Art of Learning and Discovering Science through Science Theater

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The lives and vibes of scientists are hardly being felt in classrooms or lecture halls these days. History of science, if unadulterated, allows us to glimpse, to identify and to interpret, which events were responsible for the now accepted scientific theories, the obstacles that resisted their acceptance and the social context, in which their development took place. Scientists at the nexus of experiments and discoveries had often witnessed events, never before observed or experienced by general public and new learners. Many of these finding could still be hidden in personal diaries and correspondence letters. Not surprising, there is growing trend in adopting ideas and metaphors from science into performing arts, such as theatre. Theatre is widely used for communicating scientific concepts or impacts in didactic sense, gaining popularity for promoting public understanding of science among younger learners, non/semi-science literate audience at venues such as schools, public libraries, science centres, museums and advanced research facilities. Theatres can also draw contents from the scientific universe to create drama, while maintaining its own features as an artistic expression and aesthetic characteristics. This study reports the learning story of a group of students in 2nd year Statistical Physics course, who were assigned to write, produce and stage a theatre - ATOMYSTIC, which is based on the atomistic views of physical systems championed by Ludwig Boltzmann (1844-1906), amidst the fierce debate on the existence and necessity of the concept of atoms in describing the working of Nature. As part of soft skill assessment tool, the theatre serves as a non-formal/informal learning opportunity to enhance appreciation of discovery processes in science and to empower students to acquire transferable skills through team-learning activities. The students were asked to keep their non-formal learning portfolio and to rate their own learning experiences. They were encouraged to think of collective and altruistic goal – to stage a successful theatre and then be judged by audience responses. The theatre production quality and the performance are assessed based on the degree of audience engagement and concentration, learning and challenges, energy and tension, shared experience and atmosphere, personal resonance and emotional concentration, adopted from the UK's Theatre Management Association handbook on Audience Experience Framework. A model for open-ended assessment of non-formal learning is then proposed for transferable skills enrichment programme for students.

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