Operationalizing cross-cultural research design: Practical, cost-effective, and a minimalistic application of cross-cultural research design to minimize cultural bias in research and reconcile diverse viewpoints

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Abstract

We begin this paper by providing a brief overview of the history of science in different civilizations and cultures around the world since ancient times, in order to show that different cultures and traditions across geographies have contributed to human thought since time immemorial, and that "Eurocentrism" in science the way we understand it, is a more recent phenomenon, traceable particularly to the renaissance and the enlightenment which took place in those regions. Much has been talked about globalization in the twenty-first century, and the emergence of Japan, Korea, China, India, and countries in the Middle East as potential powers in the twenty-first century. It is imperative too, that science today be endowed with a cosmopolitan character and outlook, and students of science around the world no longer be fed on a diet of Eurocentric perspectives alone; this is additionally important because scientific endeavour is the basis of the design of educational systems and pedagogical theory, and the nurturing of future generations of researchers and scholars. This has been the raison d'etre, focus, and emphasis of all our work over the past several years. Science should not only therefore not only become more and more fieldwork driven, but also embrace a multitude of perspectives of denizens of major and minor cultures across the world. Thus, ivory tower approaches should become a thing of the past, and science should become increasingly culture-neutral and ideology-free. This is as such, our fourth paper on the philosophy of science, and our earlier work focussed, among other things, on the importance of the social duties of every researcher and scholar, the principle of exceptionism or the sociological ninety ten rule, and the certainty uncertainty principle. This paper can also be therefore seen as the logical culmination of all our earlier endeavours, and is an integral part of the "Globalization of science" movement.

Introduction

Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world. Science is the highest personification of a nation because that nation will remain the first which carries further the works of thought and intelligence.

Louis Pasteur (1822–1895), French chemist, biologist, and founder of microbiology

There will come a time, when the world will be filled with one science, one truth, one industry, one brotherhood, one friendship with nature.

Dimitry Mendeleyev (1834–1907), Russian chemist

Definition of science

Science may be defined as a systematic study of different phenomena both in the physical and natural world through careful and meticulous observation, experimentation, and testing of theories against evidence obtained systematically and in a structured fashion in order to formulate generalized laws and principles (or derive general truths), and construct a generalized body of knowledge there from. Science also involves collecting data, ascertaining facts, and establishing the hierarchical order that exists between different observations and phenomena, both in the social and natural worlds. Many different philosophers of science have attempted many different definitions of science. For example, Thomas Hobbes states, "Science is the knowledge of consequences, and dependence of one fact upon another." The word *science* has been used in Middle English since the fourteenth century and has meant "the state of knowing". The word can be traced to the Latin word scientia, which means "knowledge, awareness, or understanding". Science and scientific principles are the foundation of most of research activity and technological progress that have profoundly changed the way we live: science can also be categorized into broad categories such as basic science and applied science, and there are many different operational and widely-practiced fields of scientific inquiry in the world today.[1] [2]

Science depends on scientific method. Scientific method is may be defined as an empirical method for acquiring knowledge and the processing of information that has characterized much of scientific endeavour and activity over the course of the past several centuries. It involves several deliberate and usually explicit sequenced steps such as careful observation, the application of rigorous skepticism regarding observations made, elimination of cognitive biases and prejudices or cognitive assumptions the formulation of hypotheses, refinement of the hypotheses through constant experimentation, and collection and analysis of data. However, many research philosophers such as Karl Popper have argued against a rigid or a one size fits all approach, and have underlined the necessity for flexibility in scientific method with possible variations based on the field of inquiry, current

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[1] The meaning of science, Tim Lewens, 2015
[2] A brief history of science, John Gribbin, 2004, Eagle press

exigencies or the researcher's personal preferences. This approach has gained some currency and traction in the recent past.[3][4][5][6]

History of science

Contrary to popular perception and belief, the history of science is almost as old as the history of humankind itself. Science has always been a universal and a world-wide activity too, and cannot be definitively traced to any particular ideology or origin. Thus, many important early contributions to science have originated in different parts of the world thus making it a culture-neutral activity or a pan-cultural activity in antiquity. The history of science covers the progress and development of science from the earliest ancient times right up to the present. Even though many researchers and scholars trace science's earliest beginnings to Ancient Egypt and Mesopotamia in the third millennium BC, the roots of science are much older still, and the study of its history encompasses technological and cultural processes, and a wide gamut of fields and disciplines too. The earliest science may not have been documented, structured or written, the way we know it today, and is often referred to as proto-science.[7]

Though true writing which is only around five thousand years old enabled knowledge to be stored and communicated easily leading to a quantum increase in scientific activity, many innovations are older still. Many other innovations also led to a ripple effect, and contributed to an increase in scientific endeavour. Agriculture for example, which is associated with the Neolithic revolution, allowed for a surplus of food (and thereby a diversity of activities), and was one of the triggers for the emergence of civilization. It also ended the hunter gatherer stage, and paved the way for a more settled life. The earliest stone tool making is believed to have originated some two and a half million years ago, and this is also associated with many cultural changes, as it gave humans a better control over their environment.

Different types of tools are associated with the old Paleolithic age, the middle Paleolithic age and the new Paleolithic age which are also associated with hunter-gathering and nomadism. The Early Stone Age began with crude and basic stone tools and implements made by early humans such as cleavers, usually entirely out of stone. These tools include tools such as stone cores, hammer stones, and sharp stone flakes, which later developed into hand axes and spear heads. Techniques such as flintknapping and lithic reduction were also used for tool making. Tools became much more sophisticated in the new stone age or the Upper Palaeolithic age, and polished celts and axe heads came to be used; many tools in this period were made of a wide variety of relatively rare stones, and were used for complex tasks such as

[3] A summary of scientific method, Peter Kosso, Springer, 2011
[4] The scientific method: An evolution of thinking from Darwin to Dewey, Henry. M. Cowles, Harvard University press, 2020
[55] Research Methodology: Tools and techniques, CR Kothari, New Age Publishers, Second revised edition
[6] Research design: Qualitative, Quantitative, and mixed method approaches, John W. Cresswell, Fourth edition, Sage publishers
[7] The History of Science By T. Jackson · 2019

cutting and pounding. Tools belonging to various periods have been found in Africa, the Middle East and Europe, implying that different types of tools evolved in different parts of the world, even if at different points in time. Different traditions in tool making are known by different names such as Levallosian tools, Acheulean tools, Clactonian tools, Olduvan tools and Mousterian tools based on the cultures that produced them.[8]

The earliest rafts and boats were probably used one hundred thousand years ago, and this was probably the earliest form of transport used by man, long before the invention of the wheel, and the subsequent development of the bullock cart or the ox cart, the horse cart and the chariot. These rafts and boats were probably made of hollow barks or reeds. It is likely that boats were developed independently in many different parts of the world, and were used by earliest humans to travel over rivers, streams and small bodies of water.

The first clear evidence of the regular use of fire comes from Europe, North Africa and the Middle East dating back to between 800,000 and 700,000 years ago, and it found several uses in cooking, tool making, and chasing away darkness and wild animals. It was also later used in making pottery. Earlier indirect evidence for the use of fire is dated to about one and a half million years ago, while Frances D. Burton and Richard Wrangham argue for even earlier dates. The next stage was the control of fire, which was not only a significant cultural advance by itself, but also led to other cultural advances: this may have occurred some 200,000 years ago. [9] [10]

The Neolithic revolution that occurred some 10,000 years ago, is not only associated with agriculture, it is also associated with the domestication of farm animals like cattle and sheep which were first domesticated during this time followed by draft animals such as donkeys, oxen and camels. This led to the production of milk, fur, hides, and meat among other things, and diversification of income, and a further enhancement of leisure time. Pottery is also one of the oldest, and one of the most significant and influential human inventions, originating before the Neolithic period, with ceramic artistic and decorative objects such as Venus figurines found in Europe, in the late Paleolithic period dating back to around 30000 YBP. Regular pottery production is evidenced in places like Japan and the Nile valley some 10,000 years ago. The potter's wheel which helped ramp up production, was probably invented in Mesopotamia some 5000 years ago, while kilns were probably invented in Egypt at the same time. Pottery became more complex, ornate, and decorative well into the metal age, and was widely used by the masses.

The wheel was probably invented in the late Neolithic period some 8,000 years ago in the Halaf culture, though this date is not widely accepted; its origin therefore remains relatively obscure with many researchers attributing its invention to many cultures. It was however certainly widely used in the 4th millennium BC in Ancient Mesopotamia. Wheeled transportation using solid wooden wheels and spoked wheels probably began in 4000 BC or after, and the bullock cart began to be used in Mesopotamia in 3500 BC, before spreading to other Old World civilizations eventually. Horse drawn chariots were

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[8] Stone tools in the Paleolithic and Neolithic near East: A guide, John J. Shea, Cambridge, 2013

9 Early History of Fire By N. Joly, John A. Garver

10 Fire: A brief history, Second edition, Stephen J. Pyne, 2019, University of Washington press

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probably used by 2000 BC in the Middle East and Ancient Egypt, before spreading to Post-Harappan India in the Iron age; horse riding itself is much older, and is usually dated to around 3500 BC, and may have begun in Central Asia (the Kazakhstan region) following domestication of horses there, and their usage as beasts of burden. [11]

The forerunner of full-fledged writing and full-fledged literacy is proto-writing. Proto-writing consists of signs or marks communicating non-linguistic information, using ideographic symbols as mnemonic tools. These in turn, followed petro glyphs which emerged as a medium of artistic expression and creativity. Writing systems emerged from rudimentary potter's marks and later traditions of symbol systems such as Vinca symbols (which gradually became more complex, abstract and standardized) in the early Neolithic period in different parts of the world. Early humans soon began to encode speech using different tools and techniques such as the rebus principle, or the use of determinatives. The first full-fledged writing systems were cuneiform and Egyptian hieroglyphs, though these were not alphabetic scripts yet. We had also argued previously based on preliminary evidence, that the Indus script had reached the linguistic stage, and this observation would stand the test of common sense. The first alphabetic script in the world was probably Proto-Sinaitic which evolved around 2000 BC, and this was the grandfather of most alphabets, abjads and abugidas included. True writing would have led to an intellectual revolution of sorts; as such, modern science would not have been possible without it. [12]

Metals were another great invention of humans. The Chalcolithic or Copper Age is a transitional period between the Neolithic and the Bronze Age, and involved the use of copper. It began around 4500 BC or earlier, and ended with the beginning of the Bronze Age, which was a technologically superior metal, around 3000 BC, or earlier, variations of dates representing regions. This was in turn followed by the Iron age, which began sometime after 2000 BC, by latest accounts, and after the collapse of the Bronze age. These are part of the three age system first proposed by Christian Jurgensen Thomsen. [13]

Science in early civilizations

Scholars typically acknowledge various cradles of civilization, examples being Mesopotamia, Ancient Egypt, Ancient India, and Ancient China which rank as among humanities oldest. These are much older than other cradles of civilization such as the cradle of western civilizations (examples being Ancient Greece and Ancient Rome), and other Mesoamerican civilizations such as the Incas, Mayas and Aztecs. Earliest proto-cities such as Catal Huyuk (seventh millennium BC) in Turkey, also rank as among humanities oldest large settlements. These eventually gave way to much larger cities such as Ur, Uruk, Kish and Eridu (in Mesopotamia), Susa (in Elam), Memphis (in Egypt), and cities of the Indus valley civilization in South Asia. The latter are associated with full-blown Bronze age civilizations, with complex hierarchies and societies, specialization of craft, long-distance trade, complex metalworking, proto-

[11] The Ceramic art: A compendium of the history and the manufacture of pottery and porcelain, Jennie J. Young, Library of Alexandria, USA
[12] Senner, Wayne M. (1991). The Origins of Writing. University of Nebraska Press
[13] Avnir, David (2014). "Molecularly doped metals". *Acc. Chem. Res.* 47 (2)

industrial enterprise, and writing through monarchical diktat, or for trade and accounting purposes, and some literary traditions thrown in.

The achievements of ancient Egyptians in various fields of science were stellar and impressive. They made giant strides in diverse fields such as paper and writing, astronomy, mathematics, medicine, mummification, irrigation and agriculture, engineering, construction and architecture, navigation and ship-making, and the measurement of time. The sphinx and the pyramids were the marvels of the ancient world, and the famed library of Alexandria lit the lamp of ancient knowledge. [14] Mesopotamian people are credited for having invented many important technologies including metal and copper-working, writing, glass and lamp making, boats and ships, astronomy, map making, production of textile, clocks, medicine, surgery, water storage, and irrigation. They were also one of the first Bronze Age societies in the world. They developed from copper, bronze, and gold on to iron. Science and technology in Ancient Mesopotamia began in the Uruk period, and continued well into the dynastic period, and Sumerian culture as well. The Harappans whose civilization was spatially larger, were known for many accomplishments including architecture, urban development, irrigation, trade, measurement, metallurgy, seal-writing, the development of the earliest drainage systems and sanitation.

The achievements of the Ancient Greeks in science were unrivalled and unsurpassed in their day. Greek scientists extended the works of Egyptians and Babylonians, and took them to new heights. Scholars such as Pythagoras, Plato, Socrates, Thales of Miletus and Aristotle developed new ideas in the fields of mathematics, philosophy, astronomy, scientific method, and logic that influenced Western thought, science, and philosophy greatly. Other scholars of eminent fame and glory were Ptolemy, Aristarchus, Thales, Archimedes, Anaximander, Empedocles, Euclid, Philolaus and Hippocrates. The Romans built on Greek science to suit their own practical purposes. While relatively weak in pure science, the Romans were brilliant engineers. They understood the laws of physics and developed aqueducts and other marvels of engineering such as an extensive network of roads. Romans also respected Greek scientists and scholars greatly. In many ways, Roman science was a logical continuation of Greek science.

Science developed in Ancient China more or less independently, and important advances and inventions were made in the fields of engineering, astronomy, medicine, mathematics, geology and the natural sciences. Among the earliest notable Chinese inventions were the sundial, the abacus, and the Kongming lantern. The other four great Inventions, namely the compass, gunpowder, printing and papermaking were other important Chinese technological advances, and were not known to Europe until the end of the Middle Ages some one thousand years later. Indians invented zero and the decimal number system, which proved important to mankind. They also made contributions to algebra, trigonometry, and calculus. Building on the Harappan tradition, medicine was developed in the Gangetic plains as evidenced from the Atharva Veda. The Indian physician Sushruta developed surgery in the Eighth century BC. Aryabhata was an important astronomer and mathematician from the Indian classical period. Bhaskara of the post-Christian era was another important Indian mathematician. The Indian

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[14] Ancient civilizations, Third edition, Cristopher Scarre and Brian M. Fagan, Routledge, 1997

polymath Chanakya or Kautilya wrote an important treatise called the Arthasastra. [15] Science in the medieval Islamic world refers to the science developed during the Islamic Golden Age under various kingdoms and caliphates, between the eighth and thirteenth centuries. Islamic scientific achievements covered a wide range of topics, especially mathematics (including algebra and the number system), astronomy, and medicine. Alchemy, chemistry, botany, zoology, agronomy, ophthalmology and cartography were also studied. Scientific work during this age often had a religious undercurrent.

The Renaissance is a period in European history which marks the transition from the Middle Ages (sometimes referred to as the dark ages) to the modern age and spans the fifteenth and sixteenth centuries; this period is marked by a resurgence in science and scientific activity which spread unevenly across Europe. It followed the invention of the printing press by Gutenberg. This period is marked by a renewed interest in art, architecture, science, politics, and literature. Scientific method and inductive reasoning also developed during this period. Nicholas Copernicus, Isaac Newton, Galileo Galilei, Leonardo Da Vinci and Michelangelo are also products of this age. The Enlightenment, sometimes known the Age of Reason, was an intellectual movement that occurred in Europe in the seventeenth and eighteenth centuries after the scientific revolution which is associated with the work of Sir Francis Bacon, Rene Descartes, and John Locke. The Enlightenment led to an exponential increase in knowledge in various scientific fields and the birth of new values such as liberty, fraternity, peace, progress, tolerance and happiness. Another important idea of this age was the separation of church and state, and the gradual rejection of the church's dogma. This period is also more or less concurrent with the Industrial revolution which began in Great Britain, greatly increased mechanization, and paved the way for the modern age. [16] [17]

During the Nineteenth century, science made great progress. John Dalton for example, published his atomic theory in 1808. A Russian Dmitri Mendeleev formulated the Periodic Table. Scientists also continued to study and experiment with electricity, and the study of Physics continued to make great strides during this period. Sir Humphrey Davy and Michael Faraday also made many contributions to science, and Louis Pasteur and Marie Curie made many contributions to medicine. Railways revolutionized travel, and shrunk distances just as did the steamship. Charles Darwin's theory of evolution revolutionized science, and is among the greatest contributions made to science ever. Scientific racism existed, but slowly whittled down. In Anthropology, arm chair methods were replaced by fieldwork. Researchers unearthed Dinosaur fossils, thus proving the Biblical theory of evolution false. Gregor Mendel discovered the laws of heredity. Science and technology progressed greatly in the twentieth century, and this period is often known as the age of scientific miracles. Henry Ford mass produced automobiles. Electricity became common, and many electrical appliances were invented. Einstein developed his famous special and general theories of relativity. The telephone, the phonograph, the motion pictures, the radio and the aeroplane also changed people's lives greatly. Great strides were

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[15] Evans, James. The History and Practice of Ancient Astronomy. New York: Oxford University Press, 1998.

[16] Burckhardt, Jacob, The Civilization of the Renaissance in Italy (1860), a famous classic; excerpt and text search 2007 edition; also complete text online.

[17] "Industrial History of European Countries". European Route of Industrial Heritage. Council of Europe

made in the field of genetics as well, and the double helix nature of DNA was discovered by James Watson and Francis Crick. New theories on the origin of the universe such as the Big Bang theory were developed, and superconductivity was explained. More evidence was discovered in support of the theory of evolution. The internet which was first unveiled in 1993 revolutionized communication (it has also triggered horizontal cross-cultural flows of ideas and information, and fuelled cognitive dissonance in some parts of the world, by dislodging well-entrenched ideas. Additionally, it may have succeeded in weakening cultural identity to some degree), and in the field of astronomy, many planets known as exoplanets, were discovered orbiting neighbouring stars.

Colonialism had by and large ended by the 1950's, but many formerly colonized countries followed socialism, perhaps inhibiting their growth. Many Asian economies had taken off by the 1980's, and more followed suit by the 2000's. In spite of this, scientific output in Asian countries remains abysmally low (In African nations, it is almost non-existent), and even today, the USA remains the epicentre of scientific activity. Even though countries like Japan and South Korea have shone in different fields of technology (becoming producers of technology rather than mere users of technology), their contributions to theoretical science is relatively low. Eurocentrism reigns supreme; According to Brohman (Brohman 1995) Eurocentrism "perpetuated intellectual dependence on a restricted group of prestigious Western academic institutions that determine the subject matter and methods of research". Eurocentric science also caters primarily to intellectual, social, and cultural causes, influences, attitudes and ideals arising within Europe, and also believes implicitly in European exceptionalism (as observed by Ward Churchill and others), see it as a driving force behind scientific activity. Euro-centric scientists also developed most frameworks and paradigms in major fields of science representing ethnosciences, and set the educational curriculum accordingly. Thus, Eurocentrism which may be conscious or sub-conscious, may have arisen due to the desire to pander or cater to western audiences: this is especially true of Ethnography. In some cases, Eurocentrism may have been born due to ignorance of non-European cultures or their points of view. Some Euro-centric thinkers may claim rightly or otherwise, that Oriental cultures are pre-scientific, and are scientifically-illiterate, because they are ignorant of Western scientific method, and apparatus, and are thereby incapable of logical or critical thought. Some of this stereotyping and generalization may even have been deliberate, or born out of deliberate bias and prejudice, even though it may be partially true. Oriental cultures have lagged behind the west for centuries. This notwithstanding, who should begin to break the cabals, then? [18]

China is now publishing a large number of research papers, and India remains in the fourth position, above many European nations, notwithstanding a large quality gap between the west and the east. Contributions of Asians to various fields of inquiry forming a part of the social sciences is also low, though there is a flourishing and thriving post-colonial movement driven by Asians. Also, another welcome change is that Asian researchers are gravitating towards the USA to pursue scientific pursuits, and such researchers are unlikely to embrace Eurocentric paradigms unquestioningly. Rebellious anti-colonial stances like the Hindutva movement raised their heads during this period, and other

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[18] Franzki, Hannah. "Eurocentrism." 2012, Concepts and Critical Perspectives.

researchers like Michael Witzel fought them with heroism. (Such movements are also born of parochialism, and erroneously seek to reconstruct India's real or imagined past glory in science or otherwise, rather than striving to make it a scientific superpower that it needs to be at present). We would fervently hope science becomes more and more of a global and a culture-neutral activity, and only this can serve to tame anti-science movements and counter-science movements which have raised their ugly head in different parts of the world. Should there be Chinese, Indian and Islamic renaissances, and enlightenments then? Should Asians only challenge Western scholarship constructively, and remain a strong counter-balancing force, or should scholars and researches across cultures collaborate with each other is a spirit of bonhomie through a formal and structured process of 'cross-cultural research design"? These are questions on everybody's lips.[19] [20]

The following then could be the remedy to the current predicament, situation and malaise, though only a part of the overall solution. [21] [22] [23] [24] [25] [26]

> (a) Cross-cultural research and sharing of perspectives must become more widely practiced and commonplace through debate, discussion, mutual consensus and the setting up of cross-cultural research teams. This kind of a research design can be used in virtually all kinds of sociological research, and can be extended to other fields of research too. Cross-cultural research design involves the participation of researchers, or subjects of study from various cultural backgrounds (The process of selection must involve a careful consideration of various factors such as time and effort, and selection process must be meticulous too) This can greatly override the dangers associated with ideologies (such as nationalism, parochialism, or racism), ivory tower approaches (thereby mitigating esoteric pursuits and intellectual nerdism). For this all

[19] Krebs, Robert E. (2004). Groundbreaking Scientific Experiments, Inventions, and Discoveries of the Middle Ages and the Renaissance

[20] Smith, Pamela H. (2009). "Science on the Move: Recent Trends in the History of Early Modern Science". *Renaissance Quarterly*. 62 (2)

[21] Introducing Anthropological Economics: The quest for an Anthropological basis for Economic theory, growth models and policy development for wealth and human welfare maximization Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Sciences Volume 6, Issue 3 (April –June 2020

[22] Introducing Anthropological Historiography as an integral component of Twenty-first Century Historiography: The role played by Anthropological Historiography in the attainment of long-term Anthropological goals and objectives International Journal of Innovative Science and Research Technology, February 2018, Volume 3, Issue 2

[23] Introducing Anthropological Pedagogy as a Core Component of Twenty-first Century Anthropology: The Role of Anthropological Pedagogy in the fulfilment of Anthropological and Sociological objectives Sujay Rao Mandavilli International Journal of Innovative Science and Research Technology (IJISRT) Volume 3, Issue 7, 2018 (Summary published in Indian Education and Research Journal Volume 4 No 7, 2008

[24] Unleashing the potential of the 'Sociology of Science': Capitalizing on the power of science to usher in social, cultural and intellectual revolutions across the world, and lay the foundations of twenty-first century pedagogy, Sujay Rao Mandavilli, Elk Asia Pacific Journal of Social Science, October – December 2020

[25] Historiography by Objectives: A new approach for the study of history within the framework of the proposed Twenty-First Century School of Historiography Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Sciences Vol 1, Issue 2 (2015)

[26] Enunciating the Core principles of Twenty-first Century Historiography: Some additional extrapolations and inferences from our studies and observations on Historiography Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Science (ISSN: 2394-9392) in Volume 2, Issue 4 July to September 2016

participants in scientific activity should be trained in 'universals' such as critical, logical, and rational thought, and ideologies of all hues and colours should be systematically got rid of. The selection of participants must be structured, and must form a logical process. Even though the world is becoming increasingly globalized, and even managements of organizations are practicing culture-neutrality, ideology-free science has proven elusive. Scientific research must also be targeted at cross-cultural audiences; this must become a mindset, and techniques such as 'Reflective equilibrium through role swapping' must be consciously (and conscientiously) practiced. Biases and prejudices must be systematically recorded and analyzed, and differing perspectives taken into account and consideration (or at least the perspectives that are pertinent to the research question). One of the guiding principles of this approach is the psychic unity of mankind, a concept that we have reiterated several times in our papers, and the universality of scientific and research goals too; consequently, there must be bonhomie, camaraderie, and mutual respect for scientists across the world, and criticism must be constructive or issue-based, and not ideology or vendetta-driven. The term cross-cultural research design already exists, but this paper attempts to take the concept to a much higher level by introducing several new terms and concepts. Cross-cultural research may be defined as a systematic study that investigates cultural differences in behaviour and phenomenon. It can also be accompanied by an annotated approach, where opinions elicited are systematically recorded.

(b) Creating Sociological and Anthropological revolutions across the world. Our papers on Anthropological pedagogy and the sociology of science, along with Twenty-first century historiography should do the trick here, though this should essentially be a continuous process driven by better education and pedagogical methods designed for different contexts and settings. Thus, revolutions in various social sciences such as economics, sociology, and social and cultural anthropology must happen, and these subjects must be geared to produce emancipation of peoples in various parts of the world, rather than providing a limited White man's perspective on various states of affairs. This is all the more important given the fact that only these sciences lend themselves to any type of 'centrism'. This would in turn facilitate better cross-cultural research design in the long term.

(c) Better pedagogical techniques (refer our papers on Anthropological pedagogy and the sociology of science) Thus, a 'cultural frame of reference' in various cultures, and a cross-cultural frame of reference' across cultures. We have defined these in the past to mean carefully thought through paradigms that systematically override all traditional or pre-scientific beliefs and belief systems to gravitate cultures towards modern scientific and logical thought. Thus, these would be scientific frames of reference, people of a specific culture or groups of cultures could relate to (against the backdrop of their own culture), and not get overwhelmed by. The former would work appreciably and admirably in the context of a particular culture, while the latter would be more universal, making it a universal paradigm or set of paradigms. Thus, modern scientifically-designed historiography bereft and devoid of ideologies, and the development of a suitably designed culture-specific syllabus, should do the trick in most case and instances, and override pre-scientific beliefs. This may also be the crying need of the hour and day. Abraham Kovvur debunked the invincibility of Indian God men, and so did H Narasimhaiah, and bemoaned their

widespread popularity. Most Indian rationalists such as Joseph and Sanal Edamaruku have lamented the fact that even Indian scientists cling on tenaciously to pre-scientific beliefs. This belief has been reiterated by Dr. Innaiah Narisetti, Chairman of the centre of inquiry. Luckily, all this could change in a generation or two. This would again facilitate better cross-cultural research design in the long term as people of different nationalities become more scientifically inclined and oriented. It would also require the emergence of apposite social science research tools, techniques and methods, and a better collaboration between social scientists and other scientists. Only this can lay the foundations for a more rational society, and relegate religious dogma to the background. But perhaps religion and belief in God will not die down entirely until theological issues remain unresolved, and religion will remain important social and cultural symbols in most societies. Many of the concepts we proposed in our two papers on social and cultural change can perhaps help model future changes in different societies, and can also perhaps lead to a situation where religion plays a less vital role in society.

Towards an Ideology-free science

The word "Ideology" is derived from the French word "ideologie" which is usually dated to the time of the French Revolution, and is believed to have been introduced by a philosopher, by the name of A.L.C. Destutt de Tracy. To put it in plain and simple English, an ideology may be referred to a collection of beliefs that are usually not completely tested and therefore lack universal applicability. Ideologies may either be consciously harmful or harmless, though there is often an unnatural influence or manipulation of thought. An ideology is sometimes also associated with rigidity of thought or dogma, and non-applicability of values or ideals outside usually a narrow or closed group (or incompatibility with external criteria), whether bearing internal consistency or not.

Different definitions of the term ideology have been proposed by researchers like David. W. Minar, Terry Eagleton and others, but the core characteristics that define an ideology are usually the same in all definitions. Science itself can form the basis for negative ideologies. For example, an exaggerated belief that science is the panacea for all ills, or that all phenomena can be quantified, (psychological and cultural factors are highly discounted or even peremptorily dismissed) is known as scientism. This term was described in detail by F A Hayek and Karl Popper, among others. Thus, there may be a temptation and a tendency to pass pompous statements and rhetoric as true, and also appeal to (or refer to) "scientific authority". This position may also at times encompass the naïve belief that science will automatically replace religion. This may be a self-defeating belief, because it may obviate the need for better grounds-up and human-centric methods, particularly in various fields of the social sciences, and develop what we called a 'cultural frame of reference', and a 'cross-cultural frame of reference' to edge out pre-scientific beliefs. [27]

New atheists such as Sam Harris, Christopher Hitchens and Richard Dawkins have also been accused of placing too much reliance on empirical science; Thomas Nagel and Anthony Kenny have been their notable critics. Paul Feyerabend later moved away from scientism, and subsequently declared it highly

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[27] Taylor, James E. "The New Atheists". *Internet Encyclopedia of Philosophy*.

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limited and flawed. It is also anathema from our perspective, and flies in the face of the ideals of globalized science. It can also lead to what we called 'self-reinforcing cognitive dissonance', and reinforce faith in religion and religious dogma more. Our perspective and stance is that a globalized approach to science, and human-centric and culture-encompassing techniques, could raise the bar, and expand the utility of science greatly, though it cannot render it invincible. Dialectics and cross-cultural research design are among the ways this can be materialized and fructified. Dialectics must also be an integral and an essential part of cross-cultural research design; the latter is meaningless without the former. This will additionally allow all points of view to be evaluated against the backdrop of a grander scheme of things, and move science away from an ideology-smeared past to an ideology-neutral one. The 'Structured and Annotated Participant driven Appraisal' technique in ethnography was based on dialectics; we hope this paper will take things to the next level. Thus, the principle of equi-distance with respect to ideologies is extremely important; all our work this far has been targeted at the achievement of this singular objective.[28] [29]

Towards a post-ideology world in science

Much of scientific endeavour particularly in the social sciences is still not entirely ideology-free, and the bias is usually either conscious or unconscious. Consequently, much of scientific research in these fields of science is still not of the desired or required quality. Much of scientific research in the social sciences is still targeted at popular audiences or European or American scholars often, not at global scholars and researchers, though ideally, only distilled and sanitized versions must be targeted at popular audiences; thus polarization still persists to an extreme degree, with adherents of different ideology seldom talking to each other in an atmosphere free of distrust or suspicion. We are still living in a dark era of inter-disciplinary research and cross-cultural research particularly in the social sciences. As the adage goes, "one kind of bias legitimizes every other kind of bias" "Every ideology feeds on other rival ideologies, and either directly or indirectly promotes or instigates them in the long run". This rings resoundingly and represents the sad state of affairs today. This is still the age of crooks, knaves, ideology and dogma. This is akin to the 1970's which were the dark ages of office automation**.** The personal computer had not yet been invented; Microsoft's office suite was still a decade away, and so was email; the world wide web would not appear until two decades later. As quixotic as it may sound today, ideologues many one day be called enemies of science, society and the education system, or plainly "public enemies", to recall a Franklin D. Roosevelt era term.

Marxist historians scarcely followed inter-disciplinary approaches, and saw everything through the lens of class conflict, class struggles and historical materialism, therefore possessing a rather limited intellectualism. This has bred unfortunate counter-reactions, and we proposed a new approach called the "Twenty-first century historiography" to bring order to the state of affairs. They followed outdated historical models to boot (associated with colonialism and imperialism), and may have even practised an

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[28] Hacohen, Malachi Haim (2002). *Karl Popper: the formative years, 1902–1945: politics and philosophy in interwar Vienna*. Cambridge University Press

[29] Presenting the 'Structured and Annotated Participantdriven Appraisal' technique in Ethnography: Towards the universal realization of Multivocality in Ethnographic studies Sujay Rao Mandavilli ELK's International Journal of Social Science Vol 4, Number 4, 2018

ideologically-driven discrimination between religions. This has had an unfortunate spill over into Indology and Indo-European studies as well, and has begotten dangerous counter-reactions such as the unfortunate rise of the Hindutva. It is said that even the path to hell can be paved with the best of intentions, and we may even call for a "God that failed" parts two and three, representing Marxist historiography and Marxist intellectualism (or other current forms of intellectualism) respectively. ("The God that Failed" refers to a collection of six essays by Louis Fischer, Arthur Koestler, Andre Gide, Stephen Spender, Ignazio Silone, and Richard Wright denouncing Communism) Even eminent writers like George Orwell have been critical of Communism in praxis since the 1940's. He published a dystopian novel "Nineteen Eighty-four" and a satirical novel "Animal farm" both of which are highly critical of Communism. Marxism also has all the trappings of a cult. Just because Marx didn't believe in a Christian God, most Marxists do the same: In fact, this issue is much more complex than that, given that there are many different definitions of God across cultures and societies. Thus, despite the Asiatic modes of production, and other well-meaning extensions of Marxism, Marxism essentially remains a Eurocentric ideology both in Economics and Historiography, reflecting a mid-Nineteenth century viewpoint, and seeking to address mid-Nineteenth century European concerns. The Marxist contention that other rival ideologies have been permitted is ill-conceived; this leads to even greater polarization. What we need is a post-ideology world, brought about through better science, and better scientific research. Marxist intellectuals have also collaborated with colonial Indologists, and have furthered the cause of Western intellectual cabals. This is not to say that we need intellectual McCarthyism, but the truth must be gleaned nonetheless. Marxist historians must be called out for what they do: they create an unhealthy atmosphere characterized by polarization, and create an unhealthy atmosphere for other scholars to emulate based on an "I am free to follow my own ideology, and so can you" approach.

Many Marxist intellectuals have opposed globalization and the rise of a multi-polar world ignoring the fact that it has propelled India ahead. BT Ranadive and others blindly opposed liberalization in India in the 1980's while others blindly advocated it. In the view of some, Marxists have become enemies of anything good. Many left-leaning intellectuals have ignored the rise of India, or have even been critical of it. Arundhati Roy likened India to a plane flying backwards; Aakar Patel has emerged a strident critic of Narendra Modi. Ashoka Mody thinks India has been an economic failure. Amartya Sen has provided a better-informed critique of the Gujarat model of development, however, and this comes like a breath of fresh air. Thus, there are ideologies in intellectualism too, necessitating a new school of thought. Intellectuals are the lifeblood of a free society; but, alas a new twenty-first century school of Intellectualism (relevant to today's ideals) has failed to emerge. Do Marxist intellectuals care about gender equality, human rights, child rights and abuse, drug trafficking, substance abuse, global warming, sustainable development, prevalence or absence of a scientific temper, trickle up economics, international peace, universalisation of education, pedagogical techniques, racism in science, Eurocentism in science, racism, apartheid (apart from a narrow focus based on the principles of class struggle) and social duties of researchers? The answer is an unfortunate no.[30]

Hindutva has proven to be much more dangerous in the recent past, and Hindutva groups had attempted to rewrite history textbooks completely to present their views of history and nationalism.

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[30] Routledge Handbook of Marxism and Post-Marxism". *Routledge & CRC Press*.

This involved some calumny and deceit, and institutions such as the ICHR were briefly, more or less completely taken over. Film makers like Ashutosh Gowariker used other means to promote the Hindutva point of view. Hindutva is usually taken to represent a Brahminical Hindu view point, ignoring all other traditions within Hinduism; it is as such an affront on Indian science and composite intellectualism; there is hardly a nugget of truth in Hindutva approaches, as scientific and academic rigour is often given the go-by. Even well-meaning scholars and intellectuals such as BB Lal and SP Gupta moved dangerously close to Hindutva constructs of history during the heyday of Hindutva revisionism, and it took an intellectual bulldozer (many intellectuals participated) to avoid a complete Hindutva takeover of institutions and the public consciousness.

This kind of parochialism represented a "pre-scientific view" of sorts. As Witzel (who fought Hindutva valiantly either due to altruistic considerations, or to protect his nineteenth century Indology) commented, N S Rajaram's (A rabid Hindutva proponent) views stemmed from "The ugliest corners of the pre-scientific mind". Witzel went on to expose Hindutva in an article, "Horseplay in Harappa" published in the Indian magazine Frontline in 2000; Some criticism was made by the left-leaning author and scholar Meera Nanda in her book "Prophets facing backwards", or by Michael Witzel in his German essay "Ruckwarts gewandte Propheten". The Historian Audrey Truschke went on to state that Hindutva positioned Hinduism as a "constricted, flattened religion"; Alan Sokal baldly called it a pseudo-science; even Koenraad Elst has called Hindutva a "fairly crude ideology based on older European ideologies promoting homogeneity". Even though Hindutva proponents may have fought Western elitism in science valiantly, their struggle was largely an unstructured, rebellious, and a pre-scientific one. (More recently, Hindtuva groups have been attempting to remove Charles Darwin's theory of evolution from textbooks, much to the horror of intellectuals) It is our opinion therefore, that all ideologies are more or less pre-scientific. Better scientific and historical constructs (besides better pedagogical techniques) can put an end to these. All that a scientific perspective of Hinduism requires, is that the diversity within Hinduism be accepted; Is this that difficult given that the RSS is now reaching out to Muslims and Christians as well? Interestingly, cross-cultural research design, with western researchers roped in, can fight this kind of a malaise, too.

Dalit leaders like BR Ambedkar helped emancipate their ilk greatly; BR Ambedkar was a well-rounded intellectual, and represents one of the greatest intellectuals of our times. His views on most issues were well-founded and holistic, yet he had to depend on the outdated historical models of his time. He stated that he would not die a Hindu, and embraced Buddhism. Jyothiba Phule, likewise was a nineteenth century social activist who opposed Brahminical hegemony, and fought for the education of Dalits and women. However, Dailt leader Kancha Ilaiah (author of "Why I am not a Hindu") criticized Hinduism not realizing that Dalit religious traditions were an intrinsic part of Hindu religious tradition, and Hinduism was merely a geographical expression. Likewise, Gauri Lankesh may also have been unknowingly biased because she subscribed to outdated historical models. She met her fate in the hands of a Hindu extremist who assassinated her in 2017. Hindutva groups have been critical of the intentions of Dalit intellectuals and thinkers, and Hindutva writers such as Rajiv Malhotra and Aravindan Neelakandan

accuse many of them of anti-national activities. Thus, there are ideological fault lines even today, with the situation scarcely improving. [31]

The Dravidian nationalist Periyar rabidly opposed Hinduism and Hindu practices not realizing that many aspects of Hinduism originated in Tamilnadu. His ideas of atheism and rationality also followed the prevailing cultural (i.e. Western) mould. Periyar did not appreciate North India and South India cultural contacts (and even that Tamil Brahmi had a North Indian origin) because he followed obsolete historical models too, and viewed all North Indians as interlopers. The Dravidian theory that Tamil as the oldest language of mankind does not cut ice even though Tamil is 2500 years old as a written language, and Tamil civilization is genuinely 2300 years old. They operated alongside many colonial Indologists such as Kamil Zvelebil, Thomas Burrow and Asko Parola, and Afrocentrists such as Clyde Winters. Other intellectuals such as Clarence Maloney have also operated alongside the Dravidian movement. Even today, some people of Tamil nadu believe in the old Aryan Dravidian divide (or the old Aryan Invasion theory) conveniently ignoring the fact that the term "Aryan" was a cultural term in the Rig Veda, and the term "Dravidian" was a geographical term in Sanskrit literature, later connoting a geographical label .

Any successful scholar must therefore, bring about change in society; a successful scholar must produce science that transcends ideologies. A successful scholar must also have created a generation gap between the old and the new generations; this would be an important metric of the success of a scholar in the modern world. Even atheists (and rationalists) naively believe religion can be done away with (this remains a flawed or erroneous belief not validated by experience), thus we must move towards an era of greater convergence of thoughts and ideas. Religion can never die; it can gradually wither away as people become less and less religious, but can never entirely bite the dust. Powerful religions will remain powerful cultural and social symbols probably for millennia to come.

Thus, concepts of atheism (and rationality), which are based on a refutation of a Christian idea of a God (which is clearly scientifically untenable), and are based on Eurocentric principles, may polarize more, and antagonize peoples of non-Christian cultures. (The idea of God varies in various cultures. For example, we have the idea of the universal consciousness, or a cosmic force or energy in some cultures, Phan Ku, the creator in Chinese culture, Prose Edda, Icelandic creation myth, the vast blue God Wulbari of the Krachi people of Togo, and Olurun, the owner of the sky of for the Yoruba people of West Africa all of which are completely different from one another). For example, it is a crime to publicly promote atheism in Saudi Arabia; even though this is a violation of human rights, Eurocentric atheism is misleading too as there are many definitions of God in different cultures, and different definitions by different philosophers. Some definitions of God define Him as merely a cosmic force or cosmic energy.

Furthermore, religion and the idea of God are two different things, and many confuse the two. The concepts underlying the rationality movement may be steeped in Eurocentric ideals too, and may need a thorough revamp in the twenty-first century. The rationalist movement in India has made great strides in fighting superstitions and blind faith, but is dogmatically tied to atheism in the European mould, instead of promoting genuine discourse and debate among people holding different ideas and ideals.

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[31] Agarwal, Kritika. "The Rise of Dalit Studies and Its Impact on the Study of India: An Interview with Historian Ramnarayan Rawat". *AHA Blog*. American Historical Association

Since people are so completely drowned in their respective ideologies, they scarcely talk to each other. Why should humans of great intellectual calibre be so enamoured of ideologies to such an extent that they can barely see reason, or talk to each other? The answer is the absence of a suitable overarching framework. We had called this the 'cultural frame of reference' and 'cross-cultural frame of reference', and only this can provide a frame of reference for different cultures to transcend their pre-scientific beliefs. All social scientists and researchers must operate within the ambit and the framework of these to stand a chance of succeeding. [32]

Hindi chauvinism that existed from the 1940's to the 1960's also did not take into consideration India's rich and diverse linguistic heritage. As observed by Granville Austin, Hindi zealots often disturbed the parliament in an unreasonable quest for homogeneity. The statements made by R V Dhukekar and Seth Govind Das come to mind here. This kind of an ideology was opposed to the science of language dynamics, which probably did not formally emerge until much later, and the legal position of Hindi, English and other languages in central and state governments. Thus, better science including language dynamics, study of enculturation and acculturation patterns, and first and second language acquisition, can counter ideologies, and can aid in language planning and the design of education system, not only in India, but also elsewhere. [33]

Capitalist dogma is dangerous too; it believes in laissez-faire capitalism, trickle down economics, and the idea of an invisible self-regulating hand. Such beliefs form the staple diet of Republicans even today. Herbert Hoover believed in it even after the beginning of the Great Depression, and unwittingly dragged the USA deeper into the quagmire. Keynesian economics however, called for greater government intervention, and it was only the pragmatism of Franklin D Roosevelt that pulled the USA out of the great depression. Thus, from our perspective, trickle up economics works better, and we have worked towards making economics a more empirical and a quantifiable science. We had presented a paper on Anthropological Economics earlier, and proposed concepts such as 'Econoethnography' to boost our case. Dogma extends to employment laws, and the doctrine of 'Employment at will' is practiced in the USA, conveniently ignoring the fact that employers and employees rarely have the same bargaining capacity. Quantified and empirical science has therefore yet to replace dogma in many fields of the social sciences. Colonialism was a disaster, but the British could have developed India for mutual benefit and extended their stay here. However, Ideology was a barrier and the British were impervious to the cultural needs of Indian society, due to widely differing cultural perspectives, or even outright condescension. Some Englishmen even saw the rest of the world as "The white man's burden", and thought it was the white man's mission to bring civilization to remote corners of the world. This impacted science too, and theories such as the theory of unilinear evolution flourished in Anthropology. By the end of the colonial period, the Indian economy was in shambles, and India was among the poorest nations on earth.

For all its contributions to science and humanism, western science is not without its flaws. Work not designed for reader of average intellectual faculties; work deliberately designed to confuse;

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[32] Honderich, Ted (Ed.) (1995). "Humanism". *The Oxford Companion to Philosophy*. Oxford University Press.
[33] Hindi Nationalism, Alok Rai, Sangam books, 2002

condescending attitude towards other cultures; careerism; changing theories at the drop of a hat; excessive theorization; jettisoning older theories without a proper refutation; belief in (or desire to perpetuate) western exceptionism or western elitism; non-collaboration with non-western scholars or hesitation to consider non-western points of view; adoption of a left-leaning stance, etc are some criticisms commonly leveled against western scientific enterprise, particularly in the social sciences.

To reiterate, all Ideologies can be negated and countered through better science, and better and more robust frameworks and empirical models. Ideologies can be negated through better research methods and techniques such as dialectical approaches. Cross-cultural research design tied to dialectical approaches should also be one of the foundations of modern, empirical science. This must be conceived and executed in letter and spirit, and must cover pre-research design activities, and post-research design activities such as review and ratification of already conducted research not only in good faith, but also holistically and comprehensively. This is easier said than done, and a complete transition will perhaps be accomplished only when the older generations die off. This is of course subject to scientific frameworks being available to allow such a transition to take place.[34]

Research design

A research design can be defined as a blueprint that is a pre-requisite of a scientific study. It includes in its purview, different types of research methodologies, tools, and techniques which are used to conduct and perform the research. It can also help to identify problems that may arise during the process of research and propose solutions to address and overcome them, and can help identify fallacies in logic and reasoning. It is also used to establish internal and external consistency, and is used both in qualitative and quantitative research, and in structured or semi-structured research too. Experimental or quasi-experimental research design may also be used, with the operationalization of control and experimental groups.

According to Fred N. Kerlinger, research design refers to "the plan, structure and strategy of investigation conceived in order to obtain answers to different research questions and control variance and distortions as well. The plan can include everything the investigator may do from writing the hypothesis and their operational implications to the final analysis of data. The structure of research design usually encompasses the outline, the scheme, and the paradigms of the operation of the variables. The strategy may also include the methods that are to be used to collect and analyze the data. At the beginning of the study, this plan (or design) is typically tentative and vague. It may then undergo many modifications and changes as the study or research progresses, and insights into it enlarge and deepen. The working out of the plan also consists of making a series of decisions with respect to how, what, why, where, and when of various important aspects of the research." As per the definition provided by Pauline V. Young, "a research design is the logical and systematic planning and directing of a

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[34] Stilwell, Frank. *Political Economy: the Contest of Economic Ideas* (1st ed.). Oxford University Press. Melbourne, Australia. 2002.

piece of research." In the words of Reger E. Kirk, "research designs are plans that specify how data should be collected and analyzed." [35] [36]

Thus, the functions of a research design are:

1. It provides researchers with a blueprint for studying, investigating and analyzing different research questions that form a part of a study.
2. It helps identify boundaries of research activity and enables investigators to channel and focus their energies and resources in a particular direction as well.
3. It helps investigators to anticipate any potential problems that may arise during the course of the study or research.
4. It also helps investigators to look for answers to various kinds of research questions that may prove to be elusive.

Thus, the components of a research design are:

1. A definition and brief description of the study being carried out.
2. A justification of the need for the study.
3. A definition of the core and allied objectives of the study.
4. Scope of the study, including a statement of what is included and what is excluded in the study. The scope will usually include subject content, geographical coverage, and time period as well.
5. The anticipated benefits of the study, which may be direct or indirect benefits.
6. Details of the literature review that needs to be carried out, along with possible sources of data. Sources of data may include primary sources or field sources, and secondary sources or literature survey. Methods of data collection, along with tools and techniques for data collection are also often specified as a part of the research design.
7. Sampling strategy, if any, shall also be specified as a part of the research design.
8. Details of previous research the present research is based on are also specified as a part of the research design.
9. Weaknesses of previous research the present study seeks to remediate are also typically highlighted as a part of the research design.
10. Operational definitions, if any to be used during the course of the research, are also made as a part of the research design.
11. Details of human and non-human resources used in the research, are also specified as a part of the research design.
12. Time and cost budget shall also be mentioned as a part of the research design.
13. Whether modelling is done appropriately: The most common type of model is a scientific-experimental model including an experimental or quasi-experimental research model including random assignment of subject to a control group and an experimental group (quasi-experiments

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[35] Claybaugh, Zach. "Research Guides: Organizing Academic Research Papers: Types of Research Designs". *library.sacredheart.edu*.
[36] Wright, Sarah; O'Brien, Bridget C.; Nimmon, Laura; Law, Marcus; Mylopoulos, Maria (2016). "Research Design Considerations". *Journal of Graduate Medical Education*

do not use randomization). Qualitative and anthropological models are also common, and these include a phenomenological component. These also comprise naturalistic or fourth generation evaluation, various qualitative schools, critical theory or art criticism approaches, and the grounded theory approach of Glaser and Strauss (This approach explained how theories could be developed from data inductively, contrasting it with deductive approaches) among others.

14. A survey of administrative and managerial aspects of the study must also be included as a part of the research design.
15. A description of further extensions of research, and further downstream applications, if any.
16. Whether cultural biases are neutralized (cross-cultural research design) are subjects are selected ethically: for example, voluntary participation, confidentiality, informed consent and anonymity are a must.
17. A statement of whether all exceptions have been considered must also be made (Refer to our paper on the Sociological ninety-ten rule).
18. Whether the research design is as robust as possible, and whether a plan exists to make downstream research and analysis as robust as possible (refer to our paper on the certainty uncertainty principle).

Research design can be used for various types of research including (a) Descriptive research which is usually used to describe what is going on (a current state of affairs), or what exists. (b) Relational studies or co-relational research which looks at the relationships between two or more defined variables (c) Causal studies which are usually designed to determine whether one or more independent variables causes or effects one or more dependant or outcome variables. (d) Explanatory research, which is research designed to explain why events occur, and to build, or test theories or hypotheses. (e) Exploratory Research which involves a search for new objects, places, or cultures. (f) Analytical research, where a great deal of analysis is required. (g) Conceptual research which is used to develop new concepts. (g) Diagnostic research which is used to diagnose problems. (h) Comparative research design which is used to make comparisons and draw conclusions. Other types of research are cross-sectional research, longitudinal study, experimental research, survey research, panel study and cohort study which were described by us in our previous papers. Cross-cultural research design can be used for all these types of research with varying degrees of efficacy, and can be used in different phases of the research design too (including review and ratification). It can also be used in action research design, case study research design, evaluation research, and ethnographic research. Other research methods like interviews, questionnaires and focus group discussions can also employ cross-cultural research design effectively. Cross-cultural research design can be specific too, with regard to a particular circumstance or topic of study, and subjects or evaluators may be chosen accordingly. This principle is also related to that of triangulation, with investigators, or subjects changed during the course of research.[37]

Dialectical approaches

The term Dialectic is derived from the word dialogue, and refers to a structured discourse, debate or discussion between people holding different points of view (employing reasoning and logic) with a view

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[37] OECD (2015). *Frascati Manual*. The Measurement of Scientific, Technological and Innovation Activities

to establishing the truth. It is well-meaning, avoiding polemics and arguments for arguments sake, and is therefore non-didactic and non-eristic. A formal, structured method employing dialectics is known as the dialectical method, and this may at times employ subjective elements such as emotional appeal and rhetoric as well. Dialectics was developed by Georg Wilhelm Friedrich Hegel, based on the ideals of Zeno of Elea, Plato, and Socrates, (Thomas Aquinas and William of Ockham also used dialectics) but Karl Marx and Friedrich Engels gave it a material slant. The latter is known as Dialectical Materialism. The classical version of dialectics does not include cross-cultural dialogue (thus, endowing it with a highly Eurocentric bias which is characteristic of much of scientific endeavour: Few, in any European or American thinkers worth their salt mention cross-cultural dialectics, though individual-cultural dialectics in sometimes mentioned, and subaltern and feminist studies have taken off to some degree), hence we emphasize cross-cultural dialectics or cross-cultural dialectical method; in this case, subjects must be carefully chosen from diverse cultures, representing diverse viewpoints, and their selection must become an art and science in itself. Cross-cultural research design may also be classified into geographical cross-cultural research design and non-geographical research design; sub-altern studies and feminist studies are examples of the latter; cross-cultural research design can also be designed to take into consideration various stances or points of view, examples being dialectics between supporters or non-supporters of various schools of thought such as post-colonial studies, or proponents or opponents of various sub-schools of thought, to reconcile differences in points of view brought about on account of cultural differences. It can also be a discourse between people with different mental makeups and characteristics. This can do a great service to science too, and override many flawed and implicit assumptions researchers take for granted today, and make many ideologies redundant in the process.[38] [39]

The philosophical and epistemological basis of cross-cultural research design

The basis of cross-cultural research design is two-fold. Firstly, people in marginalized cultures can throw fresh light on issues that concern them, and can understand their own struggles and perspectives much better. One the other hand, oppressors, subjugators or other third parties would gloss over such issues, (or resort to cherry-picking or distortion of evidence, selective obfuscation and selective amnesia) and see them as less important and trivial. (This perspective could then be vetted or ratified by other third parties who could be chosen for non-bias, after an identification of their vested interests, if any) Thus, men are not likely to start a feminist movement, Brahmins and not likely to lead a struggle against caste, Dalits are unlikely to support Brahminical hegemony or support the Hindutva movement, whites did not fight against apartheid (or fight for civil rights), and so on. Likewise, the Indian independence movement had few supporters, if any, in the west, and Hindus and Muslims had different concerns during the First war of Indian independence in 1857. The fight against colonial biases in Indology was not launched by Witzel, Gregory Possehl, or Asko Parpola, but by Indians, particularly Hindutva proponents who were the worst offended by Colonial-Marxist enterprise. Likewise, the Hindi belt was the action area of the

[38] Hegel, Georg Wilhelm Friedrich (1975b). H. B. Nisbet (ed.). Lectures on the Philosophy of World History: Introduction. Translated by Nisbet, H. B. Cambridge University Press.
[39] "Subaltern Studies: The Encyclopedia of Postcolonial Studies : Blackwell Reference Online".

'Angrezi hatao' or 'Banish English movement', and not the West or South of India. Tamils were the most vociferous opponents of Hindi imposition, and have been fighting is since 1937. There are likewise, differing views between caste Hindus, Muslims and Christians even today, and between North Indians and South Indians, too. Western scientists don't understand accusations of western biases in science, (Gregory Possehl even vehemently denied it), and Indians (except hidebound Marxists) are likely to support globalization if it benefitted them, and so on. All these instances go on to show the dichotomy of the emic and etic perspectives, (although there can be guardian angels and well-wishers) and there are many more such instances that can be noted. As such this principle would form the philosophical and epistemological basis of cross-cultural research design.

Also note that the subaltern studies group and post-colonial studies were led mostly by South Asian scholars who wanted to establish post-colonial and post-imperialist societies. Leading theorists are Ranajit Guha, Sumit Sarkar, Gayatri Spivak, Dipesh Chakrabarty, Vivek Chibber, Partha Chatterjee, Arjun Appadurai, Gyanendra Pandey, and others. Feminism began as a Western movement for equal gender rights, and women in traditional societies such as Islamic societies did not participate equally. Feminist ethnography was pioneered by anthropologists such as Sally Slocum, Peggy Golde, Michelle Zimbalist Rosaldo, Lousie Lamphere, and others, and some rich American women supported the feminist cause.

Emic and Etic approaches

In anthropology and different fields of the social sciences, emic and etic approaches refer to two entirely different kinds of research carried out. The emic approach refers to an insider's perspective, which analyzes the belief systems, value sets, and different kinds of practices of a particular culture from the perspective and point of view of the people who belong to and live within that culture, and therefore lacks a cross-cultural focus. It analyzes how subjects of a research think, and look at the world, and produces emic knowledge or situated knowledge which is embedded in the social, cultural, historical, and linguistic context of the knowing person. The etic approach, however, is a chiefly outsider's perspective, which looks at a culture from the perspective of an outsider or the researcher; the latter is based on the premise that a researcher is usually more knowledgeable, better trained on research tools, techniques and frameworks, and is therefore better qualified to carry out the research. It also assumes that the researcher is detached from the daily humdrum and monotony of a subject's life, and can therefore carry out research much better. Most researchers also think that etic approaches can produce universal and culture-neutral knowledge. These two approaches, which were first defined in the field of linguistics, have their own strengths and limitations, and can productively also be used in conjunction with one another, in order to achieve and accomplish a well-rounded and holistic study (Berry, 1989; Van de Vijver, 2010).

According to most researchers today, the terms emic and etic cannot be rigidly defined, and certainly cannot be mutually exclusive; rather, research usually lies on a continuum between the two extreme endpoints. (Cheung, Van de Vijver, & Leong, 2011; Helfrich, 1999) Choice of subjects based on their emic or etic perspectives forms an integral part of cross-cultural research design, and etic views may be biased, too. It is therefore necessary to choose etic researchers from as many cultures as possible so as to achieve intellectual multi-polarity and multi-vocality, and neutralize cross-cultural bias. Emic

perspectives must also be carefully culled from as many sources as possible from within the culture in order to neutralize bias and prejudice.

Another form of emic studies is autoethnography (this is similar to insider ethnography) which is a form of ethnographic research in which a researcher connects personal experiences to wider cultural, political, and social meanings and understanding and seeks to bridge worlds. (Bochner & Ellis) (Adams et al) From our perspective, as many diverse emic and etic perspective as are practically and economically possible (if not all substantial or significant ones) should be collected since the construction of knowledge depends on the perspectives of the researchers and the subjects. Thus, cross-cultural research in its extreme form can be labelled extreme cross-cultural ethnography. We will now discuss some more terms pertaining to emic and etic studies, and these can be used with regard to the participant observation technique (ethnography) or otherwise. As a matter of fact, it can be used with respect to any research technique in the social sciences, and the researcher must understand the following concepts fully and completely. As always, the requisite sample size and the appropriate sampling technique must be used. Though the number of subjects is almost always more than the number of investigators in any research design, more than one researcher from different cultural backgrounds may be preferred in many cases.[40] [41] [42] [43] [44]

1. Diverse emic refers to the collection and analysis of as many diverse emic view points as possible, if not all significant and substantial ones. This approach should also significantly and positively impact the outcome of an analysis. For this, a stratified sampling technique may be used.
2. Diverse etic refers to the collection and analysis of as many diverse etic view points as possible, if not all significant and substantial ones. This approach should also significantly and positively impact the outcome of an analysis. For this, a stratified sampling technique may be used.
3. A representative emic sample is representative of all major and significant emic viewpoints.
4. A representative etic sample is representative of all major and significant etic viewpoints.
5. A non-representative emic sample is not representative of all major and significant emic viewpoints.
6. A non-representative emic sample is not representative of all major and significant emic viewpoints.

[40] Seeing Things for Themselves: Winch, Ethnography, Ethnomethodology and Social Studies
By Phil Hutchinson, Rupert Read, Wes Sharrock, Routledge, 2008
[41] On the Emic Gesture: Difference and Ethnography in Roy Wagner, Iracema H. Dulley, 2019

[42] Observations on language spread in multi-lingual societies: Lessons learnt from a study of Ancient and Modern India Sujay Rao Mandavilli, ELK Asia Pacific journal of social studies, 2015
[43] Towards a comprehensive compendium of factors impacting language dynamics in post-globalized scenarios: Presenting principles, paradigms and frameworks for use in the emerging science of language dynamics Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Sciences Volume 6, Issue 3 (April –June 2020)
[44] On the origin and spread of languages: Propositioning Twenty-first century axioms on the evolution and spread of languages with concomitant views on language dynamics Sujay Rao Mandavilli ELK Asia Pacific Journal of Social Science Volume 3, Number 1 (2016)

7. A typical emic viewpoint refers to the typical or the most common or widespread emic viewpoint.

8. A typical etic viewpoint refers to the typical or the most common or widespread etic viewpoint.

9. A one-sided etic view point is usually one-sided and does not take emic perspectives into consideration; E.g. German researchers studying India from only their perspective.

10. Non-typical emic or atypical emic refers to a non-typical emic viewpoint.

11. Non-typical etic or atypical etic refers to a non-typical etic viewpoint.

12. Individual versus cultural emic: Refers to a dichotomy between individual viewpoints of subjects and one emic viewpoint obtained for the culture as a whole.

13. The term Near emic can have two connotations; one is that of a 'marginal native' or 'professional stranger' where a researcher absorbs himself in the culture of the subjects being studied, becomes one with the people, and mingles freely with them. Another meaning is the study of a people or peoples by researchers who possess similar cultural attributes. Examples of the latter include the study of specific ethnic groups by mainstream Indian Anthropologists or Ethnographers; SC Dube had carried out a study of the economic aspects of a North Indian village soon after India's independence; TN Madan had carried out a study of Kashmiri Pandits; MN Srinivas had studied the people and the customs of Coorg; and DN.Majumdar carried out another study in Uttarakhand. Other examples include a study of American kinship by David Schneider, a fellow American who studied the American family system in detail.

14. Biased emic sample refers to a situation where the subject being studied or interviewed is highly biased or prejudiced and is not representative of the views of the participants of a study, and misleads the study completely.

15. Biased etic refers to a scenario where the research is highly biased, and is driven by a hidden agenda or ulterior motives. For example, a young French philosopher, Joseph-Marie Degerando wrote the field guide for ethnographers as a guide for members of the Societe des observateurs de l' Homme and referred to his subjects as savage. This undermines the principles of cultural relativism discussed by us in previous papers. Etic studies may possess good intentions but may be ill-informed; one can draw parallels to early Indological studies where western researchers lacked an understanding of Indian culture, and most Indian scholars lacked academic rigour and scholarly objectivity. Thus, there may be no such thing as perfect objectivity, though properly-conceived cross-cultural research design can overcome that somewhat. According to Peter Winch, it is not possible to cross the barriers of "fundamental assumptions and interests". According to Marilyn Strathern (1999:1), "The ideas and narratives which make sense of everyday field experiences have to be rearranged in order to make sense in the context of arguments and analyses addressed to other audiences." As an integral part of this process, vested interests should be identified first; these would precede the identification of biases because they would determine them.

16. Non-biased etic (or neutral etic) must be differentiated from emic as there will still be a fundamental difference between the two; the former may be characterized by an absence of bias or prejudice, nonetheless. For example, when Gregory Bateson visited the Iatmul in New Guinea, Frank Cushing lived among the Zuni, and when Evans-Pritchard went to live among the Azande, they had genuine considerations, and wanted to achieve a balanced perspective of the

cultures they studied. Similarly, Edmund Leach's monograph on the Kachin and Shan population of north-east Burma during the Second world war, was born out of a prolonged interaction with them spanning several years.

17. Non-scientific emic refers to a situation where the subject does not possess a logical or analytical view point and misleads the study or where the viewpoints are not processed by the researcher using some scientific method or technique. For example, subjects may be steeped in folklore or mythology, and may have differently constructed view of the world that may prevent a logical or a scientific study. One may refer to Levy-Bruhl's theory of primitive mentality. (However, his work was highly criticised by other western fellow researchers, and he was accused of not having understood the processes that produced primitive thought).

18. Indeterminate emic refers to a situation where emic viewpoints cannot be elicited or processed properly. For example, the thought worlds or world views of the Sentinelese tribes' of the Andaman islands of the are not known apart from the fact that they want to be left alone; as such, it may not be possible to determine them; in such a case, an ethnographic study is virtually impossible. It may also be impossible likewise, to ascertain the thought worlds of the Americans of the Jazz Age, except thought secondary literature review, and as such, these are constraints on the research.

19. Marginalized emic refers to a non-dominant emic point of view that may need to be obtained in certain and specific cases; in order to identify and obtain marginalized emic view points, the researcher or ethnographer must understand the structure of the society as a whole, and the background and constraints under which it operates. Marginalized emic may either be within a single culture, or across cultures.

20. A dominant etic point of view represents the more standard and usually western-centric point of view with prevails on any given issue; this may encompass standard research tools and techniques too. This would lead to a margin of error, and this may often be unwitting.

21. Mutual emic etic loop refers to a situation where the subject cross-verifies the work of the researcher, and the methods, tools and techniques employed. These techniques can also be made to work in specific situations. For example, we have authored papers on language dynamics of language spread, but understanding the rise of Nouichi and the causes thereof, and the dynamic status of Wolof, English and French in Senegal (or whether the French language will continue for the foreseeable future in the Maghreb, or will be replaced by Creole, definitely requires emic (or near-emic input)) as no researcher with no prior experience in the region can understand the issue fully in just a month or two, or a year or two.

22. Self-emic or auto-emic studies are self-initiated studies, and encompass auto-ethnography, and autobiographical methods, which are also a part of social science research techniques.

23. Complex emic and etic relationships can also be formed between two or more groups of people, and participants (researcher and subject included) can be selected on the basis of ethnicity, religion, language, nationality, prevailing ideology, thought worlds, worldviews, mind-orientation or cultural orientation. They could also be chosen on the basis of the socio-cultural groups, socio-economic groups, occupational groups they belong to. Thus, subjects can be chosen based on their cultural identity, or the attributes of the culture they belong to, and cultural bucketing can be done based on suitably selected parameters.

24. In extreme cases, marginalized cultures or individuals can present their points of view on a wide range of issues, both within and outside their culture, and this would be akin to subaltern studies. These could then be reconciled with wider scientific views, an element that is absent in traditional scientific studies.

Selection of cultures and participants in a cross-cultural study

Selection of cultures and participants in a cross-cultural study can be carried out based on any component of identity which could include national, class, caste, ethnic, religious, or linguistic identity. This would be akin to a sampling technique; this is extremely important, because as much as one would like to, it is not possible to include all cultures and individuals in a cross-cultural research design, (if the research is a highly theoretical one, or would require a comparison of many different cultures) constraints usually being time and cost. (In some cases, only cultures relevant to the study are selected) The formation of individual and cultural identity has been discussed by us in a paper on generic identity theory. Different concepts in identity building such as project identity (used by social actors to build a new identity), legitimizing identity (used by dominant institutions to legitimize their foothold) and resistance identity (action and attitudes promoted by subjugated peoples), as proposed by Manuel Castells can also be used here. Individual participants (participants and researchers both included) can be chosen based (on their thought worlds, belief systems and points of view, and we can refer to the section on emic and etic perspectives here. The comparative method can also be used here, but must be strictly cross-cultural and must encompass emic and etic perspectives. As such, emic perspectives are extremely important in various fields in social science studies; if radical Islam is to be fought successfully for example, we need to get the various Muslim points of view first, and not impose western thought patterns on them. (Or the thought patterns of revolutionaries like Ali Sina and Wafa Sultan who renounced their faith. Their perspective may therefore be labelled by us as counter-emic emic).[45]

Another approach can be to identify cultures based on the postulates of the culture and personality school which was developed by Ruth Benedict and Margaret Mead in the USA in the 1930's under the tutelage of Franz Boas. This school of thought states that socialization practices in a given society shape cultural attributes. This school of thought, among other things developed the concept of an Apollonian and Dionysian culture, and categorized cultures such as the Zuni and the Kwakiutl into these two groups. This as such is an unreliable method, and is not to be recommended; it is too incoherent and divided to be considered a school of thought. (LeVine 2001)

Cultures can also be bucketed based on the schools of unilinear evolution (as proposed by EB Tylor and Lewis H Morgan), multilinear evolution (proposed by Leslie A White and Julian Steward), historical particularism (proposed by Franz Boas), and cultural diffusionism, which comprises the British, American and German schools of thought. National character studies refer to a field of anthropological studies which evolved during the Second World War, and involves the identification and grouping of people

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based on assumed cultural characteristics. This is based on the work of Geoffrey Gorer (known for his Russian studies), Ludwig Rudel, Margaret Mead (a study of American national character), and Ruth Benedict (study of Japanese national character), among others. This approach is by and large may be outdated in the age of globalization, and can even represent an over-generalization of sorts. An important work noting is "Patterns of culture" by Ruth Benedict who seeks to explain how cultures cohere and distinguish themselves from other cultures. [46] [47]

Taxonomy refers to the science of naming, classifying and describing organisms which include all plants, animals and microorganisms in different parts of the world. The concept of a taxonomy is often extended to include non-living things as well, and from our perspective, a cultural taxonomy is very important, as it helps classify cultures into different types. A taxonomy is usually hierarchical, and resembles a tree structure. The term taxonomy was coined by the Swiss botanist AP de Candolle in the year 1813, though the first elaborate classification of living beings was made by Carl Linnaeus earlier.

A cultural group may be defined as a group of individuals who share a core set of beliefs, patterns of behavior and thought, and cultural values. Such groups may be large or small (major or minor and marginalized), but they can all be identified by their specific ways of behaving and thinking. However, there can be no stereotyping. There can be a wide intra group variation within a culture. Cultural groups include groups based on attributes such as ethno-biological identity, nationality, caste, gender, class, or religion. [48]

We had proposed an approach for classifying cultures in two earlier papers. Per this approach, each culture could have a subculture, each culture or sub-culture could have subcategories or subclasses (Examples being language, religion, symbols, literature, music, art, drama and theatre, cinema, folklore, cuisine, and various other aspects of tradition). Additionally, all other dimensions of a culture such as philosophies, values, norms, principles, ideas, beliefs, ideals, attitudes, traditions, associated ideologies and dogmas, and cultural artifacts should be included. Each subcategory could further have subcomponents, which would be similar to various classes under each subcategory. For example, we can have a many different subcomponents under language, examples being language policy, teaching methods, teacher training methods, student evaluation mechanisms etc. These would help identify topics of research, and avenues for cross-cultural comparison. The value of these could then be measured using statistical techniques such as quantification techniques, and mean, median or modal values computed. Personality attributes and traits (both positive and negative) such as honesty, sincerity, hard work, truthfulness, pessimism, cynicism and ego could also be quantified and mapped to

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[46] Patterns of Culture, Ruth Benedict, Houghton Mifflin Harcourt, 2005

[47] Lewin, Ellen (2006). Feminist anthropology: a reader. Malden: Blackwell
48 Tylor, Edward. (1871). Primitive Culture. Vol 1. New York: J.P. Putnam's Son

a culture, and these could also be quantified or measured likewise. These could in turn be used to categorize cultures. [49] [50]

Other researchers have also made attempts to break up cultures into different traits and assign these different developmental sequences, or develop other generalized heuristic techniques which could then be used to benchmark them against, and study other cultures. Anthropologists and sociologists such as Emile Durkheim, Donald Brown, George Peter Murdock, Claude Levi Strauss, and others also made efforts to analyze and infer the cultural universals that were common across cultures. Murdock also developed the concept of the Human Relations Area Files (known in short as the HRAF) in which common categories of cultures were filed together, in order to study and analyze them together with the objective of gathering ethnographic data from different cultures across the world, developing databases, and studying variations and commonalities across cultures. An organization by the same name was also founded to promote cross-cultural research and better cultural understanding between different cultures in the world. George Peter Murdock and Douglas R. White in 1969 also introduced the concept of "Standard cross-cultural sample" (or SCCS in short) by analyzing 186 sample cultures from different parts of the world such as Africa, Europe, Asia, North America, South America in order to use them as a benchmark to study other cultures comparatively, and in Anthropological terms. These efforts eventually led to the compilation of the 'World Ethnographic Sample', in which cultures were categorized into ethnographic categories.

Another very interesting idea is that of Memetics (this refers to a study of information and culture) which is used to represent the different units of a culture which aid in cultural transmission e.g. attitudes towards various issues, ways of dressing, cooking etc, and replicate themselves in the context of the culture. This idea was first developed and popularized by the British Biologist Richard Dawkins in the 1970's. Memetics also involves breaking down of a culture or a sub-culture into many discrete and manageable units. [51] [52] [53]

A judgmental approach may also be adopted for cultural grouping, and cultures may be grouped into major and minor cultures. Alternatively, cultural grouping based on mean, median or modal values relating to different attributes we discussed, and the concept of a critical case, rare or unique case and revelatory case may also be used to select cultures. Another useful theory is the Hofstede's cultural dimensions theory which was developed by the Dutch Social psychologist Geert Hofstede, is a framework for cross-cultural communication, developed by Geert Hofstede, and is based on national cultural preferences. The original version of the theory proposed four dimensions along which cultural

[49] The relevance of Culture and Personality Studies, National Character Studies, Cultural Determinism and Cultural Diffusion in Twenty-first Century Anthropology: As assessment of their compatibility with Symbiotic models of Socio-cultural change ELK Asia Pacific Journal of Social Science Volume 4, Issue 2, 2018 Sujay Rao Mandavilli

[50] Articulating comprehensive frameworks on socio-cultural change: Perceptions of social and cultural change in contemporary Twenty-first century Anthropology from a 'Neo-centrist' perspective Published in ELK Asia Pacific Journal of Social Sciences Volume 3, Number 4 (July 2017 – September 2017) Sujay Rao Mandavilli

[51] Dawkins, R. (1976), The selfish gene. Oxford University Press

[52] Modernization of the structure of societies, Princeton University Press, 1966

[53] Benedict, R. (1946). *The chrysanthemum and the sword: Patterns of Japanese culture*. London, England: Routledge & Kegan Paul Limited

values were to be analyzed, and these were individualism-collectivism; power distance (strength of social hierarchy) uncertainty avoidance; and masculinity-femininity (person-orientation versus task-orientation). Professor Hofstede also provided six aspects of national culture country comparison scales, which were the power distance index (or PDI), uncertainty avoidance index (or UAI), individualism vs. collectivism (or IDV), masculinity versus femininity (or MAS), long term orientation versus short term normative orientation (or LTO), and indulgence versus restraint (or IVR).

We had also developed the concept of mind-orientation, and the types of mind-orientation were individual mind-orientation, family orientation, employment or business orientation, societal orientation, intellectual or creative orientation, militant orientation, or the anarchist or the queer man. The cultural orientations we had discussed were past-orientation versus future orientation, Inward-looking cultures versus outward cultures, Rigid versus flexible cultures, Individualistic versus collective cultures, Material and non-material orientation, Contentment versus innovation, and Rational-orientation versus Non Rational-orientation. [54]

The Clash of Civilizations is a thesis proposed by the American political scientist Samuel P Huntington which states that people's cultural and religious identities will be the primary source of conflict in the post–Cold War world, and that wars would be fought on the basis of cultures (and ideologies) rather than nationalities per se. Huntington divided the world into major civilizations which included the Western civilization (encompassing primarily Europe and North America), Latin American civilization (encompassing Mexico and South America), Orthodox civilizations (South-east Europe), the Muslim word, Sub-Saharan Africa, and the Eastern world centred around India, China and Japan. Minhaz Merchant, on the other hand, in his thesis 'New clash of civilizations', proposed that conflicts would occur between the United States, China, India and Islam. [55] [56]

Benefits of cross-cultural research design

The following are the various benefits of cross-cultural research design, cross-cultural research design, if applied properly, can led to a quantum and exponential increase in human knowledge. In order for this to happen the underlying principles of this approach must be truly followed in letter and in spirit.

1. This approach leads to a culture –neutral science; and helps elimination of cultural biases and prejudices, manifest or hidden of different types. We recommend that this approach become de rigeur and indispensible to social and cultural studies
2. Ideology-free science: Can dissipate ideologies by allowing people of different cultural backgrounds to talk to each other; this could neutralize various points of view.
3. It has a wide variety of uses and can greatly contribute to good quality research. It can be used in a comparative study of two or more cultures. It can also be used in study of specific attributes

[54] Sent, Esther-Mirjam; Kroese, Annelie L. J. (2021). "Commemorating Geert Hofstede, a pioneer in the study of culture and institutions". Journal of Institutional Economics. **18**: 15–27
[55] Huntington, Samuel P. (1993). "The Clash of Civilizations?". *Foreign Affairs*. **72** (3)
[56] The New Clash of Civilizations: How the Contest Between America, China, India and Islam will Shape Our Century, Minhaz Merchant, 2014

or characteristics of cultures, and comparisons of such attributes. It can be used in qualitative and quantitative studies, too. It can thus promote the ideals of cultural relativism in a globalized context. There can also be many variations of our basic theme. For example, another kind of ratification was carried out after the study of the Alorese in the Dutch East Indes by Cora du Bois, and her work was independently ratified by Abram Kardiner, Emil Oberholzer and Trude Schmidt-Waehner for absence of bias. It can even be used in intellectual debate; one is reminded of a series of lively exchanges between students of various countries around the world (in the early to the late 1950's) on various topics such as apartheid, and communism. Students of Asia and Africa too participated in these debates. Unfortunately, cross-cultural research design or dialogue does not appear to have moved forward much since then.

4. This approach could foster a dialectical approach, and lead to healthy dialogue. As such, it could take dialectical approaches to a higher level..

5. It could promote subaltern studies and give a voice to the oppressed; as such it could take subaltern studies to a higher level.

6. It challenges ivory tower approaches, all forms of 'centrisms', dyed in the wool approaches, and intellectual nerdism.

7. It could also help provides a 'cultural frame of reference', and a 'cross-cultural frame of reference', by understanding pre-scientific views in specific cultures, and enumerating methods to overcome them. Thus, it helps expand the role of science in the age of globalization manifold: It helps bring the benefits of science to peoples across different cultures in a language and a style they can understand easily. We argued that the 'Sociology of science' and 'anthropological pedagogy' could bring about an anthropological revolution of sorts.

8. Science will no longer be a caroussel or a merry go-round; it leads to faster progress in science, and reduces the latency time for the acceptance of new ideas.

9. It moves us from ethnocentrism to cultural relativism; the latter argues that cultures must be studied based on their perspectives, and also analyzed based on their strengths.

10. It leads to better quality grounds-up hypothesis: It is tied to the certainty uncertainty principle which we have proposed in a previous paper.

11. It helps us identify exceptions more easily: It is tied to the sociological ninety-ten rule that we proposed in a previous paper, and the principle of exceptionism.

12. It can help in inductive approaches which are grounds up approaches; thus, better theorization will result due to inductive reasoning, and the elimination of pre-determined generalizations, if any.

13. It can help in nomothetic approaches which are contrasted with idiographic approaches; thus, better science and theorization will result. General laws can be derived, but based on grounds up approaches.

14. Can help in Grounded theory: This approach involves an active participation of the researcher in the activities of the culture, group, or the community under study or observation. Data is usually collected through observation. This approach can be used for developing grounded theories or testing them.

15. This approach suits the ideals of participatory approach such as action research and participatory action research very well. (where problems are sought to be solved) In such a case

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rapport and credibility must also be built up, and findings can also be used in downstream policy making. The dilemmas of Anthropologists, and their supposed and claimed neutrality can be observed from the experiences of Scheper-Hughes, whose approach and points of view while dealing with the inhabitants of the favelas in Brazil changed over time.

16. This approach Is compatible with the ideals of phenomenology (deriving meaning through lived experience, social interpretation, and social cognition)

17. It helps further the goals of positivism which is used in the scientific study of different social phenomena. It helps formulate abstract and universal laws to describe social phenomena. In positivism, laws must be tested against collected data systematically.

18. Can help develop culture-specific and region-specific frameworks and approaches e.g. in pedagogy through wider dialogue.

19. Can help in deconstructionist studies, which arose in a hermeneutical context, and a study of the part in relation to the whole. This concept of deconstruction was introduced by the French philosopher Jacques Derrida.

20. It can be used to achieve very detailed cultural studies; an example is that of thick description which was developed by Gilbert Ryle, and Clifford Geertz, and helps study the context of an observation. It promotes a more analytical and interpretive approach in social sciences.

21. Can help promote better science by helping us evaluate hypotheses better. For example, theories such as the Sapir Whorf hypothesis, Noam Chomsky's theories of Universal Grammar, Steven Pinker's theories on language, theories on classification of languages, theories of phylogenetic change, theories of phonogenetic change, etc, can more easily be called into question by people belonging to other cultures. We had even briefly described this approach in our paper on the 'Indo-Europeanization of the world'. It can therefore help put questionable and over-simplified theories such as the Out of Africa theories on the block. We have been criticizing this theory all along, given that it does not reconcile diverse and complex evidence received from around the world this far properly (Even the test of Mitochondrial DNA many be inconclusive); and that many species are universal; cross-cultural research design can help bring additional criticism of Eurocentric theories to the table.

22. Cross-cultural research design is particularly useful in different fields of social and cultural anthropology (and an overlap between social and cultural anthropology and other fields of study), and can help elicit a wide variety of perspectives on different topics, examples being the race and intelligence debate (which we have discussed at length in a previous paper), and the nature versus nurture debate, and can therefore add great value to scientific activity. it can be used in studies on attitudes pertaining to colonialism, racism, and apartheid, for example, and for more trivial topics such as a comparison of the metric versus the imperial system of measurement. Another possible area of study is a comparison between Western and Ancient Indian educational systems. Mahatma Gandhi, for example, erroneously believed Western education was completely wrong, and ruined his son's (Harilal Gandhi) life; this approach can negate Indocentric perspectives, too. Likewise, Western Indological scholars from Thomas Burrow to Asko Parpola have been largely ignorant of the mechanics of Indian culture and made erroneous conclusions. Moreover, most theories in the origin of language are puerile, cross-

cultural perspectives can help here. Thus, cross-cultural research design can be used in a wide variety of situations and can induce a beneficial change in attitude from all sides.

23. This should also serve the aims of the post-colonial movement which aims to challenge colonial constructs, and many scholars from around the world have launched the post-colonial movement in recent decades.

24. Can help avoid different types of fallacy such as ecological fallacy (characteristics of a group are attributed to an individual) and exception fallacy (group conclusion reached based on exceptional case).

25. It can help further the goals of inter-subjectivity which is a term coined by social scientists to refer to different types of human interaction. According to social psychologists Alex Gillespie and Flora Cornish, and other researchers such as Thomas Scheff, inter-subjectivity could include research on items of consensus, understanding and misunderstanding among different groups.

26. It promotes a cultural brokerage approach: A cultural brokerage approach refers to a practice where practicing anthropologists mediate between people of different cultures; these approaches can be used in a wide variety or social and cultural studies. (Downum and Price 1999).

27. It can also lead to a wider choice of topics, and one that would represent a greater diversity of research interests; research would resultantly encompass concerns and considerations of different groups of people around the world given that cross-cultural research design would cover all phases of research; we had discussed research methodology in great detail in a previous paper.

Problems associated with, and limitations of, cross-cultural research design

The following are some of the problems associated with cross-cultural research, and are the limitations of cross-cultural research design; many of these can certainly be overcome through the strategies we have proposed in this paper.

1. Complexity and cost: This type of research design can greatly increase complexity and cost, but we have proposed methods to overcome such problems including methods for the sampling of cultures and individuals belonging to different cultures.

2. Cultural bucketing may be erroneous, and the wrong kinds of cultures may be chosen which could lead to erroneous conclusions. We have proposed methods to categorize cultures, and select cultures based on such categorizations in our paper, and these could resolve the problem to a certain degree.

3. An incorrect choice of participants may be adopted within a culture, and this could skew the results of a study; we have proposed criteria for the selection of individuals in this paper which could remediate the issue somewhat.

4. Continuing ideology or ideologies of different types such as racism (for example, the Indian Nobel prize-winning Astrophysicist Subramanyam Chandrashekar who discovered the concept of Black Holes, believed Sir Arthur Eddington's criticism of his work was partly racially motivated. The concept of careerism is also a kind of ideology which may throw well-meaning

endeavours out of gear. Another interesting case is that of Project Camelot. This project began in the year 1964 under the management of the Special Operations Research Office (SORO) of the U.S. Army, to help end the proliferation of communism, and included a motley group of sociologists and anthropologists. Even though it used social science research methods, it had an underlying political objective. As such, it proved to be unscientific. (van Willigen, 2002)

5. Anthropologists, even if they are without any hidden or underlying agenda, may not understand their subjects' cultural make up completely. An example of this was the "Thailand project' carried out by anthropologists to study Thailand's hill tribes; this project did not take into consideration the cultural makeup of its subjects and their relationship with lowlanders and the Thai government, and the study failed. (Belshaw 1976) (Jones 1971)

6. Absence of a scientific temper in other cultures. There may be little scientific, intellectual or anthropological curiosity and intransigent dogmas may reign supreme.   For example, Hindutva groups have preferred autochthonous Aryan theories, out of India theories, or what Witzel has called the "Sanskrit as the mother of all world languages hypothesis". This is an extreme position and betrays the absence of scientific knowledge of most people in such cultures. Per this view and position, Sanskrit is placed at the top of the cladistic tree, and all world languages are derived from it.   Mind-orientations, cultural orientations, worldviews and thought worlds of subjects may vary across cultures, and some individuals and cultures may not be geared for scientific inquiry.

7. People from other cultures may also adopt mainstream positions so as not to offend researchers, and this kind of approach has been witnessed in many studies including managerial studies carried out throughout the world and a study of employer-employee relationships as well. From example, Anthropologist Jill Kleinberg has observed wide variations between Japanese and American workers on issues pertaining to power and loyalty, and another anthropologist Jasmin Mahadevan has captured differences in attitude and openness between managers and employees in an organization she studied.

8. People from other cultures may adopt a rebellious stance against western science and this has happened in the past, examples being N S Rajaram; as a matter of fact, much of the Hindutva ideology is based on this fundamental premise.

9. Viewpoints may not be reconciled easily in some cases to arrive at meaningful conclusions, and at times, a counterbalancing force may be required. There may also be a need for a strong umpire or ombudsman, and this may be easier said than done.

10. A particular ideology may still dominate: for example, Gregory Possehl and Witzel have collaborated with Asians and Indians, but have not abandoned the Eurocentric mould. This collaboration is therefore mostly name sake, as in some case, Asians and others were mostly used as servile lackeys. Asko Parpola and Iravatham Mahadevan have also collaborated, but both have pushed an ideology or a point of view which may have been detrimental to science: The latter has even claimed he is a proud Dravidian nationalist. Thus, cross-cultural research design may not work as long as ideologies reign supreme. The Colonial Social Science Research (CSSRC) on the other hand, was established by Raymond Firth and Audrey Richards from the London School of Economics with noble objectives, but they did not follow a cross-cultural research design, and its efficacy may have been limited. Many cultures may also not want to

abandon their traditional way of life, and in such cases any attempt to reconcile views may be utterly futile and irrelevant; for example, many Andamanese tribes were dragged into modern civilization unwillingly, often with disastrous consequences for them. Max Weber, Neil Smelser, Everett Hagen, Daniel Learner. Gunnar Myrdal have proposed developmental models, and WW Rostow proposed a 'stages of economic growth' approach, but there is no one size fits all approach. People of many non-western cultures have been suspicious and skeptical of such models. Many developmental anthropologists such as Escobar have proposed that social and economic considerations be included in developmental models, but there are wide variations in thought among anthropologists as well.

11. May not be of any use in some types of research where cultural bias is not significant, or even wholly insignificant, irrelevant or absent, and common examples are research areas pertaining to non-cultural studies, and physical or non-cultural anthropology besides other sciences. An example is different theories on the origin of life such as biogenesis and abiogenesis, and transition from the prebiotic era to the biotic era. In such a case, cross-cultural research design may not only be not required, but may also add to cost and time overheads.

Conclusion

This is our fourth paper on the 'philosophy of science' after our paper on 'Academic freedom versus social responsibility', 'the sociological ninety ten rules', and 'the certainty uncertainty principle', and is an essential part of our globalization of science movement, particularly for the social sciences. The idea of cross-cultural research design we believe, can lead to a quantum increase in scientific knowledge if applied properly and conscientiously; we have explained the how and why of this in this paper. We even believe this should become an essential pre-requisite of modern research. If research doesn't meet all these parameters and criteria, we should even declare it pre-modern and inadequate. This would naturally help us transition to an ideology-world and lay the foundations for a better and a much more scientific tomorrow where researchers from across the world can fearlessly participate in scientific enterprise. (Thus, science is science, and there is no Western science or Indian science) It would also do a whole world of good to scientific enterprise as a whole by leading to much higher quality research, and by allowing different viewpoints to be aired.