

Assessment Case Study

An innovative approach to student engagement and assessment in science lab sessions.

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Course: Analytical Chemistry and Forensic Sciences

Student Level: Undergraduate (Level 5)



AN EXAMPLE OF ASSESSMENT THAT INVOLVES...

- Formative feedback
- Feed forward feedback

OVERVIEW

At Level 5, students are engaged in assessment opportunities not only after the lab sessions, but before and during. The novelty of this practice is that students are able to receive feedback on their work in a **timely** manner and able to use this **practice to improve** for summative assessment. This approach is particularly positive as it has a strong **feed forward** potential.

AIMS

The rationale driving this practice is to increase students' motivation and **engagement** using online materials (Pelet 2014) during and after lab practicals, and hence get better marks to pass the course first time.

ACTIONS

A selection of **smart worksheets** was developed by CU colleagues in collaboration with [Learning Science Ltd.](#) These were designed to support students and help guide them before, during and/or after lab sessions with timely feedback. The students can receive immediate feedback when entering a result into the smart worksheet. Tutors decide which worksheets are used for each session depending on its aims. Lab sessions are crucial for students on this module.

Students are also asked to answer a **post-lab quizzes** to consolidate their overall understanding and receive formative feedback. Again, these are co-produced with Learning Science Ltd. Students' responses are marked **automatically**, but staff are able to track scores and provide feedback accordingly. This is usually done online via written feedback, but general comments will also be made verbally during teaching sessions.



Images: @NCl, unsplash.com (above); Sharon Williams (on right)

IMPACT

A survey showed that over 75% of students found the post lab quizzes to be **very helpful** and they were **very satisfied** with the timeliness of the feedback. Overall, the average mark on the lab report increased by 5% in one cohort; in the other, no change was observed from the previous year's average. However, the percentage of **fails decreased significantly**.

SUSTAINABLE, SCALEABLE OR TRANSFERABLE?

This approach is **not too time consuming** for the tutors due to the automated element of the assessment marking. The practice is scalable and transferable, with other modules in the School having successfully adopted it.



STUDENT FEEDBACK

- "I love pre and post lab activities, they allowed me to understand [...] the lab practical I did and hence make easier on writing report. Great experience."
- "It helped me understand how to do the calculations."
- "Using the post lab quiz [...] really helped my understanding and learning."

MESSAGE TO PEERS

Think about concepts that students are finding challenging, and how practicing the concept and **receiving feedback** in a timely manner can help improve the Module pass rate.

FURTHER INFO

The [Learning Science Ltd](#) resources do have costs attached to them, but can be shared across the institution with those teaching biological sciences. Anyone who is interested in doing so is welcome to contact Sharon for more information.

REFERENCE Pelet, J.E. ed., 2013. *E-Learning 2.0 technologies and web applications in higher education*. IGI Global.