

IMPROVING QUANTITATIVE LITERACY SKILLS FOR BIOMEDICAL SCIENCE STUDENTS THROUGH TARGETED E-LEARNING RESOURCES

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BACKGROUND & AIMS

Quantitative literacy (QL) is crucial for understanding and manipulating numerical data, particularly in applied biomedical sciences (1,2). Limited QL skills can hinder students' performance and confidence in these disciplines. Proficiency in QL not only enhances academic success but also supports critical thinking and data evaluation in real-world contexts, such as interpreting scientific data in media reports (2).

Our research aims to assess whether improvements in QL skills and student confidence among biomedical science students can be achieved by providing targeted online e-learning resources, addressing the question: *Does student understanding and confidence in QL improve through the delivery of targeted e-learning resources?*

DESIGN & METHOD

Using a mixed-methods action research approach (3,4), we have provided Level 2 and 3 students enrolled in subjects in the School of Biomedical Sciences at the University of Melbourne with access to online e-learning resources between a pre- and post-QL competency test administered to students from, to determine if student understanding and confidence improve upon engagement with the eLearning resources. The test instrument, adapted from an open-source Quantitative Literacy Test (5), covers themes such as arithmetic, statistics, probability, measurement, stoichiometry, and graphical interpretation. We have set up an online Upskilling Community in Canvas which provides students with resources such as cheat sheets, H5P modules, flashcards, and practice problems allowing students to customise their learning path according to their individual needs.

PRELIMINARY FINDINGS & HYPOTHESES

This is a study in progress, though preliminary results show students are moderately confident in their quantitative literacy (QL) abilities, supported by a statistically significant positive correlation between confidence and competency test scores. Students reporting higher confidence tend to perform better on the QL test. Focus groups indicate that self-confidence is undermined by lack of explicit instruction in QL in higher education.

We are currently gathering data on the use of targeted e-resources, though participation has not been ideal. We hypothesise that students who engage with the QL Upskilling Community will have improvements in both their confidence and QL competence, making them better equipped to apply their quantitative literacy skills and reinforce the foundations laid during their secondary studies.

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