interaction
- Multiple ways to provide student feedback





# *Strengths of Online Assessment Techniques*

## Flexibility for ....

- Assessment Methods
- Measurements
- Instruments
- Adaptive Testing
- Student Responses Requirements
- Instructor Feedback
- Access
- Testing Time





# *Strengths of Online Assessment Techniques -2*

## Multiple ways for ...

- Presenting information
- Learner response modalities
- Testing environments
- Monitoring progress
- Providing feedback





# Weakness of Online Assessment Techniques

- Uses human-computer interaction demanding the ability to:
  - **Perceive the content** – visual/aural skills to see and hear
  - **Understand** – language/learning/processing abilities to interpret and comprehend what is being presented
  - **Respond** – motor, speech and verbal skills to express, interact and respond
- Many learners use Assistive Technologies (AT) to compensate for functional limitation
- Inability to reliably verify individual student performance/submission





# Barriers to Valid Assessment - Technology

- Integration with AT
  - *Technology environment* (learning platforms, software applications etc)
  - *Technology Tools* (communication, collaboration, testing)
  - *Test Instrument*
- Access to information or tool (response systems)
- Confusing layout and design (environment and instrument)
- System lock-downs that disallow AT use
- Built in time constraints
- Built-in authoring tools not facilitating crafting of accessible content
- Uploading and rendering of externally created content not compliant with standards





# Barriers to Valid Assessment - Content

- Content not designed with accessibility in mind
  - Missing or inappropriate text descriptors for graphic elements
  - Mouse activated interactive objects
  - Cues and questions not explicitly associated with response fields
  - Ambiguous or poorly worded questions
  - Feedback not associated with response
  - Confusing layout and design (instrument)
- Response Expectation





# Assessing Abilities or Disabilities?

When the assessment tool limits, prevents or makes it difficult to perceive, to understand the instructions and questions being asked, and to respond, the response may indicate a limitation of technology rather than that of student learning.





# Solutions - Technology

- Software or LMS that are accessible to and usable by students using assistive devices
  - Provide tools and test instruments that allow ability to perform all required activities without special accommodations
  - Use security systems that provide access to AT
  - Use instruments that can be configured for user-specific time constraints, or allow the user to ask for additional time
  - Provide authoring tools to easily craft content compliant with WAI guidelines that transform and render all content to W3C standards
- Classroom Response System
  - Integrate with accessible web-based response pads
  - Provide alternative format to present polling questions to sight impaired students







# Solutions - Content

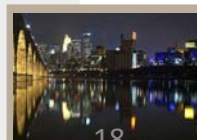
- Code all test instruments to generally accepted W3C standards
- Design instruments: explicitly associate all information including questions, directions, cues, response fields and feedback
- Always provide text descriptors that convey the essential information from the graphic or visual object
- Always provide text transcripts/captions for aural content
- Provide an alternative if an interactive object used in a question cannot be accessed by the user
- Provide an alternative method to respond when requiring aural response
- Avoid ambiguity; write clear and precise questions and feedback responses





# Resources

- Chickering, Arthur and Stephen C. Ehrmann (1996), "Implementing the Seven Principles: Technology as Lever," AAHE Bulletin, October, pp. 3-6. (<http://www.tltgroup.org/programs/seven.html>)
- Cowan, J. (1998), On Becoming an Innovative University Teacher, Buckingham, SRHE and OUP
- Harvey, L., (1993), Measure for Measure, Act II Conference
- Universal Design for Learning – CAST  
(<http://www.cast.org/research/udl/index.html>)
- Multimedia presentation with examples:  
<http://delta.ncsu.edu/projects/is/accessibility/assessment/presentation/html/>





# Articles of Interest

- Dolan, R. P. and Hall, T. E. (2001). "Universal Design for Learning: Implications for Large-Scale Assessment." *IDA Perspectives* 27(4): 22-25. URL:  
<http://www.cast.org/system/galleries/download/byCAST/udlassessment.pdf>
- Silver, Patricia, Bourke, Andrew and Strehorn, K. C. (1998) "Universal Instructional Design in Higher Education: An Approach for Inclusion", *Equity & Excellence in Education*, 31:2, 47 – 51. URL:  
<http://dx.doi.org/10.1080/1066568980310206>
- Thompson, S. J., Johnstone, C. J., & Thurlow, M. L. (2002). *Universal design applied to large scale assessments* (Synthesis Report 44). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. URL:  
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