15. Efficacy of Using Drama Techniques for Science Communication

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Abstract. This paper will focus on the use of Drama Techniques as a provocative and engaging methodology in creating background for efficient science communication and discuss its usage in the classroom, training environment, and the community. The paper will also explore how this unique educational tool can facilitate personal growth, raise consciousness, and initiate behavioral change. The components of the techniques and examples of effective use will also be discussed.

Keywords: Drama techniques, Science communication, Russia

Introduction

Though Drama Techniques are quite developed in the world they nevertheless are misunderstood in the country of prosperous theatre (Russia). Mostly they are regarded as the process of acting and role playing. But they are more than that.

Another obstacle here in Russia is considering communication among scientific societies to be more important than the relationship of science to the broader public. The Education Ministry (pre-school, primary, secondary, college education) is expected to fulfill the role of connecting the public to science. At the same time there is a tendency to desystematize the traditional way of educating which peaked in quality 20 years ago and then brain washing and anarchy in the wake of the USSR fall and now new reforms seeding chaos, disrespect and consumerism in impressionable youth.

In addition, TV broadcasting, computer games and the internet are forming a new rhythm of information perception - impulsive, based on bright, quickly changing elements. New educational tools are required to meet the demands of the generation to follow which finds no use in some science subjects at school.

As we see here, Russian traditional education is almost extinct, while the new one is still developing, and at this stage it is quite urgent to discuss the efficacy of science communication which cannot exist without the proper educational background.

Drama Techniques are about working with rhythm, ways of appealing to participants and carrying them away into reflection, communication, thus improving them in different aspects.

Efficacy of science communication is rooted in circumstances shaped, modeled and organized by drama techniques:

A positive mood influenced by drama techniques can boost one's positive acceptance of science communication.

Through its spontaneity and emotional intensity, Drama Techniques can focus attention, heighten awareness of scientific knowledge importance. Well-scripted curricula with emphasis on practical applied science might boost students' interest in details, profound learning and participating in science communication.

Gradual encouragement will boost students' confidence in ability to understand complicated scientific material.

Methodology

Population and participants

The study was conducted at the Udmurt State University with students of historical, philological and journalistic faculties. The population sample included 200 students learning English. The students who participated in the pilot study were not science-communication-oriented. By exploring Drama Techniques in teaching English to draw students into the world of science, a positive outlet for science communication was provided.

Instrumentation

This qualitative study evolved through the collection of the students' responses to the nine-month inclusion of the Drama Techniques for an efficient science communication program by examining the students' writing samples, formulating for pre- and post-interviews and making observations.

General Assumptions Regarding the Drama Technique for Efficient Science

Communication

1. Initially, the students will pull away from learning science as an academic subject which puts them in a negative mood, but as a part of an English class in which they are interested, learning English as means of International communication, including communication dealing with science.
2. Some of the class days will be extremely emotionally charged, due to the peculiarity of the program appealing to the nature of most humanitarian students.
3. Due to the transient nature of the university and placements into the program, there will be some changes in the room's makeup during the period of time in which the study takes place to plunge them into some "scientific realities" (observatories, labs, museums…).
4. Students will enjoy the dramatic games and exercises included in the curriculum starting a new stage in science communication.

Provocative and engaging methodology

Drama Techniques might be characterized as a provoking and engaging methodology to appeal to participants and carry them away into reflection, communication, thus improving publics, and students particularly, in different aspects.

Generalizing we may define several strategies to make a well-script of the class:

- warming up with guessing, pre-quiz, wordsplash, free associations, evocative quotation, photo, movement, sound, scenario or song dealing with the topic of the lesson (most of them are aimed on the one hand to provoke them to think, get involved into activities, focus on the theme, on the other hand they help to understand any misconceptions or preconceptions that the students may have about the subject to plan further work more efficiently):
- breaking barriers with physical touching, whispering, leveling… games;
- increasing self-confidence stimulating to communication with compliment training, assuring games, support activities, recalling personal successes, unique skills, loving relationships, positive momentum;
- opening mind to hear more, learn more, analyze more with activating extra-listening skills, introducing word- games (anagrams, paronomasia…) dealing with the themes.

Creating background for efficient science communication

First of all, what is science communication? Generally, it involves some discussion of science with non- scientists, but those who make it are not necessarily scientists; they can have different backgrounds, so the term is usually applied to more 'public-facing' work.

Why do we need science communication? Writing in 1987, Geoffery Thomas and John Durant describe the various reasons for increased Public Understanding of Science as follows:

- Benefits to Science–This is the 'to know is to love' argument, and perhaps mixes up the word 'understanding' with 'appreciation'. It suggests that increased PUS will lead to more funding, looser regulation and more trained scientists.
- Benefits to National Economics–This argues that to compete economically we need trained scientists and engineers, which more PUS will provide.
- Benefits to Individuals–This is based on the sense that we live in a technological society, and assumes that we must know some science to negotiate it (e.g. knowing about surface tension helps us kill spiders).
- Benefits to Democratic Government & Society as a Whole–This train of thought emphasises that a scientifically informed electorate equals a more democratically run society.
- Intellectual, Aesthetic, and Moral Benefits–These arguments assume science is good for the soul in some way and increased PUS will lead to a populous of happier and more fulfilled individuals, perhaps equating science with the arts or religion.[1] But at the same time, writing in 1952, I. Bernard Cohen points out a set of 'fallacies' in arguments for improved science education:
- Fallacy of Scientific Idolatry–'believing scientists to be lay saints, priests of truth, and superior beings who devote their lives to the selfless pursuit of higher things'.
- Fallacy of Critical Thinking–understanding science does not necessarily give you this transferable skill, as 'may easily be demonstrated by examining carefully the lives of scientists outside of the laboratory'.
- Fallacy of Scientism–science is not the best or only way to solve problems.

- Fallacy of Miscellaneous Information–'the belief in the usefulness of unrelated information such as the boiling point of water, the distance in light years from the earth to various stars, the names of minerals'.[2]

The process of popularization is a form of boundary work to benefit without fallacy.

In the US, Jon Miller differentiates between identifiable 'attentive' or 'interested' publics (i.e. science's fans) and those who do not care much about science and technology. Working in a particular surrounding we have to see one's publics have the following four attributes of scientific literacy:

- Knowledge of basic textbook scientific factual knowledge.
- An understanding of scientific method.
- Appreciated the positive outcomes of science and technology
- Rejected superstitious beliefs such as astrology or numerology.

Answering these questions we may find the ways to reach efficient science communication.

But what is efficient science communication?

There are five main components which are implied meaning efficient science communication:

- Dialogue
- Engagement
- Respect for audience and context
- Science and how it matters to society
- Scientists as key actors

Drama techniques are the tools encouraging, catalyzing and facilitating the process of starting and maintaining dialogue making people engaged and respectful for the audience. That's the beginning to the following question we refer to.

Ways of creating background for efficient science communication.

"In this fast-forward world, nothing is more critical than how and what you communicate…"–Dr. Denis Waitley, author of "The Psychology of Winning"

In our case both (how - efficiently, what – science) are beyond criticism. The subjected is the way of creating background for efficient communication, particularly – Drama Techniques. The stage is educational institution, classes of English. Unfortunately, a lot of students in Russia distaste learning science as an academic subject, it puts them in a negative mood. But what if we engage them into a science dialogue as a part of an English class in which they are interested. Through its spontaneity and emotional intensity, Drama Techniques can focus attention, heighten awareness of scientific knowledge importance. Well-scripted curricula with emphasis on practical applied science might boost students' interest in details, profound learning and participating in science communication.

Gradual encouragement will boost students' confidence in ability to understand complicated scientific material.

Results of the Study

Most students have got engaged in science communication by reading more about science, demonstrating a high level of readiness for science communication. There are some more particular facts illustrating the growing of their interest in science communication.

Some students from Journalistic Faculty have got interested in writing articles about science. Some students of historical faculty have decided to participate in the intellectual game "What? Where? When?" challenging them to learn more in the world of science. Some of the philologists have made a scientific project for the local library to embrace more people into the world of science communication.

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