

38. Social Agency, Justice and Transformation in the Quest For a Globally Representative Communication of Science

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Abstract. The communication methods and educational systems that are applied to report scientific findings and technological advances to the public have come under repeated critical scrutiny during the past few years. This communication process, often overlooks deep seated philosophical and epistemological differences between cultures and continents. One prominent area of neglect is the failure to incorporate the specific knowledge(s) of traditional communities into mainstream epistemological discourse. Traditional knowledge has historically been restricted as 'discoveries' by outsider researchers. The traditional epistemic status of traditional communities, as a direct result, remains to be considered as incompatible with the 'scientific' and 'progressive' nature of modern western knowledge. Modern science and technology, therefore, is deemed to operate above (and beyond) the more 'primitive' processes of traditional scientific methods. Modern science is only prepared to acknowledge the 'primitive' methods of traditional knowledge systems in so far as the latter serves as confirmation of the formers' alleged superior cognitive status. It is from this so-called superior perspective that modernity will allow itself to speak of 'traditional agricultural methods', 'traditional water harvesting methods' or even 'traditional craft production methods'.

In this paper I will argue against this artificial barrier in the communication of science. Considering science principles as universal, and acknowledging the historical role that philosophers play in contextualising science knowledge, I will present some options to guide the re-alignment of global science communication towards becoming a more inclusive activity between the industrialised and developing worlds by asking fundamental philosophical questions about social justice, agency and the possibility of change. My focus will be on Africa and India. I will mention, in specific, the work of western philosophers such as Jürgen Habermas (1981, 1987, 1994) and Richard Rorty (1980) and African Philosophers such as Paulin Hountondji (1997, 2002) and Kwasi Wiredu (1975, 2000). Their opinions will be juxtaposed against ideas that developed in India as explored by Amarthya Sen (2000).

Keywords: western science, traditional science, epistemology and philosophy.

Introduction

In the wake of a near absence in communicating science to the public in Africa, the discipline of African philosophy took as task the topic of science communication to explore the philosophical relation with science in general and with traditional societies in specific. The development of African philosophy, as a result, is closely associated with the advancement of science and technology. This relationship is not unique. It is similar to the development of European philosophy when philosophy-as-epistemology affiliated strongly with the Enlightenment 'idea of progress'.

During the European Enlightenment science became the 'subject' and scientific method was recognised as the measure for progress. This centrality of philosophy-as-epistemology in the 'project of modernity' and its inability to overcome the reliance on a subject-centred epistemological paradigm, is intensely debated by western philosophers such as Jürgen Habermas (1981; 1987; 1994). Habermas initially strived to reconstruct the genealogy of the modern natural and human sciences by inquiring about the details of their social, historical and epistemological conditions of emergence. He later adopted a perspective based on a theory of 'communicative action' derived from speech-act philosophy, socio-linguistics and ideas about conversational implicature (Honderich, 1995:330). Central to the work of Habermas is, however, the effort to combine specialist philosophical interests with an active commitment to promoting informed discussion on issues of urgent public concern (Honderich, 1995:330). Habermas (1981), in this regard, is a promoter of effective science communication.

The modern-day 'lack of independence' of philosophy (from science progress) has also been dramatically challenged by western philosophers such as Richard Rorty (1980, 1982). Central to Rorty's (1980) challenge is the deconstruction of the ontological assumption of (western) man as the privileged seat and centre of human rationality.

The notion that epistemology can exist as a discipline capable of justifying and validating scientific knowledge claims, is rejected by Rorty (1980). It follows that philosophy is incapable of providing a neutral universal framework that can be assumed (adopted) to precede, justify and validate the foundational scientific form of knowledge. A significant consequence of Rorty's rejection of this epistemological foundationalism is his rejection of a correspondence theory of truth, deemed capable of describing reality 'as it is'. In the place of an objectivist approach to reality as a project of epistemology in the service of science, Rorty (1980:315) encourages his reader to accept the possibility of an epistemological vacuum that naturally follows the demise of the modern epistemological tradition.

Rorty's (1980) arguments against epistemological foundationalism are important in so far as it encourages a re-conceptualization of modernity's central universalistic claims with regard to truth, objectivity and rationality. For as long as nature (the universe) is assumed to be absolutely (ontologically) of humankind, the scientific enterprise will likewise be conceptualized as a discipline that transcends the more parochial interests and passions of the non-scientific thinker.

The importance of this argument for us is Rorty's (1991:166) promotion of a ruthless scepticism about philosophy's self-definition and epistemological 'task' in the defining of science. He criticizes the limitations of philosophy-as-epistemology to recognise appropriate scientific (including traditional) knowledge since science in its current form provides humanity with a basic 'ticking list' of observations which too often lacks deeper probing and rules out further reflection. Sandra Harding (1997:49) maintains that 'modern science' re-inscribes the dichotomy between the dynamic, progressive sciences of the west and the static unchanging traditional knowledge of other cultures. According to Harding (1997) this condition generates the benefits of modern science to be disproportionately distributed to western elites and she claims that: "... whether sciences intended to improve the military, agriculture, manufacturing, health or even the environment, the expanded opportunities that science makes possible have been distributed predominantly to already privileged people of European descent, at the cost to the already poorest, racial and ethnic minorities, women and Third World peoples" (Harding, 1997:55).

According to Rorty (1980), philosophy should abandon efforts to consider reality through some a priori conceptual framework (which we ourselves have put into existence). In addition, philosophy should abandon efforts to claim a universal context for the validation claim of scientific knowledge. Such a post-epistemological approach will render the need for a transcendental foundational discipline obsolete. The real work of science must be done by the scientists, and the philosopher must resist the temptation "... to jack up [the achievements of science] a few levels of abstraction, invent a metaphysical or epistemological or semantic vocabulary into which to translate it, and announce that he has grounded it" (Rorty, 1991:168).

In the place of the modern epistemological legacy of foundationalism, Rorty (1980:315) proposes a hermeneutic approach to rationality and truth in the objective world. According to Honderich (1995:353), hermeneutics refer to "... the inherent circularity of all understanding, or the fact that comprehension can only come about through a tacit foreknowledge that alerts us to salient features of the text which would otherwise escape notice". Bernstein (1983:38) points out that, according to the interpretation of texts, the earlier traditions of hermeneutics distinguished three elements: "... *subtilitas intelligendi* (understanding), *subtilitas explicandi* (interpretation) and *subtilitas applicandi*

(application)". Heidegger (1977) and Gadamer (1975) extended the application of hermeneutics, initially focussed on the interpretation of text, to the interpretation of technology. Gadamer (1975), for example, proposes that the three features of hermeneutics—understanding, interpretation and application—do not happen successively and functions collaboratively. He focuses on the relation between 'practical knowledge' and 'theoretical/technical knowledge' and considers hermeneutics to be the heir of practical philosophy which, in turn, bring concepts such as 'scientific method'

(in the sciences) and historico-critical method (in the human sciences) into question (Gadamer, 1975:342).

According to Rorty, hermeneutics relieves us of the need to justify scientific knowledge claims from a universal perspective. He argues furthermore that the hermeneutic principle of justification of our social principles is sufficient ground for our acceptance of the notion of truth in a pragmatic sense. For Rorty the hermeneutic approach therefore cynically presents "... an expression of hope that the cultural space left by the demise of epistemology will not be filled" (Rorty, 1980:315).

Rorty's (1980) critique of the modern epistemological condition and his philosophical announcement of a post-modern ethos characterized by contingency and pluralism, (in short, an ethos epistemologically devoid of all claims and pretensions to universalism) opens up the possibility and the need to explore other non-western forms of knowledge and rationality. By accepting the ethno-cultural horizons governing one's place in history as the point of departure, Rorty (1980) therefore encourages a more conversational approach to the question of knowledge "... with the notion of truth being associated with the best idea we currently have to explain what is going on" (Rorty 1980:320).

African philosophy in service of science

With the European enlightenment promoting scientific innovations, the 'idea of progress', it was argued, became the measure of modernism in the west. On the other hand, 'colonialism' became the African measure and indicator of scientific progress. It can be argued that colonisation in Africa marginalised traditional scientific knowledge and traditional practices as rapidly as modern industrial and economic development expanded in the west. Underpinning the idea that all men are the same, the awareness grew that cultures differ and live in different geographical worlds requiring different social strategies for survival. For western science, in the quest to study man, 'race' soon became the marker for different social practices that constitute different cultures. Race therefore became a science 'subject' and racial differences became a cultural 'marker'. The paradoxical result of celebrating differences, respect for pluralism and acknowledgment of identity politics – which became the feature of a liberal-modern democratic outlook – made science a political issue since the science of human differences could only be read in a racial fashion (Malik, 2008). This can be referred to as the 'guilt of science'.

Opinions about the intensity of this marginalisation process vary. Kwasi Wiredu (2000:175), for example, does not consider modernism to be "... bad in and of itself, but [consists of] ill-conceived programs of implementing modernization [that] have been harmful to African societies". Wiredu (1975:320), in addition, implores us to distinguish, in the African context, between traditional – that is pre-scientific spiritualistic thought – and modern scientific theory.

If we consider that epistemology functions in the total context of the human 'right to life' in traditional societies, we need to recognise the universality of these actions. Wiredu (1975), in a sense, blames the west for looking at traditional African epistemology in a highly selectively manner, thereby overlooking the very specific, non-scientific characteristics that typify African traditional thought in general. The west tends to define this specific non-scientific characteristic as a way of thought to be peculiarly African, instead of looking at it in a broader context and acknowledging its striking similarities to western epistemology.

Kwame Gyekye (1997) is less critical about the west's duplicity in the even distribution of modern science and advocates acceptance of western modernity by Africa. According to Gyekye (1997:30), 'modernity' is to be considered an ideal measure of progress. 'Traditional' should be seen as something that should aspire to this ideal of progress by embracing the theoretical development of science that requires sustained scientific probing since "... the impulse for sustained scientific or intellectual probing does not appear to have been nurtured and promoted by our traditional cultures". The African philosopher Kwame Appiah (1992), in contribution to this debate, initiated intense and widespread discussions in Africa on the relationship between race and culture and the differences between indigenous and global knowledge systems. He became overtly concerned with efforts to define the course and causes of development in relation to the growth of science.

Emmanuel Eze (1997:12), who persuasively postulated that the philosophical notion of 'reason' was popularised at the beginning of modern (western) philosophy by Descartes, furthers the argument around indigenous and global knowledge systems by claiming that "... the nature of human rationality seems to require that the best way to define reason philosophically is by demonstration. The demonstration will require amassing empirical or scientific evidence for the rational, and reflecting on this concept of evidentiality". Eze (1997) considers duplicity to be at the heart of modernity whereby modernity, in its subscription to ideals of humanity and democracy, condones the colonial subjugation and marginalization of non-western people by indicating the perceived difference between the rhetoric of the west and the 'lived reality' in Africa.

Based on the contributions by African philosophers, the relationship between philosophy and the sciences is quite pronounced in Africa. Paulin Hountondji (1976:99) in this regard proposes the hypothesis that "... the first precondition for a history of philosophy, the first precondition for philosophy as history, is therefore the existence of a scientific practice, the existence of science as organised material practice reflected in discourse. But one must go back even further: the chief requirement of science itself is writing. It is difficult to imagine a scientific civilisation that is not a civilization based on writing, difficult to imagine a scientific tradition in society in which knowledge can be transmitted orally. Therefore African civilizations could not give birth to any science, in the strictest sense of the word, until they had undergone the profound transformation through which we see them going today, that transformation which is gradually changing them, from within, into literate civilizations".

Ivan Karp (2000:4) appropriately observes that it is clear that African philosophers are divided into two camps; those who believe that technical and academic philosophy provides the tools for a much needed critique and revision of traditional African thought and those who argue that the critical skills and attitudes of western philosophers can also be found in African cultures. However, both these positions have roots in academic and social movements originating from the west. What is lacking is the centralisation of this debate within a non-western context.

Moving Towards Individual Agency, Abstract Theory and Openness—Examples From India

African philosophers realised that they are not alone in feeling marginalized from mainstream science and from being considered within the proviso of being ‘underdeveloped’ and ‘unscientific’. Parallel problems are identified by, for example, the Subaltern group in India whose members argue that the specificity of the subaltern voice

(by implication their epistemological contribution) has been systematically erased by both colonial and nationalist historians. The term ‘subaltern’ is used to group together the section of society who faces oppression (Morton, 2003). The Italian Marxist, Antonio Gramsci (1881–1937), used ‘subaltern’ to refer to a person or group of inferior rank or status caused by race, class, gender, sexual orientation, ethnicity or religion. He considered subaltern groups to be, by definition, subjected to the authority of ruling groups even when they rose up in rebellion. His definition of the subaltern was adopted by Gayatri Spivak (1998; 1988) and others because it easily provides a key theoretical resource for understanding the condition of the poor, the lower class and peasantry in India. The parallels drawn by Gramsci between the division of labour in Mussolini’s Italy and the colonial division of labour in India, made this possible.

In both India and Africa there is a drive for recognition and respect for the complexities of the motives and cultures of these subaltern agents. This includes, as Karp (2000:3) suggests, respect for “... the complicit role of the intellectual in the power politics and crises of the postcolonial state; the role of criticism in the politics of knowledge; and the conflicts among cosmopolitan, nationalist and indigenous forms of knowledge. Intellectual historians and sociologists of knowledge will have to work out the reasons why parallel critiques have developed in such different disciplinary locations and discursive spaces in Africa and India, and they will also have to work out the differences as well as similarities in the ways in which postcolonial criticism emerges as a formation in two such different geographical and cultural locations”.

In India, Amartya Sen (2000) aptly considered these issues mentioned above and, in addition, emphasised the role women can play in bringing about social change through agency and as free agents of change. Sen (2000) discussed in some detail the approach to gender differentiation from studies conducted by Jean Drèze and Mamta Murthi in India in 1999. When considering the high rate of female and child mortality in male dominant societies, causal relations to development were probed in variables, positioning low survival prospects against areas of possible agency: female literacy rates, female labour force participation, incidence of poverty, levels of income, extent of urbanisation, availability of medical facilities and the proportion of socially underprivileged groups (caste) (Sen, 2000).

Two aspects regarding the promotion of literacy in India became clear in the surveys conducted by Drèze and Murthi (1999). In the first place gainful employment produced ambiguous outcomes: responsibilities for household work became an added burden. In the second place, becoming more literate statistically showed a significant reduction of under-five mortality. Finally “... the impact of greater empowerment and agency role of women is not reduced in effectiveness by problems arising from inflexible male participation in child care and household work’ (Sen, 2000:197).

Dual Worlds, Multiple Problems—Solutions Through Agency

By looking at hermeneutics, as proposed by Rorty (1980), we are provided with an option to experience some measure of relief from a need to justify scientific knowledge claims from a universal perspective. When we apply the Rortian hermeneutic principle as aid in the justification of our social principles, we might find sufficient ground for change. What these changes should aim to be, however, is difficult to establish. If we liberate the debate from the social movement of post-colonialism we create a ‘freezone’ where new perspectives on developmental issues can become intertwined with debates on ‘scientific validity’ and ‘scientific literacy’ – both prominent issues in science communication debates and the research focussed on by the Public Understanding of Science (PUS). This, however, is no easy task and comes with its own particular and spectacular problems. Aijaz Ahmad (1992:315), for instance, persuasively speculates about a world devoid of differentiated structures and the disappearance of the so-called ‘three worlds’. In the problematic issue of merging the world economies, he mentions the subordinated partnership of developing countries with imperial capital as a debilitating factor. He proposes that “... most of the Asian zones simply cannot ever hope to develop stable societies, and the devastating combination of the most modern technology and backward capitalist development is likely to inflict upon these societies, on lands and peoples alike, kinds of degrees of destruction unimaginable even during the colonial period”.

The most appropriate option I can think of is to turn—yet again—to the philosophers for redemption. How will they advise science communicators to effectively promote science communication against such a diverse and complex background? Three scenarios are possible:

1. The redemption of traditional knowledge systems (IKS). It is now acknowledged that some aspects of African

thought are collective and unchanging. To emancipate IKS both Wiredu (1980) and Hountondji (1983) valorise the individual as the agent of change through social and cultural criticism. Both use the colonial and postcolonial as spatial and temporal realities and both require the application of individual agency, abstract theory and openness. More specifically, Wiredu (1980) proposes analytical practice in the quest to solve failed past methods and solutions. Hountondji (1983) proposes the Althusserian neo-Marxist notions with its specifying evolving relationships among power, ideology and a constantly changing social world (Karp, 2000:8).

2. Emancipatory social justice through agency. Agency refers to a person being the 'subject of action', who possesses the capacity to choose between options and then, ultimately, to be able to do what one chooses. Agency is treated as a causal power (Honderich, 1995:18). In patriarchal societies such as Africa and India, social justice involves more than 'being free to choose'. Social justice means active participation in education. In this regard Marion Young (1990:173) states that: "... a goal of social justice, I will assume, is social equality. Equality refers not primarily to the distribution of social goods, though distributions are certainly entailed by social equality. It refers primarily to the full participation and inclusion of everyone in society's major institutions, and the socially supported substantive opportunity for all to develop and exercise their capacities and realise their choices". Chandra Mohanty (2003:205) adds to this by stating: "Pedagogy needs to be revolutionary to combat business as usual in educational institutions ... revolutionary pedagogy needs to lead to a consciousness of injustice".
3. Critically analyse aspects of modernity and tradition in order to promote individual and social agency in the developing worlds. Challenging the concept of western modernism is inevitably linked with the embracement of western capitalism and western scientific rationality. Africa embraced western capitalism but scientific rationality became an ambivalent site of dispute through the polarisation of tradition and modernity. One of the prominent philosophers who challenge Africa to become independent (and literate) in order to participate in the global science debate is Hountondji (2002) who critically recalls comments on the history of integration and subordination of African traditional knowledge to the world system of knowledge. Hountondji, (2002: 501) identifies a number of what he calls 'scientific extroversions' (Africa being forced to integrate into the world market of concepts) which indicates that "... a need to secure an audience or readership, a legitimate need, often leads Southern scholars to a type of mental extroversion. They are pre-orientated in choosing their research topics and methods by the expectations of their potential public which then causes them to lock themselves up into an empirical description of the most peculiar features of their societies, without any consistent effort to interpret, elaborate on, or theorize about these features. In so doing, they implicitly agree to act as informants, though learned informants, for western science and scientists" (Hountondji, 2002: 503).

Conclusion

The list of actions that are required towards achieving social justice in the developing worlds is much more comprehensive and much more complex than the few points I was able to highlight during this presentation. I also hope to further the debate on the complex issues related to the main objective of this conference from a developing world context. As indicated by the organisers of this conference, the economic and social wellbeing of society promotes participatory democracy and implies the ability to respond to technical issues and problems that pervade our daily lives. This, by implication, requires a serious deliberation about the status and relation between modernity and tradition. The perceived gap between modernity and tradition, in facilitation of a better science communication, can only be addressed by a thorough understanding of social justice, the promotion of agency on all levels and collectively amongst all members of society, creating a deliberate possibility of change.

Bibliography

- Ahmad, A. 1992. *In Theory*. New Delhi. Oxford University Press.
- Appiah, K. 1992. *In my Father's House: Africa in the Philosophy of Culture*. London. Oxford University Press.
- Bernstein, R. 1983. *Beyond Objectivism and Relativism: Science, Hermeneutics and Praxis*. Oxford. Basil Blackwell.
- Blackwell. Drèze, J. & Murthi, M. 1999. *Female literacy and fertility: recent census evidence from India*. Mimeographed. Cambridge. Centre for History and Economics: King's College.
- Eze, E.C. 1997. *Postcolonial African Philosophy*. Oxford. Basil Blackwell.
- . 2008. *On Reason: Rationality in a World of Cultural Conflict and Racism*. Durham. Duke University Press.

Gadamer, H-G. 1975 [2005]. *Truth and Method*. Translated and edited by Barden, G. and Cumming, J. New York. Seabury Press & London. Continuum. Heidegger, M. 1977 [2002]. *The Question Concerning Technology*. Translated by Lovitt, W. New York. Harper and Row.

Habermas, J. 1981. *The Theory of Communicative Action*. London. Beacon Press.

———. 1987. *The Philosophical Discourse of Modernity: Twelve Lectures* Translated by Lawrence, F.

Cambridge. Polity Press.

———. 1994. *Struggles for recognition in the democratic constitutional state*. Translated by Nicholson, S. In: Gutman, A. (ed.). *Multiculturalism*. Princeton. Princeton University Press.

Harding, S. 1997. *Is modern science Ethnoscience?* In: Eze, E. *Postcolonial African Philosophy*. Oxford. Blackwell.

Honderich, T. 1995, *The Oxford Companion to Philosophy*. Oxford. Oxford University Press.

Hountondji, P. 1997. *Endogenous Knowledge: Research Trails*. Senegal. CODESRIA.

———. 2002. *An Alienated Literature*. In: Coetzee, P.H. *Philosophy from Africa*. Cape Town. Oxford

University Press.

———. 2002. *Producing Knowledge in Africa Today*. In: Coetzee, P.H. *Philosophy from Africa*. Cape Town. Oxford University Press.

Karp, I. and Masolo, D. 2000. *African Philosophy as Cultural Inquiry*. Bloomington. Indiana University Press.

Latacos, I. and Musgrave, A. 1970. *Criticism of the growth of knowledge*. In: *Colloquium in the Philosophy of Science*. Vol 1. Cambridge. Cambridge University Press.

Malik, K. 2008. *Strange fruit. Why Both Sides are Wrong in the Race Debate*. Oxford. Oneworld

Publications.

Mohanty, C. 2003. *Feminism without Borders*. New Delhi. Zubaan (an imprint of Kali for women).

Morton, S. 2003. *Gayatri Chakravorty Spivak*. Oxon. Routledge.

Rorty, R. 1980. *Philosophy and the Mirror of Nature*. Oxford. Basil Blackwell.

———. 1982. *Consequences of Pragmatism*. Minneapolis. University of Minnesota Press.

Spivak, G. 1987. In *Other Worlds: Essays in Cultural Politics*. New York. Methuen.

Spivak, G. 1988. *Can the subaltern speak?* In: Nelson, C. and Grossberg, L. (eds.). *Marxism and the Interpretation of Culture*. Chicago. University of Illinois Press.

Wiredu, J.E. 1975/76. *How not to Compare African Traditional Thought with Western Thought*. In: Appiah, K. and Gates, H. (eds.). *Transition – First Anniversary Issue*, vol. 7; no. 3/4. Durham. Duke University Press.

———. 2000. *Our Problem of Knowledge: Brief Reflections on Knowledge and Development in Africa*. In: Karp, I. and Masolo, D. (eds.). *African Philosophy as Cultural Inquiry*. Bloomington. Indiana University Press.

Young, M. 1990. *Justice and the Politics of Difference*. Princeton. Princeton University Press.