Examining the use of in-situ audio annotations to provide feedback to students

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Feedback

Do you have any specific feedback or comments for me, Prof. Smith?

Yes...

"Do more."

Um, can you be a little more specific?

"Do more now."

That's too specific.
Providing feedback

“the process itself takes on the forms of new instruction, rather than informing the student solely about correctness”

Problems with feedback

“A satisfactory effort. More critical analysis of key issues would have helped.”

“This is the sum of the feedback. The Professor obviously thinks that, for me, a 2:2 is satisfactory, but I don’t. I’m dismayed that this was no more than he expected from me. More critical analysis? I thought I had analysed the main issues thoroughly and been critical—maybe not. I thought I knew what critical analysis involved—maybe I do not know after all. I wanted the tutor to engage with what I had written, to provide a personal critique of my work, but his comments do not live up to the level of critical analysis that I expect him to employ.”

Some problems with feedback

- Volume/specificity of feedback
- Misunderstood
- De-contextualisation
- Feedback hurts not helps understanding
Massification & Personalisation

- Increasing class size
- Open education
- Unrestricted access
- Underfunding

- Individualised
- Rich and specific
- Affective
- Situated
Documenting feedback

- Here we are focussing on document feedback
  - That is feedback that is mediated through the annotation of the document
- Many forms of *in-situ* (in-line) annotation:
  - Hand written
  - Highlighted
  - Typed Text
  - Embedded Media
“The student responses suggest a greater responsiveness to receiving information verbally, which may underpin a deeper engagement with the feedback provided.”

Questions around feedback

- “Do students actually look at feedback?”
- “What’s more important, the grade or the feedback?”
- “How can I provide better feedback to students?”
- “Is my time being wasted?”
- “What is the impact of my feedback?”
Research Questions

- Markers
  - Characteristics of feedback?
  - Utilisation of feedback types, modalities, placement?

- Students
  - Is it attended to?
  - Does the final mark supercede feedback?
  - Response to feedback types, modalities, placement?
UQMarkup - the application

- Supports teacher to student feedback
- Provide feedbacks through *in-situ* annotations (text, highlight, drawing, audio) embedded in the document
- Allows feedback receivers to review feedback (including interactive audio) via browser
- Captures data on this process
- Scalable to large classes - built for current ubiquitous technologies
Research/Experimental Design
UQMarkup

- Trailed in three university courses (science)
  - 1st year presentation and report (BIOL1040)
  - 1st year prac report (BIOL1040)
  - 2nd year draft essay (PHYS2064)
- 785 students received feedback in the system
- Usage data, interaction data
- Post semester interviews, and surveys (ongoing)
UQMarkup

- Four components of the application:
  1. Administration panel for organising the process
  2. iPad interface for providing feedback (marker)
  3. Web interface for receiving feedback (student)
  4. On the fly analytics for the feedback process
1. Administration Panel

Submission Management for PHYL2064: Draft Report

Submission Workflow

Automated Tasks

Upload Additional Submissions


Check for uploaded submissions
2. iPad Application

You did not mention evacuation procedures.
2. iPad Application

You did not mention evacuation procedures.
2. iPad Application

You did not mention evacuation procedures.
3. Feedback viewer

The negative regulation of T-lymphocyte activity, there is also an association with the CLTA-4 gene. It is important to realize that the genes implicated vary in relation to distinctive ethnic groups and that chromosomal disorders promote the onset of this disease. Some preventable environmental risks include exposing yourself to a high iodine intake, selenium deficiency and pollutants such as tobacco smoke. Other predispositions include infectious diseases and certain drugs.

Main Signs/Symptoms
Hashimoto’s Thyroiditis presents with an enlarged neck or presence of goiter, dry skin, decreased concentration, fatigue, weight gain, depression, intolerance to cold, muscle cramps and leg swelling (A.D.A.M., 2012).

Presence of Signs/Symptoms compared to Acute/Chronic
Symptoms differ in the acute versus chronic phase of Thyroiditis. The main distinction in the acute stage is that the thyroid gland becomes hyperactive, however it has decreased radioactive iodine uptake (RAIU) (Slatoksky, 2000) (Refer to Figure 1).
the negative regulation of T-lymphocyte activity, there is also an association with the CLTA-4 gene. It is important to realize that the genes implicated vary in relation to distinctive ethnic groups and that chromosomal disorders promote the onset of this disease. Some preventable environmental risks include exposing yourself to a high iodine intake, selenium deficiency and pollutants such as tobacco smoke. Other predispositions include infectious diseases and certain drugs.

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4. Learning analytics - data

- Markers
  - Time spent marking submissions
  - Number and type of annotations created
- Students
  - When students read feedback
  - How long they engage with it
  - How they move through the annotated document
  - How they listen to an annotation
Learning analytics

Submission Statistics
- 743 documents have been published in total
- 356 documents were marked within UQMarkup
- 387 documents were marked traditionally
- 614 documents have been opened by students

Time-based Analytics
- 96.97 hours were spent marking (based on 356 documents)
- 288.96 hours were spent by student viewing feedback
- 614 documents have been opened by students

Annotation Statistics
- 3300 annotations were created in total
- 932 annotations were audio based
- 523 annotations were drawing based (pen or highlights)
- 1845 annotations were text based

Audio Analytics
- 9.06 hours worth of audio annotations were created
- 6 annotations were text based
- 352 seconds was the average length of an audio annotation
- 16 annotations were text based

Home / Manage BIOL1040 / Manage Prac Reports / Project Statistics

Statistics for BIOL1040 - Prac Reports (2012/2)
Report generated at Wednesday, 28th of November 2012 07:08:03 AM

Submission Statistics
- 109 documents have been published in total
- 53 documents were marked within UQMarkup
- 56 documents were marked traditionally
- 109 documents have been opened by students

Time-based Analytics
- 3.1 hours were spent marking (based on 29 documents)
- 670.52 hours were spent by student viewing feedback
- 109 documents have been opened by students

Annotation Statistics
- 858 annotations were created in total
- 161 annotations were audio based
- 344 annotations were drawing based (pen or highlights)
- 353 annotations were text based

Audio Analytics
- 1.38 hours worth of audio annotations were created
- 96% of audio in opened documents were listened to by students
- 353 annotations were text based
- 6 annotations were text based

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Statistics for PHYL2064 - Draft Report (2012/2)
Report generated at Wednesday, 28th of November 2012 07:07:39 AM
### Examining the details

#### Draft Report - Timing Analytics

**Statistics for PHYL2064 - Draft Report (2012/2)**

Report generated at Wednesday 28th of November 2012 07:07:39 AM

<table>
<thead>
<tr>
<th>Submission Statistics</th>
<th>Time-based Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>109</strong> documents</td>
<td><strong>3.1</strong> hours</td>
</tr>
<tr>
<td>have been published in total</td>
<td>were spent marking - (based on 29 documents)</td>
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<tr>
<td><strong>53</strong> documents</td>
<td><strong>4</strong> minutes</td>
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<tr>
<td>were marked within UQMarkup</td>
<td>were the average marking time per document</td>
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<td><strong>56</strong> documents</td>
<td><strong>670.52</strong> hours</td>
</tr>
<tr>
<td>were marked traditionally</td>
<td>were spent by student viewing feedback</td>
</tr>
<tr>
<td><strong>109</strong> documents</td>
<td><strong>369</strong> minutes</td>
</tr>
<tr>
<td>have been opened by students</td>
<td>average was spent viewing feedback per document</td>
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</tbody>
</table>
Investigating the data

Duration of open documents (Draft Report)
When do students read?
Examining the details
Draft Report - Annotation Analytics

<table>
<thead>
<tr>
<th>Annotation Statistics</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>858</strong> annotations were created in total</td>
<td><strong>1.38</strong> hours worth of audio annotations were created</td>
</tr>
<tr>
<td><strong>161</strong> annotations were audio based</td>
<td><strong>96</strong>% of audio in opened documents were listened to by students</td>
</tr>
<tr>
<td><strong>344</strong> annotations were drawing based (pen or highlights)</td>
<td><strong>31</strong> seconds was the average length of an audio annotation</td>
</tr>
<tr>
<td><strong>353</strong> annotations were text based</td>
<td><strong>6</strong> annotations was the average number of audio annotations within audio enabled documents</td>
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</table>
Per document analytics

A = Audio
G = Pen / Graphics
T = Text

3:34m total

Page

1 2 3 4 5 6
Per document audio

- Single play
- 1 repeat
- 2 repeats
- 3 repeats
- 4 repeats
“Well I prefer to see it written out and then what I actually do was I’d like tick off each sentence and you can read it as much as you want. I don’t know... I just think it’s easier to see it really ... see the words. I don’t know ... that’s just maybe my way.”

Student who didn’t receive audio
Audio - Interviews

“I found the audio a bit difficult, she sounded like [the marker] was speaking really quietly like [the marker] was trying not to disturb anyone else around [the marker]. But I liked that it was addressed to me and because you do build up a relationship with your tutor in the pracs.”

Student who did receive audio
Audio - Interviews (no audio)

“Well I heard from some of the other students that, especially from one girl. She got an audio recording and she said it was brilliant. She really liked it. ”

Student who didn’t receive audio
“...it can’t be ambiguous if you’re hearing someone say it. There’s less chance of it being ambiguous. Because sometimes with a comment you don’t really get what the person is trying to say, if they haven’t spent a lot of time choosing the right words. But if they say it ... everyone knows that you talk because you do it every day.”

*Student who did receive audio*
Audio annotations: Some pragmatic issues

- While *in-situ* audio feedback shows promise, there are some issues that arise:
  - “People won’t understand my accent”
  - “I had nowhere privately to record annotations”
  - “I felt like I was rambling”
Research in progress

- Still a huge amount of data to go through from the current trials
- More trials upcoming
- And **lots** more research questions…
Summing Up

- A first step into understanding how students use feedback (more data incoming in upcoming trials)
- Audio annotations allow for a more personalised and contextual way to provide feedback
- Response from students so far seems positive (novelty?)
- Some pragmatic issues around audio feedback
- Learning analytics provides us with a way to validate how students use this feedback
Future Directions

- What is the impact of feedback (both direct and longitudinal)?
- How do we best visualise this data - how is it valuable in practice?
- Does the reaction to audio increase/decrease with experience?
- Performance, conceptual understanding, affect, persistence, (ability to use concepts, gain, transference, retention) of feedback?
Thank you

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Available on slideshare soon