UNIVERSITY OF JOHANNESBURG

Epistemological understanding of science communication

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Introduction to the argument

A need exist for the development of a conceptual and theoretical foundation for science communication in South Africa that could serve as a foundation to intellectually inform rigorous academic research within Universities and research institutions.

Crucial requirements:

1. Evaluate:

- Policy (vision and mission) of governmental bodies involved with the promotion of science communication and its protégée public understanding of science (PUS).

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- Process (implementation) and dissemination of survey results by governmental bodies.

2. Differentiate:

- Intellectual ‘understanding’ of science by the publics and the ‘knowledge’ of science impaired by the scientists.

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- The ‘attitude’ of the publics towards science is as important to consider as the ‘understanding’ of science by the same publics.

3. Bridge the gap created by;

- perceptions created by government (macro perspectives).

- the micro narratives embedded within the South African publics (the ‘unknown aspect of IKS).

Social Epistemology:
the study of knowledge

- Descriptively: strives to clarify/confirm whether a social isolate (individual) could have knowledge.

- Normatively: tries to define and study how groups should be organized to be able to produce knowledge most reliably and effectively.

Differentiated academic approaches:

- practical scientific literacy,
- cultural scientific literacy,
- civic scientific literacy:
  - *Developed a vocabulary of basic scientific constructs to read competing views in a newspaper or magazine*
  - *Promoted an understanding of the process or nature of scientific inquiry*
  - *Demanded some level of understanding of the impact of science and technology on individuals and society. (*Millar1983 - Daedalus article).

Recently introduced ideas:

- the image of scientists – their work, endeavors, social role, etc.
- and the public's interest in science. (Daniele Gouthier)

- There are publics that constantly exchange scientific information without being explicitly aware of it and without directly interacting with the scientific world.
- Science publics consist of individuals who not only receive information on science but also give/provide information to science.
- Science communication bears a distinctive cultural value that construes a science as well. (Brian Wynne and Alan Irvin)

Call for a bigger role by philosophers:

- Science and philosophy are joined arch enemies of religious fundamentalists.
- Philosophy is the original human vehicle for exercising critical thinking and rationality for the solving of problems and the pursuit of knowledge.
- The scientist and the philosopher are central to the idea that nature and natural phenomena is all there is - naturalism. (Massimo Pigliucci).

Communicating science:

- The original aim of exploring the public '*understanding'* of science.
- The notion of the public having an '*attitude'* towards science.
- The conceptual challenge that we never encounter '*public'* as a single entity but that we work with different *'publics'*
- We construct perceptions about science from within different paradigms.

INDIA: scientific temper of Nehru

- People should develop along lines of their own genius and we should avoid imposing anything on them.
- Tribal rights in land and forest should be protected.
- We should try to train and build up a team of our own people to do the work of administration and development.
- We should not over-administer these areas or overwhelm them with a multiplicity of schemes.
- We should judge results not by statistics or the amount of money spent but by the quality of human life that is involved. (PACHAURI, 1983:3).

SOUTH AFRICA: governmental perspective.

Science literacy requires:

- familiarity with the natural world and respecting its unity.
- understanding the key concepts and principles of science.
- knowing that science, engineering and technology are social tools.
- the ability to use science in ways that enhance personal, social, economic and community development.

SOUTH AFRICA- promote public awareness of Science and technology:

- Institutions be identified that can best respond to disseminate S&T information to the public
- The kind of information needed for the public to make informed decisions about technology related issues.
- The media be identified through which S&T information can be made more accessible to the public.
- The structures be established to ensure that the flow of accessible information will actually reach disadvantaged populations, including women and rural populations
- Effective S&T awareness initiatives and campaigns be launched aimed specifically at politicians (operating at national, provincial and local levels), policy-makers and decision-makers in government.

Conclusion

- political implications of science impose restrictions on what kind of knowledge people use/need. (social engineering).
- develop informed awareness of the way politics (governments) to control the conditions under which science is produced and distributed. (South Africa nuclear program).
- the theoretical and conceptual framework of science communication needs continuous revision and attention.

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Thank you