Innovation and Inclusion: Using technology and captioning to support students with disabilities

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ACEL Disability forum
Sydney May 2015
Today

- The idea
- The technology
- Case examples
- The challenges
- The future
... students had a second chance to engage in instruction and an opportunity to discuss their own learning.
...all classrooms were inclusive and content was accessible to learners affected by disadvantage
"imagine if...

in the classroom teaching and learning was visible and adaptable, and supported by leadership for a collective impact.
...... teachers received ‘real’ feedback to evaluate and could adapt in real time
We can do it!
Visible Classroom

How does it work?
Real-time captioning: Facilitating a teaching & learning loop

TEACHER:
Let's get this last piece of work done for the day. What I was talking about before was looking at sources, particularly written sources. Thinking critically about them. We need to understand that they may be biased. They may be biased toward a particular society or point of view. So a Greek historian who writes about Greeks - he may write in an exaggerated way. So when people read that they may think that the Greeks were these amazing people with amazing ideas. That they were unbelievable in battle or that they were strong and powerful.
Transcripts

Teachers received a transcript at the end of their lesson.

TEACHER:
That is brilliant. The fact that you picked up on the language that tells us that it probably is fiction, isn't it.

What about the Duke of Disaster? [Q_Teacher] On the next page there is a story about the Duke of Disaster and I am going to read it.

In the olden days, especially in Wales, there were lots of collieries underground to the coal mines. A colliery is a mine where coal is dug out and it is based on a true story.
Second chance at teacher talk

Student access to the Transcript in real-time
• delivered on tablets or devices in the classroom
• Interaction with transcript
• Utilise at later date
Student Feedback on Learning

At any time during a lesson, students can complete a Session Survey on their tablet.

8 questions based on MET study items.

‘Merely enhancing learning is not enough – for maximum student outcomes, the teacher needs to know the magnitude of his or her impact and then evaluate whether this impact is sufficient.’

Hattie 2015
The Dashboard
Personalized Feedback

The evidence-feedback is designed to promote change in effective teaching strategies.
Exercise
Simple text

- Reduce the amount of teacher talk
- Strip the language back to core messages
- Removes the metaphors etc.
- Focus on instruction
Classroom based on teacher talk

Mainstream classrooms:

- High proportion of direct instruction
- High proportion of teacher talk
- High social component
Departments of Education (NSW & VIC) pilots - Deafness

- 4 year pilot
- 30 schools
- Students have tablets
- Student use transcript
- Teacher has transcript

Results
- Increase in inclusion
- Reduction in frustration
- Increase in peer communication
- Increase self efficacy
- Increase in self regulation
- Improved achievement in some cases
Individual student results by aspect of literacy assessed by Compass

![Graph showing individual student results by aspect of literacy assessed by Compass. The graph compares different aspects such as text and language knowledge, text location and interpretation, and contextual understanding for students s1 to s11.](image)
Recognised need

I want captioning to continue in my child's classroom

I want captioning to be extended to other classes
Teachers changed their practice

**Change** in teacher practice was not an explicit aim of the pilots, the implementation and evaluation process has revealed that the system has considerable potential to **enhance** teachers’ reflection on their own practice.
Autism Spectrum Disorder

Issues and concerns

• Social difficulties
• Communication and Language
• Student Behaviour
Autism Spectrum Disorder

- Greater access to the lesson
  - Increased academic performance
  - Greater inclusion in the classroom

- Greater wellbeing
  - Lessened anxiety
  - Greater self-efficacy
  - Greater self-esteem
Why captioning?

<table>
<thead>
<tr>
<th>Area of difficulty</th>
<th>How captions can help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory processing</td>
<td>Provides the lesson content in non-auditory modality</td>
</tr>
<tr>
<td>Processing speed</td>
<td>Provides written record of teacher instructions for slower-paced, self-directed review</td>
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<tr>
<td>Working memory</td>
<td>Provides written record of teacher instructions for review; allows student to follow steps without having to retain them in working memory</td>
</tr>
<tr>
<td>Short- and long-term memory</td>
<td>Provides written record of teacher instructions and lesson content for review during or after the lesson</td>
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<tr>
<td>Receptive language : Socio-pragmatic</td>
<td>The Simple Text application removes this kind of language, whilst preserving the key messages for learning</td>
</tr>
<tr>
<td>Receptive language : Structural (e.g., vocabulary, syntax)</td>
<td>The Simple Text simplifies the structural aspects of language</td>
</tr>
<tr>
<td>Intrinsic levels of interest in learning via the social environment</td>
<td>Social component of lesson delivery is removed</td>
</tr>
<tr>
<td>Attention, concentration and distractibility</td>
<td>Provides written record of teacher instructions and lesson content for review</td>
</tr>
</tbody>
</table>
Measuring change

Through the eyes of the teacher:

• Cognitive
• Attitudinal
• Behavioural
• Physical
• Social
Other groups

- Young Epilepsy association
  - Loss of access content
  - Short term memory
  - Eroding executive function
- IAL
- Disadvantaged groups
Individual student pathways

• Progression from simple text to full text
• Set the standard
• Target individual progression
What is the Evidence that it works?
Case example: Disadvantaged Schools in the UK

• “The Visible Classroom” was a research project running from February to July 2014 in 8 English primary schools — Funded by UK Education Endowment Foundation.

• AIM: To improve the quality of learning & teaching by providing pupils and teachers with real-time transcripts for reflection and development.
Average Frequency of Teaching Practices improved

- Emphasises important points
- Deepen understanding
- Real-world connections
- Clearly expresses learning objectives
- Introduces and explains
- Behaviour management

Comparison: Pre-feedback vs Post-feedback
Change in Teacher Practice

![Graph showing change in teacher practice over two rounds.]

- Setting Up
- Sharing Ideas
- Positive Deep
- Summarise

Average Bartlett Factor Score

Round 1 vs Round 2
Student perception of their learning improved
Teacher Collaboration

• Student achievement was significantly higher in schools with strong professional learning communities (Bolam et al, 2005; Louis & Marks, 1998).

• ‘...The focus needs to shift from helping individuals to be more effective in their isolated classrooms to creating a collaborative culture of interdependence and shared responsibility’ (Dufour and Marzano, 2011).

• Maintaining an evaluative mindset can promote ongoing reflection upon teaching practice

• Those who reflect show the greatest potential to understand their strengths and recognise areas for future development
The Visible Classroom Products

The Full Suite
Collaborative professional learning

Accessibility
Promotes inclusivity and active learning

Teacher Evaluation
Enhanced professional practice

Live Captions  Transcripts  Student survey  Analytics  Coding and Feedback  Peer reflection