

Background

Feedback is one of the most influential factors on student learning gains¹, but needs to be timely, informative and to encourage positive attitudes towards future learning amongst students². However, studies show that feedback is often too brief, too broadly stated, and is often misinterpreted by students³.

Ideally, feedback needs to be detailed, specific and clearly directed at the work to which it relates⁴. Recent studies have suggested that students find audio feedback more engaging and informative than traditional written feedback, and prefer either audio or a combination of text and audio to text alone⁵.

The 'UQMarkup' system

is a rich media marking system to help markers provide students with timely, detailed and situated feedback, and to investigate the potential of technology to facilitate new methods of feedback provision, such as *in situ* audio comments.

The system consists of three components: 1) *Administration interface* that processes submissions for marking and moderation; 2) *iPad application* that allows markers to provide feedback as audio, handwritten and typed annotations, and to grade using criteria rubrics; 3) *Feedback viewer* allowing students to view their feedback on a web browser (Figure 1).

In addition, the in-built learning analytics allows for extensive evaluation of the provision and use of feedback, providing empirical evidence of both marker and student behaviours (Figure 1-4).

To date, the system has been trialled across almost 3000 student assignments in multiple assessment settings, including written student laboratory reports, literature reviews and oral presentations.

Results: Marker behaviour

• Markers varied noticeably in their use of different modes (Figure 2), but had similarities in duration of text and audio annotations (30-60 sec; Figure 3A-B)

• Markers who used 75% or more audio annotations had **reductions in average marking time of ~30%** (Figure 4A), so the more they rely on audio, the faster they mark

• Markers use **more words for audio** (82.38±6) than text/typed (25.68±5) or handwritten (8.29±1) annotations on laboratory reports (Figure 4B)

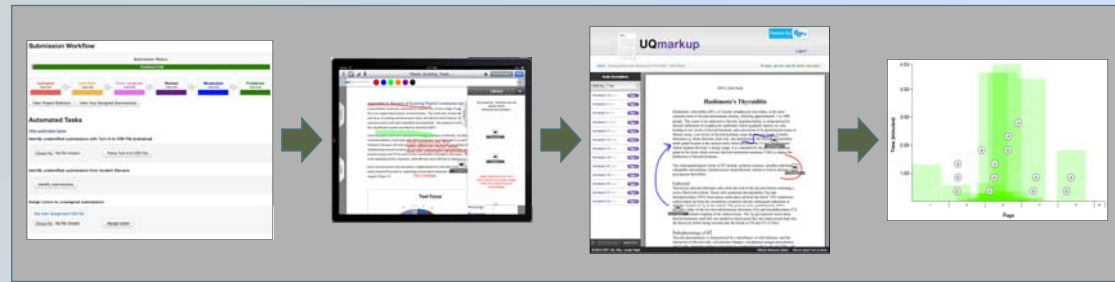


Figure 1: The UQMarkup system: administration interface, iPad application, feedback viewer and example of individual analytics data.

Results: Marker behaviour

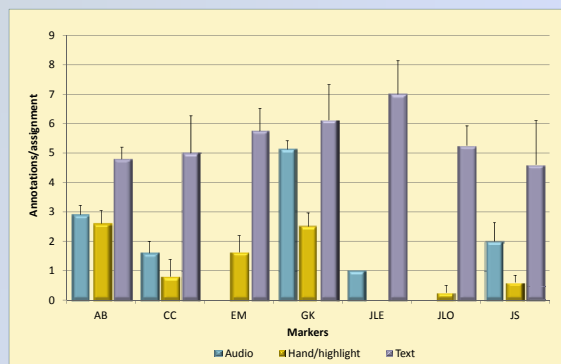


Figure 2: Individual markers (n=7) provided feedback on student oral Powerpoint™ presentations using variable annotation modes and numbers on each assignment; two markers didn't use audio.

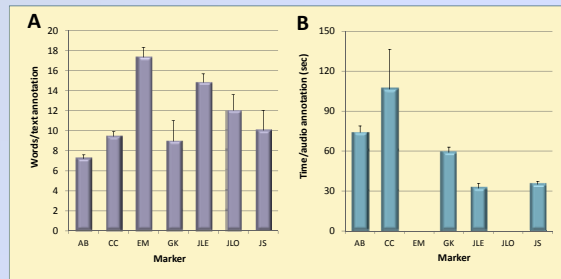


Figure 3: Each marker (n=7) varied in both their word usage (10.77 ± 0.49 words) for (A) text annotations and (B) length of audio annotations (66.18 ± 3.65 sec).

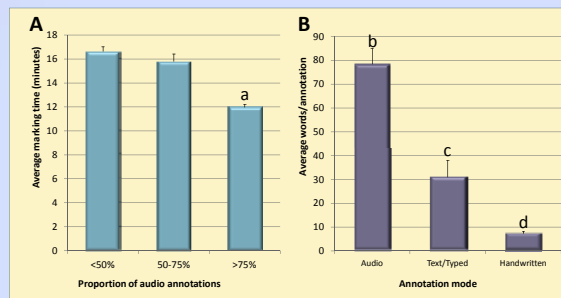


Figure 4: (A) Assignments marked using more than 75% audio annotations (n=939) took significantly less time to mark than assignments marked using either 50-75% audio (n=482) or less than 50% audio (n=1453). (B) Average word usage varied with audio annotations > text/typed > handwritten annotations. Columns with different letters differ significantly, p<0.001.

References

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- Stern, L. A., & Solomon, M. A. (2006). Effective faculty feedback: The road less travelled. *Assessing Writing*, 11(1): 22-41.
- Colthorpe, K., Liang, S. & Zimbardi, K. (2013) Facilitating timely feedback in the Biomedical Sciences. *International Journal of Innovation in Science and Mathematics Education* (In press)
- Gould, J. & Day, P. (2012). Hearing you loud and clear: student perspectives of audio feedback in higher education. *Assessment & Evaluation in Higher Education*, (ahead-of-print), 1-13.

Results: Student behaviour

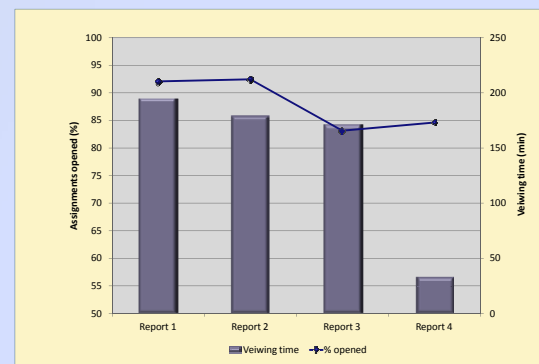


Figure 4: Students (n=954) submitted fortnightly laboratory reports, and received individualised feedback on each. While most students viewed their marked assignment (% opened), length of viewing and % opened declined as the semester progressed.

Qualitative results: Markers

- Use of audio is associated with both reduced marking time and increased word usage
- Anecdotally, once markers got used to audio, they rely on it more (and don't want to go back to typing!)

Qualitative results: Students

- 76% preferred audio annotations, suggesting it was more detailed and comprehensive, more descriptive and clearer than text annotations, but some said they would also like transcripts to "take with them"

"...it takes, you know, 10 seconds of speech to explain something really clearly."

"I mean probably the best thing about oral is that you can get more across...it would take someone a long time to write the same thing."

"and tone of voice conveyed a lot more meaning than just the text did..."

- Of those who preferred text, reasons given were that it was easier to see the specific parts, and they could go back to it anytime

Conclusions

1. Audio feedback allows fast and detailed feedback to be given
2. Most students prefer audio annotations
3. Markers varied in feedback mode use and need support to transition to the use of audio feedback