



PTAS Project Report (for REGULAR PROJECT GRANTS)

Project Title:

Supporting Teacher Reflection through Visualisation of Classroom Practices Data

Project type:

A Research Project (research focus on particular dimension of teaching, learning, assessment)

Principal Investigator : Dr George Kinnear

Schools/department : School of Mathematics

Team members (including Schools and Departments) :

Dr Hazel Christie, IAD

Dr Jill MacKay, R(D)SVS

Dr Anna Wood, School of Mathematics

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Project teams must submit a report within 4 months of the conclusion of their project.

Copies of dissemination material (eg journals/newsletter articles, conference papers, posters should be listed and attached (separate to the word count). The brief report will be published on the IAD web pages.

Report (maximum 1500 words)

What did you do?

In a previous project, we analysed over 200 lectures across STEMM disciplines, collecting data on the time that teachers and students spent on different activities in lectures. Activities were classified according to the FILL+ protocol (Kinnear et al., 2021), and include lecturer talking, students asking and answering questions, and discussion in small groups. In this project, we set out to investigate whether, and in which ways, providing visualisations of FILL+ data to teaching staff can support them to reflect on their teaching.

We carried out semi-structured interviews with 17 STEMM lecturers, to explore their response to three different visualisations of data about their classroom practices:

1. Timelines, showing which type of activity was taking place at each moment in their lectures;
2. Proportions, showing the overall proportion of time spent on each type of activity;
3. Comparisons, showing the proportion of time spent by the lecturer in different levels of interactivity alongside (i) the mean proportion for all lecturers in our sample, representing the “typical” approach, (ii) examples of other lecturers from their discipline, representing the most and least interactive teaching approaches.

Examples of these visualisations are included on Page 4.



What did you find out?

Overall, the participants found the data valuable, with the timeline graphs, which gave an overview of the activities across the lecture, being seen as the most useful form of data. The lecturers valued the accuracy of the data, noting that it was better than relying on their own memory of how time was spent. At a general level, teachers found that the data was not surprising or unexpected, and this gave the teachers reassurance that their teaching approach matched their teaching aims.

At a more fine-grained level teachers often did find the data surprising, and this triggered them to want to understand what had happened in that particular lecture or lecture segment, or in some cases to think about changing their teaching. Thus, our findings suggest that FILL+ data could be used as a provocation to initiate more active reflection.

How did you disseminate your findings?

Presentations

Wood, A. (2021). Supporting teachers' reflection using data about classroom activities. University of Edinburgh Learning and Teaching Conference 2021, Online. https://media.ed.ac.uk/media/1_7ycc5nk8

Wood, A. (2022). PTAS project update - Stimulating significant conversations and reflection through detailed data about classroom practices. IAD Update meeting, Online.

Wood, A. (2022). A Data-led Approach to Supporting Reflective Practice. School of Mathematics Teaching Theme Seminar. Online. https://media.ed.ac.uk/media/1_p3q0lvc5

Publication

Wood, A., Christie, H., MacKay, J. R. D., Dr, & Kinnear, G. (2021). [Submitted for publication]. Using data about classroom practices to stimulate significant conversations and aid reflection. <https://doi.org/10.31234/osf.io/q3hz4>

What have been the benefits to student learning?

Several participants in the interviews commented that the data had helped them to reflect on their practice, and that they would seek to make changes to their approach as a result. Examples include:

- “I think that would kind of prompt me to try and make sure I replace that with interactivity a little bit more in the lectures where there's previously been a bit less of it.” [L5]
- “I think that actually might convince me to try and do a bit more of the student thinking part” [L13]
- “it probably will reinforce the fact that I do want to include some Top Hat and include those sort of...bursts of activity” [L7]



How could these benefits be extended to other parts of the university?

We have made plans for a follow-up project, that will look to integrate our approach into the well-established continuing professional development opportunities run by the IAD (i.e. the Edinburgh Teaching Award and PGCAP). This would offer participants the opportunity to have some of their teaching analysed using FILL+, and to reflect on the data through conversations with a colleague.

References

Kinnear, G., Smith, S., Anderson, R., Gant, T., MacKay, J. R. D., Docherty, P., Rhind, S., Galloway, R. (2021). Developing the FILL+ tool to reliably classify classroom practices using lecture recordings. *Journal for STEM Education Research*.
<https://doi.org/10.1007/s41979-020-00047-7>

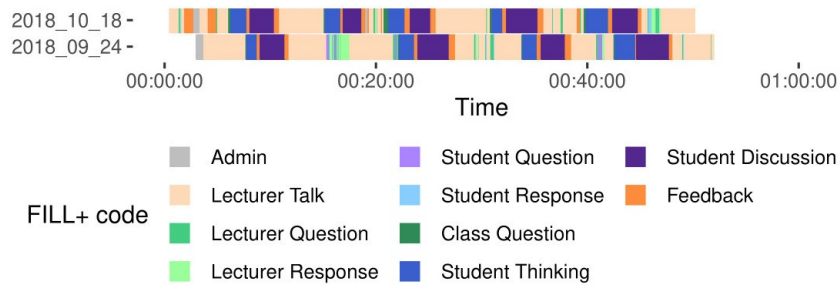
Financial statement:

This project has utilised the funding awarded to it by the PTAS adjudication committee and the Principal Investigator or School Administrator appropriate can provide financial statements showing the funding usage as and when required by the UoE Development Trusts who may require it for auditing purposes.

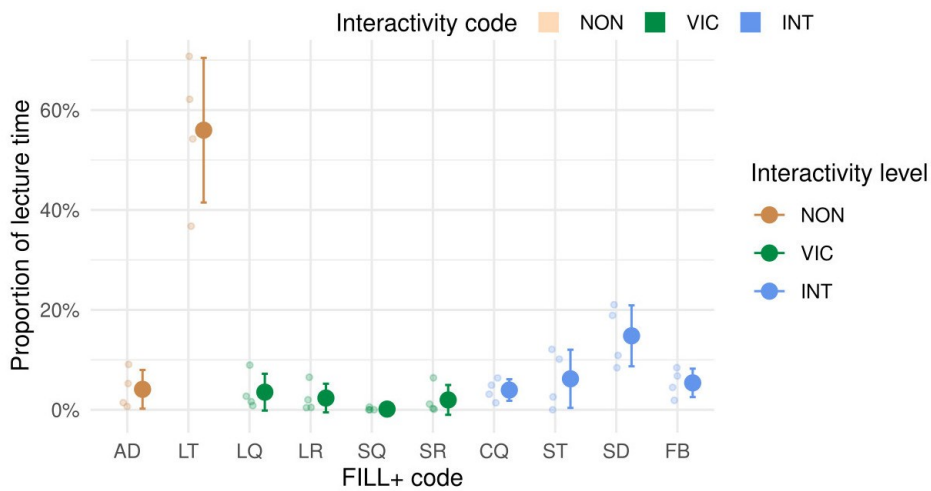


Appendix

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