

PRACTICAL DEMONSTRATIONS OF ATMOSPHERIC CHEMISTRY IN SCHOOLS IN THE WESTERN CAPE REGION OF SOUTH AFRICA

Suthananda N. Sunassee,^a Ryan M. Young,^a Joyce D. Sewry,^a Timothy G. Harrison^b and Dudley E. Shallcross^b



^a Department of Chemistry, Rhodes University, Grahamstown 6140, South Africa

^b Bristol ChemLabS, School of Chemistry, University of Bristol, UK



Abstract

'A Pollutant's Tale' involves various practical demonstrations using liquid nitrogen, dry ice and other chemicals to create visual effects in order to make this lecture-demonstration not only informative but also fun and exciting for school learners. The study presented in this poster was carried out in primary and secondary schools in both previously advantaged and disadvantaged areas in the Western Cape province of South Africa where we investigated the learners' attitudes towards Science after watching the demonstration and the impact of 'A Pollutant's Tale' on the learning of science concepts of the learners.



Introduction

In accordance with the requirements for the National Curriculum Statement for both Life Sciences and Physical Sciences and the importance of community engagement in Higher Education in South Africa, this study described the impact of the demonstration 'A Pollutant's Tale', designed to inform school learners about climate change.

'A Pollutant's Tale' was demonstrated to a total of 981 school learners and 25 educators from both previously advantaged and disadvantaged areas of the Western Cape province of South Africa. Both learners and educators were asked to answer their respective questionnaires after the demonstration.

The APT demonstration covers the following aspects:

- A description of the earth's atmosphere.
- The gases that make up the earth's atmosphere.
- The chemical and physical properties of these gases, e.g. nitrogen, oxygen and carbon dioxide.
- Air pollutants such as carbon dioxide, nitrogen dioxide and volatile organic compounds.
- The role and effect of these various gases on climate change.

Selected learner's responses are listed below

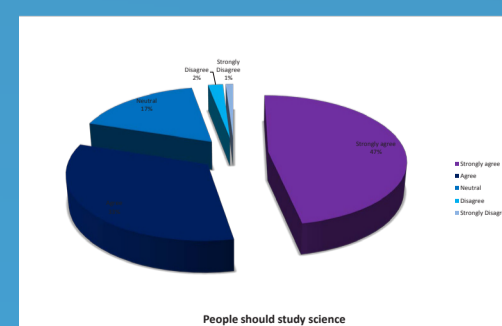
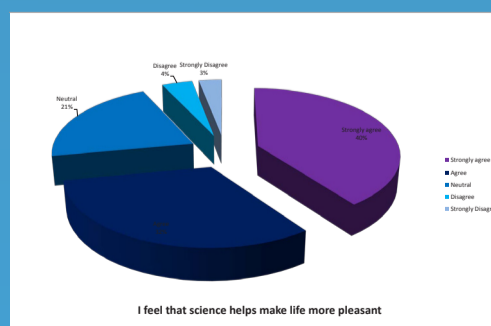
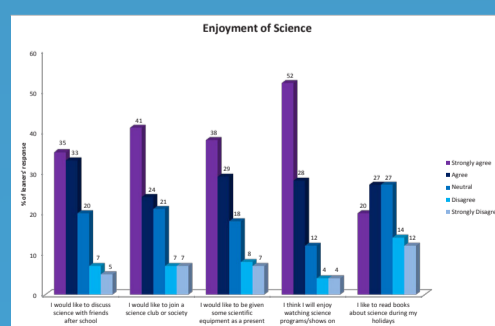
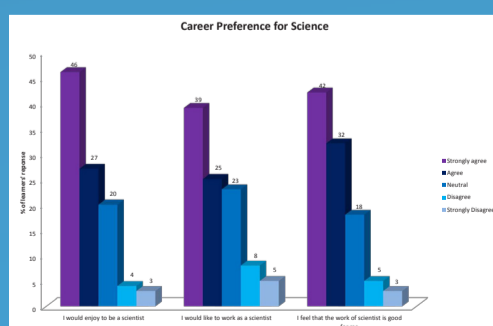
- 'Science Gives you a lot of knowledge about life its explains and give reasons to everything around us [sic]' (Secondary)
- 'Science is fun and in the same way interesting too. I like science because it teaches me a lot and expands my knowledge and wisdom of the world I live in' (Secondary)
- 'That Sciences is the key to our survival on earth [sic]' (Secondary)
- 'That is great to see how other people show you how it work [sic] and it is very exciting to do it. Science is not difficult it is great.' (primary)
- 'It is pleasant. I would like to be a scientist' (primary)
- 'I would love to lirn [sic] more about science because it is very interesting and it help [sic] you to take good care of our planet earth'

Some quotes from educators on the advantages are listed below

- 'Just the fact that they move to a different environment make [sic] them curious, excited. The demonstrations were very interesting.'
- 'Learner excitement of travel to a new environment. Exposure to a university which has a motivational effect'
- 'Gives a learner the chance to get firsthand experiences – give a glimpse of the world of science – especially much of our learners – disadvantage society [sic]'
- 'Learners gain knowledge better. Learning outside the normal classroom is always good and learn better by experiencing and seeing these. Engage learners.
 - They are definitely more interested. Stay with them a long time. Weaker learners also gain knowledge and take part.'



Learners' perceptions of Science after 'A Pollutants Tale'



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