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# Widening the Scope of Social Science Research to Cover Global Considerations: How "Practicalism" can Help Identify New Vistas in Social Science Research

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**Abstract:- We begin this paper by describing social sciences research techniques which are an intrinsic and an integral part of general research techniques. As a part of this process, we also describe different types of research such as qualitative and quantitative research, randomized controlled trials, experimental design, quasi-experimental design, cross-sectional studies, and longitudinal studies to the extent they pertain to social sciences research. We also make a reference to several of our previously published papers such as the sociological ninety ten rules, the certainty uncertainty principle for the social sciences, inductive approaches and nomothetic rule building. We then proceed to develop several new concepts such as the importance of the assessment of time lag in social sciences research, and identify various situations where a high time lag is not permissible, is tolerable, and is in fact, highly recommended. We also explore the various types of obsolescence associated with time lag. Last but not the least, we proceed to lay down what we believe are the lacunae and shortcomings of present day social sciences research, and what can be done to overcome them from a global centric perspective. We also present some novel applications of social sciences research. We therefore believe this would constitute an important paper in our globalization of science movement by raising awareness on the importance of social science research techniques in various academic disciplines, and in daily life.**

## I. INTRODUCTION

"Research is seeing what everybody else has seen and thinking what nobody else has thought." - *Albert Szent-Gyorgyi*

"Research is formalized curiosity. It is poking and prying with a purpose." - *Zora Neale Hurston*

We begin this paper by describing social sciences research techniques which form an intrinsic and an integral part of general research techniques which are used for all scientific fields and disciplines under the sun. As a part of this process we also describe different types of research including common and typical categorizations such as qualitative and quantitative research, randomized controlled trials, experimental design, quasi-experimental design, cross-sectional studies, and longitudinal studies to the extent they pertain to social sciences research. We also make a reference to several of our previously published papers on scientific method for the social sciences such as the sociological ninety ten rules, the certainty uncertainty principle for the social sciences, inductive approaches and nomothetic rule building in general. We then proceed to develop several new concepts such as the importance of the assessment of time lag in social sciences research, and describe and explore various situations where a high time lag is not permissible in the social sciences, is tolerable, and is in fact, highly recommended. We also explore the various types of research obsolescence associated with the proposed concept of social sciences research time lag. Last but not the least, we proceed to lay down what we believe are the lacunae and shortcomings of present day social sciences research, and what can be done to overcome them from a global centric perspective. Some possible, but highly neglected applications of social science research methods and techniques are also proposed and presented, to the extent they pertain to global considerations, though this only a short illustrative list. We therefore believe this would constitute an important paper in our globalization of science movement.

Many scholars and intellectuals have also opined that the social sciences, and social science research techniques have not realized their full potential, and that a lot more work needs to be done in this area. We concur with this observation completely. We reproduce some quotes below to justify this claim. According to the American sociologist and physician Nicholas A. Christakis, "The social sciences offer equal promise for improving human welfare; our lives can be greatly improved through a deeper understanding of individual and collective behavior. But to realize this promise, the social sciences, like the natural sciences, need to match their institutional structures to today's intellectual challenges." There must also be a gradual movement away from physical and natural sciences led intellectualism, to a more diverse plurocentric intellectualism. Scholars from different parts of the world must also participate and collaborate. This is only slowly and gradually happening, but has from our perspective, not yet fully happened. Social sciences research techniques must also mature and come of age. They must also break away from the research tools and

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techniques adopted in the physical and the natural sciences, at least wherever necessary. For example, according to the philosopher of science Jerome Ravetz, "As the world of science has grown in size and in power, its deepest problems have changed from the epistemological to the social." It therefore stands to reason that it is the latter that we need to analyze more deeply and explore. Solving social and cultural problems can have a profound ripple effect on science and scientific enterprise as a whole; this factor and aspect must never be overlooked.

One is also reminded in this connection, of a high school debate between a representative each of India, the United Kingdom, Pakistan and the Philippines that took place in the year 1957, probably in London. The name of the intense debate and discussion was "roots of prejudice". From India, we had a young student by name Padmanabha Gopinath, and from Pakistan another student by the name Amin Jan. The student from India began by saying that the harboured an intense fear and a hatred of Muslim, while his counterpart from Pakistan responded by stating that he had a deep-rooted prejudice against Hindus too, whom he saw as being intolerant and supporters of the caste system. Sara Chatt from Britain also went on record stating that she personally considered blacks, then popularly and widely, though rather disparagingly, known as "negroes" to be repulsive. By today's standards, these would come across as being blanket generalizations and stereotypes, if not outright racism. But what do we mean by "today's standards"? Social science research techniques and social science research techniques have barely nudged forward since then, despite the tomes and tomes of scientific research we have produced over the past nearly twenty years including the "Structured apperception test for social science research", the concepts of thought worlds, world views, mindspace, mind-orientation, cultural orientation, etc. Social science research techniques can offer us disambiguation, and the accomplishment and achievement of clarity of objectives, but the potential for this has been barely realized. Other sciences have leapt and raced forward by the social sciences have stagnated, partly due to non-participation by non-western societies. Etic approaches will have their natural limits. We need grassroots participation from people from all over the world. Unless different branches of the social sciences evolve and mature with the times, they will constitute a major cultural and a scientific bottleneck. Concepts such as artificial intelligence, artificial general intelligence, and artificial super intelligence will not reach their full potential if social and cultural bottlenecks are not redeemed.

- *What is Research?*

What exactly is research? Research is a fairly broad term, and may mean many things to many researchers and scientists. In its simplest and crudest connotation, it may include aspects such as researching the internet or websites for specific information. For many or most marketing professionals, the term research is synonymous with market research. Market research is a fairly complex term, and encompasses a wide array of sub fields and sub disciplines such as consumer behavior, market trends and technology. However, all these types of "research" cannot really be considered "scientific research" unless research broadly contributes to the body of science and scientific knowledge, and follows the standard steps of the scientific method, or accepted variants thereof. Scientific research typically comprises two distinct levels, namely the theoretical level and the empirical level. The theoretical level of science is primarily concerned with the development of abstract concepts regarding a phenomenon and establishing relationships between those concepts through the mechanism of hypothesis formulation and theorization, while at the empirical level, theoretical concepts and relationships are tested and retested to see how theories can be improved through the process of gathering and collection of new data.

Inductive and deductive methods are the two most common techniques employed in research; we had dwelt on these concepts extensively previously. Scientific method is used both in the physical and the natural sciences, and in the social sciences. In the social sciences however, concepts are human behavior focused, and human behavior oriented, and the tools to measure and quantify concepts may be somewhat ambiguous, and inadequate. Conducting scientific research commonly requires two types of skills viz, theoretical and methodological skills. Methodological skills pertain to the methodologies and attendant techniques required in scientific pursuits and scientific endeavour, while theoretical skills encompass mostly subject matter skills, and some other allied skills which may vary from profession to profession. [1]

The scientific method is a commonly and widely used method in science. It is used for acquiring knowledge, and formulating hypotheses, theories, and laws. Scientific method was been used is some shape and form from ancient times, particularly from the times of the Ancient Greeks some two thousand five hundred years ago when Socrates and other thinkers developed it. It has however been greatly refined and has matured ever since, particularly from the period of the European renaissance and enlightenment in the seventeenth and eighteenth centuries. Most of the important and key steps of the scientific method have been carefully and systematically laid down by scientists over the past couple of centuries. Some of the key and important features of scientific method are careful observation, systematic study, objectivity precision and rigour. One must also not take anything for granted, or accept anything at face value without a careful consideration and examination. One must also be skeptical at all times. The word skepticism in science is an extremely important concept that all researchers must get their head around, and understand thoroughly. It means doubting everything and anything, unless proof is available, and can be provided. Skepticism must also always be healthy, and one must not be overly skeptical where it is not possible or necessary to be skeptical. This is an important aspect all of researchers must bear in mind at all times. Healthy skepticism is often the starting point for the

1 Groh, Arnold (2018). *Research Methods in Indigenous Contexts*. New York: Springer. ISBN 978-3-319-72774-5

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meaningful acquisition of all forms of knowledge, while skeptopathy unquestionably is not.

There is generally no completely standardized scientific method in use. Even though most of the steps in scientific method are common to all forms of scientific activity, variations may exist, and these are indeed permissible. The first step in a scientific method is often the formulation of a research problem through which gaps in research and in current understanding are identified. Research questions are also then identified. These are the questions the research seeks to answer. Existing research and already conducted research studies by other scientists are also carefully and methodologically analyzed. There must also be a systematic observation of various aspects of daily life, or of a scientific phenomenon as necessary. Details notes and observations must also be made wherever and whenever necessary. The next most common step involved is the generation of a preliminary or a working hypothesis. This kind of a hypothesis is usually extremely tentative, and may be modified and refined as time progresses, and as more and more data becomes available. Hypotheses must also of course be thoroughly examined and tested, and for this, scientific experiments are necessary. Scientific experiments must be performed carefully, and under controlled conditions. Based on the results of the experiment, the hypothesis may be modified, and improved upon. Only in very rare cases, is it completely discarded. [2]

If necessary, the improved hypothesis may be tested again, although this is often left to the discretion of the researcher. In many cases, a thorough and systematic examination of the research problem and the research question or questions may be necessary along with multiple rounds of analysis. This is because real world issues are often very complex, and cannot be understood very easily. Hypotheses evolve into theories in due course, and some of these may evolve into laws. Research must be carried out studiously and meticulously because research is often the basis for further downstream research. The results of research must also be communicated to other researchers, and the general public so that everyone becomes aware of it. This is also another important step but is sometimes ignored by scientists. Researchers must also serve the needs of society very well; therefore, the needs of science and society must be borne in mind at all times. Therefore, researchers may need to prioritize research on the basis of what is important to society. In other words, the concept of practicalism, which we deem to be an improved variant of the older but much more widely and commonly used term pragmatism must be borne in mind. [3] [4]

## II. SOCIAL SCIENCE RESEARCH TECHNIQUES

Research in various fields of the social sciences is conducted by different types of social scientists by adhering to a standard and a systematic plan. Social science research methodologies are commonly classified into quantitative and qualitative research techniques. In case of quantitative techniques, quantitative data and evidence such as statistical analysis and mathematical modeling is extremely important, while in the case of qualitative research, qualitative techniques such as observation, communication, interaction, and visual analysis are emphasized. In all cases, research methodology must be chosen carefully, and after taking into consideration, the nature of the research problem in question, and the practical implications of research. In a few cases, either or both method triangulation and investigator triangulation is adopted. A combination of two or more research techniques leads to a complex multi-strategy research design. There are no laws in social science on the lines of laws observed in the natural and physical sciences. A law in the social sciences, wherever it exists, is only a generalization regarding a class or a category of observations. There may indeed by social and cultural exceptions to such ‘laws”, and these must not only be documented, but also be systematically analyzed using the sociological ninety ten rule.

More common research methods in the social sciences include questionnaires (which may comprise structured, unstructured, open-ended and close-ended forms and variants), interviews (structured, unstructured, situational, and behavioral), surveys, focus group techniques, ethnography and participant observation, focus group discussion, brainstorming techniques such as the six hats techniques, etc. Quantitative and statistical techniques may also be used to a lesser degree, and mostly on a need to basis. Experimental design and randomized control trials are also sometimes followed, with an assignment of subjects to control groups, and experimental group on a purely random basis. Wherever necessary, statistical sampling techniques are also used, and common sampling methods include simple random sampling, systematic sampling, stratified sampling, cluster sampling, convenience sampling, quota sampling, etc. [5] [6]

## III. TIME LAG IN SOCIAL SCIENCES RESEARCH

We believe the concept of a time lag (Which we refer to as “Time lag in social sciences research”) is an extremely important concept is social sciences research, (unlike in the physical and the natural sciences where this does not either occur, or is relatively less important) and may happen due to the following factors. This will naturally skew the results of

2 Creswell, J.W. (2008). *Educational Research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River: Pearson

3 Creswell, J. (1998). Qualitative inquiry and research design: Choosing among five traditions. Thousand Oaks, California: Sage Publications

4 Creswell, J. (2003). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Thousand Oaks, California: Sage Publications.

5 Glenn Firebaugh, *Seven Rules for Social Research*, Princeton University Press, 2008, ISBN 978-0-691-13567-0

6 Arnold A. Groh, *Research Methods in Indigenous Contexts*, New York: Springer, 2018, ISBN 978-3-319-72774-5

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research, and make them less conclusive or authoritative. Disclaimers are seldom clearly spelt out by researchers, and end users may fallaciously assume that the conclusions of the study will hold good for eternity. Course-corrections are seldom done, and even if they are done, they are half-hearted and inconclusive. The time lag in social sciences research can be computed fairly easily and straightforwardly if it is broken down into the following logical steps and components:

- Time gap between the time research begins and ends – this is particularly large in case of protracted studies such as fieldwork. Fieldwork of the type advocated and espoused by the Polish-British anthropologist and ethnologist Bronislaw Malinowski (Noted for his study "Argonauts of the western Pacific") and the English social anthropologist AR Radcliffe Brown (The Andaman islanders: A study in social anthropology) in the 1920's had typically taken around eighteen months. However, many modern ethnographic studies are of a much shorter duration, and most are even carried out closer to the ethnographer's home territory, obviating the need for extensive travel. In general social sciences research techniques are more time consuming that non social sciences research techniques, though this is by no means a hard and a fast rule.
- Time taken to collate results. This has traditionally been a time consuming and labour intensive activity. This would depend based on the nature and the complexity of the study. However, the use of computers and more recent techniques such as machine learning and artificial learning can bring down the time frame greatly.
- Time taken to analyze results. This would depend based on the nature and the complexity of the study. However, the use of computers and more recent techniques such as machine learning and artificial learning can bring down the time frame greatly. There will always be a human element involved, and not everything can be automated.
- Time taken to publish results. Most researchers may want to have their findings published in a peer-reviewed journal, and the process can be both tedious and laborious. This is especially true is the journal is a prestigious one like Nature or Scientific American where the rejection rate is extremely high.
- Time taken to wait for similar studies to be performed or carried out in order to ratify findings. Many researchers may want to corroborate their findings before they can proceed any further. Relatively less research is carried out in some areas of the social sciences, and this would depend on factors such as the practicality or real-world utility of the issue, the cost and time considerations, and of course, researcher interest.
- Time taken to awareness to be generated on new studies. This process may often take several months or years; however, new technology such as the internet, online journals, and open access journals may have brought down the time frame considerably. The days of researchers having to wait for decades for his research to be accepted may eventually come to an end, but we have some more time to wait; scientific ideologies still persist to an extreme degree. Mendel's work took some decades to be uncovered by Carl Correns, Hugo de Vries, William Bateson and others. We had published a paper "Reducing the 'latency period' for the acceptance of new scientific ideas: Positioning the 'latency period' for the acceptance of scientific ideas as an indicator of scientific maturity", some years ago which may be read in this context.
- Time taken for new research to be cited. New research may not be cited immediately as other researchers may cite only from well-established researchers, and non-controversial research may not be taken up for evaluation immediately. Novel research findings may either be ignored, or brushed under the carpet for a long time. Most researchers may even lack imagination or critical thinking or critical evaluation skills; they may only follow the herd blindly and mindlessly regardless of whether a paradigm is well-rounded or not, and whether it makes sense in all contexts, and under all circumstances.
- Time taken for longitudinal analysis, which must be carried out wherever applicable. In the case of a longitudinal study, researchers repeatedly examine the same individuals or data to detect or identify any changes that might have occurred over a period of time. They also seek or attempt to ratify research findings through newer data. Given that the entire process is time-based, it is likely to be highly time consuming, and take several months, if not years. Longitudinal analysis may encompass panel studies, cohort studies, and the retrospective historical method.
- Time taken to carry out a cross-sectional analysis including analysis of data. Cross-sectional studies refer to observational studies that analyze data from different segments of a population at a single point in time. Even though this is not a time-based study, it is bound to consume time, nevertheless. Cross-sectional research may include descriptive research and analytical research.
- Time taken for further studies and corroboration of results to be carried out using inductive approaches which study a large number of instances and then proceed to make generalizations, by adopting a specific to general approach. Inductive approaches are generally time consuming and labour intensive as we had explained, but may as a matter of fact be extremely necessary in some cases, in the interest of reliability of results.
- Time taken for studies to be carried out using deductive approaches which is bound to take some time, though not as long as inductive approaches. Deductive approaches proceed from the general to the specific. These are accompanied by the popular and the commonly used hypothetico-deductive approach which is bound to take time. This method involves formulating a hypothesis, and proceeding to test it with more and additional data until the hypothesis is refined.
- Time taken for establishment of general laws and principles is likely to be time consuming. Researchers adopt nomothetic approaches as contrasted with idiographic or stand alone approaches, or the deductive

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nomological model, in some cases. These approaches and techniques are used to develop laws and law like generalizations. This model is also sometimes referred to as Hempel's model, the Hempel–Oppenheim model, the Popper–Hempel model, or the covering law model, in some cases.

- Time taken for the research to be widely cited or used in downstream research. This includes early adopters and laggards. This process is usually as follows. There are usually some lead adopters and implementers of a new research item or study, and these people are mostly of the adventurous sort and kind. This is followed usually by a large number of mainstream researchers. We then have laggards who often stick out like a sore thumb. These people may shun new research and new ideas, and shy away from adopting them.

This may not really matter in the physical and the natural sciences, but it does indeed matter in the social sciences, and obsolescence can skew results in a way it cannot skew results in the natural and physical sciences. This is because social and cultural data becomes easily redundant and obsolete. This is something with researchers must always bear in mind, but a facet of research that has not been adequately highlighted.

## IV. TYPES OF OBSOLESCENCE

➢ *The Following are the Types of Obsolescence that are Commonly Observed.*

- Data obsolescence: For example, Edmund Leach's study of political systems in highland Burma may have become obsolete, as the social data may have become obsolete, or the social conditions there may have changed. Ditto for Jonathan Parry's study of death in Benares, or MN Srinivas' study of the people of Coorg. This type of obsolescence rarely manifests itself in the physical or the natural sciences, but is extremely important for the social sciences. This aspect of course merits and warrants further study, scrutiny, and investigation.
- Method obsolescence E.g. Techniques used in acculturation studies may become outdated. For example we have the widely used Berry's acculturation model which delineates for scenarios which as assimilation, integration, separation and marginalization. This model may however, be eventually superseded and supplanted by improved acculturation models. Similarly, we have proposed methods such as 'Structured and Annotated Participant-driven Appraisal', or long-term ethnography all components and aspects of which may not naturally have been used by earlier researchers. Research methods and techniques may also improve gradually with the passage of time, and see refinement.
- Obsolescence of results and analysis (for example, results may no longer be relevant) either because the social and cultural data upon which they are based are obsolete and outdated, or because, methods and data collation, data gathering and data analysis are outdated. The assumptions used in research may also no longer hold good for the most part. Therefore, the obsolescence or data will have a cascading effect and impact on the relevance of research outcomes and research results.

➢ *When Studies with a Smaller time Lag must be Adopted*

Research methods, research techniques and research strategies with a smaller time lag must be adopted under the following circumstances:

- When results are required immediately because they deal with pressing topics and issues of the day. Therefore, the researcher cannot afford to wait indefinitely.
- When analysis of results needs to be performed immediately because it deals with an urgent, pressing or a burning issue.
- When other third parties may need to use the results of the study immediately, and therefore the results also need to be published immediately.
- When there are cost and budgetary constraints, and there is therefore, simply no other alternative. For example, there may be urgent deadlines to be met. In some other cases, budgetary constraints may be either self-imposed, or decided and dictated by external parties and agencies such as funders, collaborators, and sponsors.
- When there are resources constraints, and there is therefore, simply no other alternative. Resources for the most part, may be highly skilled and possess specialized knowledge or expertise. In many research projects, skill availability and resource availability is a major concern and constraint.
- Whenever underlying social or cultural data may change rapidly or fundamentally, and may also become obsolete quickly.
- When studies with a larger time lag can be used

➢ *Research methods, research techniques and research strategies with a larger time lag must be adopted under the following circumstances:*

- Establishing laws and generalizations. This is because general principles and laws do not generally become obsolete. They can perpetuate into eternity. In such as case, a lot of patience and perseverance is commonly required, and researchers must not be in a hurry to push or get the job done.
- Identifying patterns e.g. cultural universals and cultural near universals, patterns of acculturation, patterns of cultural interaction, patterns of deculturation, etc. We have been discussing this off and on in our previous papers.
- Wherever longitudinal studies need to be carried out. In this case, data is repeatedly retested and reexamined over a period in time. These typically include panel studies, cohort studies, and historical or retrospective studies.
- Whenever cross-sectional research needs to be carried out. This may encompass both descriptive and analytical research. Cross-sectional studies typically study and analyze more populations, and therefore take longer to execute.

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- Wherever cross-cultural research needs to be carried out. Cross-cultural research may require or involve the creation of cross-cultural teams, taking both emic and etic perspectives, etc. it may also require the examination of data or several concepts from the point of view of other cultures. Cross-cultural research in the true sense of the term is seldom carried out today, and this must become the signature of twenty-first century social sciences research from our perspective. This is necessary people people from different cultures may often tend to think in different ways. As Polish mathematician Stanislaw Ulam once put it, 'thoughts are steered in different ways."
- Where underlying data is not likely to change until the results of the study are published and are used for further downstream research.
- When downstream research is likely to be impervious to minor changes in data and conclusions which may occur before and after the research is published.
- Where cost or budgetary constraints are not a primary consideration. These constraints may be either self or internally-imposed, or externally imposed.
- Where there is no resource crunch particularly of skilled and trained resources, and such resources are readily available.
- Whenever underlying social or cultural data may not change rapidly or fundamentally, and may also not become obsolete quickly. This observation is more true of static data and static cultures.

It is the second type of research that is particularly lacking, and must be amplified and magnified on a war footing. Therefore, our common complaints are as follows. We have of course a large number of them, (well over twenty distinct complaints) but only those aspects and element pertinent to a particular research question must be considered. Needless to say, all these can help us hew a new trajectory, and this will herald a new epoch in social sciences research:

- Research is mostly Eurocentric, and there is no cultural flavor; i.e. cultural differences are not often completely captured. Research considerations are also Eurocentric, and research questions or research problems are mostly Eurocentric; therefore, concerns pertaining to the rest of the world are seldom adequately addressed. Cross-cultural research design is also seldom adopted, and points of view of different peoples inhabiting the earth, at least those backed up by adequate and sufficient data are not taken. This must be done to the extent it is necessary and practical, however long it may take.
- There is no long-term perspective and a long-term approach to research. Most research chases short-terms and short-term considerations, with possible stray or minor exceptions such as in population studies where projections are made to the year say, 2050 or 2100. There is also no "institutional coherentism", a concept that we spoke about some time ago. Academic careerism, and academic rivalry are often excessive in academia. While some of this can be attributed to human nature, and is therefore natural, systemic issues, we believe must be isolated and tackled.
- Theoretical perspectives are seldom explored, and theories and models are seldom rigorously tested through social science research techniques. For example, what kind of economic models are the most successful in driving economic growth, delivering social justice, and boosting employment generation? We must have answers to all these questions through better fieldwork, ethnography, grounded research, and other commonly and widely practiced social science research techniques. In most cases, the absence of awareness of research methodology is a widespread issue.
- Social science research is also seldom used for developing and conceptualizing new concepts. It is seldom used for disambiguation. Disambiguation is a process by which ambiguities are removed, and concepts are made crystal clear by systematically and methodologically investigating ground realities. We believe that the term "disambiguation" must be made more common in social sciences, and must also be used much more widely than presently. This must become one of the core objectives of a social science researcher. Of course, bona fide social sciences research techniques must be used as a vehicle in all such endeavours, and novel ones developed wherever necessary.
- There is often no intention to solve practical and real-world problems plaguing people in different parts of the world, and the principle of practicalism is not followed. Therefore, real-world issues, problems and considerations are not taken as the starting point of social sciences research, and research priorities not adopted accordingly. This principle is seldom adopted by social science research institutions, and in most disciplines taken as a whole. This is largely or partly because Eurocentric notions or dogmas prevail.
- Social science research techniques are not employed uniformly in all fields of research – examples being Economics, linguistics, or studies in socio-cultural change where social science research techniques (particularly those based on fieldwork or ethnography) are seldom conscientiously or diligently applied. We had proposed the concept of econoethnography is a previous paper on "Anthropological Economics" that we had published in the year 2020. Similarly, linguistic ethnography is also not widely practiced, or at least not as widely as it should be, though the concept does indeed exist.
- Qualitative research is not done as often – or as vigorously and rigorously as it should be. For example, studying qualitative aspects of cultural change is often not done. Quantification techniques for example, do indeed exist, but there is little awareness about them at a practical, grassroots level. This is because non-social sciences still dominate in the popular consciousness and psyche, and qualitative research is relatively less common in the physical and natural sciences. Most fields of the social sciences have not broken away from the mould of physical and natural sciences completely, at

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least from the point of view of research method and research techniques.

- Ethnography and fieldwork are seldom carried out, even where they could be of great use in social sciences research or when they are absolutely necessary. Instead, shortcuts such as questionnaire methods are commonly and widely used, because they yield quick and easy results, but where there is a risk of a bias or a significant error margin. Concepts such as long-term ethnography (we had proposed this concept two years ago) are or course new, and may take some time to catch on, and become widespread or popular. We do believe they would add value, and bring many new benefits to the table.
- Novel areas of application are seldom systematically explored. Examples of novel areas could be the ethnography of enculturation, the ethnography of acculturation, or the ethnography of linguistic enculturation. The presence or absence of a scientific temper in a given context or society, can also be studied using this method. The process of decultruation may also be systematically studied and explored.
- There is no effort to identify patterns, or derive generalizations or laws in most cases. Much has been spoken about this especially in the context of machine learning and social sciences, but probably a lot more effort needs to be put in popularize this concept in many fields of the social sciences. We have dealt with this issue extensively previously. Refer our papers on linguistics, and the theories of and sociocultural change. Also refer the other papers we have been publishing over the years, as and when necessary.
- Scenario based and probabilistic approaches to social science research are not commonly followed. However, there are indeed some exceptions, and scenario-based projections are carried out in demographics, and population studies, where low variant, medium variant, and high medium variant projections are made for expected populations in different points in time in the future.
- There are no goal-seek approaches commonly and widely used in many fields of social science research: For example, we may ask: “What types of pedagogical techniques lead to the best learning outcomes?” or “What types of second language teaching learn to be best learning outcomes?” or even, “How many qualified and trained teachers we need to complete adult education programs and achieve the goal of universal literacy by the year 2025?”. The term goal seek is more commonly used in reference to the excel spreadsheet where it is an extremely important feature, but it is also used in relation to research methodology. Our complaint is that it is not as commonly or widely used in social sciences research as it perhaps should be, and most people are not even aware as to what it is all about.
- There is often a confirmation bias involved, and many of these are driven either from cultural bias or prejudice, or from “scientific ideology”. Scientific ideologies may be scientific or pseudoscientific. They however, may make a pretense to be science, or make a pretense to be compatible with scientific method. According to the French philosopher and physician Georges Canguilhem, a "scientific ideology" is “the discourse that precedes a science in the process of foundation that itself relies on an existing science whose methodology and suppositions it emulates”. Examples of scientific ideology could be Eurocentrism, Indocentirsm, Afrocentrism, Sinocentrism, or even scientific racism, Hindutva, or Dravidian nationalism all of which lead to scientific bias, and impact research outcomes negatively. Even Marxist historiography we believe, is a form of a scientific ideology though its negative impact on science, society and the education system must be quantified. These ideologies self-propagate, and may even often skew results to an extreme degree. The impact of scientific ideologies, we argue could be potentially far, far higher in the social sciences, then in the physical or the natural sciences. Ideologies along with their associated pseudoscientific components could be quantified through techniques such as QEPIS or quantification of poor and ideologically driven scholarship and APSA or analysis of pseudoscientific approaches. We had proposed these previously and would invoke them again for the benefit of our readers.
- A fully representative sampling strategy is not adopted (either consciously or subconsciously), and all segments of the population are not evenly sampled. A representative sample is a subset of a total or a larger population that seeks to take into consideration or accurately reflect all the characteristics of the larger group. It may be noted here, that there are different approaches to sampling in research, and the most common ones are stratified sampling, quota sampling, cluster sampling and systematic sampling.
- Certain types of detailed analyses are seldom carried out. Examples of this are root cause analysis and a cause and effect analysis which can also be extremely important in some cases. This kind of an analysis is often carried out or executed by means of a fishbone diagram, or an Ishikawa diagram. Analyses must always be carried out in their respective cultural and social contexts, and the temptation of oversimplification and hasty generalization must be avoided at all times.
- There is a hasty generalization sometimes adopted. This is often seen as a logical fallacy in science, but becomes more pronounced and important in the social sciences. This could be particularly damaging in most fields of the social sciences, more than in the physical or the natural sciences, as a larger quantum of diverse data may be required before generalizations can be made. Social and cultural data is often diverse – much more diverse than in most fields of the physical and the natural sciences – The fact that this diversity may not be self-evident, and may not be unearthed except through intensive and extensive research must also be borne in mind at all times.
- Other types of scientific fallacies also sometimes persist. We also have formal fallacies such as an appeal to probability, argument from fallacy, base rate fallacies, conjunction fallacies, non-equator fallacies, and masked man fallacies. We also then have propositional fallacies,

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quantification fallacies, formal syllogistic fallacies, informal fallacies, etc. we may ignore or brush under the carpet, negative data, or even some cases, falsely believe that correlation implies causation. There are many other kinds of scientific fallacies, and we have discussed and debated them at length off and on. In more extreme cases, buddy reviewing may be adopted, and ad hominem attacks made.

- In most cases, the risk and uncertainty factors associated with social science research studies are not clearly spelt through qualifiers, disclaimers and caveats out so that people can gauge outcomes and results associated with research more realistically.
- Experimental groups and control groups are often not identified as in the case of randomized control trials, and subjects are not often assigned randomly. Sometimes, only quasi-experimental research design is adopted, and subjects are assigned through arbitrary and non-arbitrary criteria, and self-selection.
- In many cases variables are not clearly defined, and dependant and independent variables are also not clearly defined. There is often no assessment or an identification of predictor variables and response variables, output variables or the target variables. The relationship between all these are sometimes not clearly defined.
- In many cases, lead and lag indicators are also not captured and holistically studied. This technique often comes into play while studying sociocultural change, but is not as widely used as it perhaps should be. Lead indicators seek to anticipate future trends and indicators, while lag indicators analyze the past, and look for outcomes.
- All the newer and novel research techniques that we have proposed over the years such as the sociological ninety ten rule and the certainty uncertainty principle for the social sciences have not yet of course taken off, though we anticipate they will sometime in the future. They could hold great benefit for social sciences research. We look forward to many more such research techniques being developed in the future, as there is enormous potential. For example, we have the Monte Carlo method in the mathematical sciences and several others, but social science research techniques appear to be strangely frozen in a time warp.
- Self-directed research such as auto ethnography has not yet come of age, and as per this approach, an individual studies his or her own culture; this approach can indeed have some advantages when combined with traditional ethnography and the 'Structured and Annotated Participant-driven Appraisal', a concept we had proposed way back in 2018. These approaches may indeed have some drawbacks, as researchers from some parts or regions of the world may not be fully aware of social science research methods and techniques. A more reasonable approach is a collaborative approach, where both outsiders and insiders collaborate in research strategies, and capturing research outcomes.
- Much more importantly, there is often no understanding as to where, when and how social science research techniques should be applied, and where, when and how social science research techniques should not be applied. Many people are indeed still muddled and confused. That is why many people also fear to tread either cautiously or non-cautiously. But our principle here is that it can be applied almost in any situation and scenario under the sun, any situation and scenario which pertains and relates to the social and cultural world, and where change and improvement is possible. Make no mistake, this can be a no holds barred endeavour, and a no holds barred exercise.

## V. PEDAGOGY

Pedagogy, a term which is derived from the Greek word paidagogia or the science of learning, most is commonly understood as the science of teaching and learning, (also the methodology of education) and how this process influences, and is turn influenced by, various social and political factors, and the psychological and emotional development of learners. The theory and practice of pedagogy must vary greatly based on different social, political, and cultural contexts, and we must not fall into a Eurocentric trap or a Eurocentric rut under any circumstances. Pedagogy as a formal science and an academic discipline, also studies the process of learning in relation to various objectives and outcomes such as the preservation and transmission of knowledge, and the fostering and inculcation of specialized skills. In fieldwork carried out in 2018, the Author noted that many people, even after studying till class ten, were not aware of basic scientific concepts. They did not know how old the earth was for example, or that dinosaurs existed. Some did not know that the earth went around the sun, and that other extra solar planets existed. They did not know about the history of other countries or regions. Most did not know the basics or fundamentals of scientific method, or how to distinguish science from pseudoscience. They did not know basic English words even after studying till class twelve. Research must also therefore be tied to research questions and research outcomes, and social science research techniques must be widely employed in pedagogy, much more than they presently are as follows. We present below only areas of study that are presently generally ignored by mainstream researchers due to the prevalent Eurocentric biases: [7] [8] [9] [10] [11]

7 Bruner, J. S. (1960). *The Process of Education*, Cambridge, Massachusetts: Harvard University Press

8 Bruner, J. S. (1971). *The Relevance of Education*. New York, NY: Norton

9 Bruner, J. S. (1966). *Toward a Theory of Instruction*. Cambridge, Massachusetts: Belkapp Press.

10 Freire, P. (1970). *Pedagogy of the Oppressed*. New York: Continuum

11 Karl Rosenkranz (1848). *Pedagogics as a System*. Translated 1872 by Anna C. Brackett, R.P. Studley Company

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- Learning outcomes of students based or a fairly large and representative sample drawn from a single context must be systematically and meticulously assessed. Changes to patterns over time must also be suitably captured.
- Learning outcomes by sociocultural group must also be assessed wherever possible and practicable. We had defined the concept of sociocultural group previously in a paper on anthropological economics, and had also extended it elsewhere. To sum up and recapitulate, a sociocultural group is one which is carefully defined after a thorough consideration of social and cultural factors, and typically takes into account and consideration customs, traditions, mores, lifestyles, habits, beliefs, and cultural patterns present in a group. It also seeks to understand human behaviour and mind-orientation from a socio-cultural perspective, and understand how these impact educational, employment and economic factors as well.
- Learning outcomes by socioeconomic group must also be systematically assessed as applicable. We had defined the concept of sociocultural group previously in a paper on anthropological economics, and had also extended it elsewhere. A socio-economic group may be defined as a group that lies at the interaction of social and economic factors. A socioeconomic class is a class which is determined taking into account, a group's economic and social status in relation to other socioeconomic groups. Characteristics that determine socioeconomic status typically include factors such as employment, education, and income.
- Learning outcomes based on religion, ethnicity etc must also be naturally studied, as this would be an extremely useful exercise to undertake. An analysis of the variation must also be carried out along with a meaningful cause and effect analysis and a root cause analysis. This must precede remediation exercises.
- Learning outcomes based on parents linguistic ability may also be carried out. An analysis of the variation must also be carried out along with a meaningful cause and effect analysis and a root cause analysis so that remedial action can be instituted. This would, we believe, be an extremely useful and an important metric.
- Learning outcomes based on gender can also be carried out wherever necessary, as this could constitute and extremely interesting analysis with major downstream implications for bridging the gender divide. An analysis of the variation must also be carried out along with a meaningful cause and effect analysis and a root cause analysis. A joke is currently doing the rounds that while girls were traditionally relegated to the background in the educational sphere, they are now outperforming boys with a vengeance.
- First language acquisition patterns must be studied in different contexts using a fairly large and representative samples, and meaningful conclusions drawn there from. This would include an analysis of both native English speakers and non-native English speakers, and speakers of major and minor languages, what we can call fully empowered languages, partly empowered languages, and non empowered languages. We must also in parallel, do away with obsolete first language acquisition theories.
- Second language acquisition patterns must be studied in different contexts using a fairly large and representative samples, and meaningful conclusions drawn there from. This becomes extremely important because people particularly in many developing countries are commonly educated in an alien tongue such as English or French. This kind of analysis would provide more meat and ammunition to the "Education in the mother tongue versus education in a dominant language" debate. This was not of major concern in the west, and was therefore conveniently ignored and sidelined. However, it is of great importance in determining learning and economic outcomes in many developing countries in Asia and Africa. We must also in parallel, do away with obsolete second language acquisition theories.
- Patterns of lexical development in children both for first and second languages can also be studied with the level of granularity and detail that is practically possible, as this could constitute an extremely important input for syllabus design. Reinforcing or compensatory mechanisms can then we carefully and systematically worked out, by designing the school syllabus accordingly.
- Developing theories on first language acquisition: Theories must be grounded on research and must be developed only after extension fieldwork, and investigation. However, this is not the case presently as current theorization processes often involve leaps of fantasy and imagination let loose and imagination run amok. Needless to say, present theories are of limited practical value, and limited practical appeal. This is something we must set right as a part of our globalization of science movement.
- Developing theories on second language acquisition: Theories must be grounded on research and must be developed only after extension fieldwork, and investigation. However, this is not the case presently as current theorization processes often involve leaps of fantasy and imagination let loose and imagination run amok. Needless to say, present theories which we had reviewed in the past, (Examples being the noticing hypothesis, the output hypothesis, and the interaction hypothesis) are of limited practical value, and limited practical appeal. This is something we must set right as a part of our globalization of science movement.
- Impact of syllabus on practical learning outcomes must also be assessed wherever necessary; we had developed theories of pedagogical content earlier, and these can also be referenced. Syllabi must therefore be practical, easy to understand, and must be highly relevant in the context of the wider world so that learning outcomes are maximized.
- Impact of bilingual textbooks on learning outcomes must also be assessed wherever necessary; we had developed theories of pedagogical context earlier, and these can also be referenced. This exercise must take into account and consideration, a typical student's fluency and

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comfort level with both the languages, or either of the languages.

- Impact of illustrated text books on learning outcomes (for example) must also be assessed wherever necessary; we had developed theories of pedagogical content earlier, and these can also be referenced wherever applicable and necessary. Therefore, as a crude rule of thumb, learning outcomes will always be enhanced by more child-friendly and learner-friendly approaches to learning and teaching. Of this, syllabus and the presentation of text books and learning materials would constitute an important learning part.
- An assessment of transferable skills approach, and its impact on first language acquisition patterns must also be carried out wherever necessary. A transferable skill approach refers to a mechanism where education in the early years is imparted in the mother tongue or the native language, and later shifts over gradually to English as the students become more emotionally mature. In countries such as Africa, the situation wherever applicable and relevant, becomes rather more complicated, and the French language, which is believed to be in general decline and retreat worldwide, also enters the mix.
- An assessment of transferable skills approach, and its impact on second language acquisition patterns must also be carried out wherever necessary. A transferable skill approach refers to a mechanism where education in the early years is imparted in the mother tongue, and later shifts over gradually to English as the students become more emotionally mature. In countries such as Africa, the situation wherever applicable and relevant, becomes rather more complicated, and the French language, which is believed to be in general decline and retreat worldwide, also enters the mix.
- Some subjects in are taught in English, some in local language: The impact of this technique on first language acquisition must be systematically assessed. This approach has been tried out in Malaysia. Initially Malaysia attempted to switch over from English to Malay or Bahasa Malaysia entirely, but this impacted the student's professional and educational prospects. Hence, this intermediary arrangement was constituted. Contrary to popular perception learning and teaching in the mother tongue, also known as the native language, does have some benefits, as children may learn some subjects better and faster.
- Some subjects in English, some in local language: Impact on second language acquisition. This approach has been tried out in Malaysia. Initially Malaysia attempted to switch over from English to Malay entirely, but this impacted the student's professional and educational prospects. Hence, this intermediary arrangement. Contrary to popular perception learning and teaching in the mother tongue, also known as the native language, does have some benefits, as children may learn some subjects better and faster.
- Use of different teaching tools and teaching aids: Impact on language learning and technical skills of different teaching tools and teaching aids must be assessed. Example of teaching tools and teaching aids could include computers, robots, and artificial intelligence based teaching assistants or agents. Iris, India's first AI-generated school teacher robot, was developed by Makerlabs Edutech under the ATL project of NITI Aayog, and was unveiled recently in a Kerala school. It was subsequently launched in Assam as well. Powered by advanced robotics and generative AI technology, Iris features an in-built voice assistant as well for an enriching student experience.
- Use of different teaching methods and teaching techniques: Impact on language learning and technical skills: Impact on language learning and technical skills of different teaching methods and teaching techniques must be carefully and systematically assessed. We have concepts such as the just in time method, the experiential method, and the case study method here. The development of such theories must also be based on a grounded approach, and real world data from different parts of the world must be considered. They must not be Eurocentric under any circumstances.
- Use of computer based learning: The impact on language learning and technical skills can be systematically computed using metrics such as the return on investment including time and effort investment. This is because computers cost money; additionally, power supply, particularly in rural areas may not be reliable.
- Use of artificial intelligence in teaching: The impact on language learning and technical skills can be systematically computed using metrics such as the return on investment including time and effort investment.
- Will lexical development of non-dominant languages by importing a large number of English words boost people's technical skills? This is a question that can be systematically addressed and answered through the use of social sciences research techniques.
- Will lexical development of non-dominant languages by importing a large number of English words boost people's English fluency eventually? This is another question that can be systematically addressed and answered through the use of social sciences research techniques.
- Will lexical development of non-dominant languages by attempting to create words based on people's own cultural preferences boost people's technical skills? This is yet another question that can be systematically addressed and answered through the use of social sciences research techniques.
- How will creating complex and artificial new words in non-dominant languages impede people's intellectual development? Or will it impede and hinder learning processes? This is yet another question on everyone's minds and lips. Social sciences research techniques can come in handy here.
- How is linguistic proficiency linked to economic outcomes? Are nations with a higher linguistic proficiency more economically prosperous? What is the exact correlation between the two? How does linguistic empowerment and the lexical development of languages help?

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Additionally, concepts such as language dynamics which we have already discussed and debated upon at a very great level of depth over several years, can be empirically tested and verified using bona fide social science research techniques. Leaning outcomes can be assessed based on a correlation or input and output factors. Similarly, theories of social and cultural change can also be easily and competently tested. Theories of mindspace, thought worlds, world views, mind orientation and cultural orientation etc can be tested though the use of appropriate social science research techniques. Techniques such as the sociological ninety ten rule, and the certainty uncertainty principle for the social sciences can also be effectively implemented, along with pre-existing methods such as linguistic ethnography. Research must be tied to research questions and research outcomes. There is plenty of scope here; we have barely scratched the surface, and the tip of the iceberg. [12] [13][14]

The term 'linguistic ethnography' refers to a growing body of research being primarily carried out by ethnographers and linguists that seeks to combines both linguistic and ethnographic approaches in an attempt to investigate how language is used in social and cultural contexts, and linguistic processes operate in a wide range of situations and contexts. A significant body of research has been produced under this field based on the foundational work of scholars such as the American professor of anthropology and education Frederick Erickson, American linguist John Gumperz and the prominent linguist and sociolinguist Dell Hymes, all of whom made stellar contributions to the field. However, linguistic ethnography has not yet blossomed, flourished and reached a level of maturity that it needs to. We believe linguistic ethnography can be used to study all the topics of research mentioned in this paper, plus many more. The technique and methodology of participant observation can be put to practical use here, though we believe research durations may often be shorter than in the case of traditional, old-fashioned ethnography. [15]

Ethnographic methods are not as widely used in the study of economic systems as they perhaps should be, and we still perhaps have some more time to go before they can become completely mainstream in the field of economics, and are used in economic planning processes. Studies of economic systems, even if they have been executed by anthropologists and sociologists, have primarily focused on the so-called "illiterate" and primitive societies. The technique has not been productively and beneficially put to use to solve pressing economic problems and challenges faced by mainstream modern societies, leave alone those in developing countries. Auto-ethnography is also surely but steadily beginning to take off in many parts of the world, though this field is often plagued by the absence of the necessary skills and competence by researchers. We must also collate this concept with the other concepts in ethnography we have been advocating all along. The Indian anthropologist TN Madan's study of the Kashmiri Pundits, and DN Majumdar's study of Himalayan polyandry constitute some of the more prominent studies in the field, but these studies did not primarily address economic systems. Other studies carried out by noted researchers Andre Beteille and Karin Kapadia in South India, and FG Bailey in Eastern India, have attempted to study caste and class, but have not investigated economic systems extensively.

The Dutch sociologist Jan Breman has probed Agrarian relations in South Gujarat between the Anavil Brahmins and the Dublas, and the Hali system, but this encompasses only one small aspect of the study of economics systems of a region, and cannot be considered to be multi-faceted. Other similar or relevant studies have included a study in community and rural development in North India by the Indian anthropologist and sociologist Shyama Charan Dube, a study of resource management among the arctic people's by the Canadian professor of natural resources Fikret Berkes, a study of occupational patterns among the Bakkarwals of Jammu and Kashmir by the Indian anthropologist Aparna Rao, and a study of Tolai economic growth by the British Austrian social anthropologist and economist Scarlett Epstein, but these have only probed and investigated one or a few aspects of traditional economies, and may deemed to be restricted in scope. Thus, the scope for "econoethnography" is immense, and it has the potential to be a game changer. [16]

## VI. RELIGION AND RELIGIOUS CHANGE

The term "Religion" as most people understand it today, refers to a wide range and variety of social-cultural systems, which commonly and typically include various types of beliefs, belief systems, holy texts, ethics, morals, religious practices, and scriptures, sanctified holy places,

12 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)

13 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, 2015

14 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)

15 An Introduction to Linguistic Ethnography: Interdisciplinary Explorations, Sara Shaw, Fiona Copland & Julia Snell, Springer

16 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)

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and institutions that typically relate to the general belief in a God or a supernatural entity. There may however be exceptions to all these concepts as some religions exclude the idea of a God. Religion has been known in a wide variety of geographical contexts and situations, and has been attested since ancient and pre-historic times. As a matter of fact, there have been very few known human societies without some form of an organized or at least an informal religion. In the past few centuries, technology has progressed at a rapid and a brisk pace; however, it has not obliterated religion completely. Religion, and the role played by it in society, remains as deeply entrenched as ever before, or is only now slowly and gradually waning. Globalization has also unleashed a clash of civilizations, and has brought different and widely differing ideologies into direct contact with each other, often unleashing waves of terror, in the manner foreseen by Samuel P. Huntington and others. Religious change has also been witnessed in many forms over several centuries. Historical examples of religious change have included the rise and decline of Buddhism in India between 300 BC and 800 AD, the revival of Hinduism by 800 AD, the spread of Islam by various caliphates such as the Rashidun caliphate and the Umayyad caliphate within a few centuries after Mohammed. Christianity also replaced paganism and other pre-Christian beliefs and traditions fairly quickly and rapidly in a matter of centuries. [17] [18] [19] [20] [21]

Apostasy in Islam began in a big way at the turn of the twenty-first century. This is associated with the renunciation of religious and quasi-political beliefs associated with Islam. There is a fairly strong ex-Muslim movement in Iran, India and other places, and noted apostates have included Wafa Sultan and Ayaan Hirsi Ali. Apostasy can be technically studied using social science research techniques. Topics of study could include studying patterns of apostasy, studying patterns of apostasy by country, studying patterns of apostasy by socioeconomic background, studying patterns of apostasy by educational background, studying beliefs in religious values such as Sharia law, etc. Questions such as the following can also be answered using social science research techniques, and we can aptly throw and shed light on all these: “Can all Muslims become apostates?”, “Will only educated Muslims become apostates?”, “Will Muslims only become less religious?”, “How long will the transition from religion to irreligion take?”, “How long will the transition from religion to apostasy take? We can also additionally study the following aspects, often through a careful extrapolation of trends:

- Can past data be extrapolated to understand the process of religious transformation? Can the pace of change be reliably estimated?
- What are the limits to irreligion and apostasy? Can religion be ever eradicated completely? Will a counter ideology take root?
- Is the solution to religious fanaticism, religious extremism and religious intolerance atheism, or is it a milder form of the same religion, or a new and different religion?
- What aspects accelerate the transition to irreligion? How many of these changes pertain to pedagogy?
- What aspects retard the transition to irreligion? How many of these aspects pertain to pedagogy?
- What policies must nations develop to foster and inculcate religious tolerance, and move people away from religion? How will constitutions and political systems need to be amended to achieve this goal?
- What are the causes of religious fanaticism and religious fundamentalism? These can be identified through the case study method, but what must be the exact mechanisms to study all these? How can they be put in place?
- What caused specific groups to become religious fanatics and religious fundamentalists? Can these factors be successfully replicated?
- What factors moved people away from religious fanaticism and religious fundamentalism? Can these factors be successfully replicated?
- What is the education level of religious fanatics and religious fundamentalists? Does a higher level of education automatically make people less religious, or are other changes to the education system required?
- What sort of educational changes need to be brought about to curb religious fanaticism and religious fundamentalism, including more fundamental ones?

Additionally, we can also employ social sciences research techniques to study identity formation, and individuation, concepts that we have touched upon and elucidated in two separate papers in the years 2019 and 2023. For example, we can ask:

- What factors strengthen the process of identity formation? How can we gainfully study this for different components of identity formation, and use it to draw other meaningful conclusions as well?
- What factors dilute the process of identity formation? How can we gainfully study this for different components of identity formation, and use it to draw other meaningful conclusions as well?
- How can the process of identity formation be modulated through better education? What suitable changes do we

17 Nongbri, Brent (2013). *Before Religion: A History of a Modern Concept*. Yale University Press.
18 Morreall, John; Sonn, Tamara (2013). "Myth 1: All Societies Have Religions". *50 Great Myths of Religion*. Wiley-Blackwell. pp. 12–17
19 Barton, Carlin; Boyarin, Daniel (2016). "1. 'Religio' without "Religion"". *Imagine No Religion : How Modern Abstractions Hide Ancient Realities*. Fordham University Press. pp. 15–38
20 Ahmad, Ahmad Atif (2007), "*Authority, Conflict, and the Transmission of Diversity in Medieval Islamic Law* by R. Kevin Jaques", *Journal of Islamic Studies*, **18** (2): 246–248 [246]
21 Bulliet, Richard W. (April 1970), "A Quantitative Approach to Medieval Muslim Biographical Dictionaries", *Journal of the Economic and Social History of the Orient*, **13** (2): 195–211 [200]

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need to bring about to the education system to accomplish this goal?

- What tools and techniques can we use to study the levels of cognitive dissonance in individuals? How can we study different types of cognitive dissonance as well?
- How can we use social science research techniques to study the "Ethnography of enculturation"?
- How can we use social science research techniques including ethnography and other techniques to study the process of acculturation under various types of cultural scenarios that we had presented?
- How can we use social science research techniques including ethnography and other techniques to study the process of transculturation under various types of cultural scenarios that we had presented?
- How can we use social science research techniques including ethnography and other techniques to study the process of deculturation under various types of cultural scenarios that we had presented?
- How can we use social science research techniques including ethnography and other techniques to study the process of massculturation under various types of cultural scenarios that we had presented?
- How can we use social science research techniques including ethnography and other techniques to study and assess the strength of individual identities?

Similarly, the presence or absence or a scientific temper which reflects an objectivity, an openness and curiosity, and a hunger and an insatiable appetite for knowledge, in individuals can also be effectively gauged using social science research techniques such as interviews and questionnaires. For all this, questionnaires and interviews can be reasonably employed, rather than fieldwork, which may be less apposite in this context. In such a case, knowledge of scientific concepts, an individual's, mind orientation, his or her ability to distinguish science from pseudo science, knowledge of scientific method, the continuing prevalence of pre-scientific ideas may be assessed. These would only constitute broad topics, under each of these broad heads, a detailed questionnaire needs to be developed. These topics are only illustrative and representative; many other practical uses will readily present themselves as time progresses. [22] [23] [24]

## VII. CONCLUSION

We had begun this paper by describing various social sciences research techniques as an intrinsic and an integral part of general research techniques. As a part of this process we had also described different types of commonly used research such as qualitative and quantitative research, randomized controlled trials, experimental design, quasi-experimental design, cross-sectional studies, and longitudinal studies to the extent they pertain to social sciences research. We had also referenced several of our previously published papers on the methodology of science such as the sociological ninety ten rules, the certainty uncertainty principle for the social sciences, inductive approaches and nomothetic rule building. We had then proceeded to develop several new concepts such as the importance of the assessment of time lag in social sciences research, and had identified situations where a high time lag was not permissible, was deemed to be tolerable, and other cases, where it could in fact, be highly recommended. We also then went on to explore the various types of obsolescence that could be commonly associated with the concept of time lag in the social sciences. Much more importantly, we laid down what we believed were the lacunae and shortcomings of present day social sciences research, and what could be done to overcome them from a global centric perspective. We then also presented some practical applications of social sciences research covering many different subfields of the social sciences. This paper we believe will constitute an important paper in our globalization of science movement as it will educate people on the importance of social science research techniques, and the impact they can have in making the world a better place for all of us to live in.

22 Diggle, John (1898). Nicoll, W. Robertson (ed.). *The Faith of Science*. The Expositor (Fifth Series). Vol. VII. London: The Expositor. pp. 451–452

23 Chacko, Priya (2011). "The search for a scientific temper: nuclear technology and the ambivalence of India's postcolonial modernity". *Review of International Studies*. **37** (1): 185–208

24 Raza, Gauhar; Singh, Surjit (2018). "Politics, Religion, Science and Scientific Temper". *Cultures of Science*. **1** (1): 39–51