

Students Create Video Tutorials for their Peers in Discipline-Oriented Classes: Implementation Guide

Anne-Laure Simonelli, Jonathan Soulé, Gaute Velle, Sigrunn Eliassen,
Vigdis Vandvik

Biology education aims to teach students key concepts about living organisms, as well as cross-disciplinary transferable competences, skills and practice. The learning that takes place during lab and field courses allows students to develop and refine key practical skills (Hofstein and Lunetta, 2003; Rahman and Spafford, 2009; Smith, 2004). Learning through practice is important in terms of student experience (Orion and Hofstein, 1991) and in fostering professional and collaborative relationships between students and instructors (Hart et al., 2011). Lab- and field courses are intensive and costly. Underprepared students do not learn as much as they could from lab- and field courses (e.g., Hill and Woodland, 2002). Students' preparedness to practical courses is thus of the highest importance so that instructors do not spend time on undue explanations.

Videos are central to the student learning experience in the current generation of Massive Open Online Courses, MOOCs. Goodenough et al. (2013) found that making high-quality videos, both conceptual and instructional, through student-educator collaboration, was not only possible, but also benefitted students making the videos and subsequent cohorts who use them. Since 2016, we have implemented an innovative pedagogical activity, Teach2Learn (TE2LE) within various courses at the Department of Biological Sciences, University of Bergen and at the University Centre in Svalbard, UNIS (Norway). Students create video tutorials for their peers on various topics, such as lab-, field- and numerical methods, to foster learning within that specific topic and strengthen transferable skills, such as communication, cooperation, time management, creativity and didactics. The instructional video tutorials, which are made publically available (<https://teach2learn.w.uib.no/>), represent a digital resource for educators to prepare subsequent students to key lab- and fieldwork techniques.

This teaching and learning strategy is multidisciplinary with relevance for a range of subjects (e.g. toxicology, organismal biology, genetics, statistics, ecology and ocean science). We present and discuss the development and implementation of TE2LE at the bachelor and master level in biology education. We also provide guidance for implementing such activities in different classes in higher education's discipline programs.