UNDERGRADUATE STUDENTS' PERCEPTIONS OF PRACTICAL EXPERIENCES

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Science is an experimental discipline and therefore training students in experimental techniques and data analysis is an essential component of undergraduate degrees. However, the amount of practical work may be limited by financial constraints and can vary considerably in the quality of the student experience. We were interested in how students perceived their overall practical experience, in contrast to evaluating a single experiment or project. We surveyed second-year genetics students on their confidence in practical skills and their perceptions of benefits and challenges of practical work, with 102 students responding (40% response rate). Survey findings were extended with a small number of interviews.

We found that students generally had a high level of confidence in their abilities and recognised a wide range of learning outcomes from practical work, encompassing the cognitive, psychomotor and affective domains of learning. Integration of these three domains of learning was key to effective learning, as visualisation of techniques contributed to understanding theory and peer interaction and enjoyment of labs supported engagement. Aspects of practical work that students identified as challenging were similarly diverse. Most did not believe that online experiences were a good substitute for in-person laboratories. The implications of this research are that scaffolding of practical work should accommodate the diversity of student experience and that assessment should take better account of psychomotor and affective learning, rather than relying solely on demonstration of cognitive learning via a laboratory report.

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