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# LOW-TECH VIRTUAL FIELD EXCURSIONS – IMPACT ON LEARNING AND ENGAGEMENT

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Remote delivery of teaching, as required during the COVID-19 pandemic, has meant field work in many subjects has not been possible. For geology students, field studies are known to be very significant in the development of spatial cognition skills and problem solving particularly for understanding complex 3D and 4D spatial and temporal relationships. Here I document my experiences developing and using virtual field excursions to try and replicate these capstone experiences. There is much discussion of the technological tools to help facilitate virtual excursions (Gigapan photography, VR, AR etc.) but with the immediate need for replacement excursions I developed low-tech versions that used only photos and freely available Google Earth base maps. Many aspects of the field work could be replicated to some degree (assessment of field safety, regional synthesis) and in some cases there was significant benefit to the virtual excursion in that students could readily revisit sites from previous days. But other aspects, particularly practical skills such as taking orientation measurements or developing advanced spatial cognition skills, could not be replicated. Student feedback was largely positive but also mixed. Assessment showed that many of the learning outcomes could be met in this way and the availability of new virtual excursions will greatly increase inclusivity of geological fieldwork into the future.

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