

**Parallel session 2: Main challenges in the coexistence between native
knowledge and modern science**

**KNOWLEDGE FROM EXPERIMENTATION AND KNOWLEDGE
FROM EXPERIENCE**

Josep M. Basart

*Computer Science Department, Engineering School, Universitat Autònoma de
Barcelona, 08193 Bellaterra, Catalonia, Spain. Tel: +34-93-581-2167, Fax:
+34-93-581-3033, E-mail: josepmaria.basart@autonoma.edu*

Abstract

Technoscience can be outlined by means of words like control, efficiency, rules (theories), abstraction, verification, artefacts (devices), description, system or invention. We call this the experimentation frame. Quite different is the non-scientific knowledge acquired through personal involvement in both nature and traditional culture. This kind of knowledge is related to words like adaptation, harmony, commitment, concretion, coherence, tools, sense, community or cultivation. We call this alternative the experience frame.

By well-known reasons, in post-industrial countries the experimentation frame is the prevailing one. From an intercultural outlook, our goal here is to show its influence on the weaker world of experience and to underline the increasing importance of keeping alive this today unbalanced and frail coexistence.

Key Words: Experience, Experimentation, Technoscience.

1. Context

Along the last decades, and as a result of the close links among science, technology and industry a new and very pervasive force has settled its place in the middle of all modern societies. Technoscience is the name we will use for this coalition. Some consequences of the technoscience presence are obvious in almost every activity and practice of human life (business, communications, education, nourishment, medicine, leisure...) Culture, in its broader sense, like social and personal relations are not exceptions to this general rule. It is important to keep in mind that technoscience is not just machines but a many-sided system which also encompasses new ways of economic and political relations together with different schemes of social organization. This system not only shows *what* we can do but also *how* it should be done.

When considering the new and pressing challenges raised by the intercultural dimension of our actual world, it seems to be more than appropriate to elucidate which is the importance of the unavoidable tensions appearing when knowledge is formulated and evaluated among different cultures or traditions

[3, 4]. So, let us now address our attention towards what kind of knowledge technoscience develops and promotes in front of other types of knowledge not suitable to its structural requirements.

2. The experimentation frame

At least since the works on astronomy by the English Franciscan monk Roger Bacon (1214-1292), mathematics and experimentation have been accepted to be the core of the modern scientific approach. Three centuries after Roger Bacon, another Bacon, Sir Francis (1561-1626), announced without hesitation what could be his main lemma: *Scientia et potentia humana in idem coincidunt* (Human knowledge and human power meet in one). Contemporary technoscience appears as the pitch we have reached by developing this lemma neither weakening nor saving efforts. So, now the most praised knowledge is the scientific one, which allows us to dominate and deeply transform nature and matter. In fact, the truth of this knowledge relies on its power. From a formal point of view its validity is founded on both, the coherence with previously accepted knowledge and the possibility of verifying every prediction.

Under the scientific eye everything can be manipulated as an object over which it is possible to carry as much experiments as necessary in order to selecting and quantifying relations and properties considered outstanding. The result of the scientific research is a description of the phenomenon formulated as a set of rules or a theory, system, law or mechanism. Technology applies itself to use this abstract knowledge—in an efficient way—to produce all sorts of goods, artifacts and techniques devoted to increase some specific power or to open up new opportunities.

Perhaps the main characteristic of the technological enterprise is that it cannot conceive a stable position, not to mention a final one. The main principle is to look always ahead, because it is always possible to perform something faster, smaller, bigger, easier, stronger or more sophisticated. The best is just a promise waiting for us somewhere in the future.

3. The experience frame

In the Preface of his book [2] the American social philosopher Lewis Mumford wrote,

“Furthermore, in defiance of contemporary dogma, they [his books] did not regard scientific discovery and technological invention as the sole object of human existence; for I have taken life itself to be the primary phenomenon, and creativity, rather than the ‘conquest of nature’, as the ultimate criterion of man’s biological and cultural success.”

The rationalist approach to knowledge is not the only one, nor is always the fittest everywhere. Other perspectives are and have been alive inside and outside Western culture. By considering the pattern established by modern

science, we find that men and women have created and developed non-scientific ways of knowing where coherence, sense, harmony and adaptation take the role of verification, model, efficiency and control respectively. In these softer choices of knowledge it is common that people pay special attention to aesthetics. Also, they often look for establishing links with some aspects of their social or spiritual life. So, commitment and respect ↓to nature, community or tradition↓ appears where science puts self-explaining theories and systems.

In this frame, cultivation is more relevant than invention. The latter points to something standing outside of the inventor, as a final product of his or her ingenuity. The former expresses growing, a calm but continuous process of learning where someone is at the same time the learner and also part of what is learnt. Artisans, poets and artists are good examples; they labor to create something using what they know by experience, or strive to show in a work of art what they just know by intuition.

4. Final remarks

In many places around the world, the experimentation frame exists side by side with the experience frame. But this proximity does not mean a living together, because this is not a balanced relation. Technoscience is growing every day and its ↓many times undesired↓ effects extend without ceremony everywhere. This powerful expansion often damages, or finally destroys, human practices or activities neither able nor interested in competing against it. It is easy to understand that because of this ruthless behaviour, violence appears in some people or groups as the only possible reply.

Ends and means are equally important; in a harmonious life both should always be rational and reasonable enough [5]. Nevertheless, our main necessities as human beings point to ends, not to means. This signifies that human life ↓in fact, any form of life↓, is quite different from a technical problem. On the one hand technoscience is among us, there is no way back. On the other we have and must take the choice to put it at our service.

Notes

ⁱ Some observations about possible ethical consequences of technological systems can be found in [1].

References

- [1] Basart, J. M. (2004). "Which Ethics Will Survive in Our Technological Society?", *IEEE Technology and Society Magazine*, 23 (1), 36-39.
- [2] Mumford, L. (1970). *The Pentagon of Power (The Myth of the Machine, vol. 2)*, New York: Harcourt Brace Jovanovich, Inc.
- [3] Panikkar, R. (2003). *Pace e disarmo culturale*, Milano: Rizzoli.
- [4] Pannikar, R. (2001). *L'Incontro indispensabile: dialogo delle religioni*, Milano: Jaca Book.

[5] Toulmin, S. (2001). *Return to Reason*, Cambridge (Massachusetts):
Harvard University Press.

