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Abstract

This lesson plan uses Harlan Ellison’s “Repent, Harlequin! Said the Ticktockman” as part of an interdisciplinary first-year curriculum linking perspectives from the humanities with engineering design. Students participated in a “mock trial” based on two characters from the story as a way to reflect on good teamwork, the value of creativity, and on the nature of the engineering profession. Both Ellison’s story and the lesson explore the benefits of taking a “STEAM” perspective that integrates the precision and timeliness needed in engineering (represented by the Ticktockman) with the flexibility and creativity inspired by the humanities (represented by Harlequin).

Keywords

literature, science fiction, STEAM

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Trial By STEAM: A Lesson Plan for Using “Repent, Harlequin!” in the STEAM Classroom

Olivia Burgess

The lesson plan included here was developed for a first-year honors course at the Colorado School of Mines called Innovation and Discovery in Engineering, Arts, & Sciences (IDEAS). This course merges engineering design, writing, ethics, and the arts to create an intensive two-semester experience for highly driven freshman STEM students. I was part of a six-person team of three humanities faculty and three engineering faculty who designed and taught the course between 2016-2018. We taught in teaching pairs in classrooms of thirty students each. Each instructor was responsible for helping to develop lessons tied to their expertise that all instructors would then deliver. In addition to contributing expertise on writing and ethics, I also introduced several works of science fiction into the curriculum to offer students a different lens for reflecting on both the engineering discipline and the social and ethical impacts of technological designs.

Science fiction is especially suited to promote a STEAM approach. In *Teaching Science Fiction*, editors Andy Sawyer and Peter Wright (2011) note that science fiction can easily cross disciplinary boundaries, making it suitable well beyond the literature classroom: “Its hybrid nature and the way it emphasizes connections and contrasts between cultures, disciplines and ways of thinking, make it a fitting subject for any syllabus committed to assisting the social and intellectual transformation of its students” (18). Mitch Cox (1990) argues that sci-fi enhances the “ability to think critically and creatively and to make connections among disciplines” (35). This “hybrid nature” of the genre makes it a natural choice for complementing STEM with the arts. As Kirby Mania, Linda Kathleen Mabin, and Jessica Liebenberg (2017) explain in “‘To go boldly’: teaching science fiction to first-year engineering students in a South African context”: “The students often

endorse the belief that the arts and social sciences have no place in their curriculum,” but their use of science fiction helped them overcome this (2).

Harlan Ellison’s (1965/1997) science fiction story “Repent, Harlequin! Said the Ticktockman” presents excellent opportunities to reflect on the engineering discipline and skills such as creative thinking and teamwork. Those are not the typical themes for this story I would address in a literature classroom. However, the cross-disciplinary nature of science fiction and the context of an interdisciplinary classroom inspired a new application of the story tailored to the unique interests of STEM students working on engineering projects. In the dystopian future of the story, everyone lives by an uncompromising time schedule that is oppressively managed by the Ticktockman. Ignoring the schedule, showing up late, and committing other “crimes” against the schedule lead to death. An ordinary citizen named Everett C. Marm disguises himself as Harlequin and looks for ways to disrupt the system, such as distracting factory workers with a deluge of jellybeans.

The battle between Ticktockman and Harlequin represents essential questions about how schedules and time run our lives, sometimes at the expense of our lives. It is a conflict that applies to the engineering profession, where timelines are vital but blindly pursuing a deadline may mean sacrificing careful decision making and better design options. The story is also fitting for a STEAM-oriented classroom like IDEAS, where students were expected to conform to rigid and demanding project deadlines while also being encouraged to be creative, think outside the box, and question assumptions. Reading “Repent Harlequin” in this context can highlight the spirit of STEAM and the desire to find a balance between seemingly opposed perspectives.

The “mock trial” lesson plan I present here was intended to stimulate conversations about teamwork, the pressures of time in project management, and finding balance between efficiency

(as represented by Ticktockman) and creativity (as represented by Harlequin). I challenged students to imagine Ticktockman and Harlequin as their peers on a group project and the advantages and disadvantages each would bring. By the end of the lesson, students found themselves seeing value in both the structure of deadlines and time and the wiggle room needed for spontaneity and creativity.

LESSON PLAN FOR “TRIAL BY STEAM: TICKTOCKMAN V. HARLEQUIN”

Prior to class, gather the following materials:

- Decide how to assign roles. You may bring a bowl or bag with the role assignments on strips of paper for students to randomly draw, or you may assign roles beforehand. Suggestion: 1 judge, 12 jury, 3 council for Tock, 3 council for Quin, the remainder as “the public” (or mix up the assignments as you see fit).
- As an optional prompt, bring a bag of jelly beans. This may promote a small or large amount of chaos and jelly bean throwing, but that does fit the spirit of the story.

Prior to class, have students read the story and complete the following homework:

- Write a 1 paragraph defense of Harlequin as the “ideal” teammate and explain why.
- Then, write a 1 paragraph defense of Ticktockman as the “ideal” teammate and explain why.

Classroom Procedure for “Ticktockman V. Harlequin”

When the instructor arrives: Arrange the classroom for “trial.” Assign roles, either randomly with the strips of paper or, if you prefer, assign students to roles beforehand.

Instructors: Read the following out loud to students:

Imagine Ticktockman and Harlequin (aka Tock and Quin) are members of our class. After disputes over their teamwork during a course project, we are now holding a trial that will explore what constitutes both good teamwork and good engineering work. Apply each character's personality and values from the story to this scenario to imagine what type of student they would be. You will rule on how each should be evaluated for their teamwork portion of the course.

Ticktockman is accusing Harlequin of being a poor team player, disrespectful of Time and other people's schedules, and a general nuisance. Tock believes his dedicated attention to scheduling, following rules, and managing the team warrants an A in the course, but Quin has put that in jeopardy with his constant lateness to team meetings, his desire to always question team decisions, and his annoying desire to be "more creative."

Quin defends his actions in supporting the larger goals of the course and points out that creativity in engineering sometimes calls for thinking beyond constraints and outside the box. He doesn't mean to disrespect his classmates, but he often gets caught up exploring the endless possibilities of the team project and wanting to make it "different." It's not about a grade, he claims, but designing the best possible solution to a problem, even if that means missing a deadline.

Overview of the roles involved in the "mock trial" (explain the roles to students):

The judge abides by an ethical code to never let his/her bias affect his/her judgement. The judge oversees the trial process and should at no point express his/her personal opinion on the case. The judge reserves the right to throw jelly beans at offenders of the court. After hearing the jury's verdict, the judge may then express his/her reflections on the case and its outcomes. The judge

may intervene if the jury is not meeting their duty to equally weight the interests of both Tock and Quin.

The council must be utterly and completely supportive of their client's best interests. They should provide sound, compelling reasons for their client's case no matter what they themselves personally believe. Council may not interrupt jury deliberations, but they must be prepared to answer any follow up questions the jury may have.

The public can have strong opinions either way. They can be surveyed and/or questioned by the judge or jury at any point for additional input and perspectives, but otherwise they should not interrupt or disrupt the proceedings of the course. They may raise their hands, but it is up to the discretion of the judge, council, or jury to call on them.

The jury will play a key role in this activity. After hearing the points laid out by council, they will convene in the middle of the class for deliberations. They are expected to treat the case ethically by carefully weighing each side. The jury will decide which grade to give both Ticktockman and Harlequin. The jury is free to ask follow up questions to the council and to poll, question, or discuss the case with the public.

Below are suggested guidelines for delivering the lesson:

5 minutes: pre-trial prep

Council is given prep time to prepare a brief “opening argument” and points in defense of their client. The public may confer about their own opinions during this time. Judge watches time and calls trial to order at the end of 5 minutes. Jury must remain quiet.

10 minutes: opening statements

Trial begins with council for Ticktockman given up to 5 minutes to defend their client and make their case. Council for Harlequin then gets 5 minutes to defend their client. Judge is responsible for keeping time, including either approving or denying requests from council for rebuttals and/or additional time.

Between 15-20 minutes: jury deliberation

Jury convenes in the middle of the classroom so that everyone can easily watch and hear the discussion. Let the jury work this out here in terms of how they manage this. They must arrive at a final ruling (a Grade) for both Tock and Quin with justification.

Before class ends: The jury delivers their final verdict and the judge can offer his/her final reflections. Class discussion can continue if there is time, or continue on the next class day or via a written reflection.

Possible discussion questions:

- Is the verdict just? Why or why not?
- Who would you rather have on your team--Tock or Quin? Defend your choice.

- How does integrating arts into engineering education change your perspective on designing possible solutions to engineering problems? Do you think engineering education is improved by courses that try to make you think more creatively and more abstractly?
- What is the engineering profession like? Is it driven more by time/efficiency or creativity? What should the balance be and how might you achieve it both in this course and beyond?
- What do you think our larger American culture values more--a Ticktockman mindset or a Harlequin mindset? Provide some examples.

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