

## **Breakout session on “Virtual Laboratories – a follow up after the presentation from the OU”**

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### **Breakout session on Virtual Laboratory**

- There was an initial recognition that we need a short-term solution, while the OU solution had been developed over years at great cost. However, it was felt that if a virtual solution is fit for purpose, then there would be no driver to dispense with it post-Covid-19 and, indeed, virtual solutions would be a useful (and relatively low cost – compared with a new building) way to increase laboratory capacity in a world of increasing student numbers.
- There was a suggestion that technical staff (or others) could be equipped with GoPro cameras and could perform an experiment, streaming the video and discussing what they were doing and measuring. This could be followed by students online. There would be a possibility of students interacting with the operator to try alternatives.
- It was further suggested that there could be a sequence of alternative scenarios filmed such that, at decision points, the experiment operator might press button A rather than B, or make a mistake, and students would need to make “correct” decisions in order to achieve a successful outcome for the experiment.
- Even further, it was suggested this might be a useful way to teach about risk assessments, with potentially dark endings for the experiment operator if they deviated from correct practice.
- The point was made that we should favour pedagogy over technology. This was actually said in relation to VLE’s and collaborative tools, but it also applies to the experiments. Before trying to recreate something virtually, we should be looking at the learning outcomes and thinking whether this is really the best approach.
- The point was made by several people that there are some aspects of virtual labs that cannot be recreated online. For example, you can simulate electronics experiment, or optics experiments, but this is no substitute for wiring up circuits yourself or for aligning optical benches. This comes under the general heading of lab professionalism i.e. how to behave / work in an experimental laboratory. Also, what to do when things go wrong. Also, how to learn to be safe.
- The point was raised that, if we have virtual experiments, we ought to also have virtual lab books. One person said they were getting students to scan and upload their lab book pages as PDF files. Another said they had been looking for a suitable notebook app with e.g. date or time stamps, but not found anything suitable at a realistic price per student.
- Finally, it was questioned whether the new IOP accreditation guidelines would require as much laboratory time as some courses currently offer, in which case, could we offer a reduced laboratory. Feedback on this point indicated that the IOP would be happy to discuss individual institutions proposed solutions to getting over the Covid-19 crisis.