The Epistemology of *Ta'dib* in Islamic Civilizational Discourse: Reviving and Reconstructing Contemporary Muslim Scholars' Views

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Abstract

Since the end of the twentieth century, a new epistemic discourse on education has emerged. This discourse appears in tandem with the enthusiasm of the pioneers of the new age of science movement in offering brilliant ideas as an alternative to modern scientific epistemology. This study aims to provide a new epistemological construction of education synthesised from contemporary Muslim scholars' ideas and works. This study adopts a narrative literature review method to locate the literature on contemporary epistemology and current educational crises. This study has not only succeeded in making abstractions from the ideas of Muslim scholars but also in synthesising three patterns of scholarly entity ideas: figures of new epistemological movements with their characteristics of eclecticism, religious syncretism, monism, pantheism, exaltation of humanity, transformative, ecologically oriented, and holistic; ideas from critical pedagogical figures; and most importantly, the standpoints of contemporary Muslim scholars. The construction of a new epistemology of education moves from monotheism as the foundation of education, restructuring the educational curriculum based on the structure of Islamic knowledge, and a vision of education that equally respects and liberates human beings.

Keywords: Islamic education, new epistemology, Muslim scholars, critical pedagogy

Introduction

Amidst limitations—if not emptiness—of new ideas in educational philosophy, especially in Islamic educational philosophy, Muslims need to revitalise contemporary Islamic scholars' ideas, views, and thoughts to reconstruct them into fresh and enlightening ideas in educational studies. The revitalisation and reconstruction of the thoughts of contemporary Muslim scholars can be an offer to enrich the discourse of a new epistemological movement in education. This new educational epistemology offer is significant in light of the fact that modern epistemologies such as rationalistic,[1] materialistic,[2] and positivistic[3] have dominated educational theory and practice for too long.

Modern epistemology has created a magnificent civilisation and advanced science and technology successfully. However, modern epistemology, which is the main instrument of modernisation, has a worrying impact.[4] Modernity has driven human, social, and environmental crises: modern humans experience objectivation and lose their wholeness;[5] humans become alienated from their sociocultural environment,[6] and ultimately lead to an ecological crisis that affects humans on a spiritual, emotional and psychological level.[7]

The impact of modern epistemology is also felt within the framework of educational epistemology. Modern educational epistemology has encouraged learners to be partial, incomplete, reduced,

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[1] Wing-cheuk Chan (2003), "Zhu Xi's Appropriation of Mencius's Thought: From a Hermeneutic to a Developmental Approach BT," in Yang Xiao and Kim-chong Chong (eds.), *Dao Companions to Chinese Philosophy*, Cham: Springer pp. 159-178.

[2] Małgorzata Kowalcze (2002), "Is Matter Ethical? Is Ethics Material? An Enquiry into the Ethical Dimension of Karen Barad's Ethico-Onto-Epistemological Project," *Culture, Theory and Critique*, Vol. 63, No. 1 , pp. 1-12.

[3] Nick Overduin (2023), "The Epistemological Paradigm of Post-Religious Humility," *Epistemology & Philosophy of Science*, Vol. 60, No. 1, pp. 131-148.

[4] Christian William Callaghan and Andrew Mitchell (2023), "Environmental Sustainability and Management Theory Development: Post-Paradigm Insights from the Anthropocene," *European Tamagement Review*, Vol. 26, No. 4.

[5] Samuel Bendeck Sotillos (2022), "The Eclipse of the Soul and the Rise of the Ecological Crisis," *Spirituality Studies*, Vol. 8, No. 2, pp. 34-55.

[6] Jeffrey S. Reber and Zachary B. Beckstead (2017), "Anti-Reductionistic Empiricism in Contemporary Psychological Research," in Joshua W. Clegg (ed.), *The Observation of Human Systems*, London: Routledge, pp. 141-166.

[7] Jana S Rošker (2022), "Sublating Sinic Relationism: On a Winding Path from Transcultural to Global Ethics," *Asian Studies*, Vol. 10, No. 3, pp. 81-104.

materialistic, deterministic, and mechanistic.[8] Its negative impact on humans and nature has been predicted by postmodernism activist Pauline M Rosenau. He noted several vital pieces of evidence of the crisis of modernity: failure to realise improvements towards a better future; unable to escape arbitrariness and abuse of authority for the sake of power; giving rise to various social pathologies; and a disregard for humanity's spiritual and metaphysical qualities by placing too much focus on the individual's physical characteristics.[9]

In particular, since the Enlightenment, modern epistemology has been influenced by Descartes, the 'father of rationalism',[10] who sought to create a universal theory of knowledge[11] that would allow humans to triumph over supernatural forces. Success in enshrining modernist ideas into the fabric of world history can be traced back to Descartes and onward to Kant and Hegel.[12] Through the concept of 'absolute ideas' from Kant[13] and the idea of 'absolute idealism' from Hegel,[14] modern epistemology finally stands on the principles of rationality, empiricism, objectivity, neutrality, measurement, verification, quantification, generalisation, nomothetic, reduction, and value-free.

Modern epistemology has permeated many aspects of life, including theories and educational practices. After conducting a study of the development of scientism in education by examining the works of Hume, Bacon, Comte, and Spencer, two researchers, Hyslop-Margison and Naseem, concluded that modern epistemology has tarnished education and educational research for more than 150 years.[15] Their conclusion is then reinforced by Wrigley,[16] who concludes that this reductionist nature has become hegemonic in many aspects of modern schools, resulting in a loss of complexity, openness, and value. Wrigley said that reductionism relies too much on a superficial reading of reality that it obscures, distorts, or fails to understand the power dimensions of what is learned in school. Even Melville et al.,[17] editors of the Journal of Science Teacher Education, said that the epistemology of Western science has created and maintained inequality within and throughout society. According to Cobern & Loving,[18] this condition causes forms of local knowledge to be devalued, delegitimised, or deleted, resulting in continuing discriminatory relationships.

After examining various arguments about the harmful effects of modern epistemology on education, this article seeks to revitalise the ideas of contemporary Muslim scholars and then reconstruct them into alternative offers to enrich the discourse of new educational epistemologies.

Method

This study proposes an Islamic epistemology to restore the damage done by modern epistemology in educational theory and practice. For that purpose, the narrative literature review method has been adopted. Through this method, the work identifies and reviews the literature on modern epistemology and the crises it has created for educational theory and practice. To construct Islamic epistemology as an alternative offer, the process includes identifying, reviewing, and revitalising the thoughts of contemporary Muslim scholars about the epistemology of science. Subsequently, this epistemology is constructed as an alternative proposition for a new educational framework.

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[8] Antonio Cuadrado-Fernandez (2020), "Mind, Body and Environment in Indigenous Anglophone Writing: Poetic Interventions for a New Modernity," in Kerry Gallagher (ed.), *Multiculturalism: Critical and Inter-Disciplinary Perspectives*, Leiden: Brill, pp. 121-129.

[9] Pauline M Rosenau (1992), *Postmodernism and Social Sciences: Insight, Inroads, and Intrusion*, Princeton: Princeton University Press.

[10] Stephen Gaukroger 2023), "Descartes: Methodology," in G. H. R. Parkinson (ed.), *The Renaissance and 17th Century Rationalism*, London and New York: Routledge.

[11] Delphine Antoine-Mahut (2020), "Philosophizing with a Historiographical Figure: Descartes," *British Journal for the History of Philosophy*, Vol. 28, No. 3, pp. 533-552.

[12] Thomas Khurana (2022), "The Life of Form: Practical Reason in Kant and Hegel," in *Ways of Being Bound: Perspectives from Post-Kantian Philosophy and Relational Sociology*, in Patricio A Fernández et al. (eds.), *Ways of Being Bound*, Cham: Springer International Publishing, pp. 47-70.

[13] Kristian Schäferling (2022), "Meillassoux's Reinterpretation of Kant's Transcendental Dialectic," *Open Philosophy*, Vol. 5, No. 1, pp. 702-717.

[14] Robert B Pippin (2023), "Ideas and Idealism in Philosophy," in Jure Simoniti and Gregor Kroupa (eds.), *Ideas and Idealism in Philosophy*, Berlin: De Gruyter, pp. 127-150.

[15] Emery J. Hyslop-Margison and M. Ayaz Naseem (2007), *Scientism and Education: Empirical Research as Neo-Liberal Ideology*, Dordrecht: Springer Netherlands.

[16] Terry Wrigley (1019), "The Problem of Reductionism in Educational Theory: Complexity, Causality, Values." *Power and Education*, Vol. 11, No. 2, pp. 145-162.

[17] Wayne Melville, Geeta Verma, Todd Campbellc, and Byung-Yeol Park (2022), "Challenging the Hegemony of Western Scientism in Science Teacher Education," *Journal of Science Teacher Education*, Vol. 33, No. 7, pp. 703-709.

[18] William W Cobern and Cathleen C Loving (2001), "Defining 'Science' in a Multicultural World: Implications for Science Education," *Science Education*, Vol. 85, No. 1, pp. 50-67.

The reviewed works encompass the contributions of contemporary Muslim scholars which include Al-Faruqi,[19] Al-Attas,[20] Nasr,[21] Osman Bakar,[22] and Sardar.[23] To provide a more contextual perspective, the review also incorporated the thoughts and work of Kuhn,[24] Tarnas,[25] Polanyi,[26] and Feyerabend.[27]

Results and Discussion

The New Epistemology of Education
The embryo of a new epistemology of education emerged in the 1970s.[28] The work was initiated and continued to be inflamed, among others, by critical pedagogical figures: Paulo Freire, Henry Giroux, Roger Simon, Michael Apple, Peter McLaren, Ira Shor, and others. These new educational epistemology scholars and activists sought to dismantle the ideological cover of educational epistemology, which they believe is shackled and lacking in enlightenment;[29] less dialogic, no vision of social justice, freedom, and equality;[30] lacks hope and is weak in social transformation;[31] uncritical, unequal, and less democratic;[32] capitalistic and hegemonic;[33] and support for the status quo, anti-social justice, democracy, and equality.[34] According to the proponents and defenders of the new epistemology of education, social and political challenges in a multicultural society dealing with crises and environmental risks arise from educational policies and practices. The education policy has been directed to spread and perpetuate the status quo, hegemony, scientism, and capitalism. The practice of education is a medium for maintaining inequality, injustice, violence, exploitation, and domination.[35]

[19] Isma'il Raji Al-Faruqi (1982), *Islamization of Knowledge: General Principles and Workplan*, Herndon-Virginia: IIIT; Isma'il Raji Al-Faruqi (1992), *Al-Tauhid: Its Implications for Thought and Life*, Virginia-USA: IIIT.

[20] Syed M. Naquib Al-Attas (1995), *Prolegomena to the Metaphysics of Islam: An Exposition of the Fundamental Element of the Worldview of Islam*, Kuala Lumpur: ISTAC; Syed M. Naquib Al-Attas (1997), *Nature of Man and the Psychology of the Human Soul*, Kuala Lumpur: Kazi Publications; Syed M. Naquib Al-Attas (1997), *The Concept of Education in Islam*, Kuala Lumpur: ABIM.

[21] Seyyed Hossein Nasr (2006), *Islamic Philosophy from Its Origin to the Present: Philosophy in the Land of Prophecy*, New York: State University of New York Press; Seyyed Hossein Nasr (1970), *Science and Civilization in Islam*, New York: A Plume Book; Seyyed Hossein Nasr (1989), "Islam and the Problem of Modern Science," in Ziauddin Sardar (ed.), *An Early Crescent: The Future of Knowledge and the Environment in Islam*, London: Mansell.

[22] Osman Bakar (2003), "Reformulating a Comprehensive Relationship Between Religion and Science: An Islamic Perspective," *Islam & Science: Journal of Islamic Perspective on Science*, Vol. 1, No. 1; Osman Bakar (1993), *Tauhid and Science: Essays on the History and Philosophy of Islamic Science*, Penang: Secretariat for Islamic Philosophy and Science.

[23] Ziauddin Sardar (1989), *Explorations in Islamic Sciences*, London-New York: Mansell; Ziauddin Sardar (1989), "Islamization of Knowledge: A State of the Art Report," in Ziauddin Sardar (ed.), *An Early Cresent: The Future of Knowledge and the Environment in Islam*, London: Mansell Publishing; Ziauddin Sardar (1984), *The Touch of Midas: Science, Values, and Environment in Islam and The West*, Manchester: Manchester University Press.

[24] Thomas S. Kuhn (1970), *The Structure of Scientific Revolutions*, Chicago: The University of Chicago Press.

[25] Richard Tarnas (1991), *The Passion of the Western Mind: Understanding the Idea That Have Shaped Our World View*, New York: A Ballantine Book.

[26] Michael Polanyi (1966), "The Tacit Dimension," in Laurence Prusak (ed.), *Knowledge in Organisations*, Garden City, NY: Doubleday and Co., pp. 135-146.

[27] Paul K Feyerabend (1979), *Against Method*, London: Verso; Paul K Feyerabend (1981), *Realism, Rationalism, and Scientific Method: Philosophical Papers*, Cambridge: Cambridge University Press; Paul K Feyerabend (1999), "Outline of a Pluralistic Theory of Knowledge and Action," in John Preston (ed.), *Paul K. Feyerabend: Knowledge, Science and Relativism*, Cambridge: Cambridge University Press.

[28] Nary Breunig (2009), "Teaching For and About Critical Pedagogy in the Post-Secondary Classroom," *Studies in Social Justice*, Vol. 3, No. 2, p. 249.

[29] Paulo Freire (1972), *Pedagogy of the Oppressed*, New York: Herder and Herder; Paulo Freire (1972), *Cultural Action for Freedom*, Harmondsworth: Penguin.

[30] Henry A Giroux (1993), "Education and the Challenge of Democracy (an Interview with Henry A. Giroux by Lech Witkowski)," *International Journal of Educational Reform*, Vol. 2, No. 3, pp. 300-308; Henry A Giroux (2006), *America on the Edge*, New York: Palgrave Macmillan.

[31] Roger Simon (1992), *Teaching Against the Grain. Texts for a Pedagogy of Possibility*, New York: Bergin & Garvey; Roger Simon (2014), *A Pedagogy of Witnessing. Curatorial Practice and the Pursuit of Social Justice*, New York: SUNY Press; Roger Simon (2011), "The Turn to Pedagogy. A Needed Conversation on the Practice of Curating Difficult Knowledge," in E Lehrer and C Milton (eds.), *Curating Difficult Knowledge. Violent Pasts in Public Places*, New York: Palgrave & MacMillan, pp. 193-209.

[32] Michael W Apple (2004), *Ideology and Curriculum*, 3rd ed., New York: Routledge; Michael W Apple (2012), *Knowledge, Power, and Education: The Selected Works of Michael W*, New York: Routledge; Michael W Apple (2011), "Democratic Education in Neoliberal and Neoconservative Times," *International Studies in Sociology of Education*, Vol. 21, No. 1. pp. 21-31.

[33] Peter McLaren (2005), *Capitalists & Conquerors: A Critical Pedagogy Against Empire*, Lanham, MD: Rowman & Littlefield; Peter McLaren (2000), "Paulo Freire's Pedagogy of Possibility," S Steiner et al. (eds.), *Freirean Pedagogy, Praxis and Possibilities: Projects for the New Millennium*, New York, NY: Falmer Press, pp. 1-21; Peter McLaren (2003), *Life in Schools: An Introduction to Critical Pedagogy in the Foundation of Education*, Boston, MA: Allyn & Bacon p. 29.

[34] Ira Shor (1992), *Empowering Education: Critical Teaching for Social Change*, Chicago: University of Chicago Press, ; Ira Shor (1997), "Our Apartheid: Writing Instruction and Inequality," *Journal of Basic Writing*, Vol. 16, No. 1(Spring), pp. 91-104; Ira Shor and Paulo Freire (1987).

[35] Raphael Sassower (2022), "The Pedagogical Perils and Promises of Critical Rationalism," *Philosophy of the Social Sciences*, Vol. 52, No. 6, pp. 341-353.

Tracing deeper, the responses of critical pedagogical figures to educational policies and practices are the same as those of scholars such as Kuhn,[36] Tarnas,[37] Polanyi,[38] and Feyerabend.[39] The difference is that Kuhn and his associates do not specifically respond to educational policy and practice issues but dive right into the heart of modern epistemology. Kuhn and his friends attempt to unmask modern epistemology, contributing to humanitarian, social, and environmental crises. Numerous factors underpin the argument that modern epistemology contributes to humanitarian, social, and environmental problems. One of the arguments is attached to modern epistemology's characteristics.

In the 1990s, when world leaders began to realise the threat of an environmental crisis marked by the holding of the Earth Summit in Rio de Janeiro, Richard Tarnas[40] identified at least eight characteristics of modern epistemology that were contributing to humanitarian, social and environmental crises. First, modern cosmology is an impersonal phenomenon[41] governed by natural laws. Second, modern epistemology reverses the dualism of medieval religion which emphasises the supremacy of spirituality that transcends the material world;[42] and that the material world becomes a ruler surpassing spirituality. Third, modern epistemology replaces religion, elevates science to the highest authority,[43] and functions as a formulator, judge, and guardian of the modern worldview. Empirical reasoning and observation replaced theological doctrines and revelation. Fourth, modern epistemology understands the structure of the world as something that is derived empirically through authentic experiences and individual reasoning abilities over natural phenomena. In the previous era, the world structure was understood as an emanation of the "First Mind,"[44] and humans were only part of that structure. Fifth, the medieval worldview built on the classical Greek worldview integrated how humans acquired knowledge and experience. However, modern epistemology only focuses on rationality and empirical observation and ignores other types and ways of acquiring knowledge. Sixth, if an era of limitations and hierarchies marked the classical Greek cosmology,[45] which later gave birth to various beliefs that connected phenomena in space with events in the world, then modern epistemology overhauled these beliefs. Nevertheless, events deemed unrelated to events in the world. Seventh, modern epistemology is influenced by Newtonian and Cartesian physics views, implying naturalistic and Cartesian worldviews, which are materialistic, deterministic, and mechanistic. Eighth, modern epistemology places humans as intellectually, spiritually, and psychologically independent and autonomous beings. This modern human independence causes a radical decline in religious beliefs.[46]

The characteristics attached to modern epistemology encourage various scientific discoveries, giving rise to the emergence of many perspectives on how to view truth and values. This evolution contributes to the formation of an understanding that only recognises science as the sole instrument to find truth. These discoveries then divert people's belief in religion and grow a new worldview that is all scientific and rational.

Modern epistemology has also succeeded in directing human attention to nature more than ever before by diverting attention away from itself and onto what is happening outside of itself. Modern epistemology views nature as a perfect order, with specific laws and measures that cannot be changed (deterministic) and causes that can be known, explained, and predicted with certainty.[47] Because in modern epistemology, nature is seen as a giant machine with certain provisions, nature is not only the

[36] Kuhn (1970), *The Structure of Scientific Revolutions*.

[37] Richard Tarnas (1991), *The Passion of the Western Mind: Understanding the Idea That Have Shaped Our World View*, New York: A Ballantine Book.

[38] Polanyi (1966), "The Tacit Dimension," pp. 135-146.

[39] Paul K Feyerabend (1979), *Against Method*, London: Verso; Paul K Feyerabend (1981), *Realism, Rationalism, and Scientific Method: Philosophical Papers*, Cambridge: Cambridge University Press; Paul K Feyerabend (1999), "Outline of a Pluralistic Theory of Knowledge and Action," in John Preston (ed.), *Paul K. Feyerabend: Knowledge, Science and Relativism*, Cambridge: Cambridge University Press.

[40] Tarnas (1991), *The Passion of the Western Mind*, p. 63.

[41] Ryan Gillespie (2018), "Cosmic Meaning, Awe, and Absurdity in the Secular Age: A Critique of Religious Non-Theism," *Harvard Theological Review*, Vol.111, No. 4, pp. 461-487.

[42] John Cottingham (2012), "Plato's Sun and Descartes's Stove: Contemplation and Control in Cartesian Philosophy," in John Cottingham (ed.), *Rationalism, Platonism and God: A Symposium on Early Modern Philosophy*, Oxford: Oxford University Press, pp. 292-291.

[43] James M Nelson (2006), "Missed Opportunities in Dialogue between Psychology and Religion," *Journal of Psychology and Theology*, Vol. 34, No. 3, pp. 205-216.

[44] Kelli Rudolph (2015), "Sight and the Presocratics: Approaches to Visual Perception in Early Greek Philosophy," in Michael Squire (ed.), *Sight and the Ancient Senses*, London and New York: Routledge, pp. 36-53.

[45] Bryan Stanley Turner (2013), "Secularisation and the Politics of Religious Knowledge," in Baert and Rubio (eds.), *The Politics of Knowledge*, Oxford: Oxford University Press, p. 148.

[46] Katherine Olivetti (2015), "Dimensions of the Psyche: A Conversation with Stanislav Grof, MD, and Richard Tarnas, PhD," *Jung Journal*, Vol. 9, No. 4, pp. 98-124.

[47] Kate Grayson Boisvert (2008), *Religion and the Physical Sciences*, Westport, Connecticut: Greenwood Press, p. 86.

cause of events and movements of objects (including humans); it is also objective in that it is impossible to be influenced by human actions. Modern epistemology claims to have released people from believing in supernatural magical abilities and then enslaving humanity to believe in scientific magical powers.[48] In this new belief, accurate and mathematically sophisticated measurements are believed to give happiness to humans,[49] as well as lead people to know about the ultimate nature of life.

The widespread acceptance of modern epistemology encouraged educational institutions to emphasise the importance of mathematics and the natural sciences over other types of knowledge, except for language. At university, aspirant philosophers, artists, politicians, and others are compelled to study physics, mathematics, and medicine. Voltaire, a philosopher and writer, was forced to write his undergraduate thesis on Newtonian cosmology.[50] Rousseau, a political scientist, was forced to study chemical laws.[51] Diderot, a humanist and author, was forced to write long scientific essays on the elements of physiology.[52] Even though he was a student majoring in social sciences, Montesquieu was required to conduct a physics investigation.[53] Through this educational programme, philosophy tends to grow into a philosophy of natural science, biology being a branch of mechanics; psychology becomes a behavioural science that talks about humans as machines whose work produces behaviour. The image presented by modern epistemology of human beings is also getting worse. Men is pulled far to the periphery of the axis of existence. His function moves from subject to object, from influential performers on life's and history's stages to passive observers. The human mind is broken down into particles that move mechanically, as does its behaviour.

The problem with current epistemology is not simply that it has been transformed into a kind of "scientism ideology," as various scholars have pointed out.[54] The modern epistemological crisis also arises from within its internal structure. Tarnas dismantles modern epistemology that claims to have presented a realistic and reliable worldview. Still, that worldview is limited only to technical knowledge about natural phenomena, and its presence brings dualistic implications.[55]

An internal theoretical challenge arises when atoms previously thought to be solid become empty inside. Space, which in the view of modern science consists of three dimensions, turns out to be four dimensions, so it becomes space-time. And, as it turns out, space is also topographical, and in that topography, the path of light becomes curved, not linear. Because, in everyone's eyes, there is a "lens" generated by values, experience, environment, social and cultural background, and so on, observation, as the primary approach to gaining science, begins to doubt its legitimacy. Every human has cognitive syndrome, so every observation produces something subjective.[56] The causality that currently applies turns out to be too simplistic and mechanistic, resulting from the limited reliability of observations.[57] Although modern epistemology is still highly valued and respected, its status as a liberating force for humanity has diminished because of the impact and prejudice of political and economic concerns.[58] The peak of the crisis occurred when modern epistemology was sued as one of the causes of the humanitarian and environmental crises.

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[48] Randall G Styers (2004), "The Emergence of Magic in the Modern World," in Randall G Styers (ed.), *Making Magic: Religion, Magic and Science in the Modern World*, Oxford: Oxford University Press.

[49] Caspar Kaiser and Andrew J Oswald (2022), "The Scientific Value of Numerical Measures of Human Feelings," *Proceedings of the National Academy of Sciences*, Vol. 119, No. 42, pp. 1-7

[50] Daniel M Albert (1997), "Notes on Voltaire's 'The Elements of Sir Isaac Newton's Philosophy,'" *Documenta Ophthalmologica*, Vol. 94, No. 1, pp. 59-81.

[51] Dennis C Rasmussen (2006), "Rousseau's 'Philosophical Chemistry' and the Foundations of Adam Smith's Thought," *History of Political Thought*, Vol. 27, No. 4, pp. 620-641.

[52] Gregory Bringman (2023), *Artifacts for Diderot's Elements of Physiology: An Expanded*, San Francisco & London, p. 72

[53] Robert Alun Jones (1994), "Ambivalent Cartesians: Durkheim, Montesquieu, and Method," *American Journal of Sociology*, Vol.100, No. 1, pp. 1-39.

[54] Kizito Michael George (2022), "Scientism and the Evolution of Philosophies and Ideologies of Structural Racism against Africans," *Filosofia Theoretica*, Vol. 11, No. 3, pp. 33-50.

[55] Richard Tarnas (1991), *The Passion of the Western Mind: Understanding the Idea That Have Shaped Our World View*, New York: A Ballantine Book, p. 360.

[56] Aizan Ali @ Mat Zin (2023), "The History of Postmodernism and Its Impact on Muslim Lifestyle in Malaysia," *Journal of Al-Tamaddun*, Vol. 18, No. 2, pp. 217-229.

[57] Tarnas (1991), *The Passion of the Western Mind*, p. 362.

[58] Tarnas (1991), *The Passion of the Western Mind*, p. 372.

Michael Polanyi is another scholar who is concerned with the issues of modern epistemology. Polanyi,[59] a physicochemical researcher with a medical background, criticises modern epistemology by penetrating its foundation, logical positivism. His most significant contribution to undermining positivism was his thesis on the tacit dimension and personal nature of human knowledge, as opposed to the neutral-objective-impersonal claims of modern epistemology. The hidden dimension (tacit dimension) starts from the proverb put forward by Polanyi that "we can know more than we can tell.[60] This hidden dimension is then better known as tacit knowledge. According to Polanyi, humans can differentiate a person's face from hundreds or thousands of others, but he cannot explain why humans have this ability. Another example is someone who knows swimming techniques, but explaining how he can swim without sinking is often challenging. Human beings know but are unable to express or explain why they know. This unspoken information is what Polanyi refers to as tacit knowledge of human knowledge.

Polanyi uses the findings from Gestalt Psychology and linguistics to support his claim that human knowledge is not only explicit but also inherently possesses an implicit (or tacit) dimension that cannot be expressed positively and is therefore disregarded by logical positivists.[61] Polanyi's basic thesis contradicts Descartes' first rule, which requires explicitness (*idea clara et distincta*).[62] This tacit dimension of human knowledge, according to Polanyi, consists of knowledge that is entirely objective, neutral, and impersonal; therefore, it is widely verifiable and can be universally guaranteed; however, it also turns out to have a significant impact on explicit human knowledge.[63] Tacit knowledge comes from tradition, art, aesthetics, religion, affection, morals, and others. If humans castrate the tacit dimension of their knowledge, an inversion will occur. In this reversal, these implicit aspects will become the hidden basis for activities that, although for the sake of the progress or welfare of the majority, are coercive and inhumane. In turn, inversion will lead to the exclusion of science from society that overrides these tacit dimensions.[64]

Polanyi's thesis that human knowledge has a personal dimension that is tacit but should not be ignored has seriously impacted modern epistemological discourse. For Polanyi, when modern scholars try to clean up modern epistemology from personal dimensions, the personal aspects are never separated from the epistemology of science. This tacit dimension has not disappeared; it has just been disowned.[65] Not recognising this personal dimension causes educational institutions not to teach directly the personal aspects of the art of scientific research. Although the body of knowledge of modern science is taught worldwide in thousands of educational institutions, the positively unexplained art of research has not permeated these educational institutions. This explains why Western education has spread worldwide while Western scientific research continues to lead the world. This reaffirms Polanyi's thesis that scientific knowledge consists not only of explicit, verifiable aspects, as positivism epistemology assumes but also of tacit aspects, the transmission of which requires personal training from students who wish to continue the development of science.

Polanyi's criticism was then continued by Thomas S. Kuhn.[66] If Polanyi seeks to undermine modern science from the path of the foundation of science, then Kuhn (1970) continues Polanyi's criticism from the path of history and philosophy of science. Polanyi and Kuhn worked separately but reached parallel conclusions in shaking up modern epistemology. Kuhn advanced his central thesis that science has never developed within a single, neutral, purely objective paradigm, as modern epistemologists believe. According to Kuhn, humans never even observe data or problems neutrally.[67] For Kuhn, humans cannot let go of points of view and perspectives in formulating a theory. According to Kuhn, the neutrality claim is no longer to be expected.[68] The selection of a theory is not solely based on objective assessment criteria but also on subjective values, depending on the paradigm of the scholars. According to Kuhn, a paradigm is a complex system consisting of facts, theories, basic assumptions, metaphysical beliefs,

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[59] Polanyi (1966), "The Tacit Dimension," pp. 135-146.
[60] Polanyi (1966), "The Tacit Dimension," p. 136
[61] Polanyi (1966), "The Tacit Dimension," p. 138
[62] Immanuel Kant (1881), *Immanuel Kant's Critique of Pure Reason. In Commemoration of the Centenary of Its First Publication*, New York: MacMillan, p. 209.
[63] Polanyi (1966), "The Tacit Dimension," p. 139.
[64] Polanyi (1966), "The Tacit Dimension," p. 140.
[65] Polanyi (1966), "The Tacit Dimension," p. 142.
[66] Kuhn (1970), *The Structure of Scientific Revolutions*, p. 119.
[67] Kuhn (1970), *The Structure of Scientific Revolutions*, p. 121.
[68] Kuhn (1970), *The Structure of Scientific Revolutions*, p. 126.

and ideal values of scientific activity. In Kuhn's view, different and sometimes competing paradigms each select different problems essential to study and solve. These paradigms use different standards to measure the success of their studies. No research data serves as a neutral standard by which to compare the paradigms because each captures a different 'fact'.[69] According to Kuhn, science moves forward through shifting paradigms. In Kuhn's observation, a fact or data is never neutral. The theoretical elements of a paradigm determine what counts as data.

Kuhn said that objective-neutral 'facts' themselves do not exist and that the validity of a theory is ultimately determined not by objective-neutral impersonal criteria but by the authority of a community of researchers who are inseparable from personal aspects, such as aesthetics, politics, economics, affect, and interpersonal relations.[70] Even the work of scientists from the beginning was driven by irrational impulses such as curiosity, a sense of beauty, and economic or political interests. Research projects often get funding from people outside the scientific community. Consequently, funders who determine the continuation of scientific research often use non-scientific considerations. As a result, the life and death of a theory, which is determined mainly by the continuation of research on that theory, is highly dependent on non-scientific factors.

Paul Feyerabend was the next scholar who attempted to dismantle modern epistemology.[71] He is a new-era philosopher who is very critical of modern epistemology. He developed a method known as epistemological anarchist, which became known as "anything goes." This epistemological anarchist often questions the epistemology of science fundamentally and seeks to revive science as an expression of human freedom. "Anything goes" is his theory which explains that science does not have to be built on a rigid methodology but that there must be room for scientists' initiatives. For Feyerabend, apart from truth, scientific freedom must be the norm of science.[72] Feyerabend focuses on theoretical pluralism, a principle that allows for a diversity of opposing theories, each contributing in a way that competes with each other to maintain and enhance their reliability.[73]

Theoretical pluralism questions the limitations of using theories espoused by positivism, in which researchers are limited to using only one theory in solving all problems. With theoretical pluralism, Feyerabend considers that researchers cannot and should not be limited to just one method of viewing or solving a problem. Still, they can use various multi-disciplinary and interdisciplinary methods.[74] According to him, this theoretical pluralism can increase the possibility of falsifying existing theories by constructing as many new theories as possible and defending them. This pluralism is essential because if not, there will be uniformity limiting critical thinking. If a new theory can be defended and is better than the old theory, then the new one will replace the old one, which Thomas Kuhn called the "scientific revolution."[75] In 'Against Method' (1979), Feyerabend states that no rational method can be claimed as a perfect scientific method. The scientific method that scientists have glorified is only an illusion.

Through the statement 'anything goes,' Feyerabend emphasises that any hypothesis may be proposed, even those that cannot be accepted rationally or are different from the prevailing theory. Thus, according to him, science can progress not only by inductive processes as normal science but also counterintuitively.[76] Feyerabend also criticised the views of proponents of logical positivism, which placed science above issues of religion, spirituality, and mysticism.[77] For him, the superiority of science over religion is also caused by factors outside of science: politics and the state. The state makes science a part of the country's development, while religion is left to the adherents and religious institutions themselves.[78]

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[69] Kuhn (1970), *The Structure of Scientific Revolutions*, p. 150.
[70] James A Marcum (2005), *Thomas Kuhn's Revolution: An Historical Philosophy of Science*, London: Continuum.
[71] Feyerabend (1979), *Against Method*, p. 76; Feyerabend (1981), *Realism, Rationalism, and Scientific Method*, p. 131; Feyerabend (1999), "Outline of a Pluralistic Theory of Knowledge and Action," p. 264.
[72] Feyerabend (1979), *Against Method*, p. 79.
[73] Paul K. Feyerabend (1994), "Experts in a Free Society," in Paul K. Feyerabend (ed.), *Knowledge, Science and Relativism*, Cambridge: Cambridge University Press, p. 104
[74] Feyerabend (1999), "Outline of a Pluralistic Theory of Knowledge and Action," p. 269
[75] Kuhn (1970), *The Structure of Scientific Revolutions*, p. 153.
[76] Feyerabend (1981), *Realism, Rationalism, and Scientific Method*, p. 143.
[77] Feyerabend (1979), *Against Method*, p. 295.
[78] Feyerabend (1979), *Against Method*, p. 299.

It seems clear that Feyerabend's ideas about anything goes, freedom, and theoretical pluralism[79] have the same spirit as the ideas promoted by critical pedagogical figures: Apple, Freire, Giroux, McLaren, Shor, and Simon. They share the same concern that science and educational institutions are too shackled, not enlightening, lacking dialogue, and lack of vision of justice, freedom, and equality. They also have the same vision that science and education must be directed to develop a critical attitude, a vision of equality, democracy, freedom, and social justice. Although there is very little scientific information that can provide evidence of whether or not there is a correspondence between Feyerabend and critical pedagogical figures, two researchers, Ganji[80] and Prince,[81] indicate that there is a mutually influencing relationship between Feyerabend and critical pedagogical figures.

Reviving and Reconstructing Contemporary Muslim Scholars' Educational Thought

Since the 1980s, the educational ideas of modern Muslim scholars have energised discussions on college campuses worldwide. At that time, educational discourses that received many responses and dominated academic pulpits on various (Islamic) university campuses consisted of discourses: Islamic ethos education based on the Koran;[82] Islamic education based on monotheism;[83] education that liberates humans from mystical, mythological, animistic, national-cultural traditions (which are contrary to Islam) and from the shackles of secular understanding of thought and language;[84] constructing education based on Islamic epistemology;[85] as well as the development of an Islamic worldview as an educational paradigm.[86] However, as the educational society has been preoccupied with measures to counteract the influence of the internet and social media, these discussions have faded and no longer animate academic discussion boards.

The research to revitalise the educational philosophy of Muslim scholars begins with Al-Attas, Al-Faruqi, Nasr, Bakar, Golshani, and Acikgenc and concludes with Sardar's ideas. Al-Attas' educational thought begins with his criticism of modern epistemology. Al-Attas is not only critical of modern epistemology, which is positivistic and deterministic, he is also very critical of several aspects of modern epistemology: modern scientific methods; concepts, assumptions, and symbols of modern science; rational and empirical aspects of modern science, and matters related to ethical values; modern scientific interpretation of scientific sources; modern scientific theories about the origin of the universe; the assumptions of Western science regarding the existence of the external world, the uniformity of nature, and the rationality of natural processes; modern scientific theories about the universe; modern scientific classification of science branches; and the limitations and interrelationships between one branch of science and another, and the relationship of modern science to society.[87] For Al-Attas, various problems inherent in the epistemology of modern science dominate the educational curricula in almost all modern educational institutions, including Islamic ones.

Al-Attas offers Islamic values as the basis and paradigm of education.[88] Al-Attas' novel achievement in Islamic educational thinking is his capacity to identify various modern epistemological issues and express them methodically and clearly, as well as provide answers in the form of delivering esoteric Islamic principles. An alternative offer to the epistemological problems of modern science and education is an integral part of his conception of Islamic education and university. In his works, he tries

[79] Feyerabend (1999), "Outline of a Pluralistic Theory of Knowledge and Action," p. 281.
[80] Mohammad Hosein Ganji (2020), "A Critical Review on Educational Implications of Feyerabend's Philosophy of Science," *Journal of Educational Sciences*, Vol. 27, No. 2, pp. 23-44.
[81] Solène Prince (2020), "From Sustainability to the Anthropocene: Reflections on a Pedagogy of Tourism Research for Planetary Attachment," *Journal of Teaching in Travel & Tourism*, Vol. 20, No. 3, pp. 173-189.
[82] Ziauddin Sardar (1985), *Islamic Futures: The Shapes of Ideas to Come*, New York: Mansell.
[83] Al-Faruqi (1992), *Al-Tauhid*; Nasr (1970), *Science and Civilization in Islam*, p. 3; Nasr (1989), "Islam and the Problem of Modern Science," p. 15; Akilu Aliyu Muhammad and Adibah Abdul Rahim (2018), "David Samuel Margoliouth on Prophet's Monotheism: Evaluation of His Imagination," *Journal of Al-Tamaddun*, Vol. 13, No. 2, pp. 103-110
[84] Al-Attas (1989), *Islam and The Philosophy of Science*, p. 5; Al-Attas (1997), *The Concept of Education in Islam*, p. 1; Syed M. Naquib Al-Attas (1995), *Prolegomena to the Metaphysics of Islam*, p. 87.
[85] Bakar (1993), *Tauhid and Science*, p. 32; Bakar (2003), "Reformulating a Comprehensive Relationship Between Religion and Science," p. 64
[86] Alparslan Acikgenc (2003), "The Islamic Conception of Scientific Islam & Science," *Journal of Islamic Perspective on Science*, Vol. 1, No. 1; Alparslan Acikgenc (2005), "Holisitic Approach to Scientific Traditions," *Islam & Science: Journal of Islamic Perspective on Science*, Vol. 1, No. 2,pp. 99-114; Mehdi Golshani (2004), *Issues in Islam and Science*, Tehran: Institute for Humanities and Cultural Studies; Mehdi Golshani (2000), "How to Make Sense of'Islamic Science'?," *The American Journal of Islamic Social Sciences*, Vol. 17, No. 3; Mehdi Golshani (2007), "Science for Humanity: An Islamic Perspective," *Islam & Science: Journal of Islamic Perspective on Science*, Vol.3, No. 1.
[87] Al-Attas (1989), *Islam and The Philosophy of Science*, p. 6; Al-Attas (1997), *The Concept of Education in Islam*, p. 1; Al-Attas (1995), *Prolegomena to the Metaphysics of Islam*, p. 89.
[88] Al-Attas (1997), *The Concept of Education in Islam*, p. 2; Farah Ahmed (2018), "An Exploration of Naquib Al-Attas' Theory of Islamic Education as *Ta'dīb* as an 'Indigenous' Educational Philosophy," *Educational Philosophy and Theory*, Vol. 50, No. 8, pp. 786-794.

to link de-Islamisation with Westernisation,[89] then he links de-westernisation with the offer of Islamic values to science and modern education.

Al-Attas' epistemological ideas of education have almost the same spirit as the educational visions of critical pedagogical figures, especially Freire, Giroux, Apple, McLaren, and Shor, which is liberation. But Al-Attas's vision of liberating education is more directed at liberating people from magical, mythological, animistic, and national-cultural traditions (contrary to Islam) and the shackles of secularism in thought and language.[90] Al-Attas' educational vision is also to liberate humans from the control of their physical impulses, which tend to be secular and unfair to the nature of themselves or their souls.[91] For Al-Attas, education must be able to develop a person with the prophetic vision: daring to convey the truth (*tablīgh*), trustworthy (*amānah*), intelligent (*faṭānah*), and firm on the truth (*ṣidīq*). Epistemologically, education must also free the human mind from doubts (*syak*), prejudice (*zhan*), and empty arguments (*mird*) towards achieving belief (*yaqīn*) and truth (*haqq*) regarding spiritual, reasoning, and material realities.[92]

If Al-Attas offers an epistemology that liberates humans, then Al-Faruqi and Nasr provide an epistemology for monotheism-based education. Al-Faruqi's educational thinking is not rooted in the Islamic epistemological tradition that was once developed by classical Muslim scholars but departed from the legal thinking model of *fiqh* by making the Qur'an and Hadith the pinnacle of truth. Al-Faruqi's epistemology of education does not use the legacy of classical Islamic scholars pioneered by Ibn Sina, al-Biruni, etc. For Al-Faruqi, educational epistemology must be based on monotheism and always emphasise the unity of knowledge, life, and history.

For Al-Faruqi, the doctrine of the oneness of God (*tawhīd*) is not merely an ethical category. *Tawhīd* is a cognitive category related to knowledge and education. In the structure of the educational paradigm, monotheism shines a light on knowledge, metaphysics, ethics, and aesthetics. In Al-Faruqi's view, acknowledging the Lordship of God and oneness means acknowledging truth and unity. Al-Faruqi's view strengthens the assumption that one source of truth means there cannot be two or more sources. To say that truth is one is not the same as asserting that God is one but also asserting that there is no other God but God, a combination of the denial and affirmation stated by the *shahādah*.

Just like al-Faruqi, Nasr also has a monotheistic-based educational vision. If Al-Faruqi offers the development of educational epistemology as in the pattern of determining *fiqh* law, then Nasr follows the pattern pioneered and developed by Islamic philosophers. According to Nasr, classical Muslim philosophers tried to incorporate *tawhīd* into their scheme of thought. The principle of *tawhīd*, the Unity of God, is the principle of the unity of the *ṭabī'i* nature (*ṭabī'ah*). Nasr believes that alam *tabī'i* is only a sign or verse for the existence of absolute form and truth. Only Allah is the actual truth, and this realm of *tabī'i* is only the lowest realm of truth. Nasr argues that to advance *tawhīd*-based science, the Islamic education curriculum must strike a balance between the two schools of thought represented by *tanzīh* and *tasybīh*.[93]

Apart from Al-Faruqi and Nasr, another Muslim scholar concerned about efforts to make monotheism the foundation of science and education is Osman Bakar. However, Bakar is more concerned with efforts to build an Islamic epistemological structure.[94] Although Bakar did not specifically talk about educational epistemology, his ideas about Islamic science could only be implemented within the educational paradigm that supports them. Bakar departs from the fact that modern science has been systematically organised in various academic disciplines in higher education institutions. For Bakar,

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[89] Al-Attas (1997), *The Concept of Education in Islam*, p. 3.

[90] Al-Attas (1997), *The Concept of Education in Islam*, p. 4; Ramon Harvey (2023), "Islamic Theology and the Crisis of Contemporary Science: Naquib Al-Attas' 'Metaphysical Critique' and a Husserlian Alternative," *Theology and Science*, Vol. 21, No. 3, pp. 404-420.

[91] Syed M. Naquib Al-Attas (1992), *Islam and Secularism*, Kuala Lumpur: ISTAC; Aulia Rakhmat (2023), "Religion and Reason in Contemporary Islamic Ethics: A Comparative Study of Syed Muhammad Naquib Al-Attas and Taha Abderrahmane Thought," *Journal of Islamic Thought and Civilization*, Vol. 13, No. 2, pp. 134-151.

[92] Al-Attas (1997), *The Concept of Education in Islam*, p. 3; Benaouda Bensaid (2018), "Crossroads between Muslim Spirituality and Environmental Sustainability," *Journal of Al-Tamaddun*, Vol. 13, No. 1, pp. 65-81.

[93] Nasr (1970), *Science and Civilization in Islam*, p. 162; Nasr and Leaman (1996), *History of Islamic Philosophy*, p. 63.

[94] Bakar (1993), *Tauhid and Science*, p. 79; Saadet Altay (2021), Fazlur Rahman's Criticism of Kalâm in the Context of Reconstructing of the Science of Kalâm, *Cumhuriyet Ilahiyat Dergisi*, Vol. 25, No. 2, pp. 853-874.

building an educational paradigm based on Islamic epistemology is part of developing a comprehensive relationship between science and religion.[95]

Bakar's epistemology of science and education first attempts to understand human beings as subjective poles of knowledge or knowing subjects. Because humans have various levels of consciousness, the subjective pole is hierarchical. Furthermore, nature as the objective pole of knowledge, an object that can be known, also has several levels of being or existence, so nature is hierarchical.[96] From that perspective, Islamic epistemology considers the whole "cosmos" as its concern, so it has a qualitative richness and a much higher reality than modern epistemology. The structure of Islamic epistemology is supported by the foundation of monotheism, which simultaneously forms the unity of the universe. The implication is that the epistemological structure of education must be supported by monotheism and the unity of the universe. This implies that education must have a curriculum that views that reality is not only limited to observable physical entities. Instead, it should recognise that the whole cosmos reveals qualitative treasures and a reality with a singular substance, being "God".

Bakar's thoughts about the structure of Islamic epistemology can have implications for four sets of theoretical educational curricula: (1) Components containing well-formulated subject matter or objects of study regarding accumulating accumulated knowledge in the form of various concepts, facts (data), theories, laws, or scientific principles (laws), and the logical relationships that exist in them. (2) Components consisting of basic premises and assumptions that form the basis of scientific epistemology. According to philosophers, science alone cannot establish, prove, or verify these premises and assumptions. The premises and assumptions in this section are primarily concerned with the object of study's nature and ontological status. (3) Components related to study methods used in a field of science. For Bakar, there is no single method for all types of science, except perhaps logic and its rigorous, analytic, rational research methods based on theory construction. (4) Components relating to the goals to be achieved by science. The main goal of science is to find aspects of reality related to various objects of study. Science aims to obtain perfect knowledge about reality with scientific certainty and certainty, which Bakar calls *ilm' al-yaqīn*.[97]

Meanwhile, Alparslan Acikgenc and Mehdi Golshani offer the idea of an Islamic worldview as an educational paradigm. The Islamic worldview is the basis for epistemology, including educational epistemology, which is comprehensive and integral. Acikgenc, Professor of Philosophy at Fatih University, Istanbul, Turkiye, develops four Islamic world views as a comprehensive framework of Islamic epistemology: *al-īmān*, *al-'ilm*, *al-fiqh*, and *khalīfah*.[98] *Al-īmān* as the basis of the world structure; *al-'ilm* as a knowledge structure; *al-fiqh* as a value structure; and *khalīfah* as a human structure. According to Acikgenc, all structures are dominated by doctrinal concepts that form a unified network of concepts and ideas. The structure of the world is the framework and conception of the universe and humanity. By referring to the Qur'anic concept, Acikgenc concludes that this structure has three fundamental elements: God, prophecy, and the idea of final judgment, all of which lead to an understanding of man, religion, and knowledge because it constitutes the fundamental metaphysics of Islam.[99] These fundamental concepts are integrally woven into the Islamic vision of reality and truth, serving as the foundation of all human behaviour and the general framework upon which all other aspects follow. From there emerged the structure of knowledge as a fundamental element of the Islamic worldview.

Apart from Acikgenc, Golshani also revealed much about the connection between a worldview and science. Golshani is not a scholar in education but a physicist from Iran. However, Golshani's ideas can be placed within the framework of building an educational epistemology with his thoughts on the Islamic worldview as part of a religious worldview, which often contributes to a scientist's career.[100] Golshani admits that epistemologically, science and religion are independent. In terms of the scientific method, religious values can be said to be completely irrelevant. However, according to him, if a scientist wants to go further, he can carry out a metaphysical interpretation of his theories based on a specific philosophical point of view, in this case, faith and Islamic intellectual traditions. And according

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[95] Bakar (1993), *Tauhid and Science*, p. 84.
[96] Bakar (1993), *Tauhid and Science*, pp. 91-92.
[97] Bakar (1993), *Tauhid and Science*, p. 94.
[98] Acikgenc (2003), "The Islamic Conception of Scientific Islam & Science," p. 99.
[99] Acikgenc (2003), "Holisitic Approach to Scientific Traditions," p. 103.
[100] Golshani (2004), *Issues in Islam and Science*, p. 8.

to him, Muslim scholars should have taken this step because stopping at what scientific theories state in itself will not provide a sufficient understanding of the universe. It is acknowledged that the interpretive activity itself is not scientific and does not need to be judged by the criteria of scientific epistemology. From Golshani's perspective, educational epistemology must be built by placing the Islamic worldview as the foundation for developing educational curricula. By using the notion of an Islamic worldview, the educational curriculum must be characterised by the characteristics of a curriculum that views God as the Creator and Sustainer of the universe; the educational curriculum must include both material and immaterial content; the importance of developing ethics and morals; as well as containing and accepting the moral order for the universe.[101]

Ziauddin Sardar's writings provide a glimpse of his drive to improve schooling with an Islamic worldview derived from the Quran.[102] Sardar firmly believes that educational institutions need to develop a perspective that science is value-bound and that scientific discovery activities in educational institutions are carried out in a certain mindset or paradigm. Sardar uses the concepts of *tawhīd*, *khalīfah*, *ibādah*, *'ilm*, *halāl* and *harām*, *'adl* and *ẓulm*, and *istislāh* and *dhiyā* as criteria for determining the field of science that need to be studied and developed in educational institutions.[103] Although Sardar believes in Kuhn's approach, which not only refers to the value system alone but to the truth of science itself, Sardar does not directly discuss the validity of modern epistemology. Sardar seemed to accept all scientific discoveries and modern educational traditions. He is only concerned with the value system or ethos that underlies science and the educational tradition. Sardar proposed the notion of an epistemology of science and education that is more in line with personal development and intellectual growth. Therefore, according to Sardar, the main characteristics of Islamic epistemology include being guided by an absolute guideline, possessing an active rather than a passive nature, emphasising objectivity as a general matter, primarily relying on deductive reasoning, combining knowledge with Islamic values, being inclusive in its scope, subjectively constructed, integrating the concept of consciousness to the level of subjective experience, and aligning with a holistic view rather than conflicting with it.

Like Al-Attas, Acikgenc, and Golshani, Sardar also sees the need to build an Islamic epistemology as an Islamic worldview, including a worldview of education. Even though Sardar is not a scholar in education, he has intensively reviewed the university system in Malaysia. Even Sardar reviewed the primary objectives of educational institutions in Malaysia, which include (1) revitalising the concept of Islamic learning, which considers seeking knowledge as worship; (2) re-enforcing the primacy of Islam in all fields of knowledge; (3) reviving the ancient Islamic learning tradition where knowledge is disseminated and sought in a spirit of submission to God; and (4) increasing access to and diversity in higher education for Muslims.[104]

Following that, this study attempts to reconstruct the views of contemporary Muslim scholars on the epistemology of science and education. This reconstruction effort is sought not only as an abstraction from the thoughts of Muslim scholars but also as a synthesis of three scholarly entities: figures of new epistemological movements (Feyerabend, Kuhn, Polanyi, and Tarnas), which has the characteristics of eclecticism, religious syncretism, monism, pantheism, exaltation of humanity, transformative, networked, ecological orientation, and holistic;[105] critical pedagogical figures: Apple, Freire, Giroux, McLaren, and Shor; and entities of contemporary Muslim scholars: Al-Attas, Al-Faruqi, Bakar, Golshani, Nasr, Sardar.

The three scholarly entities, first of all, are very critical of modern epistemology, which according to them, is positivistic, ideological, materialistic, reductionistic, and mechanistic. However, the criticism of the figures of the new epistemology movement is more towards the epistemology of modern science. In that case, the criticism of the figures of critical pedagogy is more focused on dismantling the epistemology of modern education, which according to them, is shackled and lacking in enlightenment; lack of dialogue, no vision of social justice, freedom, and equality; lacking hope and weak in social transformation; uncritical, unequal and less democratic; capitalistic and hegemonic; and support the status quo, anti-social justice, democracy, and equality.

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[101] Golshani (2007), "Science for Humanity," p. 181
[102] Sardar (1989), *Explorations in Islamic Sciences*, p. 52.
[103] Sardar (2006), *How Do You Know?* p. 184.
[104] Sardar (2006), *How Do You Know?* p. 106.
[105] Ron Rhodes (1995), *New Age Movement*, Michigan: Zondervan Publishing House, pp. 7-10.

Even though the criticism of these contemporary Muslim scholars is not as comprehensive as the supporters of the new epistemology movement and not as harsh as those of critical pedagogical figures, the contemporary Muslim scholar entities are, in fact, very concerned and disappointed with the epistemology of modern science and education which according to them contributes to colonialism, secularism, crisis of morality, social, economic and political injustice, as well as other humanitarian and social crises. Departing from this concern, contemporary Muslim scholars carry and offer ideas that can then be constructed as new epistemological offers of education.

The new epistemology of education is constructed based on *tawhīd*. Using the ideas of Al-Faruqi, Nasr, and Bakar, this doctrine of the oneness of God is not merely an ethical category. *Tawhīd* is a cognitive category related to knowledge and education. The basis of *tawhīd* becomes the principle of the unity of the *tabī'i* realm, and the *tabī'i* realm is only a sign of the existence of absolute form and truth, Allah. The position of monotheism in Islamic epistemology is the basis for all components of education: curriculum, educational policy, educational management, learning models and strategies, and educational evaluation. In facing contemporary education's challenges, monotheism is a superior alternative to the foundation of education.

Within the framework of the new epistemology of education, the educational curriculum, following Bakar's idea, must contain at least four components: (1) concepts, facts, data, theories, and scientific laws or principles, as well as relationships logic that is in it (propositions); (2) the basic premises and assumptions that form the basis of science and values; (3) study methods, educational models, and learning strategies; (4) the goals or competencies to be achieved by education. The four components of the curriculum, adopting the ideas of Acikgens and Golshani, are designed to develop an Islamic worldview to realise the educational vision of human liberation—adopting from Al-Attas' ideas—from various shackles, secularism, and animism, as well as embodying a human figure, which Sardar calls active, inclusive, constructive, and integrating Islamic knowledge and values.

Conclusion

The new epistemology of education is an alternative to enriching the discourse of the new epistemology movement in education. This alternative proposal is a revitalisation of the ideas and works of contemporary Muslim scholars in the fields of science and education, which are then reconstructed into a new epistemology of education. This research attempts to revitalise and reconstruct it, not just making abstractions from the thoughts of Muslim scholars but synthesising it from three scholarly entities: figures of new epistemological movements that have the characteristics of eclecticism, religious syncretism, monism, pantheism, an exaltation of humanity, transformative, religious networking, ecological orientation, and holistic; critical pedagogical figures; and especially the contemporary Muslim scholar entity. The construction of a new epistemology of education includes monotheism as the foundation of education, the structure of the educational curriculum, and the vision of education that exalts and liberates human beings.

References

Acikgenc, Alparslan (2003), "The Islamic Conception of Scientific Islam & Science," *Journal of Islamic Perspective on Science*, Vol. 1, No. 1.

Acikgenc, Alparslan (2005), "Holisitic Approach to Scientific Traditions," *Islam & Science: Journal of Islamic Perspective on Science*, Vol. 1, No. 1, 99-114.

Ahmed, Farah (2018), "An Exploration of Naquib Al-Attas' Theory of Islamic Education as *Ta'dīb* as an 'Indigenous' Educational Philosophy," *Educational Philosophy and Theory*, Vol. 50, No. 8, 786-794.

Al-Attas, Syed M. Naquib (1989), *Islam and The Philosophy of Science*, Kuala Lumpur: Angkatan Muda Belia Islam.

Al-Attas, Syed M. Naquib (1995), *Prolegomena to the Metaphysics of Islam: An Exposition of the Fundamental Element of the Worldview of Islam*, Kuala Lumpur: International Institute of Islamic Thought and Civilization/ISTAC.

Al-Attas, Syed M. Naquib (1997), *Nature of Man and the Psychology of the Human Soul*, Kuala Lumpur: Kazi Publications

Al-Attas, Syed M. Naquib (1997), *The Concept of Education in Islam*, Kuala Lumpur: ABIM.

Al-Attas, Syed M. Naquib (1992), *Islam and Secularism*, Kuala Lumpur: International Institute of Islamic Thought and Civilization/ISTAC

Albert, Daniel M. (1997), "Notes on Voltaire's 'The Elements of Sir Isaac Newton's Philosophy,'" *Documenta Ophthalmologica*, Vol. 94, No. 1, 59-81.

Al-Faruqi, Isma'il Raji (1982), *Islamization of Knowledge: General Principles and Workplan*, Herndon-Virginia: The International Institute of Islamic Thought

Al-Faruqi, Isma'il Raji (1992), *Al-Tauhid: Its Implications for Thought and Life*, Virginia-USA: The International Institute of Islamic Thought.

Ali, Muhammad Mumtaz (2013), "The 2nd International Conference on Contemporary Scholarship on Islam: The Legacy of Ismail Raji Al-Faruqi," *Intellectual Discourse*, Vol. 21, No. 2, 268-271.

Altay, Saadet (2021), Fazlur Rahman's Criticism of Kalâm in the Context of Reconstructing of the Science of Kalâm, *Cumhuriyet Ilahiyat Dergisi*, Vol. 25, No. 2, 853-874.

Antoine-Mahut, Delphine (2020), "Philosophizing with a Historiographical Figure: Descartes," *British Journal for the History of Philosophy*, Vol. 28, No. 3, 533-552.

Apple, Michael W. (2004), *Ideology and Curriculum*, New York: Routledge.

Apple, Michael W. (2011), "Democratic Education in Neoliberal and Neoconservative Times," *International Studies in Sociology of Education*, Vol. 21, No. 1, 21-31.

Apple, Michael W. (2012), *Knowledge, Power, and Education: The Selected Works of Michael W Apple*, New York: Routledge.

Bakar, Osman (1993), *Tauhid and Science: Essays on the History and Philosophy of Islamic Science*, Penang: Secretariat for Islamic Philosophy and Science.

Bakar, Osman (2003), "Reformulating a Comprehensive Relationship Between Religion and Science: An Islamic Perspective," *Islam & Science: Journal of Islamic Perspective on Science*, Vol. 1, No. 1.

Bensaid, Benaouda (2018), "Crossroads between Muslim Spirituality and Environmental Sustainability," *Journal of Al-Tamaddun*, Vol. 13, No. 1, 65-81.

Boisvert, Kate Grayson (2008), *Religion and the Physical Sciences*, Westport, Connecticut: Greenwood Press.

Breunig, Nary (2009), "Teaching For and About Critical Pedagogy in the Post-Secondary Classroom," *Studies in Social Justice*, Vol. 3, No. 2, 247-262.

Bringman, Gregory (2023), *Artifacts for Diderot's Elements of Physiology: An Expanded*, San Francisco & London: Blurb.

Callaghan, Christian William and Andrew Mitchell (2023), "Environmental Sustainability and Management Theory Development: Post-Paradigm Insights from the Anthropocene," *European Management Review*, Vol. 26, No. 4.

Chan, Wing-cheuk (2023), "Zhu Xi's Appropriation of Mencius's Thought: From a Hermeneutic to a Developmental Approach BT," in Yang Xiao and Kim-chong Chong (eds.), *Dao Companions to Chinese Philosophy*, Cham: Springer, 159-178.

Cobern, William W. and Cathleen C. Loving (2001), "Defining 'Science' in a Multicultural World: Implications for Science Education," *Science Education*, Vol. 85, No. 1, 50-67.

Cottingham, John (2012), "Plato's Sun and Descartes's Stove: Contemplation and Control in Cartesian Philosophy," in John Cottingham (ed.), *Rationalism, Platonism and God: A Symposium on Early Modern Philosophy*, Oxford: Oxford University Press, 292-291.

Cuadrado-Fernandez, Antonio (2020), "Mind, Body and Environment in Indigenous Anglophone Writing: Poetic Interventions for a New Modernity," in Kerry Gallagher (ed.), *Multiculturalism: Critical and Inter-Disciplinary Perspectives*, Leiden: Brill, 121-129

Feyerabend, Paul K. (1979), *Against Method*, London: Verso

Feyerabend, Paul K. (1981), *Realism, Rationalism, and Scientific Method: Philosophical Papers*, Cambridge: Cambridge University Press

Feyerabend, Paul K. (1999), "Outline of a Pluralistic Theory of Knowledge and Action," in John Preston (ed.), *Paul K. Feyerabend: Knowledge, Science and Relativism*, Cambridge: Cambridge University Press.

Freire, Paulo (1972), *Cultural Action for Freedom*, Harmondsworth: Penguin.

Freire, Paulo (1972), *Pedagogy of the Oppressed*, New York: Herder and Herder

Ganji, Mohammad Hosein (2020), "A Critical Review on Educational Implications of Feyerabend's Philosophy of Science," *Journal of Educational Sciences*, Vol. 27, No. 2, 23-44.

Gaukroger, Stephen (2003), "Descartes: Methodology," in G. H. R. Parkinson (ed.), *The Renaissance and 17th Century Rationalism*, London and New York: Routledge.

George, Kizito Michael (2022), "Scientism and the Evolution of Philosophies and Ideologies of Structural Racism against Africans," *Filosofia Theoretica*, Vol. 11, No. 3, 33-50

Gillespie, Ryan (2018), "Cosmic Meaning, Awe, and Absurdity in the Secular Age: A Critique of Religious Non-Theism," *Harvard Theological Review*, Vo. 111, No. 4, 461-487.

Giroux, Henry A. (1993), "Education and the Challenge of Democracy (an Interview with Henry A. Giroux by Lech Witkowski)," *International Journal of Educational Reform*, Vol. 2, No. 3, 300-308

Giroux, Henry A. (2006), *America on the Edge: Henry Giroux on Politics, Culture, and Education*, New York: Palgrave Macmillan.

Golshani, Mehdi (2004), *Issues in Islam and Science*, Tehran: Institute for Humanities and Cultural Studies

Golshani, Mehdi (2007), "How to Make Sense of 'Islamic Science'?," *The American Journal of Islamic Social Sciences*, Vol. 17, No. 3, 1-21.

Golshani, Mehdi (2007), "Science for Humanity: An Islamic Perspective," *Islam & Science: Journal of Islamic Perspective on Science*, Vol. 2, No. 3, 181-192.

Harvey, Ramon (2023), "Islamic Theology and the Crisis of Contemporary Science: Naquib Al-Attas' 'Metaphysical Critique' and a Husserlian Alternative," *Theology and Science*, Vol. 21, No. 3, 404-420.

Headley, Vernon, Annie Jones, and Shannon K Carter (2023), "Beyond the Positivism/Non-Positivism Binary as a Step Toward Inclusive Sociology," *Sociology of Race and Ethnicity*, Vol. 26, No. 4.

Hyslop-Margison, Emery J. and M. Ayaz Naseem (2007), *Scientism and Education: Empirical Research as Neo-Liberal Ideology*, Dordrecht: Springer Netherlands.

Jones, Robert Alun (1994), "Ambivalent Cartesians: Durkheim, Montesquieu, and Method," *American Journal of Sociology*, Vol. 100, No. 1, 1-39.

Kaiser, Caspar and Andrew J Oswald (2022), "The Scientific Value of Numerical Measures of Human Feelings," *Proceedings of the National Academy of Sciences*, Vol. 119, No. 42.

Kant, Immanuel (1881), *Immanuel Kant's Critique of Pure Reason. In Commemoration of the Centenary of Its First Publication*, New York: MacMillan

Khurana, Thomas (2022), "The Life of Form: Practical Reason in Kant and Hegel," in Patricio A Fernández, Alejandro Néstor García Martínez, and José M Torralba (eds.), *Ways of Being Bound: Perspectives from Post-Kantian Philosophy and Relational Sociology*, Cham: Springer International Publishing, 47-70.

Kowalcze, Małgorzata (2022), "Is Matter Ethical? Is Ethics Material? An Enquiry into the Ethical Dimension of Karen Barad's Ethico-Onto-Epistemological Project," *Culture, Theory and Critique*, Vol. 63, No. 1, 1-12.

Kuhn, Thomas S. (1970), *The Structure of Scientific Revolutions*, Chicago: The University of Chicago Press.

Marcum, James A. (2005), *Thomas Kuhn's Revolution: An Historical Philosophy of Science*, London: Continuum.

McLaren, Peter (2000), "Paulo Freire's Pedagogy of Possibility," in S Steiner et al. (eds.), *Freirean Pedagogy, Praxis and Possibilities: Projects for the New Millennium*, New York, NY: Falmer Press, 1-21

McLaren, Peter (2003), *Life in Schools: An Introduction to Critical Pedagogy in the Foundation of Education*, Boston, MA: Allyn & Bacon.

McLaren, Peter (2005), *Capitalists & Conquerors: A Critical Pedagogy Against Empire*, Lanham, MD: Rowman & Littlefield

Melville, Wayne, Geeta Verma, Todd Campbellc, and Byung-Yeol Park (2022), "Challenging the Hegemony of Western Scientism in Science Teacher Education," *Journal of Science Teacher Education*, Vol. 33, No. 7, 703-709.

Muhammad, Akilu Aliyu and Adibah Abdul Rahim (2018), "David Samuel Margoliouth on Prophet's Monotheism: Evaluation of His Imagination," *Journal of Al-Tamaddun*, Vol. 13, No. 2, 103-110.

Nasr, Seyyed Hossein (1970), *Science and Civilization in Islam*, New York: A Plume Book.

Nasr, Seyyed Hossein (1989), "Islam and the Problem of Modern Science," in Ziauddin Sardar (ed.), *An Early Crescent: The Future of Knowledge and the Environment in Islam*, London: Mansell.

Nasr, Seyyed Hossein (2006), *Islamic Philosophy from Its Origin to the Present: Philosophy in the Land of Prophet*, New York: State University of New York Press.

Nasr, Seyyed Hossein and Oliver Leaman (1996), *History of Islamic Philosophy*, London: Routledge

Nelson, James M. (2006), "Missed Opportunities in Dialogue between Psychology and Religion," *Journal of Psychology and Theology*, Vol. 34, No. 3, 205-216.

Olivetti, Katherine (2015), "Dimensions of the Psyche: A Conversation with Stanislav Grof, MD, and Richard Tarnas, PhD," *Jung Journal*, Vol. 9, No. 4, 98-124.

Overduin, Nick (2023), "The Epistemological Paradigm of Post-Religious Humility," *Epistemology & Philosophy of Science*, Vol. 60, No. 1, 131-148

Pippin, Robert B. (2023), "Ideas and Idealism in Philosophy," in Jure Simoniti and Gregor Kroupa (eds.), *Ideas and Idealism in Philosophy*, Berlin: De Gruyter, 127-150.

Polanyi, Michael (1966), "The Tacit Dimension," in Laurence Prusak (ed.), *Knowledge in Organisations*, Garden City, NY: Doubleday and Co., 135-146.

Prince, Solène (2020), "From Sustainability to the Anthropocene: Reflections on a Pedagogy of Tourism Research for Planetary Attachment," *Journal of Teaching in Travel & Tourism*, Vol. 20, No. 3, 173-189.

Rakhmat, Aulia (2023), "Religion and Reason in Contemporary Islamic Ethics: A Comparative Study of Syed Muhammad Naquib Al-Attas and Taha Abderrahmane Thought," *Journal of Islamic Thought and Civilization*, Vol. 13, No. 2, 134-151.

Rasmussen, Dennis C. (2006), "Rousseau's 'Philosophical Chemistry' and the Foundations of Adam Smith's Thought," *History of Political Thought*, Vol. 27, No. 4, 620-641.

Reber, Jeffrey S. and Zachary B. Beckstead (2017), "Anti-Reductionistic Empiricism in Contemporary Psychological Research," in Joshua W. Clegg (ed.), *The Observation of Human Systems: Lessons from the History of Anti-Reductionistic Empirical Psychology*, London: Routledge, 141-166.

Rhodes, Ron (1995), *New Age Movement*, Michigan: Zondervan Publishing House.

Rosenau, Pauline M. (1992), *Postmodernism and Social Sciences: Insight, Inroads, and Intrusion*, Princeton: Princeton University Press.

Rošker, Jana S. (2022), "Sublating Sinic Relationism: On a Winding Path from Transcultural to Global Ethics," *Asian Studies*, Vol. 10, No. 3, 81-104.

Rudolph, Kelli (2015), "Sight and the Presocratics: Approaches to Visual Perception in Early Greek Philosophy," in Michael Squire (ed.), *Sight and the Ancient Senses*, London and New York: Routledge, 36-53.

Sardar, Ziauddin (1984), *The Touch of Midas: Science, Values, and Environment in Islam and The West*, Manchester: Manchester University Press.

Sardar, Ziauddin (1985), *Islamic Futures: The Shapes of Ideas to Come*, New York: Mansell.

Sardar, Ziauddin (1989), "Islamization of Knowledge: A State of the Art Report," in Ziauddin Sardar (ed.), *An Early Cresent: The Future of Knowledge and the Environment in Islam*, London: Mansell Publishing.

Sardar, Ziauddin (1989), *Explorations in Islamic Sciences*, London-New York: Mansell.

Sardar, Ziauddin (2006), *How Do You Know? Reading Ziauddin Sardar on Islam, Science and Cultural Relations*, London: Pluto Press.

Sassower, Raphael (2022), "The Pedagogical Perils and Promises of Critical Rationalism," *Philosophy of the Social Sciences*, Vol. 52, No. 6, 341-353.

Schäferling, Kristian (2022), "Meillassoux's Reinterpretation of Kant's Transcendental Dialectic," *Open Philosophy*, Vol. 5, No. 1, 702-717.

Shor, Ira (1992), *Empowering Education: Critical Teaching for Social Change*, Chicago: University of Chicago Press

Shor, Ira (1997), "Our Apartheid: Writing Instruction and Inequality," *Journal of Basic Writing*, Vol. 16, No. 1, 91-104.

Simon, Roger (1992), *Teaching Against the Grain. Texts for a Pedagogy of Possibility*, New York: Bergin & Garvey.

Simon, Roger (2011), "The Turn to Pedagogy. A Needed Conversation on the Practice of Curating Difficult Knowledge," in E. Lehrer and C Milton (eds.), *Curating Difficult Knowledge. Violent Pasts in Public Places*, New York: Palgrave & MacMillan, 193-209.

Simon, Roger (2014), *A Pedagogy of Witnessing. Curatorial Practice and the Pursuit of Social Justice*, New York: SUNY Press.

Sotillos, Samuel Bendeck (2022), "The Eclipse of the Soul and the Rise of the Ecological Crisis," *Spirituality Studies*, Vol. 8, No. 2, 34-55.

Styers, Randall G. (2004), "The Emergence of Magic in the Modern World," in Randall G Styers (ed.), *Making Magic: Religion, Magic and Science in the Modern World*, Oxford: Oxford University Press, 25-68.

Tarnas, Richard (1991), *The Passion of the Western Mind: Understanding the Idea That Have Shaped Our World View*, New York: A Ballantine Book.

Turner, Bryan Stanley (2013), "Secularisation and the Politics of Religious Knowledge," in Patrick Baert and Fernando Domínguez Rubio (eds.), *The Politics of Knowledge*, Oxford: Oxford University Press.

Wrigley, Terry (1019), "The Problem of Reductionism in Educational Theory: Complexity, Causality, Values." *Power and Education*, Vol. 11, No. 2, 145-162.

Zin, Aizan Ali @ Mat (2023), "The History of Postmodernism and Its Impact on Muslim Lifestyle in Malaysia," *Journal of Al-Tamaddun*, Vol. 18, No. 2, 217-229.