

A Model for Implementing Learner-Generated Filmmaking into Undergraduate Teaching and Assessment

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Abstract: This article describes a model and online resources for including learner-generated videos as part of an assessment portfolio, and a suggested schedule for a week-long filmmaking workshop. The rationale behind the guide was to enable teaching staff with limited filmmaking experience to embed a novel, authentic, and enjoyable assessment activity into their programmes which can allow learners to combine academic research with a variety of transferable skills; such as communication, collaboration and digital literacy. Ideas presented could be implemented within a variety of degree programmes at minimal financial cost.

Keywords: authentic assessment, students as producers, group work, peer learning, learner-generated digital media, creative learning activities

Introduction

Creativity in education is hailed to be instrumental in enhancing student learning (Robinson 2011). As the top tier of Bloom's taxonomy (Krathwohl 2002), creation demonstrates deep learning of concepts, and allows students to use skills that are not often explicitly utilised in STEM (Science, Technology, Engineering and Maths) subjects. While STEM professionals may not use creativity in the same way as artists, they are frequently creative when solving analytical problems and/or designing new research methods. Use of creativity in STEM subjects supports better learning retention in students, to boosted teacher fulfilment (e.g. Henriksen, 2014; Pollard *et al.* 2018), but the formal recognition of creativity in science curricula is often overlooked (Cropley 2015). Learner-generated videos (LGVs) align closely with critical elements of authentic assessment, including collaboration and digital upskilling (Ashford-Rowe *et al.* 2014; Nieminen *et al.* 2022), and can provide greater opportunities for students to demonstrate their academic capabilities through use of creative media (Willmott 2015). Production of LGVs can: heighten positive emotions and increase motivation in learners (Pirhonen & Rasi 2017); encourage deep (Mavroudi & Jöns 2011) and active (Greene & Crespi 2012) learning; and develop greater autonomy in learners as they manage their own projects whilst developing skills that increase their employability (Bramhall, Radley & Metcalf 2008). LGVs are part of a taxonomy of learner-generated digital media (LGDM) assignments that offer learners a range of conceptual, functional, and audio-visual skills (Reyna *et al.* 2017).

At the University of Bristol, students studying Biology, Zoology and Plant Science degrees (BSc and MSci) choose one week-long field- or laboratory-based workshop to attend as part of their third year of study. We offered "Communicating Science Through Filmmaking" as a new option within this mandatory 'Field Course or Laboratory Workshop' unit. During the workshop, students (N=20) worked in groups of three or four to produce a 5-minute film on one topic from a staff-

generated shortlist. Alongside in-person training provided by the instructors, students were also given access to “[A concise guide to filmmaking: for students & teachers.](#)” With the aid of this guide, students were able to successfully produce a short film within one week. Details of the workshop schedule, student training and the assessment portfolio, are outlined below.

Before the Course

Students attended a pre-workshop briefing session where the intended learning outcomes were presented, and general practicalities were discussed. During the session, students self-allocated into groups according to topic preference [in subsequent years students were contacted before the briefing session and asked to identify their topic preference via an online form, this change was made so that any pre-existing friendships would not influence topic selection].

Students were provided with several film titles on various biological topics such as “*Will coral bleaching finally wipe out the Great Barrier Reef?*”, “*Where have all the bees gone?*” and “*What will be the impact of Brexit on food production in the UK?*”. Each group was required to pick one topic title and use this as the basis for their film. Topic titles vary year-on-year in order to capture the current narrative surrounding biological sciences (e.g. plastic waste in the ocean).

Students then had several weeks to independently research material related to their topic prior to the workshop. With adequate signposting to relevant literature, this pre-workshop research time could easily be reduced to days rather than weeks. Students needed to complete a formative (practice) assessment 30-second video about themselves which would be presented to the group on the first day of the course. The aim of this activity was to give students a specific opportunity to familiarise themselves with filming as well as the editing process prior to the workshop. This activity also allowed teaching staff to provide instantaneous oral feedback to students and ensured that all students had an opportunity to use the chosen software prior to the course. This was important as some students may have had more prior experience using other video editing software than others. Students had access to a 30-day free trial version of Camtasia 9 (Techsmith, Michigan, US) and our online guide to filmmaking (see Introduction).

The 5-day Workshop

Day 1 of the workshop contained training from staff (N=3) about different filming techniques, the purposes of films, storyboard creation and the importance of gaining consent (individual and location) prior to filming (Table 1). The rigorous structure on day 1 afforded students with greater flexibility on how they chose to use their time across the remainder of the week. As the week progressed, activities became increasingly student-led as they worked collaboratively in their groups. Some equipment (green screens, tripods, mobile phone mounts, and lapel microphones) was purchased using internal school budgets for students to use during the workshop. However, these *optional* extras are not essential for mobile-phone-based the LGV projects described here. Camtasia 9 licences were purchased and the software was installed on school laptops; one laptop was provided to each group video editing. If a school lacks financial resources to provide these licences alternative free-to-use software are presented in the aforementioned guide as well as additional online resources (e.g. www.edutopia.org/blog/film-festival-classroom-filmmaking-resources).

Table 1. Timetable of activities in filmmaking course. Although not listed, a suitable amount of time breaks was factored into each day. The BBC producer was an alumnus of the University.

Day	Duration	Activity	Mode of teaching/learning
Monday	30 min	Welcome/introduction	Instructor-led
	30 min	Showcasing 30s films	Instructor-led
	40 min	Exploring different filming techniques	Instructor-led
	15 min	Consent of participants	Instructor-led
	60 min	Group discussion, amalgamate research into a mind map	Student-led
	30 min	Storyboard training	Instructor-led
	3.5 hrs	Create storyboards in groups	Student-led
	30 min	Peer review of storyboards	Student-led
	60 min	Review feedback, amend storyboards and make plans for week, complete risk assessments	Student-led
	1.5 hrs	Social activity: pizza & film for community building	
Tuesday	60 min	Staff (N=3) provide marks and feedback to each group on storyboards	Instructor-led
	7 hrs	Time for filming/editing	Student-led
	1 hr +	Social/careers activity: evening talk and Q&A with a professional filmmaker (BBC producer)	
Wednesday	All day	Time for filming/editing	Student-led
Thursday	All day	Time for filming/editing	Student-led
Friday	Morning	Time for filming/editing	Student-led
	12 pm	Deadline for film submission	Instructor-led
		Outline of remaining individual assessments (Table 2)	
	2 hrs	Social activity: group lunch Film screening & awards (with informal judging from guest BBC producer)	

Assessment

Following the workshop, students completed additional individual (non-film-based) assessments designed to allow them to showcase their academic knowledge and cognitive ability free from both the constraints of working in a team and the short time limit of the film. This consisted of a written literature review and subsequent discussion of their film topic (Table 2) [in later years, this was condensed into a single “literature review”]. Students had prior experience of these modes of assessment from other units and were encouraged to utilise the feedback they had acquired from these.

Table 2. Unit assessments and breakdown of marks.

Work assessed:	Percentage:	Assessment criteria:
Project Report	20 25 15	Literature review (individual mark) Film (group mark) Discussion (individual mark)
Continuous assessment	10 5 25	Storyboard (group mark) Peer review (individual mark) Reflective critique (individual mark)

In addition to these more traditional assessment components, students were asked to complete a guided reflective critique on their experiences of the week. This was designed to promote reflection in readiness for future careers, a method which is believed to contribute to active and lifelong learning as well as personal development (e.g. Zubizarreta 2009). The reflective critique consisted of the following sections:

1. Which part(s) of the field course have been particularly valuable to you and why?;
2. Describe both you and your group's ability to adapt to the needs to the team, i.e., take initiative, lead, delegate, stand-back, negotiate etc.;
3. What aspects of your digital capabilities have you developed over the field course?;
4. What aspects of your communication skills have you developed over the field course? (Think about both the creation and presenting your film for a wider audience and the communication within your group);
5. Outline a problem your group had during the field course and how you over came this.

Students were asked to peer review another group's film using the marking criteria with the aim of developing students' own critical evaluation skills. It was hoped that if students became more adept at evaluating each other's work, they could then apply the same skillset to their own work in the future prior to submission (both during and after their degree programmes).

Here we present a practical framework for implementing LGVs as a student assessment within an undergraduate degree programme. While the workshop was hosted in-person, it could operate in an online format, especially when considering the availability of stock footage and the possibilities of animation. Wakefield *et al.* (2022) report that students found LGDM projects [podcasts] authentic, enjoyable, and motivating regardless of whether they were conducted in-person or online [student experiences from this study will be reported in a separate mixed-methods research paper]. If necessitated by timetabling constraints, the instructor-led materials presented on day 1 (Table 1) could be reconfigured as asynchronous resources for students to use within a flipped classroom approach to LGVs, with active learning elements spread across several consecutive weeks of a course. We hope that our model and additional resources will enable practitioners to embed authentic LGV assessments into a range of different disciplines (it is only the topic titles that are specific to biology), enriching both the student and instructor experience.

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