

## **2-5C Can all students benefit from mobile applications?**

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Molecular biology theory and methods are now perceived fundamental and underpinning to all Life Sciences, however, students can often find molecular biology conceptually difficult. Distinct and tailored methods to engage all students are therefore paramount and a range of materials have been developed to accommodate a variety of student academic backgrounds.

Digital media technology has been used to create a mobile app to support students studying molecular courses, in order to enhance understanding of molecular biology practical skills. The Molecular Methods app is available to download and is now being accessed globally. The app houses bespoke online resources, including explanations of many commonly used techniques such as PCR, cloning and DNA sequencing, illustrated with images and flow charts. Developed as a digital resource to support student learning, it contains University of Glasgow bespoke YouTube videos with linked revision quizzes, in order to enhance theoretical understanding of certain aspects of practical molecular biology. This app is currently used by students undertaking the Molecular Methods course as part of a Life Sciences undergraduate degree programme at the University of Glasgow, and is now being accessed by students internationally, with 11,000 downloads to date.

The app has been developed in collaboration with undergraduate students and graduate teaching assistants in order to ensure the material available is focused on areas that students find most challenging. Feedback studies showed that students engaged well with the app in this context at the University of Glasgow, and further student feedback is being collated to understand the use of other apps in Higher Education and to examine if the Molecular Methods app enhances student learning at external institutions. The advantages and disadvantages of using this approach will be discussed in a wider context of designing apps in Higher Education.

The Molecular Methods app can be downloaded for free from the App Store or Google Play onto a mobile device. Please download in advance to facilitate discussion during this session.

### **References**

Scott, P. H., Veitch, N. J., Gadegaard, H., Mughal, M., Norman, G., and Welsh, M. (2017) Enhancing theoretical understanding of a practical biology course using active and self-directed learning strategies. *Journal of Biological Education*,(doi:10.1080/00219266.2017.1293557)