

# The Social Sciences and Humanities in the Age of STEM

It may sound paradoxical, at a time when the orientation towards Sciences, Technology, Engineering and Mathematics (STEM) has become mainstream for all to also unanimously recognise the importance of the humanities and the social sciences.

We are well aware that if we concentrate on STEM alone to the detriment of the humanities and the social sciences, we are likely to miss an essential dimension of human existence. The sciences of human beings through which man can reflect on himself as a human being, on the meaning of his existence and the existence of another world, are absolutely essential to him. This takes us to the following statement by Pascal:

In other words, the so-called hard sciences alone cannot capture all the dimensions of a human being. The humanities and the social sciences are also needed capture this plural dimension. They remind us of our past and show us the way forward.

This, however, does not imply that the humanities and the social sciences are competing with the so-called hard sciences, in particular STEM. It is the opposite. Scientific and technological progress has so much accelerated for the humanities and the social sciences to ignore that both STEM, the humanities and the social sciences have become closely interlinked. "Digital humanities" is even a term used to mean that the humanities cannot shut itself off from omnipresent digital uses; even thinking has also been instrumented. Besides, issues that were traditionally handled by the humanities and the social sciences are now at the core of research and STEM innovations.

This paper purports to show that instead of shying away because they perceive STEM as a threat, both the humanities and the social sciences must stand up to the challenges posed by new themes and issues in view of the tenuous link they have with STEM.

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Indeed, the humanities was once defined through a number of questionings such as "what's a human being?", "What's thought?", or "what's conscience" "what's memory, perception, learning, etc.". Now, these questionings are no longer their exclusive concerns.

Cognitive sciences are wondering about the meaning of "knowledge", "having convictions", "to ignore" or "being mistaken". They raise questions about the perception of objects and subjects in the surrounding world, source of knowledge as well as learning, memorising and rationalising mechanisms. They are wondering over differences between individuals when it comes to learning, remembering, etc. What are the impacts of brain damage on memory, speech, thinking...

Furthermore, knowledge engineers are wondering about various knowledge materials: what's a shape, an image, a concept, a word?

As Howard Gardner<sup>1</sup> put it, cognitive sciences, "this new science" dates back to the Greeks because they were desirous of discovering the nature of human knowledge. However, this science is a radically new one because knowledge engineers exclusively use empirical methods to test their theories and hypotheses, relying mainly on the most recent scientific and technological discoveries of various disciplines. Computer science is one major part, with computer emerging as the best model for understanding how the human brain operates. Indeed, computers are not only indispensable for doing all sorts of research but also because computer is modelled on the operation of the human brain. Is computer omnipresence not likely to impact the themes of the humanities and the social sciences?

New disciplines like artificial intelligence have emerged and research is stimulated by new questioning like the potential knowledge-acquiring capacity that man-built machines may have.

Cognitics or knowledge engineering, or the automatic processing of knowledge and relationship between man and information and communication technologies blends the humanities and the social sciences with automation, computer science, ergonomics, cognitive sciences and life sciences.

Equally in health matters, cutting-edge technologies are being increasingly widely used sending a message of hope on potential victory over diseases while also posing new challenges. Are questions about life, death, pain and age not assuming new meaning with the emergence of all this technology?

So, the point here is not for the humanities and the social sciences to take a defensive attitude and wonder, from the outside so to speak, whether or not STEM constitutes a threat a source of alienation and. Far from being a threat to the humanities and the social sciences, STEM, on the contrary, form a major challenge.

If African researchers can raise their awareness of this trend and stand up to the challenge, the humanities and the social sciences which are well rooted in social, technological and scientific realities, can play a decisive role in building a veritable African research space.

CODESRIA, which has always upheld a broad social sciences concept, would then be a key agent for this convergence of STEM and the humanities and the social sciences in Africa.

## Note

1. Howard Gardner, *Histoire de la révolution cognitive*, La nouvelle science de l'esprit, traduit de l'américain par Jean-Louis Peytavin, Paris, Editions Payot, 1985, pp.16-17.