Adapting a large class practical skills examination during the Covid-19 pandemic

Sarah K. Coleman and Caroline L. Smith

School of Life Sciences, University of Westminster

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Bioscience degree courses are distinct from many other disciplines requiring graduates to demonstrate psycho-motor skills and a portfolio of laboratory techniques. A requirement for the Royal Society of Biology accredited degrees is that students have demonstrated laboratory skills. We have achieved this by examining students using a series of basic laboratory equipment set up in a circus; thus, allowing direct in-class assessment of psycho-motor skills as an authentic assessment. Concurrently with this we have been evaluating the formative use of a broad range of molecular bioscience virtual laboratory simulations. We collated their impact on student engagement, understanding, contextualization as well as student for wet-lab preparation.

When the Covid-19 pandemic resulted in the first UK lock-down, 600 first-year students on the Biochemistry module were scheduled to attend the laboratory circus to undertake the practical exam. Throughout the first-year students had engaged with laboratory simulations as part of their formative assessments. Using our knowledge and research about available laboratory simulations allowed a close alignment to the practical circus components enabling an appropriate matching of skills to test the learning objectives. These interactive simulations combined with provided data enabled the students to demonstrate the appropriate use of calculations and data handling to achieve learning outcomes. Additionally, appropriate laboratory health and safety awareness were assessed through virtual simulations, short on-line films and multiple answer questions.