WHERE DOES MEANINGFUL LEARNING OCCUR IN BIOSCIENCES COURSES?

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STEM courses increasingly seek to employ teaching practices that promote meaningful learning, due to its benefits in knowledge retention, knowledge transfer, and student engagement. In redesigning existing courses to support this mode of learning, it is therefore necessary to determine which types of learning modes (lectures, workshops, practicals), and which components within these modes, maximise opportunities for meaningful learning. We surveyed a large cohort of biosciences students at the University of Melbourne (N = 321), comprising subjects across multiple year levels, to understand student perceptions of when these opportunities do and do not occur. Students believed they were most likely to engage in meaningful learning during face-to-face workshop/tutorial or practical sessions, when they had the opportunity to apply their knowledge to new contexts and to solve problems or answer questions, while interacting with peers and educators, ideally during a “hands-on” experience. Students identified individual written-based assessment tasks, in preference to creation-based group assignments, as best for promoting meaningful learning, as they had the opportunity to apply and extend their knowledge. The findings of this research provide a framework for educators to increase or optimise the opportunities for students to engage in, and provide evidence of, meaningful learning in their courses.

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