

Emerging Epistemologies

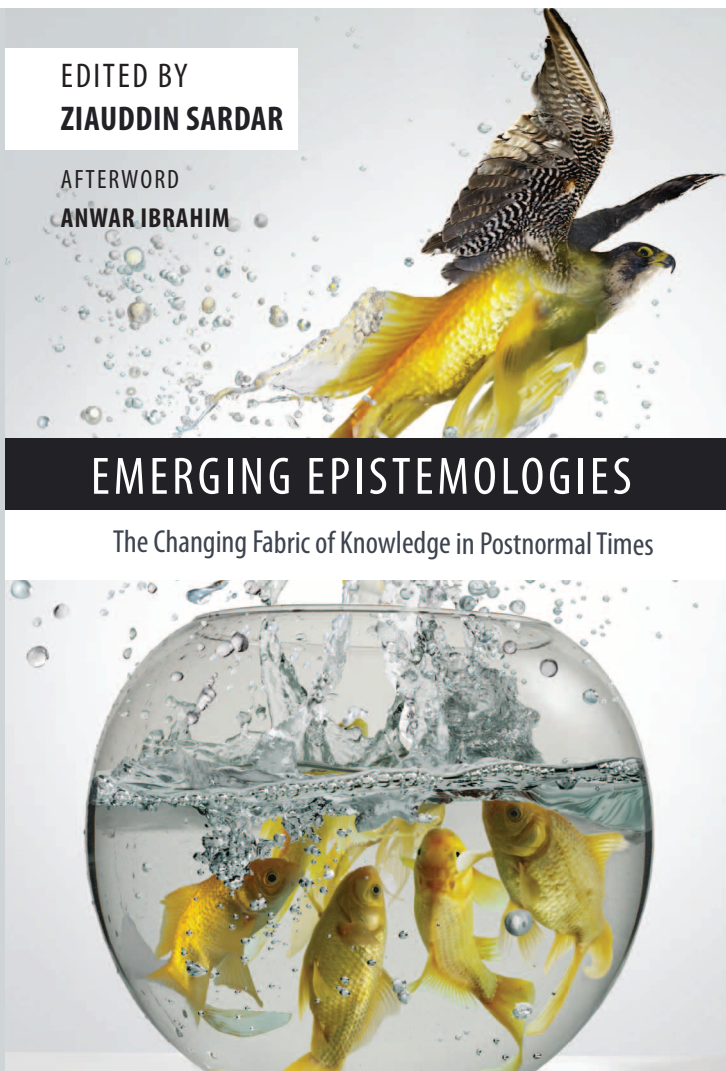
The Changing Fabric of Knowledge in Postnormal Times

EDITED BY
ZIAUDDIN SARDAR

AFTERWORD
ANWAR IBRAHIM

EMERGING EPISTEMOLOGIES

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IIIT Books-In-Brief Series

Emerging Epistemologies The Changing Fabric of Knowledge in Postnormal Times

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IIIT Books-In-Brief Series

The IIIT Books-In-Brief Series is a valuable collection of the Institute's key publications written in condensed form designed to give readers a core understanding of the main contents of the original. Produced in a short, easy to read, time-saving format, these companion synopses offer a close, carefully written overview of the larger publication and it is hoped will stimulate readers into further exploration of the original.

Emerging Epistemologies explores the changing nature of knowledge production and investigates how emerging epistemologies are transforming our perceptions of the present and the future.

Our established, age-old notions of knowledge have ceased to be meaningful in postnormal times. What we define as true knowledge, and the ways in which we create it, have changed radically. The emergence of 'Big Data' and Artificial Intelligence, as well as 'fake news', 'alternative facts', 'deep fake', and 'post-truth' have changed the nature of knowledge production. Established disciplines, such as economics, sociology, anthropology, political science, have lost their significance. Revengeful capitalism, based on profit-driven algorithms, has not only led to environmental destruction, but has also ruined our understanding of what actually constitutes knowledge. In an era that defines societies by questions of knowledge, it becomes necessary and urgent to ask: how is knowledge produced, how is it distributed, and who decides what is true knowledge and what is not?

The contributors to the volume examine digital landscapes, zombie disciplines, higher education, the role of metaphysics, and epistemological justice; and argue that epistemology does not exist in a vacuum but is determined and embedded in the worldview and culture of society. The chaos and contradiction that accompanies our increasingly complex

world requires us to see through 'the smog of ignorance', and seek new ways of thinking and creating knowledge that promotes sustainability, diversity, social justice and appreciates different ways of knowing, being, and doing.

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Beyond the Epistemologies of Conquest and Desire

Introduction by Ziauddin Sardar

‘What do you do when your world starts to fall apart?’

Well, anthropologist Anna Tsing goes out to the forest to look for mushrooms in *The Mushroom at the End of the World*. Specifically, she was searching for Matsutake mushrooms. Beyond a fungi, they are also a metaphor, value, an economic activity, an organic product, gourmet food, a gift. In particular, they are an artefact of what Tsing calls ‘third nature’ – something that manages to survive despite capitalism, and in spite of capitalist destruction of the environment, that still manages to live in the ruins we have created. It is capitalism, the terror inducing morbid pathology, that Tsing is sharply focussed on. Unending competition and Individual interest, ‘one-against all survival’, has become, Tsing argues, the bedrock of the epistemologies that shape contemporary knowledge. Democracy, science, hope, and even our personal dreams are thwarted. The widely accepted assumptions about what it means to be human are no longer valid. Capitalism has also ruined our understanding of what actually constitutes knowledge. Epistemology does not exist in a vacuum; it is embedded in the worldview and culture of society.

So, how we produce knowledge, and what constitutes knowledge itself, have been radically transformed.

In this volume, we explore the changing nature of knowledge production, how emerging epistemologies are transforming our perceptions of the present and the future, and the overall implications for society.

The Imperatives of Postnormal Times

The evolving horizon of knowledge not only affects how we see the present, and perceive futures, but also raises fundamental questions of meaning and

being. It strikes a double whammy on the epistemological front: it makes it difficult to map the rapidly changing nature of emerging knowledge; and, given a host of ignorances and uncertainties, understanding and navigating epistemological change becomes a formidable task.

Postnormal times theory has become particularly useful here. Postnormal times (PNT) envisages the present as a transitional in-between period, characterised by complexity, contradictions and chaos (3Cs), which are driven by speed, scope, scale and simultaneity (4Ss) of issues and events, 'where old orthodoxies are dying, new ones have yet to be born, and very few things seem to make sense'. PNT is a theory of change; and its function is both to understand and map the rapidly changing present, including the evolving epistemological landscape, and help us navigate the changing, chaotic present towards shifting sustainable futures.

A sign that things cannot continue under these normal, western assumptions is the emergence of the Anthropocene. The Anthropocene points out that the impact of human activities is drastically changing the geology and ecology of the planet. The Anthropocene is, in fact, a point of no return where the abode of our terrestrial journey is changed forever and we along with it.

What brought us here to the Anthropocene, can be described as an epistemological juggernaut that has finally led to a gigantic pileup on the highway of history. Indeed, the Anthropocene designates the logical culmination of the epistemological base of modernity and postmodernism, as well as western culture and civilization. The intellectual and epistemological history of western civilization can be seen as a series of conquests based on reductive steps. Along the way, western epistemology has been embroiled in a string of physical or metaphysical deaths.

Science and Civilizations

A great deal of hope and faith is placed on science, and associated gee whizz technology, in solving the problems associated with the Anthropocene in general, and climate change in particular. But science itself has gone postnormal, and all comfortable assumptions about science, its production, use and impact on society, are being questioned. The problems inherent in science have been questioned for several decades – not least in the notion of postnormal science advocated by philosophers of science Jerry Ravetz and Silvio Funtowicz. We are not dealing with a science in which 'facts are

uncertain, values in dispute, stakes high and decisions urgent'. As the present postnormal nature of science would no doubt become more and more evident in the coming years, we see it as a problem, years in the making.

The present, as Hungarian philosopher and literary historian Gyorgy Lukacs, noted, is a problem of history. The 'Age of Enlightenment' took both reason and feeling to extremes – it drained reason of all values, and deprived emotion of rational thought. Throughout most of history, science and faith had been two sides of the same coin. Epistemologically, science – the art of the soluble – must reunite with metaphysics – the art of the insoluble.

Pre-Enlightenment science was directly influenced by Muslim civilization. Muslim scientists and scholars shaped and advanced science from the eighth century up to the end of the fifteenth century. Of course, science in Muslim civilization did not disappear after the fifteenth century. Major advances continued till the eighteenth century when the emphasis shifted to learning and assimilating European sciences through translations and adaptations. Modern science has inherited the great science and learning tradition of Islam.

The current epistemological impasse is partly a product of the historical reductive leaps Europe undertook after the emergence of the Enlightenment. One of the first steps was to purge Islamic heritage from history. It invented Greece as the origins of Europe and the cradle of all civilizations. When Europe looks for a sense of self it turns to Greece, the imagined uncontaminated birthplace of pure white folks. After the manufacture of Greek origins, came the construction of Rome as the foundation on which Europe as a historic entity is based. What they actually did was colonise, exterminate with relish, expropriate and subjugate. Rome is the original home of the colonising mission. Generations of Europeans were schooled in the Roman manuals of how best to dominate other peoples for the benefit of a ruling elite.

Hardly surprising that that conquest is also the main theme of western epistemology. Not just conquest of people and places but the conquest of nature, followed by the epistemological reduction and transformation of reason into instrumental reason, devoid of any value or moral concerns. Instrumental reason, then, becomes the main instrument through which all ends are pursued, without justifying the means, and the will to conquest is expressed.

The accumulated outcome of the Enlightenment was the separation of knowledge from values – a rapture from classical Islamic epistemological thought. What followed was a true triumph of reason in the paralleled spread of materialism. The Enlightenment laid the foundations for capitalism to take over all knowledge production.

Ravenous Capitalism and Knowledge

Capitalism is a ravenous child of the Enlightenment. Even though it mutates, much like a virus, into new and deadly variants, there is underlying continuity based on conquest, freedom, individualism and desire. The dominant ways of knowing, being and doing are all about enslavement to desire – not just for things and objects of consumption but also for freedom from all that makes us human.

And this is what higher education is nowadays all about: an attempt to educate desire. The function of capitalism is to increase desire, which can never be fulfilled. So, it is hardly surprising that universities have been taken over by neoliberal capitalism, suggesting a complete breakdown in the integrity of higher education.

How do we then navigate our way out of the epistemologies of conquest and desire? How should Muslim societies meet the challenge of the changing forms of epistemology infused with the TRIGOXIC knowledge of postnormal times, embedded in ignorances and uncertainties, complexity and contradictions? We need to appreciate what is happening in the postnormal world, the sequence of events, and how events and issues are connected to each other on global and local levels. We also need to invoke the *maqasid al-shariah*, the original goals and objectives of the Shariah, such as social justice, welfare and public interest, which provide ‘the contextual understanding of Islamic value structures to be applied in different socio-political contexts’.

Surviving Lethal Epistemologies

The basic premise of postnormal times theory is that we are at a unique turning point in history: we face a simultaneity of complex and contradictory problems and issues that are taking us towards the edge of chaos. These challenges cannot be met with conventional notions and emerging capitalist modes of knowledge production are adding fuel to the postnormal fire.

There is another problem: the West is now deeply intertwined with the rest.

The West is not just a dominant culture, it is also a global socioeconomic order, interlinked and interconnected with the rest of humanity. The collapse of the West will not be confined to the Global North, it will take the Global South with it. So, are we doomed to be trapped or, is there a way to survive the onslaught of lethal epistemologies, and move forward?

In postnormal times, our collective survival depends on creating mutual worlds based on mutually assured diversity that take us beyond modernity to genuinely sustainable futures. That requires rethinking much of what we take for granted. We need to generate new epistemologies of collaboration, by working across difference, by synthesising outwards as well as inner experiences. The fresh holistic and pluralistic epistemologies have to be a product of genuine synthesis.

There is little prospect, it seems to me, of ‘the possibility of life in the capitalist ruins’ that Tsing seeks. We need to preserve all life and its terrestrial abode beyond capitalism and the epistemologies of desire and conquest. That, I assert, can only be achieved through mutually assured diversity in our ways of knowing, being and doing.

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Chapter 1

The Smog of Ignorance: Knowledge and Wisdom in Postnormal Times

Ziauddin Sardar

*All our knowledge brings us nearer to ignorance,
All our ignorance brings us nearer to death,
But nearness to death no nearer to God.
Where is the life we have lost in living?
Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?
The cycles of Heaven in twenty centuries
Bring us farther from God and nearer to Dust.*

T. S. ELIOT, *CHORUSES FROM THE ROCK*³

When T. S. Eliot published his pageant 'play with words and music' in 1934, the world was in a different place in almost every way. Yet, we could distinguish the difference between information and knowledge, and knew that wisdom, even if we could not actually pin it down, was something to be really desired.

Knowledge production has been totally transformed over the last decade, and that knowledge is now shrouded in a 'smog of ignorance'. Postnormal times require a new order of wisdom capable of circumnavigating the smog of ignorance. We need to move to a more profound understanding: wisdom as a collective, communal, enterprise; a social and cultural quest for life we are losing in postnormal times.

Discourses of knowledge and wisdom go all the way back in history to Plato and Aristotle and classical Muslim civilization. For Plato, knowledge was something to be searched for and acquired. Knowledge had to fulfil three criteria: it had to be justified, true and believed. Aristotle saw knowledge ‘as the knower’s complete appropriation of the intelligible content of the known, which is of course its form or structure. The appropriation, in fact, is carried to the point of identity. The knower is what he knows’.

In Muslim civilization, the conceptualisation of knowledge was a major intellectual activity from the tenth to the fourteenth century, spurred by the fact that knowledge (*ilm*) and related terms such as observation, reason, reflection, study of natural and social phenomenon occur in some 750 verses in the Qur’an. For Ibn Rushd, knowledge is a combination of sense perception and ‘intellectual intuition’; an amalgam of essence and being. Al-Ghazali suggested true knowledge reveals the reality of things as they are, and transforms the knower. Ibn Sabin defines ‘knowledge as that which clarifies the truth and gives information without leaving (the need) for anything to be investigated’. Ibn Hazm saw knowledge as the certainty of a thing as it is; a knowledgeable person epitomises justice, understanding, courage and generosity.

Explorations of wisdom too has a long history, particularly in eastern cultures. Confucius regarded wisdom as one of the ‘universally recognised moral qualities of men’. In Islamic theology, wisdom – *hikma* – is a key term occurring a number of times in the Qur’an. It is seen as the best of all virtues given by God to ‘whom He wills, and whoever has been given wisdom has certainly been given much good’ (2:269). Ibn Sina put the definition of a wisdom in verse:

*The soul is like a glass lamp, and knowledge
Is light (giving fire), and the wisdom of God is the oil.
If it is lit, you are alive,
And if it is darkened, you are dead.*

Al-Farabi defined wisdom as ‘power of excellence of deliberation and production of the things which are most excellent and best in what is done to procure for a man a really great good and an excellent and noble end, whether that is happiness or something which is indispensable for obtaining happiness’. Al-Ghazali argued that knowing by itself was not enough; wisdom was

necessary to act morally and distinguish right from wrong. Wisdom is also needed to go beyond sensate knowledge based on speculation and ignorance. Sufi mystics illuminated wisdom through deep spiritual explorations, such as Ibn Arabi's *The Bezels of Wisdom*, or moral stories, such as Rumi's *Masnavi*.

Unlike knowledge, wisdom has received scant attention from contemporary scholars and thinkers. It is interesting to note that the Wikipedia entry on wisdom contains no contemporary citations!

In modern times, definitions, theories, and approaches to knowledge have come under considerable scrutiny and have been a matter of incessant debate. There followed a heated debate between the supporters of what Karl Popper called *Objective Knowledge* and those who emphasised the subjective side of scientific knowledge such as Thomas Kuhn and Paul Feyerabend. The debate was intensified by postmodernism's producing a string of disciplines and subdisciplines as well as the academic movement of social construction of knowledge. Under postmodernism, not just knowledge but truth itself became relative, and reason too lost its lustre.

While Popper worried about the growth of knowledge and introduced his theory of falsification to ensure its progress, knowledge itself was said to be moving from linear to exponential growth. Buckminster Fuller noted that knowledge doubled every century but by the end of the Second World War knowledge was doubling every 25 years. Along with knowledge, information too was increasing rapidly. Terms such as 'information overload,' which itself has a long history, and 'information glut' began to gain common currency.

We had entered an 'information age'. The old fashioned 'computer science' now became 'information and communication technologies'; and computer science departments rebranded themselves as computer and information science departments. It was against this background that the notion of Data-Information-Knowledge-Wisdom hierarchy first appeared.

DIKW Hierarchy

The idea that data leads to information, which leads to knowledge, which in turn leads to wisdom was introduced by Russell Ackoff, a management consultant. Ackoff argued that there was a causal and hierarchical relationship between the concepts. Through a process of filtration, reduction and transformation, data moved upwards to information, knowledge and

eventually wisdom. Ackoff's formula has been presented both as a pyramid and as a liner progression.

Data → Information → Knowledge → Wisdom



Data came in three varieties: fact, signal and symbol. Information was processed, organised, structured, sequenced and arranged data that provided relevance and context, and could be objective or subjective, functional or symbolic, and it resolved uncertainty and provided order.

In this scheme, knowledge was processed, analysed or synthesised information that could be procedural, propositional, experiential, philosophical, objective or subjective. It provided theoretical, practical or experiential explanation or understanding of a subject. Wisdom, noted Ackoff, 'involves the exercise of judgment'; it cannot be programmed. While 'we are able to develop computerised information-, knowledge-, and understanding-generating systems, we will never be able to generate wisdom by such systems. It may well be that wisdom... is the characteristic that differentiates man from machines.'

Ackoff's Data-Information-Knowledge-Wisdom (DIKW) scheme has been severely criticised for being too simplistic. Yet, the DIKW scheme has survived extensive criticism and has become standard model in information management, information systems and knowledge managements, and information library science literature. For the purpose of our analysis, it provides a good starting point and template to show how data, information, and knowledge are being radically transformed in postnormal times, and what it implies for wisdom.

Evidently, DIKW does not deal with ignorance. But ignorance has been a silent partner of both knowledge and wisdom. It was recognised as an integral component of knowledge in Greek philosophy. Both Plato and Aristotle argued that we can make bad choices out of ignorance, and ignorance was a hinderance to sound judgements. For classical Muslim scholars, recognition of ignorance was a key component of wisdom. The Muslim sage, Al-Sijistani, much like al-Ghazali and ibn Khaldun, regard ignorance as a limitation of reason. Often, we are led by the wonder of reason to overlook our ignorance.

The Enlightenment banished ignorance. But it has returned with a vengeance more recently. We can define ignorance, as is the convention, simply as lack of knowledge. But that does not take us very far as ‘there are many sorts of ignorance as there are sorts of things to be ignorant about’ which makes it ‘difficult to obtain a taxonomy of ignorance. For the realm of ignorance is every bit as vast, complex, and many faceted as that of knowledge itself’.

Postnormal times theory deals with ignorance in toe. Ignorance is associated with increasing uncertainty and categorised as Plain, Vincible and Invincible. Plain ignorance is not just the absence of knowledge but also common prejudices, deliberate manufacture of falsehood and lies, denial of established truth or scientific research, and their weaponisation. Vincible ignorance has three basic components. (1) The knowledge that there are things we do not know. (2) Constructed misrepresentation based on knowledge. (3) Ignorance that requires knowledge that can only be acquired in the future such as impact of genetic engineering on society or geoengineering on the planet. It is vincible because what we do not know in the present we may know in the future. Invincible ignorance is unknown unknowns; things we do not know we do not know. It is essentially a product of our Unthought: what lies outside our central mode of thinking, beyond the parameters of our confined imaginations, external to the dominant paradigms of all our disciplines. It is invincible because it cannot be tackled with the existing, conventional tools of our worldviews.

The movement of ignorance from the periphery to the centre of knowledge production, as well as the emergence of postnormal times, has and continues to drastically alter the relationship between data, information, knowledge and wisdom. The beginning of the twenty-first century saw major shifts in the DIKW scheme: beginning with the arrival of Big Data.

Big Data

The first use of the term data appeared in a 1999 paper by Steve Bryson et al. entitled 'Visually exploring gigabyte data sets in real time'. Bryson and colleagues pointed out that powerful computers were generating data of around 300 gigabytes which researchers were finding difficult to handle. But it wasn't just researchers and scholars who were producing data. Individuals too were generating raw data. In 1999, original data created by individuals and stored on paper, film, CDs, DVDs and magnetic tapes hit 1.5 exabytes. In 2003, humanity had accumulated and reached approximately 12 exabytes. By 2007, stored data was estimated to be 300 exabytes. Big Data had arrived.

But Big Data is different from the conventional data which basically consisted of facts, signals and symbols; or as Davenport and Prusak define it 'a set of discrete, objective facts about events'. To begin with data on a humongous scale enables us to gain new insights and create new values that radically change markets and organisation, relationship between individuals and communities, and citizens and governments. The era of Big Data, 'challenges the way we live and interact with the world' and 'overturns centuries of established practices and challenges our most basic understanding of how to make decisions and comprehend reality'.

Big Data also captures what we have conventionally not regarded as data. To the conventional varieties – facts, signals, symbols – Big Data captures behaviour, emotions, actions, and attitudes as raw data. In short, Big Data incorporates the essence of individuals, groups and communities. Data, as we have known for centuries, can also be made up. Big Data does not differentiate between facts and 'alternative facts,' truth or lies, knowledge or bullshit, news or fake news, politics or conspiracy theories, legitimate concerns of dissidents or the paranoia of anonymous online mobs, genuine comedy or racism and bigotry masquerading as 'earthy humour,' irony and sarcasm. All this is scooped up as Big Data. Big Data serves as an engine for plain ignorance – enticing it, generating it, and multiplying it geometrically.

All this means that Big Data is essentially a postnormal phenomenon. Clearly exhibiting the 4S's and 3C's of PNT.

Big Data radically changes the nature of information which acquires a gargantuan dimension.

Gargantuan Information

As Big Data processes, organises, categories, and orders information instantaneously and simultaneously across a number of fields, the conventional distinction between data and information dissolves. The sheer magnitude of information that is constantly gathered on a global level is truly dumbfounding.

The qualitative transformation is just as profound. If information is data processed to provide meaning, as conventionally defined, then what meaning is it conveying? The meaning gargantuan information conveys is that it can be bought and sold: in other words, information is nothing more or less than a commodity. It can perform contradictory functions: it can be used by people holding divergent views to support their arguments and justify their positions. It is all consuming and does not differentiate between, say, private or public domains. And it can be reproduced, passed on, and proliferated ad infinitum at zero cost. Moreover, gargantuan information evolves continuously from interconnected local and global networks. It is therefore complex. As such, far from reducing uncertainty it actually increases uncertainty.

Thus, gargantuan information can record personal health, biology, race, ethnicity, and orientation (religious, political, sexual, imagined, or otherwise). In other words, it captures and commodifies the absolute reality of individuals, groups and communities – or their very being.

Gargantuan information is also another layer of ignorance – vincible ignorance. This new layer is both constructed and intrinsic to the nature of gargantuan information. It is socially constructed not just to distort truth and justify erroneous beliefs but to promote political and ideological goals; and it can as much be a work of scholarship as of fake news. In gargantuan information, there is no such thing as causality; there are only simple correlations, which can be used to validate everything and anything. Gargantuan information continuously produces predictions and forecasts on problems and issues we face today but whose potential answers can only be discovered sometime in the future. It thus reinforces current trends, amplifying our prejudices, and pushes us towards disturbing futures.

Big Data and gargantuan information have radically transformed modes of production of knowledge as well as the nature of knowledge itself.

Emergent Knowledge

Knowledge is not what it used to be. Given that the structure of information has radically transformed, that for bringing certainty information actually increases uncertainty, and that both hierarchical and linear distinction between data and information is evaporating, knowledge itself is set to be transformed fundamentally.

We describe big data and gargantuan information driven knowledge as emergent because it is a product of interconnected, networked, evolving components: that is to say it is a complex system, that can spontaneously generate order, adaptation, feedback loops. Emergent knowledge has no borders: it is intrinsically multi-, inter- and transdisciplinary; it is simultaneously global and local; it codifies both the external and internal features of its subjects and objects. It incorporates and commodifies both the essence and being of individuals, groups and communities. It is contradictory and chaotic. And it can produce totally new manifestations of itself – which cannot be predicted, or indeed bear no relation to its component forms.

Emergent Knowledge is an amalgam of three distinct but interconnected components. First: what we may (still) call true knowledge – that is, objective knowledge that can be verified again and again and survives the test of falsification. Second: what we may call toxic knowledge – that is knowledge based on plain and vincible ignorances as well as emerging technologies that will transform the human landscape. Third: emergent knowledge adds yet another layer of ignorance, invincible ignorance – ignorance that is the outcome of our Unthought – things we have never thought simply because they are out of the framework of the dominant paradigms, disciplinary ignorance due to myopic boundaries, theories, principles, assumptions, and axioms that are the basis of both: true knowledge and toxic knowledge. All emergent knowledge contains ignorance as its integral component. This ignorance is invincible because it cannot be overcome within the existing dominant paradigms that shape all varieties of knowledge.

Thus, emergent knowledge is TRIGOXIC: a complex, evolving entity that combines true and toxic knowledge that is shrouded by the smog of ignorance.

It will be shaped less and less by humans and more and more by AI. AI will determine not just how we know but what we know, transforming the very fabric of what we regard as knowledge.

Wisdom

So, how do we, ‘talk (more wisely) about wisdom’ in the face of such gigantic changes and challenges? If we accept the conventional definition of wisdom as the quality and exercise of good judgement and sound decision-making, and the ability to think and act using knowledge, experience, understanding and insight, what exactly is required of a wise person? I would argue it requires an appreciation of uncertainty and some capability to navigate the three Cs’s of postnormal times: complexity, contradictions and chaos. It also entails an awareness of various varieties of ignorances and ability to negotiate the smog of ignorance. It necessitates using what we do know to engage with what we do not know. Finally, it involves stepping out of the dominant ways of knowing, being and doing into the Unthought, to anticipate the unknown, and imagine and create more desirable futures.

In postnormal times, the DIKW pyramid ceases to be a pyramid. The hierarchy evaporates as AI gathers data, processes information, synthesises knowledge, and dispenses wisdom. The postnormal shifts now become clear. We move from:

Data → Big Data
 Static, accumulative, localised information → Dynamic, instantaneous,
 simultaneously globalised and localised Gargantuan Information
 Knowledge → Emergent Trigoxic Knowledge, and
 Wisdom → AI

But there are a couple of nefarious ghosts in the machine.

First: AI operates with the smog of ignorance. AI contains all the biases, prejudices and ethnocentric judgements of those who produce them in the first place; and it utilises plain, vincible and invincible ignorances – the toxic component of emergent knowledge – in its judgments and decision-making processes. Ultimately, AI would have the power to define everything, every idea, every concept, in the image of its creators.

Second: If wisdom is simply a mechanical endeavour, based on knowledge and a certain set of rules, how then can we actually measure AI wisdom? How would we judge that AI has actually made a wise decision? It is one thing to provide selected traits of wisdom to AI and quite another for AI to actually act wisely.

Wisdom cannot be simply reduced to a set of rules. There are certain key aspects of wisdom that are specifically human. The old fashioned, time honoured, virtues so essential for acting wisely but so demanding to teach a machine. The very virtues we need to navigate postnormal times. Moreover, human wisdom also incorporates the rather essential notion of responsibility.

The wisdom of AI, in the final analysis, is as artificial as its intelligence. AI may help us tackle so many intricate, interconnected, contradictory and rapidly changing ‘wicked’ problems we face in these postnormal times. It may even augment and encourage humans to make better decisions. But for real and authentic wisdom we will have to look elsewhere.

Postnormal Wisdom

Navigating postnormal times requires a new order of wisdom. It is quite clear that the depth of knowledge, and insight to circumnavigate the smog of ignorance, required at any one level is far too much for an ordinary human being. We need to move from the conventional notion of wisdom as a repository of individual quality, the prerogative of sagely men, to a more profound understanding: wisdom as a collective, communal, enterprise. In postnormal times, wisdom must be seen as a collective moral acumen; a rational cooperative learning how to live sustainably; a communal effort to create what is truly of significance; what enhances quality of life, human well-being, and augments the health of the planet; and what plants the seeds for a genuine future of justice and equality.

Such communal wisdom will have a couple of extra layers of genuine knowledge that AI could never acquire: tacit knowledge and what we may call handheld knowledge. Tacit knowledge is culturally embedded, it makes sense, and provides sense of direction, within a particular cultural milieu. It is the knowledge of indigenous cultures, traditional societies, and scholarly communities, where it is passed from generation to generation. Handheld knowledge is knowledge of a more intimate nature: knowledge we acquire through deep listening, inner reflection, or metaphysical speculation, or numinous elation, or communion with nature – ethereal insight and understanding we can all possess in the palms of our hands. It is the kind of knowledge that brings people together for mutual erudition, caring, healing, and for growth.

We have to consciously create wisdom networks and communities where the

collective can provide a modicum of capabilities and competences to see through the smog of ignorance and navigate postnormal times.

But communal wisdom is not just about when to act but also when to stay still: questioning the perpetual quest of arrogant and toxic knowledge, of the lust, fantasies and dreams of intoxicating knowledge and gathering the knowledge and capability of stillness. Communal wisdom is about how communities learn not just when to speak, but also when to stay silent: for the more we express ourselves in postnormal times, the less we say and less power we have; the more information we generate the more agency and our independence we lose, the more dysfunctional our communities and societies become.

So, we return to Eliot's lament, from 'Choruses From The Rock':

*The Eagle soars in the summit of Heaven,
The Hunter with his dogs pursues his circuit.
O perpetual revolution of configured stars,
O perpetual recurrence of determined seasons,
O world of spring and autumn, birth and dying!
The endless cycle of idea and action,
Endless invention, endless experiment,
Brings knowledge of motion, but not of stillness;
Knowledge of speech, but not of silence;
Knowledge of words, and ignorance of the Word.*

Wisdom is the quest for the life we are losing in postnormal times. It is discovering ways of transcending such modes of life and living, of seeing through the smog of ignorance, learning to navigate postnormal times towards safer, more desirable futures for all.

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Chapter 2

Epistemologies and Change in Postnormal Times

Christopher Jones

In this chapter, I explore ontology and epistemology and the connections between knowledge, values, worldviews, and behaviour through the lens of postnormal times theory. In particular, I use the menagerie of postnormal potentialities – black elephant, black swan and black jellyfish – as my basic tool of analysis. Postnormal analysis and futures studies approaches can help construct a map. I have been trying to better understand the map and contours of postnormal times, and the question of what epistemology looks like in a postnormal political, cultural, and global milieu.

A good starting point is the realisation that there is a proliferation of sources and streams of knowledge, as well as ignorances and uncertainties, as we navigate emerging postnormal times. There is no single postnormal epistemology but a myriad of ontological and epistemological streams that feed a global ocean of shared/conflicting meaning.

Postnormal Times

Postnormal times analysis has emerged as an attempt to grapple with the enormous global forces of change facing individuals, families, organisations, and the species as a whole. Postnormal times theory rests on a historical analysis that social and organisational complexities have grown over the millennia, at least since the adoption of tools and language by our species. Sardar noted three defining characteristics of postnormal times theory:

complexity, contradictions, and chaos. Another set of key concepts in the postnormal framework are related to the dynamics of change. The *speed*, *scope*, *scale*, and *simultaneity*, the 4s, of change within these systems.

The explosion of knowledge—at one's fingertips—is of questionable utility when there is info glut and a pandemic of misinformation about matters political and scientific. To factor in this dynamic, postnormal times theory deals with two other interrelated states: the levels of *ignorance* and *uncertainty* generated by postnormal phenomenon. Postnormal theory argues that as the world becomes more complex, there is less of it proportionally than any person or group of people can understand. There is a postnormal contradiction: as we generate more knowledge, we collectively understand less of it. Uncertainty is seen as an outcome of the convergence and conflict of the global driving forces of change, and interplay of new and diverse values emerging in global culture. Unexpected outcomes and wildcard events also add to uncertainty, and unanticipated consequences can be disruptive.

A set of tools for postnormal times analysis, and a creative way to play with ideas about perturbed systems, is the *menagerie*, which consists of three types of animals: *black elephants*, *black swans*, and *black jellyfish*. They are seen not simply as metaphors, but as tools to overcome bias and explore our assumptions and preferences—as a means to refine judgment about the nature of transformational change.

Postnormal Times Menagerie

My exploration of postnormal epistemologies is organized around three key concepts/tools/metaphors for disruptive change produced by the driving forces set in motion by post-industrial technologies – the black elephant, black jellyfish, and black swan represent kinds of transformational change and phase shifts that we will experience in postnormal times. They are presented here as provocations, and although they are discussed in a linear fashion, progressing from the known unknowns to the unknown unknowns, there is considerable overlap between them, and some phenomena may fit more than one metaphor. What may appear as a black jellyfish for some may be seen as a black swan by others.

Black Elephants

The black elephant is a symbol of intelligence, persistence, and even wisdom. Black elephants are extremely likely and widely predicted events that are

ignored or downplayed by many in each context or a society as a whole. Black elephants challenge us to ask: what are most people missing or not seeing? The black elephant is an important didactic tool given that average humans do not engage in deep philosophical discourse, particularly about the nature of their own ontology or the biases and assumptions of their own epistemologies.

Black Jellyfish

The next animal in the menagerie is the black jellyfish. The assumptions of major structures begin to dissolve and transform: industrial capitalism, patriarchy, growth, and the superiority of dominant cultures. Black elephants are revealed to be issues to be addressed when they transform into black jellyfish that can no longer be ignored. The growing complexity, fragmentation, and fracturing of cultures and meaning suggest that epistemological jellyfish are everywhere. The echo chambers of social media, particularly with the acceleration of change, have spawned individuation of culture across the planet, particularly among younger generations. The development of postnormal times coincides with the post-truth era, with multi-layered, multicultural, and often deviant cultures. There are also considerable external threats including nearby nova or supernova, comet impacts, or interstellar dust storms. Our scientific and research projects probing the solar system and the greater universe have provided compelling knowledge, but also reinforce how little we know, and how much we potentially have still to learn about coexisting not only with our kin (human and animal) on planet Earth, but with our solar system, galactic neighbourhood, the far-flung galaxies, and cosmos beyond.

Black Swans

Black swans are unexpected, outlier developments or innovations, unanticipated events that cause disruptive change. Coined by Taleb, the neologism has been a staple of futures studies for decades, known by other names, such as *blue-sky events* and *outliers*. The extent to which black swan events are more or less improbable is open to debate. But they could trigger the shift to Unthought Futures, where our level of ignorance grows and depth of uncertainty deepens. Risk analysis of the potential for catastrophic impacts of small asteroids or comets indicates that the probabilities of a major impact were previously underestimated. We cannot predict what the black swans will be, or honestly assess the probabilities or likelihood, but we can better understand the contours of change which those black swans could create. In other words, we need to have dress rehearsals of some of those unknown unknowns, explore unexplored futures that can help us navigate the

contradictions and reversals, the tipping points and quantum leaps in social, political, economic, and species change.

It is sometimes difficult when we are so focused on the demands of our daily lives to perceive the revolutionary changes that surround us.

Unthought Epistemologies

Ignorance has now moved from the periphery to become the central concern of epistemology. Up to now, the production of knowledge and basic science has largely taken place in universities, corporations and public organisations. That has been the dominant model in the industrial era, but higher education today is in crisis, and transformations in the peer-review process and academic publication industry are likely. As a species we will undoubtedly learn a lot from the current turbulent times, or we will extinguish ourselves trying. I also believe that the search for meaning, for hope, and for wisdom should inform our actions as we become a mature planetary civilization. Postnormal times analysis, epistemology, and futures studies may be an antidote to help reduce ignorance and uncertainty about our futures. It would seem that consciousness, and wisdom, above all, are not just about what the mind knows and how it knows, but a more integral awareness of our own consciousness, our relationships with others, and the environment. There is hope for a more transcendent epistemology and systems of applying knowledge wisely.

Emerging epistemologies can be big enough to embrace pluralism, foresight, and human agency to accommodate beliefs and wisdom that we may not share in a chaotic period of human history. We may begin asking ourselves who and what epistemology serves: the dominant paradigm or an emerging consciousness that privileges reductive thinking less and wisdom more?

It turns out that in postnormal times, knowledge is a funny thing. It keeps growing, but has its limits and tends to generate contradictions, and is beset with uncertainty and ignorance. Our knowledge is selective, shallow, tentative, and increasingly toxic. Emergent postnormal phenomena are likely to make it very clear that in order to survive as a species, we need to explore some of those social and policy paths not taken. Hopefully our species will remain wise enough to remain open to unthought futures and epistemologies.

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Chapter 3

Manufactured Worldviews and the Shifting Landscape of Digital Knowledge

Liam Mayo

The perception today that humanity faces crisis after crisis is a very real one – one can sense that change of a grand scale is upon us. Today, thanks to digital culture, our fundamental understandings of reality are being challenged and expanded. Digital culture has advanced an attrition of worldviews and expedited the erosion of traditional forms of knowledge making.

This chapter introduces the notion of postnormal condition, distinguishes between postnormal and postmodern, and examines digital developments through four key concepts of postnormal times theory: *lag*, *creep*, *tilt* and *burst*. It is proposed that the current epistemological crisis is a *cultural* crisis, owing to humanity's inability to move beyond a manufactured normalcy that perpetuates a familiar sense of present. Our desire to de-emphasise change, and make all things normal, fundamentally perpetuates a perception of crisis, individually and collectively. Postnormal times theory is a theory of change, that provides utility both as a diagnostic tool at the surface level and a conceptual framework to interrogate the fracturing worldviews experienced during significant change.

Postnormal Epistemes

Epistemology has foregrounded the Western philosophy that has dominated the modern period. Historian of science Gaston Bachelard argued that the rupture of epistemology is a sporadic moment where accepted norms are distinctively broken away from. A rupture is a re-inscription of knowledge that branches off into different ways of being and thinking, theorising and living. More than a rejection of the old, a rupture is a break away, and a move beyond. With each rupture a new epistemological structure emerges, and a re-reading of reality is required. This is a shift in understanding from that which has been considered normal, to the discovery and familiarisation of a new normal.

Postnormal times is a period of rapid and significant epistemological rupturing. Within postnormal times, we witness vast shifts away from that which we have understood to be normal. These vast shifts are postnormal change. How we experience and respond to postnormal change is the postnormal condition.

Our postnormal times are concomitant to digital culture; the omnipresent technologies, hyper-connectivity and vast societal structures that maintain, progress and celebrate its place in our lives. With the emergence of digital culture, the reification of dominant forms of knowledge has become inadequate. In our postnormal times we do not reject all truth claims. Rather, all truths have a claim: facts and values are equal elements in the process of constructing knowledge. In our context, digital culture is a paradox of normality because of its epistemological intrusiveness.

We no longer share a uniform worldview that guarantees divinity or prescribed standards of behaviour. This has empirical and cognitive implications, and we are yet to develop the wherewithal to effectively solve the perennial problems of life, largely because we are plagued by ignorance and uncertainty.

We are ignorant to how the solutions to the problems of today will affect us tomorrow. Ignorance nurtures uncertainty. While we have access to a gargantuan amount of information, meaning that its sheer complexity in fact increases uncertainty exponentially. These are the embodiment of the postnormal condition.

Our Postnormal Condition

There is a vast complexity of physical infrastructure designed, built and maintained to enable the transmission of the internet across the globe. Through these connections, users themselves have evolved the ability to multitask, becoming cognitively enhanced sifters of universal information. Through this, our plurality of selves, takes form, abstracted across multiple spaces. This fractures the tie between what society has normally defined as a single physical body and a single awareness of self, moving us into a new realm of disembodied subjectivity. Through the creation of virtual selves, we compose something tangible, yet still simulated, and through this construction we build who we are and create who we want to be.

The ubiquity of digital technologies and the ensuing hyper-connectivity are normalised so that our identities are intimately linked to our online accounts. In this realm, we can be whoever we want to be; abstracted from physical reality.

In our postnormal condition, the self-assertion of the individual now reigns supreme. Our access to new information and new realities narrows, rather than widens, in the virtual realm. So instead of an infinite savannah ripe for exploration, the virtual realm has become an increasingly narrow system of feedback loops that pander to our preconceived ideas and appetite for instant gratification. We are the victims of our own entrapment.

Manufacturing Worldviews

The process of normalisation becomes problematic in postnormal times. Normalisation camouflages epistemological rupturing of established epistemological constructions, making change difficult to map. We create

metaphors that relate new experiences to something we already comprehend and know, adjusting our behaviours in an attempt to overlook or ignore the changes happening before our eyes.

Culturally then, the future – where the real change exists – remains a fixed point on the horizon; far from the present and yet to be attained. There is an unexplained cognitive dissonance between changing reality as experienced, and change as imagined; the future always seems like something that is going to happen rather than something that is happening. By using the manufactured normalcy field, individual or communal consciousness perpetuates a continuous present through a familiar sense of a static.

Modern life is very much what our sense of normal is predicated upon. In presenting the postnormal condition it is important to distinguish between postmodernism and postnormal times theory.

Postnormal, not Postmodern

Postnormal times, as a concept, is concerned with change and aims to understand and describe the changing nature of change, and develop ways and means to navigate our contradictory, complex and chaotic times.

The overriding concern of postmodernism was with the demolition of the 'Grand Narratives' – anything that gives meaning and direction to our lives. Postnormal times suggests that grand narratives cannot be ignored: far from disappearing they are deeply entrenched. Once you have deconstructed the postmodern onion, all is meaningless. Yet, in postnormal times, meaning is sought by everyone, everywhere. Postmodernism argued that the distinction between image and reality had evaporated. Postnormal times takes the approach of critical realism, making specific distinction between the self, the manufactured normalcy field and reality; between perceptive and real change. Postmodernism aimed at dislocation and erasure of history; postnormal times recognises the value of history and tradition both as a source of injustice and grievance, and as a source of meaning essential for analysing and understanding contradictions.

Unlike modernity and postmodernism, which were seen as the final goals of humanity, postnormal times is consciously perceived as a transitional period.

Postnormal Lags, Creeps and Bursts

As a theory of change, postnormal times provides a framework to begin to navigate change by articulating a unique set of characteristics that define postnormal change and underscore their impacts.

Moreover, postnormal times theory provides a framework to make sense of the litany of surface level changes and to interrogate the fracturing worldviews experienced during significant change. Postnormalcy and normalcy overlap and exist side by side. The future does not arrive in a temporal sense, rather, it arrives chiefly through the impacts of social fragmentation.

This is known as a *postnormal creep*; a process whereby positive feedback loops of highly interconnected and complex systems facilitate weird phenomena to penetrate the manufactured normalcy field. The future is happening now: we have just become so accustomed to de-emphasising it that we cannot see it. Instead, weird phenomena cause us to creep toward our future.

Postnormal lag is the perceptual condition of denial. The postnormal lag disavows change (despite change), and postnormal creep drives change while the manufactured normalcy field de-emphasises change, these processes occasionally converge, or indeed diverge, in different ways leading to a postnormal burst and systems go totally postnormal.

The complexity of mapping and navigating postnormal change is demonstrated in how creeps, lags and bursts exist and occur simultaneously at a diversity of levels. The *burst* is a result of several influences acting against several systemic layers until the system is altered beyond return. The burst shifts the system at every level.

Postnormal Tilts and Vincible Ignorance

What may be helpful is to be able to articulate the experiential shift in knowing and understanding that occurs at the torsion caused between a creep and a lag; before the burst. If a movement gives birth to something different, then it was a burst. But if it resurfaces within the same parameters then it was a postnormal *tilt*. The *tilt* is a perceptual jolt; a wake-up call; a realisation that, despite our desire to maintain 'business as usual', change is happening right now. The tilt disrupts our cultural propensities and forces us to reassess the fixed-point horizon thinking that has influenced our approach to futures thinking.

But how do we know if a burst is really a burst? Could a creep overcome lag? Who is to say a system has gone postnormal? Postnormal times theory calls this *vincible ignorance*; when the answers can only be found sometime in the future, after a generation has experienced the impacts and effects of these developments. This is juxtaposed against invincible ignorance, the ‘unthought’ that lies beyond our imagination, which is ultimately limited by our language, frameworks and worldviews. This is the ignorance of our ignorance. What we do know is that we cannot control postnormal times; we can only equip ourselves better to navigate them.

Conclusion

Everything is different in our postnormal times. Yet in the face of significant change, dogged by uncertainty and ignorance, the postnormal condition is stifled to action. This conditioning, intimately entwined with digital culture, instigates a shift in the way we conceive of selfhood, authority, knowledge, reality and power. Yet the current epistemological crisis is a cultural crisis owed to our inability to move beyond a manufactured normalcy that perpetuates a familiar sense of present.

The challenge then, is to make weird those things considered normal, make problematic the normalisation process and commence a mapping of postnormal change.

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Chapter 4

Zombie Disciplines, Anticipatory Imagination and Mutually Assured Diversity in Postnormal Times

Liam Mayo and Shamim Miah

This chapter aims to do three things. First, to explore the erosion in traditional forms of knowledge and how this is impacting the way change is approached and understood. Expanding on Beck's notion of 'zombie categories', we argue that it is indeed 'zombie disciplines', concomitant with the erosion of knowledge, that leave us ill-equipped to effectively navigate current epochal changes. Second, we take Sardar's contention – that postnormal landscapes increasingly make irrelevant traditional approaches to dealing with perennial problems – and make the case that, in light of zombie disciplines, fostering anticipatory imagination, within the operating framework of Mutually Assured Diversity (MAD), invites change and transformation at the personal and cognitive levels while fostering new values and new strategies that can creatively manage uncertainty and complexity. Third, we address notions of agency and suggest how, through a reimagining, an ontological shift from enlightenment notions of *being* to new notions of *becoming* is available to us in our post-normal context.

Zombies and the Living Dead

The zombie metaphor provides a critique of knowledge in postnormal times; occupying the space of both the living and the dead, the personification of the paradox of our transitional age. Appropriated by modernity, the outbreak of zombieism is a twentieth century phenomenon, rooted in the Western imagination, that has exploded and become part of the cultural zeitgeist, transformed into the flesh-eating ghoul of modern cinema.

The primary feature of the zombie as metaphor is that they inhabit a diseased world, by embodying a diseased body, they exist without cure. In this sense, the zombie lacks the essential feature of any living organism, straddling the divide between the living and dead. Unintelligibly, they are communal in that they vaguely share proximity despite the absence of any accord between them.

They shuffle from place to place, seemingly unattached; they don't talk, rather communicate their incommunicability; they are heedless, fierce and threatening but give no thought to defending themselves against harm. Thus, more than a symbolic representation, the zombie is an abstraction by which we may explore the erosion of knowledge in postnormal times.

An examination of zombie disciplines is crucial in postnormal times, especially given the entire *raison d'être* of higher education based upon critique, contestation and developing new knowledge has given rise to. Universities together with some of the disciplines that are taught are like the living dead; an uncritical movement of scholarship, bounded and restricted by its methodological constraints, continue to exist and to teach the next generation of students; thus, allowing the system to self-perpetuate.

Disciplines and Knowledge

The current disciplinary ordering and structuring of knowledge is largely a product of the enlightenment movement in general, and modernity in particular. During the pre-modern period most western higher education institutions of learning included four distinct faculties of study: Theology, Canon Law, Medicine and the Arts otherwise known as the Liberal Arts. The rise of modernity fuelled the evolution and expansion of a range of knowledge systems by new and emerging scholarly communities. During the nineteenth century disciplines became a helpful medium through which most universities in the West were able to catalogue and archive new, emerging forms of knowledge, ranging from the natural sciences, social sciences and humanities. Throughout the early twentieth century new disciplines were added to the growing list.

The rise of disciplines was closely associated with knowledge production and dissemination. Modern knowledge production translates to power, control and exploitation. Today, we know that contemporary knowledge production is linked to neoliberalism. Most universities have embodied the market and the business model of neoliberalism. The student is a consumer rather than a learner. These consumers become, what Matt Husain calls 'zombie graduates', who are entitlement happy yet lack critical understanding and suffer acute philosophical poverty.

Academic disciplines have played a critical role in shaping the way we think, perceive, and how we construct the ideas of reality. We make sense of the world

through specialised disciplines. Yet zombification has befallen many of our disciplines due to their epistemological contradictions – because of their inability to provide solutions to problems as they play an integral part in creating said problems in the first place.

Zombie Disciplines

Disciplines disseminate ideas and concepts that are no longer representative of reality but continue to shape minds and imagination, education and policies, outlooks and futures. Zombie disciplines, we argue, are those disciplines that are products of modernity, diseased by neoliberalism, unchanged and increasingly irrelevant in postnormal times. Indeed, zombie disciplines within the university lacks dignity – in pursuit of their consumption they will destroy themselves! And us!

These range from anthropology to economics, political science to development studies, cultural studies to media studies, all varieties of ‘area studies’, certain types of history and philosophy, particular perspective on biology, and many other ‘subjects’ in between.

Sociology: The Birth of a Zombie Discipline

It is clear that sociology is a product of modernity while concurrently maintaining the objective to make sense of modernity. While modernity fundamentally transformed western societies through industrialisation, urbanisation, decline of religion, the introduction of sociology made it possible to reflect upon the nature of these socio-cultural transformations. The rise of sociology was materially connected with its Eurocentric formations. As Alatas has noted, the ‘vigorous outburst of colonialism in the 19th century was accompanied by intellectual trends which sought to justify the phenomenon [of colonialism]’. In light of the current questioning of sociology’s heteronormative standpoint by feminism, critical race theory and others, Go has pointed out that sociology, and by extension any discipline, needs to take stock of issues relating to knowledge, power and standpoint. So, while the discipline is the product of history – it is the product of only one history – the victor’s. Not only do zombie disciplines have their foundations firmly anchored in imperialist and racist histories, they also have ‘Great Men’ associated with them who are required to be cited within the literature. Sociology revolves around three thinkers: Marx, Durkheim and Weber.

It is important to note that the key to understanding any zombie discipline lies

neither in the uncritical acceptance, nor its rejection, but rather in acknowledging its epistemological and ontological standpoints, its limitations and its ability (or inability) to navigate postnormal times. In doing so it demonstrates how it leads to the logical conclusion of post-modernism – the death of knowledge and the triumph of interpretation.

Is sociology dead? It can be argued that as a discipline, it is indeed dead, but it continuous to give the illusion that it exists – like a classic zombie. Zombie disciplines, create zombie people, who continue to make decisions that are informed by toxic knowledge, and these further exacerbate the impacts of postnormal change. Postnormal times may be understood as an epistemological crisis.

Culture and Imagination

The root of this epistemological crisis is Western culture itself – a result of the collapse of the worldviews of modernity which results have left society bereft of intellectual, social, and other resources to respond to emergent challenges.

Ours is a cultural crisis owed to humanity's inability to move beyond a manufactured normalcy that perpetuates a familiar sense of present. Culture produces knowledge through a constellation of values, assumptions and drivers that are constantly in flux. Within culture lies imagination, a key ingredient for coping with postnormal times. With imagination, the construction of myths and stories become the vehicle for communicating and negotiating meaning about our world. These acts of meaning-making link us to culture.

Futures thinking, as an approach to problem solving, understands the world as a complex system and draws on a wide range of tools to access understanding, capacity building, and strategic potentialities concerning possible, plausible and preferred futures, and as it is culture that provides us with such images, imagination is the realm of the futurist. Futures thinking mitigates against the zombieism that threatens to infect disciplines. However, new thinking, in this way, requires new forms.

This new form may be found in Transmodernity, Sardar's concept that is 'designed to address the positive element of self-renewal and self-reorganisation in diverse world cultures'. For Sardar, transmodernity is rooted in the notion that cultures do not, and have never, existed in isolation, and that all cultures interact. All future actions are located in the intersections of

cultures. In this way, transmodernity produces a *trans* discourse of knowledge ‘which gives equal importance to knowledge systems of non-Western civilizations and cultures, including indigenous cultures, tacit and intuitive methods; and promotes the realisation that in a diverse and dynamic world, there are many ways to be human’. Thus, transmodernity calls upon our imagination as our moral conscience to perceive and shape better futures that are inclusive of all forms of episteme.

However, the imagination is contextual; we cannot imagine beyond our experiential, spatial or temporal contexts. Responding to this, futures work locates agency within the past-present-future nexus of culture. In this way, the role of the futurist is to break free from dominant (extended) present centered imagery of the future and facilitate creation of and/or the presentation of alternative images of the future. In moving toward transmodernity, futures thinking may be responsible for generating new possibilities, exploring new pathways by reconfiguring old elements, inserting new code, and bring out creative work generating alternative futures.

To achieve this, two things are required to be incorporated into the way we generate and disseminate knowledge. First, an appreciation of anticipation and anticipatory imagination as tools for thinking beyond current utilitarian approaches to the future. Second, an appreciation of the fact that our own happiness and enrichment depends on the happiness and enrichment of others. Thus, transmodernity may be achieved if we use the future as a way to unlock anticipatory imagination within the epistemological framework of mutually assured diversity (MAD).

Anticipatory Imagination and Mutually Assured Diversity (MAD)

As a pedagogical device, anticipatory action learning is a well-established approach to researching the future. Effective anticipatory action learning processes link individuals to social transformation, integrates different kinds and levels of appreciation of futures, creates open-ended and continually evolving conditions and contributes to intelligent action rather than formal knowledge.

Anticipatory action learning is different in that it incites active participation, is future focused in its application of anticipatory decision making, and embeds a reflective practice – or double loop learning – in which participants identify a problem, posit a solution, apply this solution, assess the outcome and reflect

on the questions: what happened, did it work, and where next? In this way teacher and student, researcher and subject, all become creators and purveyors of new – practical – knowledge and are involved in positive action towards the future.

An epistemological framework that creates space that synthesises the best of the diversity of cultures, without privilege, with a view toward transformational action is needed. Sardar's mutually assured diversity (MAD) offers us such a framework.

MAD premises that there is no such thing as a distinct culture, and that culture is diverse, complex, dynamic and adoptive. Sardar tells us, 'internally, individual cultures or subcultures are heterogeneous and speak with multiple voices; externally, they do not engage in a dialogue but a polylogue, where different voices are talking simultaneously to each other and Others'. Cultural relations, within the epistemological framework of MAD, are all about maintaining the external and internal diversity of cultures and ensuring that every voice is heard and acknowledged.

Mutually assured diverse disciplines would overcome zombie disciplines by harnessing pluralistic and diverse creative energies in a way that exercises individual and collective agency in the service of social, cultural and ecological processes that risk gridlocking transformational action, in a state of postnormal paralysis.

Postnormal Agency

Fundamentally this is all about agency. Postnormal times is a transitional period. What comes after postnormal times, Sardar tells us, 'can be consciously shaped to be a better, saner, more globally and ecologically relevant, more pluralistic, more humane and more peaceful alternative'. Agency in postnormal times, exists everywhere, is open and fluid, is not linked to a dominant world view, and rather invites us to reimagine everything we thought we already knew.

Thus, a change in the ways in which we enact agency in postnormal times, a reimagining of how we are in the world, whilst enabled by the imagination and facilitated through the epistemological realm, also has implicate effects on the ontological realm.

Toward Transmodernity

Our relationship to the zombie has been one based on fear: fear of the Other, fear of the imminent existential threat, fear of that which exists amongst us waiting to ravish us and strip us of our very souls. This fear stems from the fact that zombies, at first glance, look like us; they are our undead doppel-gangers, familiar yet unfamiliar, intimate and strange all at the same time, uncanny.

Emergent disciplines nested within the cultural ways of knowing and being of modernity are fated to zombification. Transmodernity, according to Sardar, has to be new ways of looking at 'culture and shaping the world that goes beyond all our conceptions and perceptions of normal'; in other words, beyond modernity. It moves beyond – transcends – alterity, insisting that it is the diversity of communities and cultures, of things and the world around them. Thus, transmodernity, ignited by anticipatory imagination and framed by MAD, is all about power. With this, the zombie discipline, no longer a threat to our very survival, becomes something from which we may begin to build a thoughtful future as a means to transform our world.

Conclusion

Should we reimagine our relationship with the zombie? Our proposition has been that, rather than ward off the zombie apocalypse, we should embrace the Otherness of the zombie, engage and learn from zombie disciplines and seek to navigate the future together. In particular, anticipatory imagination, framed by MAD, provide a process that brings in the personal and transformational as domains of knowledge creation. The aspiration here is transformation from the inside out. Zombie disciplines, like the zombie itself, are not the enemy, rather relics from a modernity that require excavation, a revamping and reframing, to help us transition toward that which is to come after postnormal times. Afterall, the zombie is fundamentally, metaphorically transformational.

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Chapter 5

Return to Metaphysics: Knowledge, Science and the 'Art of the Insoluble'

Colin Tudge

Most of what ought to be knowable remains unknown – and it is logically impossible to know how much is unknown unless we were already omniscient. All the really big questions – what is mind? What is life? Does God exist? – are unanswerable. Indeed, a great deal of what we would like to know is unknowable. We may think we know this, that, or the other – but how can we be sure? After all, the history of the world is riddled with brilliant ideas and beliefs that turn out to be false.

The whole history of thought is humanity's attempt to *understand*. Yet we must make this attempt with senses and brains and sensibilities. Our attempts to understand are heroic, yet always hampered by our own inappropriateness to the task. Omniscience must always be beyond our reach.

So how in practice have human beings sought to achieve understanding?

Apollo and Dionysius

Faith might be called 'intuition': the *feeling* that such-and-such a thing is the case. Reason by contrast is 'hard-headed'. It implies observation – which, once ratified, we take to be fact; and analysis of the facts, guided by logic, aided by mathematics – but also with leaps of imagination – leads eventually to 'robust' theory.

The contrast – or the complementarity – of intuition and reason are recognised and expressed in many different ways. The old Greeks contrasted the rational Apollo with the non-rational, from-the-gut Dionysius, who was the god of wine among much else. The two must be in balance. Both approaches taken to extremes – reason without feeling; feeling without reason – lead to trouble.

Thinking and feeling in the modern world are very much guided by science on the one hand, and religion on the other. Many perceive the two to be inveterately at odds. But many modern thinkers concede, at least up to a point, that science and religion are complementary. First let's look at science.

The Rise and Rise of Science

Science has deep and multifarious roots. It has picked up its ideas from all human endeavours from all the practical arts and crafts; from astronomy and natural history; from the abstract musing of philosophers; and from magic and theology. Science in short is an innately mysterious business. Its diverse roots have sprung from all cultures and from all ages, including, and of key importance, mediaeval Islam, which in the Middle Ages was centuries ahead of the west and north, though its contribution to the modern West is commonly unacknowledged. Mediaeval Christian and Jewish thinkers contributed a great deal too. Mediaeval thinkers were primarily theologians.

In the early days, thinkers who explored the workings of life and the universe were called ‘natural philosophers’. The word ‘science’ was freely used but was generally taken to mean ‘knowledge’. The term ‘scientist’ was introduced only in the 1830s. The first ‘man of science’, was in fact a woman, the nineteenth century Scottish physicist, Mary Somerville.

I have heard it said that science is an innately blasphemous pursuit because it nibbles at God’s mystery. But that idea is surely the height of blasphemy for it suggests that God is merely a conjuror, whose tricks seem tawdry once exposed. The truth, in science, is the precise opposite. The more that scientists know, the more they see how much there is to know – and the more the mystery deepens, just as Einstein said. Indeed, the ever-growing sense of mystery is one of the great drivers of science, or at least of great scientists.

Nowadays science is commonly taught primarily as a practical pursuit – specifically to provide high technologies. Scientists and policymakers in high-fallutin vein are wont to tell us that their goal is to ‘control’ nature or sometimes to ‘conquer’ nature or to ‘conquer’ space. I much prefer the seventeenth century idea that the prime function of science is to help us to *appreciate* and hence to cherish nature, whether or not we care to see nature as the work of God.

Beyond the seventeenth century to the present day, science has become more and more hard-headed. Overall, as science grew in scope and confidence, it really did begin to seem to many that the physical sciences at least would soon provide a complete account of all the most fundamental mechanisms that drive the world. Thus in 1894 the eminent German-American physicist Albert Michelson (1852-1931) declared:

it seems probable that most of the grand underlying principles have been firmly established and that further advances are to be sought chiefly in the rigorous application of these principles to all the phenomena which come under our notice ... the future truths of physical science are to be looked for in the sixth place of decimals.

Curiouser and Curiouser

For within a few years of Michelson's ultra-confident declaration, a series of revelations turned the whole of physics on its head; and now the re-think is still continuing, perhaps more rapidly and even more radically than ever. The re-think seems to be taking us deeper and deeper into the realms of the unknown and is testing credulity to its limits: beyond physics and into metaphysics.

From the dawn of the twentieth century, physics has transformed at a quantum pace. Indeed, recently even biology has transformed before our eyes in the same kind of ways. Truly modern scientists do not feel on the brink of omniscience. Rather they might echo Newton's declaration: 'to myself I am only a child playing on the beach, while vast oceans of truth lie undiscovered before me'.

How Do We Know What's True?

We don't, is the short answer. We can make what seem to be excellent guesses and we can gather plenty of reasons to suggest that some of our guesses describe reality more accurately and completely than others. All in all, we can be reasonably sure that we know a great deal more than nothing, and that some of what we think we know is pretty sound. Yet our knowledge must always fall far short and it is extremely dangerous for us to assume that we know more than we do. Absolutely not should we despair or give up trying to understand ourselves and the world around us, but we should always remain humble. Humility must be seen as a prime virtue in all contexts.

The modern method was and is to collect as much data as possible, based on repeatable, reliable observation, which are then taken to be *facts*; to come up with various *hypotheses* to explain how all the (known) facts might fit together; and to *test* the various hypotheses by experiment and/ or by making predictions about the way the world would; and seeing if they are borne out by more observations. All the observations are *quantified*, and the quantities are then subjected to the most rigorous *mathematical analysis*. Logical positivists stressed the importance of *verifiability*. The only discipline that could verify its ideas beyond reasonable doubt, or even possible doubt, was science, with its

sure-fire methods for finding things out and testing its ideas. Therefore, science was the only reliable source of knowledge.

And yet: even while logical positivism was still on the rise, it was being eroded at the roots. First, modern science and its methods rely very heavily on mathematics. Yet the Austro-Hungarian mathematician Kurt Godel began to show that mathematics isn't quite as sure-fire as was generally taken to be the case. This means that the theories of science, rooted in and 'verified' by maths, are not quite so secure as they seem.

In the 1930s came a serious challenge from the Austrian-British philosopher Karl Popper. He pointed out that in practice *no* big idea about the material world can be shown to be true beyond all possible doubt. The principle of verification is not appropriate because in practice *nothing* can be verified beyond all doubt. Ideas that qualify as scientific are not those that can be verified but those that could be *falsified*. The canon of science as a whole, said Popper, is not founded on bedrock certainties because there are no bedrock certainties.

Even the proposal of hypotheses, as the late quantum physicist Richard Feynman put the matter, is, in the end, just a 'guess'. Fruitful inquiry requires something altogether more mysterious: intuition; imagination. Although rational thinking aided by mathematics can tell us what is *likely*, it can never tell us what is actually *true*, or at least it can never give us the whole truth and if it does then we cannot know for certain that it is the whole truth.

Science treats the worlds as a series of problems that can be solved, and some scientists, in the spirit of Michelson, still dream of final solutions. But in the end, as Einstein emphasised, the islands of science are surrounded by mystery, in which there can be no final solutions.

All this is illustrated by a paradigm shift that is still very much in the making and promises to be the most profound of all.

Universal Intelligence

When we think it seems that our thinking emanates from our own selves, and in particular from our own brains. Thus, thought and feeling, consciousness and 'mind' would not exist at all were it not that sentient creatures like us, brought it into being. But there is an alternative notion. It is that *consciousness*

is a quality of the universe, embedded in effect in the fabric of the universe. According to this idea, we do not generate consciousness inside our own heads. We *partake* to a greater or lesser degree of the universal consciousness that is around us all the time.

The idea of universal consciousness chimes well with some of the key ideas to emerge from quantum physics. The idea of universal intelligence has profound implications for all of science that should be taken seriously. In the realm of metaphysics, we can.

Science, Religion, and Metaphysics

Metaphysics is indeed the study of things unknown and unknowable but as Muslim scholar Seyyed Hossein Nasr says, this does not mean that what is in the end unknowable cannot be subject to critical thought. *Contra* the logical positivists, science does not have a monopoly on critical thought. Indeed, says Nasr, metaphysics addresses ‘the ultimate questions’.

However, few universities outside the theological colleges offer the subject on their curriculum and those that do often have a seriously truncated view of what it is. Given its central importance in all ideas – including or even especially those of science – that omission matters.

The core of all *bona fide* religions is metaphysical in nature. Each theology colours the metaphysical core in various ways but what is most striking is the *similarity* between the different religious traditions. Notably, all emphasise *transcendence* and the essential idea of *oneness*. Although the great religious traditions differ in their customs and manners all, too, share common moral *principles*. The similarities are, or should be, the basis of *interfaith*. The interfaith movement need pose no threat to the established traditions, but enrich them.

Finally, science education should be profoundly revised. All too often it is taught primarily as a practical pursuit. Certainly, science teaching should continue to be ‘hard’; no shirking of detail or of maths. Overall, though, science should be conceived and taught primarily as an aesthetic and indeed a spiritual pursuit: its aim being not to ‘conquer’ nature but to appreciate nature more fully. Science, properly construed, enriches *bona fide* religion; and *vice versa*. Since science and religion are clearly of such profound importance, it is a tragedy that so many still feel and teach that they are forever separate, and often

are at odds. Truly we must seek reconciliation. And their meeting ground is metaphysics.

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Chapter 6

Epistemology and Higher Education in the Muslim World

Shamim Miah

Universities are now deeply entrenched with the commodification of higher education. The rupture within higher education is often linked to neoliberal ideas, yet paradoxically the solutions that are often presented by nation states and international bodies such as the IMF and the World Bank to tackle some of these problems are rooted within the free-market system. In recent times this neoliberal market-based approach to higher education has reached a crucial turning point 'where it is not capable of healing itself with its current conceptual, intellectual, moral and organised capabilities'.

To fully understand the relationship between western forms of epistemology and the Muslim world we have to look back into history. We can begin with colonialism where the foundation of European higher education institutions in 'colonised territories itself became an infrastructure of empire, an institution and actor through which the totalising logic of domination could be extended; European forms of knowledge were spread, local indigenous knowledge suppressed, and native informants trained'. But even the end of settler-colonial rule did not mark an end to Eurocentric modes of epistemology but rather led to its reconfiguration. European modes of higher education and learning remain firmly rooted in the epistemological traditions of their former colonial masters.

It is not a secret that western educational establishments have long been experiencing crisis of funding. In order to sustain its neoliberal paradigm, many universities have looked at the former colonies to expand their market influence. The Arab Gulf States, collectively known as the GCC (Gulf Cooperative Council), powered by oil wealth, view a 'knowledge economy' as part of their post-carbon economic future. This emphasis made a fertile ground for the expansion of Western universities. Along with the funding of university faculties in the west, the Gulf States have also developed strong partnerships with a number of western universities through the establishment of International Branch Campus (IBC), a system of delivering higher education,

within the private sector, through a partnership structure which requires the physical presence of one or more campuses.

Neoliberal forms of higher education proliferated IBCs throughout the Muslim world. The growth of IBC's, combined with the rise of educational consultancies within some segments of the Muslim world, raise a number of challenging concerns relating to the uncritical acceptance of neoliberal norms of educational progress. When education can be bought and sold in the free market, it is not surprising to note that the World Trade Organisation (WTO) encourages this approach as part of 'trade in service industries' through issuing regulatory guidance as part of the General Agreement in Trade and Services (GATs). This has benefited the western educational sector enormously.

The investigations of the problems of epistemology, or discussions of futures of higher education in Muslim societies, cannot ignore the role of IBCs. The current IBC's structure does not allow a space for any meaningful dialogue, let alone polylogue, on these crucial issues. IBCs reproduce some of the strict disciplinary silos as seen in many western university settings. The education that the students receive is often out of sync with their cultures, values and worldview; they are almost completely ignorant of the intellectual heritage and literary canons of their own civilization, and, for the want of a better word, brainwashed into uncritical acceptance of neo-liberal capitalism.

A critique of epistemology simply does not make sense without associating knowledge production with the economic model of neoliberalism – the bedrock on which educational institutions are based. While a number of Muslim countries are looking at the West to develop their 'knowledge economies', what they may be receiving is a market driven audit culture in which fifty percent of resources in universities is consumed by non-core activities where knowledge becomes a business proposition.

IBCs and Uncertainty

The educational system in the Muslim world is not designed to solve the problems of Muslim societies. Indeed, it leads to continuation and intensification of the current social, cultural, and intellectual crisis. The social and cultural problems within Muslim societies are further compounded by the unstable, and fragile nature of global world order, and complex, contradictory and chaotic character of postnormal times. It has long been established that the blurring of these boundaries raises critical challenges to higher education;

especially given that some academic disciplines reject any ontological notion of ‘truth’.

In light of post-truth politics, it is fair to state that during this critical phase of history, the very nature of knowledge is in doubt, and as a result we are witnessing a complete breakdown of integrity of university education. Moreover, it is for this precise reason that universities, as repositories of learning and knowledge transmission, and the relevance of university education, have been called into question.

The crisis of epistemology is in part a reflection of wider fundamental changes within society, which have led to increases in complexity, uncertainty and ignorance, which have in turn eroded trust in conventional institution.

As a counterbalance to uncertainties in both ‘products and process’ that eroded our trust in science, postnormal science introduces the notion of ‘extended peer communities’, which bring in a number of different perspectives, disciplines, actors and stakeholders to the issue being explored and discussed. As such, postnormal science makes science a broader social and cultural issue that involves the community as a whole.

In the Muslim world, science is still taught as a linear Comtian process – steadily advancing in certainty, knowledge and control of the natural world. It is presented as a positivist endeavor, grounded on data and empirical values which lead to ‘true’ conclusions – which then go to determine correct and impartial policy, although science and policy are seldom explored in universities in Muslim societies. So, what is being taught as science no longer functions either as a characteristic of contemporary science nor as a lived reality. Student memorise facts and formulas, with no historical or societal context.

Internet, AI and Double Consciousness

The internet adds a different dynamic to post-truth by providing repetition and echo-chambers which spread the content rapidly and globally. The role of technology is now so central and pivotal that for many, higher education cannot be imagined without the ubiquitous and constant use of cyberspace and other technology. An interactive online system is no substitute for interpersonal education where students and teachers, and students and students seek individual and collective self-knowledge. Cyberspace is now an essential ingredient in the life of Muslim students – from cradle to grave.

The arrival of Artificial Intelligence (AI) is set to transform education further. AI is usually seen through three broad types: artificial narrow intelligence (ANI), artificial general intelligence (AGI), and artificial super intelligence (ASI). Many are moving beyond ANI and are currently functioning within AGI, which they hope someday ‘will be able to reason, solve problems, think in abstraction, and make choices as easily as we can, with equal or better results’. Technological breakthroughs in AGI will inevitably lead towards ASI, which will range ‘from being slightly more capable at performing human cognitive tasks than we are, to AIs that are literally trillions of times generally more, smarter than humans in every way.

Early implementation of AI in education will focus on controlling all aspects of teaching: from classroom management, to presentation of material, giving and marking assignments, to setting examinations and reporting results. Virtual laboratories will replace practical work in the class. All of this would have an impact on how students see machines, themselves and other humans. As such, universities will have to introduce new tools to ensure that students are ‘robot proof’: ‘humanics’.

But will humanics be enough to deal with the emerging challenges? A bigger concern is the racialised nature of AI. It is widely accepted that AI is deeply biased towards those who write the programmes in the first place; in other words, it promotes the worldview of the programmers and coder, that is, white European men at the expense of non-western cultures and people.

Indeed, the very survival of the university as a physical teaching and research institution is at stake. It is a distinct possibility that most conventional universities will become less and less important and turn into, or be replaced by, ‘digital universities’, with no campuses, requiring little or no physical interaction for the students. Universities in the US will be ‘like department stores in 2018. Everyone will recognize they’re going out of business, but it will take longer than people think. There will be a lot of zombie universities. Alumni will step in to help. They’ll cut costs to figure out how to stay alive, but they’ll effectively be the walking dead. I don’t think you’re going to see massive shutdowns, but there’s going to be a strain on tier-two colleges’. As competition for online students intensifies, bigger, more financially secure universities will seek partnership with giant tech companies.

Given the racial and ethnic bias of AI, and the take-over of institutions of

higher education by neoliberal corporations, we can safely say that educational futures of Muslim societies is rapidly being colonised. Consciousness, as the sociologist, historian and pan-Africanist scholar, WEB DuBois has argued, affects our decisions, the way we think and act, and the way we interact and seek to change or not change the world. It is not innate; rather it is a product of our socialisation, history, social standing and education.

Muslim double consciousness was shaped and formed under colonial period and continues within the post-colonial experience. For Dubois double-consciousness, is the sense of 'always looking at oneself through the eyes of other, of measuring one's soul by the tape of a world that looks on in amused contempt and pity. One ever feels his two-ness. For Muslim societies, double consciousness now has an added layer – the experience of living in colonised futures that writes of their alternative futures just as their history itself was suppressed, marginalised and, in some cases, written off. This requires developing emancipatory educational epistemologies.

Navigating TRIGOXIC Knowledge

To shape desirable futures, it is pertinent to note the changing nature of knowledge and epistemology. This is because universities are not only spaces for education and learning, they are places which validate which histories and knowledge are valuable and essential for the future. We can observe how proliferation of data and information fundamentally transforms knowledge itself through heightened rates of uncertainty and chaos.

Changing forms of epistemology, especially what has been termed as TRIGOXIC knowledge within PNT, raises fundamental challenges for society. TRIGOXIC knowledge, which embodies forms of emergent knowledge, covered by the smog of ignorance, incorporates plain ignorance, vincible ignorance, and invincible ignorance. Muslim societies cannot ignore the questions raised by TRIGOXIC knowledge.

It is crucial to point out that tackling some of the key questions and concerns, around AI and TRIGOXIC knowledge, should not start with a break from the past. Rather, some of the classical Muslim approaches to epistemology provide a link between the past, present and the future. This is not only central for the development, evaluation and transmission of ideas but allows for the development of Dubois' 'second-sight', essential for a society to navigate the present circumstances. What we need are epistemologies that liberate

education from historic, present and future colonisation and are firmly grounded within the Islamic purview.

A truly liberating epistemology of education has to be based, I would argue, on the *maqasid al-shariah*. The *maqasid* – original objectives – are crucial to rethinking the objectives of higher learning, the purpose of education and the principles through which it should be guided; and they provide tools to assess the overall objective of learning by critically assessing the current neoliberal normative model. The consensus amongst the scholars is that *maqasid* lies in the higher objectives of Shariah, which constantly shift and embrace different socio-cultural landscapes.

The *maqasid* approach also offers principles which links education with contemporary concerns. It does this by exploring the objectives of education with ethical concerns, especially relating to ecosystems, climate change, genuine rights, equality, human dignity and civic society. The purpose and value of education is not determined by a market system linked to economic outputs, rather the value of education is linked with the emancipation and liberation of self, environment and communities. The *maqasid* outlook is geared to the activation of this hitherto dormant consciousness.

The rekindling of Muslim consciousness can be facilitated with the help of kindred western scholarship. The reactivation of an indigenous, critical ‘second sight’, does not mean rejection of all western knowledge. There is a rich scholarly tradition of contemporary theorisation of society, especially relating to ideas of conflict and change, that we need to consider in rethinking the aims and purpose of higher education, and redesigning institutions of higher learning in Muslim societies.

Conclusion

An epistemological framework which simply emulates the West, or forces Muslim societies to constantly look at themselves through the lens of western perceptions and worldviews, has colonised the past and present of educational institutions in the Muslim world, and threatens to colonise the futures of the next generations. A future orientated Muslim consciousness, and a ‘second sense’ based on Islamic concepts and notions, are crucial to emancipate education from its colonial legacy, the current neoliberal impasse, and to decolonise Muslim futures. The ability and capability of future generations in the Muslim world depends on making epistemological issues central to all concerns about higher education.

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Afterword

The Journey for Epistemological Justice

Anwar Ibrahim

In the mid-1970s, I found myself emerged in a series of conversations with a group of notable Muslim thinkers. The ummah was in a state of disarray and had been in trouble for quite some time. The moment seemed ripe for a change of course. Yet, much of the intellectual discourse of that period was occupied with fixing the ummah in their own way.

Not much has changed since then.

In the 1950s, the Malaysian philosopher Syed Muhammad Naquib al-Attas had spent some time at McGill University in Montreal where he crossed paths with the Palestinian-American philosopher Ismail al-Faruqi. They became friends. When I was a student in the 1970s, al-Attas invited al-Faruqi to Malaysia to give a series of lectures and talks. These lectures often stretched from *Isha'a* to *Fajr*.

These conversations kicked off an investigation that would forever bind our fates in search of a resolution to problems that were not new, but whose prescience weighs heavy on the storms we face today. We were not just political respondents; we were grappling with higher ethical and metaphysical ideas. We were not constructing a haphazard, pragmatic State for Islam; rather, we sought the construction of an ideal state as envisaged by Abu Nasr al-Farabi. Most importantly, we investigated the roots of the crises of Muslim thought and society and saw the problem for what it truly was – something epistemological.

Stating the problem has always been relatively easy. The twentieth century was a great realisation of this problem: a grave injustice had condemned Muslim societies to failure upon failure thwarting any attempt at progress. The injustice, we all agreed, confounds us at an epistemological level. Even though many projects have been undertaken to tackle the problem, it continues to paralyse the ummah while the world carries on.

The epistemological crises hidden within the advent and proliferation of social media, artificial intelligence, algorithms, and post truth, threaten the whole world and it will take a global dialogue and collective wisdom to navigate what comes next. Muslim societies' continued inability to create knowledge not only keeps us from the table of that global dialogue, but entangles us in a chaotic web of colonised minds and dispossessed futures. In postnormal times, the nightmares only gain greater colour and resolution.

Back in the 1970s, there was no lack of effort or desire to resolve the crisis. Innumerable conferences were organised all over the world to address it head-on throughout the 1980s and 1990s. There was an urgent need, we thought, for a method or approach that could break Muslim knowledge from Western bias and dominion. There was total absence of Islamic discourse in modern disciplines. Universities were still strongly tied to western disciplines without alternatives or anyone to challenge or contest ideas. There was a critical need, we thought, to bring Islam into the centre from the periphery.

The idea that developed out of the conversations would come to be known as 'Islamization of knowledge'.

Al-Attas approached the problem as a Sufi traditionalist. He saw an essential interplay of Malay history, language, literature, and culture with Islam. For him, modernity was at the core of all Muslim problems. In contrast, al-Faruqi, who had a deep familiarity with western philosophers and a brilliant ability to navigate classical Islam and modernity, was a modernist through and through. While acknowledging the dismal state of the ummah, he did not see modernity as the death of Allah, but argued that we needed to retake the modern world from the perspective of Islam by Islamizing knowledge in general, and the disciplines of social sciences in particular.

Both al-Attas and al-Faruqi were an extension of the conventional discourse on *tawhid* – the fundamental Islamic concept of unity of God. Both considered their projects to be *tajdid* – renewal of Islamic thought. Yet, al-Faruqi and al-Attas proved to be like oil and water. Al-Attas would go on Islamising in his own fashion through various endeavours that would lead to, with my support when I became Minister of Education, the creation of the International Institute of Islamic Thought and Civilisation (ISTAC). Meanwhile, al-Faruqi would return to the US and, with a group of friends, establish the International Institute for Islamic Thought (IIIT). The accent was on Islamization; that was

what was needed, we all thought. There was a lot of work to do to make Islamic thought relevant again – for Muslim societies, for the world, and for universities throughout the world.

As the years went on, the flaws of the Islamization of knowledge project – both in al-Attas and al-Faruqi versions – began to appear. It was just one-dimensional. Islamization lacked the plurality and diversity that a changing world demanded. Islamization had put the ummah on the defence, turning it into an isolated enclave.

Following the turbulent post-9/11 noughties, with the Arab Spring echoing the tumultuous background of the 1970s, 1980s and 1990s, the epistemological project required a course correction. We needed to learn from all the work done since the mid-1970s, consider and understand the changes that had taken place during the past decades, reorientate ourselves, and infuse fresh energy into the project. At this time Ziauddin Sardar presented me with my most difficult challenge. Sardar was a severe critic of the project of Islamization of Knowledge. I thought, Sardar would bring in a different perspective to our conversation and would be an excellent addition to our ongoing conversation.

Sardar argued that the Islamization of knowledge project was both partially right and partially wrong. It was right in suggesting that the dominant modes of knowledge production were epistemologically biased; but it was wrong in assuming that this bias can be sponged with a dose of Islamic values or Islamization. In fact, Sardar argued that epistemological bias was not only a problem for Islam, it was also a problem for the West – and both needed rescuing from an aggressively colonising epistemology unconcerned with morality, and determined to undermine any notion of humanity. Both East and the West need a strong dose of epistemological justice.

Justice, so paramount to the foundational beliefs of Islam and has to be maintained on a multitude of levels – from the inner toil of personal justice to the justice found between individuals, communities, nations and states. Justice is also needed in how we treat nature, how we see others, and how we acquire knowledge. But justice cannot be sought in isolation; it requires collaboration and cooperation, seeing value in the efforts of others, and consider different viewpoints and outlooks to shape better, more humane and sustainable futures.

Sardar reframed the project: moving it away from ‘Islamization of Knowledge’

to become a discourse on ‘Integration of Knowledge’ – an emerging, multi-generational discourse, geared towards producing new knowledge, that evolves and matures organically, based on the values of justice and humility, that respects different modes of being and knowing, gives due importance to objectivity as well as inner experience. There is also emphasis towards the future, an unbridled concern for the future generations, creation of new disciplines to meet the challenges of postnormal times.

There is a deep neglect that is being exposed in some of the revelations of this volume. Epistemology is not only the heart of our knowledge base; it is the tool by which knowledge and truth are justified and differentiated from opinion or belief. It lurks beneath the surface because it is taken for granted.

Both the Western and Islamic worlds are at fault here. The attempt to define and separate what was and has always been irrevocably tethered is bound to lead in failure. So, we return to square one!

But times change; and in postnormal times accelerating change is the norm. In an interconnected, globalised world, rapid change generates complex problems that require complex approaches to navigate. Adopting to changing nature of change, requires the spirit of polylogue that brings different perspectives to examine the problems we face, grants agency to those left voiceless, and exposes conscious, unconscious or confirmation bias. The deep philosophical reflections that remain exhaustingly overdue can be conducted in a demystified fashion and can bring about actual results.

Epistemological reform is the new banner we have to rally behind. Knowledge now is intrinsically linked to western power; and pernicious variety of orientalism has now permeated all fields of knowledge. Integration of knowledge is about liberating knowledge and opening up knowledge production to different ways of knowing. In an Integration of Knowledge approach, we can come to the global table and bring a voice that demands equal respect to resolve the issues and crises that are facing us on a complex, globalised level. Integration is, of course, at least a two-way process. It encourages the incorporation of non-western values and concerns in the production of global knowledge. And it forces us to do some serious introspection: where we come from as Muslims, where we are going, where we ought to be going, and where we stand collectively as humanity. Integration requires collaboration not separation. It gives us the opportunity to work

together to create new paradigms, new ways of solving problems, and new ways to live sustainably on the planet.

As Islam teaches us, and futures studies and postnormal times theory support, we must not despair. The future is plural and the more aware of this fact and literate we are in thinking about it, the more open, inclusive, empowering, and multicultural we can make it. Justice is not some heavenly ideal or lost romanticised notion of hither history, it is an ongoing practice and something to be continually aimed towards in our futures.

The Integration of Knowledge project requires a revitalisation of our creativity and imagination as well as a strong infusion of ethics. Civilizational dialogues as well as polylogues can remind us of how interconnected our world and our civilizations really are. Our journey towards epistemological justice must be based on an enlightened view of Islam, removed of its demonised caricature, and the West, freed from its fear-based ignorance, as equals in cooperation – a sort of *Covivencia* that untethers the way of the world from animosity and clash towards integrated, collaborative, constructive, and critical knowledge creation.

Only through striving for epistemological justice can we aspire to higher truths, and shape viable, thriving, and sustainable futures for all.

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Contributors

Anwar Ibrahim is the Prime Minister of Malaysia since 2022 and the Chairman Emeritus and co-founder of the International Institute for Islamic Thought (IIIT). Dato Sari Anwar Ibrahim has also served as Deputy Prime Minister of Malaysia as well as Minister of Finance, Education, Agriculture and Culture, Youth, and Sports. He was selected as the chairman of the Development Committee of the World Bank and International Monetary Fund (IMF) in 1998. As Minister of Education, he undertook substantial reforms to improve the educational system, introduced the National Education Philosophy in 1988 to replace the system established by the British, and initiated Life Skills subjects as well as the KBSR and KBSM (the new primary and secondary school Malaysian national curriculums respectively). He helped to establish the International Islamic University of Malaysia (IIUM) in Kuala Lumpur and served as its president from 1988 until 1998, setting it on its present course to become an internationally renowned university. Prior to entering politics, Dato Sari Anwar Ibrahim was a student activist and a founding member and second president of the Muslim Youth Movement of Malaysia (ABIM) where he promoted the translation of the works of many Muslim thinkers into Bahasa Melayu. Dato Sari also held teaching positions at Oxford University, Johns Hopkins University and Georgetown University in the United States. His latest publications include 'Confronting Authoritarianism', in *Journal of Democracy*, and 'Justice for a Praying Person' *Critical Muslim*. He is also the author of *The Asian Renaissance* (1996).

Christopher B. Jones, Senior Fellow, Centre for Postnormal Policy and Futures Studies, is on the faculty of Walden University's graduate School of Public Policy and Administration (online, since 2009), where he mentors dissertation students. He has taught political science and futures studies in the state systems of higher education in Hawaii, Oregon, Texas, and Colorado in the USA. He graduated from the University of Hawaii futures studies program (MA & PhD in Political Science), was one of the first interns at the Institute for Alternative Futures in Washington, DC (1981), Secretary-General of the World Futures Studies Federation (2001-2005) and taught the MS Program in Studies of the Future at the University of Houston-Clearlake (2001-2004). He was a rapporteur for the Pacific Telecommunications Council (1980-1985), and did research on telecommunications and climate change in the Pacific Islands. He is a Fellow of World Futures Studies Federation, member of the Association of Professional Futurists, and has published and presented extensively in the futures studies field. His novel *Fire and Ice* explores eco-terrorism, alien First Contact, and the collapse of Western civilization. Professor Jones specialises in qualitative futures inquiry, including brainstorming and creativity, horizon scanning and emerging issues analysis, scenario building, visioning, strategic foresight planning and postnormal times analysis.

Liam Mayo, Senior Fellow of the Centre for Postnormal Policy and Futures Studies, is Chief Executive Officer of Be, a large not for profit that supports aging, vulnerable and disabled people to live independently at home. Dr Mayo is a writer and public speaker who specializes in helping people navigate transformational and postnormal change. With a focus on engaging people through change, he works with marginalized communities and vulnerable people in complex environments to achieve sustainable, just and desired futures. He has extensive international experience working with governments, the private sector and non-government agencies to incorporate community engagement and development practices in the design and delivery of policies, strategies and plans. Over the years, he has expanded his work to integrate strategic planning, foresight methodology and postnormal analysis covering education, health, housing, employment, domestic violence, youth, refugees and disability services. He has published widely on issues of postnormal time and is an Adjunct Industry Fellow for The School of Social Sciences at the University of the Sunshine Coast.

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Ziauddin Sardar, writer, cultural critic and futurist, is Director of the Centre for Postnormal Policy and Future Studies. Formerly, Professor of Law and Society at Middlesex University, he is author of over 50 books, including two acclaimed volumes of autobiography: *Desperately Seeking Paradise: Journeys of a Sceptical Muslim* and *Balti Britain: A Provocative Journey Through Asian Britain*. A collection of his writings is available as *Islam, Postmodernism and Other Futures: A Ziauddin Sardar Reader* and *How Do You Know? Reading Ziauddin Sardar on Islam, Science and Cultural Relations*. His most recent books are *Reading the Qur'an* and *Mecca: The Sacred City*. Professor Sardar has worked as a science journalist for *Nature* and *New Scientist*, as reporter for London Weekend Television and Channel 4, and has made numerous television and radio programmes. A former columnist on the *New Statesman*, and editor of *Futures*, the monthly journal of foresight and futures studies, he served as a Commissioner on the Equality and Human Rights Commission from 2006 to 2009. A well-known futurist and public intellectual, Professor Sardar is editor of the influential quarterly, *Critical Muslim*.

Colin Tudge is a biologist by education and a writer by trade, with a lifelong interest in food and farming, politics and metaphysics. He first worked for the now defunct *World Medicine*; then *Farmer's Weekly*; and then, in the 1980s, became Features Editor of *The New Scientist*. From there he went on to present his own science programme on BBC Radio 3, and then became freelance. His published books include *The Famine Business*, *Future Cook*, *The Variety of Life: A Survey and a Celebration of all the Creatures that have Ever Lived*, *The Day Before Yesterday*, *The Secret Life of Trees*, *The Secret Life of Birds*, *Last Animals at the Zoo*, *Feeding People is Easy*, *Good Food for Everyone Forever. Why Genes are Not Selfish and People Are Nice*, *Six Steps Back to the Land*, and most recently, *The Great Re-Think*. In 2010, he co-founded the Oxford Real Farming Conference, which gave rise to the Real Farming Trust and to the College for Real Farming and Food Culture, now his prime professional concern.

EDITOR'S NOTE

Chapter one, 'The Smog of Ignorance: Knowledge and Wisdom in Postnormal Times' was first given as a lecture on 2 November 2019 at the Association of Muslim Social Scientists (AMSS) Lifetime Achievement Award, Digital Futures Conference, Kuala Lumpur, Malaysia. A revised and expanded version was published in *Futures* 120 102554 (2020). Chapter three, 'Manufactured Worldviews and the Shifting Landscape of Digital Knowledge' by Liam Mayo is a revised version of his paper, 'The Postnormal Condition,' published in *Journal of Futures Studies* 24 (4), pp.61-72 (2020). And Chapter four, 'Zombie Disciplines, Anticipatory Imagination and Mutually Assured Diversity in Postnormal Times' by Liam Mayo and Shamim Miah is an extended and modified version of their paper 'Zombie Disciplines: Knowledge, Anticipatory Imagination, and Becoming in Postnormal Times,' published in *World Futures Review* 13 (2), pp.157-171 (2021).

IIIT Books-In-Brief Series is a valuable collection of the Institute's key publications written in condensed form to give readers a core understanding of the main contents of the original.

Our established, age-old notions of knowledge have ceased to be meaningful in postnormal times. What we define as true knowledge, and the ways in which we create it, have changed radically. The emergence of 'Big Data' and Artificial Intelligence, as well as 'fake news', 'alternative facts', 'deep fake', and 'post-truth' have changed the nature of knowledge production. Established disciplines, such as economics, sociology, anthropology, political science, have lost their significance. Revengeful capitalism, based on profit-driven algorithms, has not only led to environmental destruction, but has also ruined our understanding of what actually constitutes knowledge. In an era that defines societies by questions of knowledge, it becomes necessary and urgent to ask: how is knowledge produced, how is it distributed, and who decides what is true knowledge and what is not?

Emerging Epistemologies explores the changing nature of knowledge production and investigates how emerging epistemologies are transforming our perceptions of the present and the future. The contributors to the volume examine digital landscapes, zombie disciplines, higher education, the role of metaphysics, and epistemological justice; and argue that epistemology does not exist in a vacuum but is determined and embedded in the worldview and culture of society. The chaos and contradiction that accompanies our increasingly complex world requires us to see through 'the smog of ignorance', and seek new ways of thinking and creating knowledge that promotes sustainability, diversity, social justice and appreciates different ways of knowing, being, and doing.

