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Culture, science and music in the theatre of education

I was motivated to write this note after reading ‘Taking science to the public’¹. This correspondence documents work in progress and hopefully serves as one more attempt to address science communication in the theatre of education.

I was struck by the amount of casual conversation in our culture dominated by inaccurate references (by scientific standards) and analogies from cinema (arguably theatre) and music. These ‘non scientific’ references seemed to raise a twinkle in students, particularly when I attempted to draw a serious scientific analogy drawn from a stream of thought (discipline or branch) to a hard concept in a given stream of thought (discipline or branch) in class or during personal or group conversations since 2006. The audience during these conversations composed a large variety, from high school students to freshmen, sophomore, juniors, seniors and graduate students. A casual remark (over coffee) to a few colleagues suggesting that actors play the role (of faculty) with scripts (scientific concepts by scientists and/or faculty) may elicit a favourable response drew an expression that could be called ‘serious disagreement’. I set to test this tenet more seriously.

The early experiments in the theatre of education involved asking students to do one (of four) problem set in the form of a skit in class or using a piece of music as one of the solution methods, as an option. This drew a small crowd to enquire about the approach. Sufficiently armed with the knowledge of full credit (marks) for trying, with a technical report if the team felt they did poorly (backup), 6–10% of a given class took this route. The attempts were amateur by standards of theatre and its serious demands were remarkable for the originality. Communication in English was a problem in these attempts. This was overlooked (for

credit) but addressed as room for improvement (in private). The feedback from the peers in class was usually positive in terms of audience participation that involved mocking, laughter and applause, quantities that indicated healthy conversation. I do distinctly remember a group of four that bravely attempted a poem amidst trying audience participation (boos and jeers).

A *Youtube* video was filmed and displayed by students with script from faculty and another in-class poster session made its way to *Youtube*. A more recent search on *Youtube* and *Google* failed to find these.

While these early experiments might convey progress, they failed in the tenet that science (and its concepts) was communicated using theatre or video. I sought avenues armed with experience.

A casual conversation with a friend on social media led to an experiment with one assignment (of four) required with one quote on social media platform of the student’s choice in English. The students were encouraged to seek help from peers and friends for the quote. This highlighted the problem of communication in English and the confidence level on a public social media platform. This first social media attempt ‘failed’ in science communication.

A more ‘serious’ approach on social media ran documenting a paragraph and/or 100 characters for each lecture in class for 2 years. These served to remind the class on the date, time, location and content of each in-class lecture. The lecture was supplemented by a discussion (on a discussion board) and information technology tools² to assess learning outcomes. Full credit was assigned while using the information technology tools with a criterion to try till the student got the answer ‘right’. ‘Quantified’ response improvement by the use of these tools

was very low over a more traditional lecture-based assessment method, measured using data with me since 2006. These experiments continue with music (and more), sacrificing attempts at rigorous quantification.

I have deliberately decided to write this note without quantification. Doing this rigorously would require more efforts^{3,4}. I have experienced many attempts to communicate science as an active audience, as described in ref. 5. I think the approaches^{5,6} and arguments^{6,7} in communicating science are useful to think in the context of our culture¹. It is clear to me that media has a role to play and perhaps there is more serious work required^{1,5-7} in conveying science to the public. This may not happen, in my opinion, till we engage our students more in the theatre of education and get it right, perhaps using music, theatre and more.

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