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Engaging Online STEM Program Delivery During Covid Lockdown Period

In 2020, like many others around the world, Victorian schools faced a major challenge in providing access to laboratory-based learning activities due to COVID lockdown. With several schools booked in to attend sessions designed to engage students in laboratory-based programs at KIOSC, staff had to think creatively to develop and deliver these programs, similar to the views of Almanthari, Maulina and Bruce (2020). In comparison to face-to-face delivery, engaging students in an online environment using laboratory equipment was considered challenging.

It was extremely important for KIOSC staff to adapt in order to design the laboratory skills-related programs to be engaging. The challenge for KIOSC staff was to design programs that inspired students (Hodges et al , 2020) to continue engaging them in STEM education despite the period in lockdown. Additionally, the program content had to be aligned to curriculum, while personalising the content to provide an authentic learning experience. To provide high value and impact for the students, the program had to be designed to cover many aspects of the curriculum that schoolteachers could not cover during the pandemic, where schools were inaccessible for everyone.

This paper explores the question: 'How can an online program that involves laboratory skills be made inspiring and engaging?'. Students across the state with multiple levels of access, learning abilities and technology needed to be motivated to join online learning (Martin, 2020). Providing simple, clear instructions became one of the most important elements of the puzzle. Selection of tools that students and staff were comfortable with allowed programs to progress better than using complicated tools, even though they may have better features.

This paper presents the learnings found by the KIOSC team in successfully implementing STEM programs. It also discusses how the KIOSC team managed the challenges that they faced in the process.

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