

Emphasizing “Integrationism” in Twenty-First Century Science: Another Useful Tool to Generate Better Scientific Paradigms Better Quality Science

Sujay Rao Mandavilli

Abstract:- The core objective of this paper is to emphasize the importance of “integrationism” as a core and a central method, and as a core philosophy of science, social sciences included, and one that can naturally and reliably be used to generate much better paradigms, better frameworks, and better concepts in science, and higher quality and higher order science as well. We also believe and propose that this technique become vital to scientific endeavour as a whole. In order to better perform the task of laying down the bare essentials of this paper, we review our earlier papers on scientific method of which there have indeed been many published over the last couple of years or so, including our much more recent paper on foundationalism. We also then go on to explain and elucidate why inductivism, including methodological inductivism and nomothetic approaches provide the epistemological basis for this paper, and stand us in very good stead. We also examine and explore other essential prerequisites of this approach including the need and necessity of dogma and ideology-free science, coherentism, reliabilism, internal and external validity, accuracy, rigour, precision, and also explain how this approach can be used to integrate and synthesize paradigms, frameworks, methods, and methodologies as well across a broad spectrum.

I. INTRODUCTION

Integration is a basic law of life; when we resist it, disintegration is the natural result, both inside and outside of us. Thus we come to the concept of harmony through integration - Norman Cousins

Unity, not uniformity, must be our aim. We attain unity only through variety. Differences must be integrated, not annihilated, not absorbed - Mary Parker Follett

Differentiation is a skill, integration is an art - Sean M. Stewart

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much better paradigms, better frameworks, and better concepts in science, and higher quality and higher order science as well. We also believe and propose that this technique become vital to scientific endeavour as a whole. In order to better perform the task of laying down the bare essentials of this paper, we review our earlier papers on scientific method of which there have indeed been many published over the last couple of years or so, including our much more recent paper on foundationalism. We also then go on to explain and elucidate why inductivism, including methodological inductivism and nomothetic approaches provide the epistemological basis for this paper, and stand us in very good stead. We also examine and explore other essential prerequisites of this approach including the need and necessity of dogma and ideology-free science, coherentism, reliabilism, internal and external validity, accuracy, rigour, precision, and also explain how this approach can be used to integrate and synthesize paradigms, frameworks, methods, and methodologies as well across a broad spectrum.

➤ What Is Integration?

The term integration is a widely used English term, and as such has a long history of usage too. As a matter of fact, it is widely used in everyday life, and in many different fields and avenues of study, albeit with different meaning, or more precisely, different shades of meaning. Simply or crudely put, integration refers to the action or process of integrating two or more different things into a single entity; for example, we commonly and routinely speak about “economic and political integration” in non-scientific domains and in non-scientific spheres. Likewise, and similarly, we speak about integration of processes, procedures, methods, etc, both in a business context and in the context of a scientific method. The latter is used less commonly, and less sparingly, much to the detriment of science, we believe. The time is now right to set right this fundamental anomaly, we aver. Let us now examine some different contexts (and fields or areas of study) where the term integration is used. By Economic integration, we variously mean trade unification between different states, the removal of tariffs and barriers, or economic policy integration. We must also differentiate at the very outset between vertical integration and horizontal integration. Vertical integration (as a business strategy) involves an entity owning many different stages of a product’s production process, including,

but not limited to, acquisition of a supplier, or a manufacturer, (sometimes also a distributor, or a retailer), and establishing them in-house in order to do away with them as independent entities. Horizontal integration however involves the merger or acquisition with another similar company or organization (usually in the same industry or product space) in order to increase or gain market share.

We also have forward integration – this corresponds to integration with the distribution chain and the distribution or the logistics network, and backward integration – this corresponds to integration with the supplier network and the procurement processes. In political science, regional integration is a form of integration by means of which states, countries or political entities mutually cooperate with one another usually through the setting up or establishment of pan-regional institutions. In social or cultural anthropology, social integration is the process of integrating immigrants or ethnic minorities into the social fabric of a host society. This is also by definition, very similar to cultural integration which is the process of combining various elements of different cultures, in order to create a unified if not monolithic culture. However, there is some level of differentiation involved, and the process of assimilation or cultural integration is almost never perfectly accomplished. This also leads to cultural friction at times, and is a political hot potato. This concept is also often used in the context of a workplace or a company setting, when multicultural teams are employed towards the fulfillment of a common goal.

➤ *Integrationism*

The term “integrationism” with the suffix “ism” added or appended to it, is also widely used albeit in a narrow sense, and in some fields of specialized study. It is not widely used in everyday parlance, and almost certainly not in scientific method and in the philosophy of science. This is something we must seek to remediate given that it portends and augurs very well for science as a whole. Integrationism is necessary not because we are presently or currently going to hell in a hand basket, (we may not) but because these approaches can remediate current malaises greatly, and up the ante and step up the game as well. In sum, it will usher in comprehensive and meaningful changes for the better with a large quantum of downstream consequences to boot. This approach and this technique will help us fight against rampant careerism and well-entrenched positions based personally held and cherished positions, besides dogma and authority. It is also necessary to obviate the establishment of dogmatic and well-established intellectual position that do away with dialectics, debate and discourse.

The term integrationism is however currently mostly used only in the field of linguistics where it is also known as “integrational linguistics”. This is an approach in the theory of communications, though not a widely known or a widely used or an employed one. This theory emphasizes participation by different parties and entities in the communication process,

and downplays the importance of rule-based planning. This technique evolved through the work and efforts of British linguistics and professor of linguistics Roy Harris and several others at the University of Oxford. These views were held by Dr Andrian Pable as well, though not by Alexander Kravchenko and Nigel Love. Integrationists also firmly hold, opine and aver that communication and all other forms of general knowledge are linked to that individual’s sensory perceptions and personal experiences too. Therefore, the usage of language is highly contextual, they hold. It is even too contextual to hold up to scientific scrutiny. This view is also endorsed by Haas & Christie. Additionally, and likewise, speech act theorists such as John Langshaw Austin hold that language explains and describes how speech acts are performed and how they can contribute to meaning. We also then have had interactional sociolinguists of the likes of the American linguist John J. Gumperz, conversation analysts and linguists such as Harvey Sacks, Emanuel Schegloff, and Charles Goodwin, (as well as some others such as Canadian-American sociologist and social psychologist Erving Goffman), who contributed to similar fields of study.^{1 2 3}

In addition to all this, we had also explored and investigated the doctrine of foundationalism in a previous paper; as a matter of fact, we had devoted and dedicated an entire paper to this. Foundationalism as a philosophical theory posits that all forms of knowledge and justified true beliefs are built upon a solid foundation of “non-inferential knowledge” or “justified beliefs”. We had given this entire philosophy and this entire doctrine a much more practical and a much more practical tinge. Kindly read our paper “Building upon “Foundationalism” to achieve the objectives of contemporary science: How this can lead to faster scientific progress and inclusive science”, which was published by us in 2024. Where there have been critics of this approach, it has by and large held up. The core approach doctrine and tenet of this paper on integrationism is to integrate (integrate! Integrate! Integrate!) as many concepts, frameworks, paradigms and propositions as far as practically possible, leaving out only those paradigms, of frameworks that cannot be integrated, or do not deserve to be integrated. This approach and technique will therefore provide a useful starting point for downstream scientific activity.⁴

➤ *Inductive Approaches*

¹ Manning, Philip (1992). *Erving Goffman and Modern Sociology*. Stanford University Press

² Dirda, Michael (2010). "Waiting for Goffman", *Lapham's Quarterly* (Vol 3 No 4). ISSN 1935-7494

³ Bartmiński, Jerzy. *Aspects of Cognitive Ethnolinguistics*. Sheffield and Oakville, CT: Equinox, 2009/2012

⁴ Building upon “Foundationalism” to achieve the objectives of contemporary science: How this can lead to faster scientific progress and inclusive science, Sujay Rao Mandavilli, IJISRT, October 2024

Inductive approaches and deductive approaches are the two most commonly employed techniques of reasoning in science. These techniques are central and so important to science, that we had devoted and dedicated an entire paper to them. As a matter of fact, these two are contrasted with each other, and are diametrically opposed to one another. Simply put, and simply explained, the inductive approach is a widely and commonly used method and technique of reasoning that involves drawing general or universal conclusions (i.e. broad and broadly applicable generalizations) from a large number of specific observations or instances, often by identifying and deriving patterns. This approach and this technique is also sometimes known as inductive logic or bottom-up reasoning. On the other hand, deductive reasoning moves from the general to the specific. The latter is much more useful and commonly employed in testing hypotheses through the commonly used and the commonly employed hypothetico-deductive method. The inductive approach is very necessary and very important from the perspective of integrationism because it will allow for data and observations to be aggregated, in as far as they can be integrated. It is also associated with the power of hypothesis-building and theory formulation. We also have nomothetic approaches which we have discussed previously, and this is contrasted with idiographic approaches or stand alone approaches. This approach is also sometimes associated with grounded theory which involves a systematic collection, gathering, and analysis of data to prepare and to test theories. In addition, inductive inference is also used for making predictions. (Creswell & Plano Clark, 2007).^{5 6 7}

➤ *Methodological Inductivism*

We had also written extensively about methodological inductivism, and this would imply and connote an apposite integration of tools, techniques, methods, methodologies, paradigms and frameworks. The paper was aptly and appositely titled, "Forging "Methodological inductivism" in the interests of better science: Encouraging Methodological inductivism as a harbinger of meaningful change in different kinds of scientific endeavour", and was published in the early part of 2024. This also builds upon the general concept and the general principle of method triangulation which involves the

use of mixed methods or an aggregation of methods, tools and techniques in order to achieve the desired results. This idea is being increasingly used in both qualitative research, and quantitative research and sometimes in mixed methods research as well. (Patton, 1999). Keeping in accordance with this approach, many different theories, hypothesis, methods, and even data sets are used to understand, comprehend, analyze and thoroughly grasp a complex research question. This approach though often complex (or otherwise sometimes uneconomical), can help increase the validity and general applicability of research findings, and the overall credibility and explanatory power of research as well. In the words of Altrichter et al, triangulation "always gives a much more detailed and balanced picture of the situation." (Altrichter 2008) in addition, methodological holism involves the study of a phenomenon in its totality, and not just in relation to its individual parts. This approach is being increasingly widely used in science and in research as well. The term "Methodological pluralism" is another approach where a large variety and diversity of sources of information are employed and gainfully used in the process of research. In addition we method triangulation, we also have data triangulation and investigator triangulation as well, and these too are common concepts in science. All these approaches and different techniques will also naturally come in handy to comprehend and thoroughly grasp the concepts in this paper, and we would as such, request readers to be familiar with them.^{8 9}

➤ *Resolving Paradoxes And Aiming For Consistency*

While performing such an exercise, we must also always be on the lookout for inconsistencies and paradoxes; the term paradox is one that is widely used in reference to, and in relation to science, and scientific study. A paradox may be defined as a logically self-contradictory statement or a statement that comprises internally (and logically) contradictory parts. Naturally, removing paradoxes and internal inconsistencies elevates a paradigm to a much higher level, and leads to much better quality of science as well. Paradoxes are commonly and chiefly associated with self-reference, contradiction and vicious circularity or infinite regress. Paradoxes are also often classified into veridical paradoxes, falsidical paradoxes or antimonies, and other classifications have been proposed by Frank Ramsay and others as well. We had authored a paper on paradoxes a year or so ago, and had dwelt on the need for removing paradoxes as well in order to achieve, accomplish or attain a higher level and a higher state of understanding. We must also likewise

⁵ Making the use of Inductive approaches, Nomothetic theorybuilding and the application of Grounded theory widespread in the social sciences: A guide to better research and theorization in the social sciences Sujay Rao Mandavilli IJISRT May 2023

⁶ Thornberg, Robert & Charmaz, K. (forthcoming) 'Grounded theory and theoretical coding', in Flick, U. (ed.), The SAGE handbook of qualitative analysis. London: Sage

⁷ Thornberg, Robert and Charmaz, Kathy (2011) 'Grounded theory', in Lapan, S.D., Quartaroli M.T. and Reimer F.J. (eds.), Qualitative Research: An Introduction to Methods and Designs. San Francisco, CA: John Wiley/Jossey-Bass. pp. 41–67

⁸Rothbauer, Paulette (2008) "Triangulation." In Given, Lisa (Ed.), "The SAGE Encyclopedia of Qualitative Research Methods." Sage Publications. pp. 892-894.

⁹ Forging "Methodological inductivism" in the interests of better science: Encouraging Methodological inductivism as a harbinger of meaningful change in different kinds of scientific endeavour, Sujay Rao Mandavilli, IJISRT, February 2024

always look for consistency and coherence, as well as internal and external validity. Without achieving these, integrationism is meaningless. Consistency is the act or the quality of always behaving or performing in a predictable way, or in an expected way.

The term coherent in the context of any argument, theory, premise, framework, or philosophy means that it is logical, cogent, lucid, well-contained, reasonable, well-argued, well-reasoned, well-rounded and internally and externally consistent in all respects, and fundamentally sound. We must also pursue objectivity, rigour, precision, accuracy, reliabilism, and validity at all times. Cultural biases, and intransigent positions must also be eschewed and avoided at any costs. We also need to adopt dialectical approaches and cross-cultural research design. We also need to avoid ideology and dogma. As matter of fact, as long as ideology and dogma exist reconciliation will not be possible. As long as reconciliation is not possible, integration will not be possible. We had discussed all these concepts in our previous papers, thoroughly and in meticulous detail. We had also proposed the concepts of aeternitism and omnimodism, and we have always argued that these principles will stand us in very good stead. Reconciliation between two extremes and opposites must also always be performed, and outliers and non-compatible frameworks and paradigms must be jettisoned. It is on the foundation of these concepts alone, that integrationism can be built. Read the papers “Advocating output criteria based scientific and research methodologies: Why the reliability of scientific and research methods must be measured based on output criteria and attributes”, and “Paradox identification and paradox resolution in scientific endeavour: Reconciliation of contradictory rule sets in the interests of better theorization and hypothesis-building” for this purpose. These papers explain the aforesaid concepts very well.^{10 11}

➤ *Integrating Concepts, Paradigms, Frameworks, Methods, And Methodologies*

We also naturally need to Integrate concepts, paradigms, frameworks, methods, and methodologies as well at all times, and systematically too. A concept is an abstract idea conceived or gestated in the mind, in other words, a thought, or a notion. In both science and in the philosophy of science, a paradigm is a distinct set of concepts or thought patterns, which includes under its umbrella and purview theories, research methods, standards, postulates, and technique in order to set the direction and provide the foundation for

scientific activity. The word paradigm is commonly attributed to a Greek origin, wherein the term meant "pattern. In science and in scientific method, a framework is a real or conceptual structure that serves as a support or guide for the construction of something that expands the structure into something more concrete. Method on the other hand, is a process or a technique that explains how to perform a complex or a sequential task or activity. A methodology on the other hand, is a system of methods used in a particular field of study or inquiry. This would form the cornerstone and the foundation for our approach. However, the issue of compatibility must be borne in mind at all times. Compatibility refers to a state in which two things are able to harmoniously and peacefully co-exist (or occur together) without any friction, problems or conflict. Anything that is not compatible must be set aside for further evaluation and critical examination.^{12 13 14}

➤ *Capturing The Essence And The Spirit Of Something Always*

We must capture the essence and the spirit of something always; this is also known as quintessence. A quintessence is an essential aspect of something which regarded as or considered to be the intrinsic and central constituent of its character. This is also sometimes known as, or referred to as a spirit of something. A related concept is a ethos which refers to the characteristic spirit of something. This is something less commonly used in science, though we believe it can be. “Integrationism”, we believe is a very essential component of science, though we believe it has been given the short-shrift this far. We also believe separate teams must work on this, other than those who pursue primary and secondary research, and this will greatly promote the cause of science, and take scientific activity to a much higher level of excellence.

➤ *Benefits of this Approach*

The following are the benefits of this approach, and these must likewise, be borne in mind at all times:

- **Faster scientific progress:** This approach and this technique will naturally lead us to much faster scientific progress overall because it will lead to an amalgam and an amalgamations of different scientific methods, tools, techniques, paradigms, and frameworks. This will genuinely create a ripple effect and a multiplier effect as well in many different ways. A ripple effect is a continuing and ever spreading consequence of an event or a course of action. This is akin to a downstream effect, but much more continuous and down reaching. There are some other

¹⁰ Advocating output criteria based scientific and research methodologies: Why the reliability of scientific and research methods must be measured based on output criteria and attributes Sujay Rao Mandavilli IJISRT, August 2023

¹¹ Paradox identification and paradox resolution in scientific endeavour: Reconciliation of contradictory rulesets in the interests of better theorization and hypothesis-building Sujay Rao Mandavilli IJISRT, January 2024

¹² Popper, Karl. *The Logic of Scientific Discovery*, 1934 (as *Logik der Forschung*, English translation 1959),

¹³ Cristianini, Nello, "On the Current Paradigm in Artificial Intelligence"; *AI Communications* 27 (1): 37–43. 2014

¹⁴ Hypothesis, paradigm, framework and concept evaluation and testing across space and time: A revalidation of our concepts of “aeternitism” and “omnimodism” Sujay Rao Mandavilli IJISRT, October 2024

interesting terms in general use, and these include the concept of a domino effect, which is a kind of a veritable chain reaction with is kick-started by a master event, and proceeds in a chain like or sequential fashion. A multiplier effect is like all these, but the effect or the result in often much larger or more severe than the event that set it in motion in the first place. In other words, this approach when combined judiciously with all the other approaches we have been advocating all along, and with other approaches as well, will lead to what we have always called “scientific progress at the speed of light”. This we believe and have argued that can happen only if truly globalized approaches to science are adopted. There is a whiff of change blowing now, (the winds of change are clearly blowing, though the trickle has yet to become a stream) with many researchers from developing countries entering the fray, but we still have a long, long way to go before we can attain the goals of culture neutral science. Of course, developing countries also have to mature and change with the times, otherwise it will be a classic case of the blind leading the blind.

- Better concepts: A concept is an abstract idea; the term is widely used in science, and we have explored the concept of a concept multiple times before. Concepts are however rather unfortunately limited by mental conceptions, and analytical ability as well given that some concepts can be potentially much more complex than meets the eye. In addition to cross cultural research design and the other concepts and ideas we have mooted all along, we believe that the concepts espoused and advocated in this paper have the potential to take science and scientific activity to an altogether higher level, and make a big change in the lives of the laity as well.
- Better theories and hypotheses: A theory is a system of cogent and coherent ideas or concepts that are intended to explain an observation or a phenomenon. A hypothesis is a cruder version of a theory, and one that has not been adequately tested as yet, or is awaiting complete ratification and validation. For example, we have Charles Darwin’s theory of evolution in evolutionary biology, and many other theories in other fields of science and study as well. What we have lamented and mourned is over-theorization which is often the bane of science. This is especially true where theories are not adequately backed up by data, or are not subsequently adequately tested. While we must remediate this through the employment and use of other mechanisms and means, it is also worth noting here that the proposals presented in this paper carry with them the potential to allow vastly superior theories and hypotheses to be constructed. Likewise, the terms theories, hypotheses and laws are loosely used interchangeably, and a proper distinction and demarcation between the three concepts in sometimes not made.
- Better frameworks: A framework as most people understand it today, is a real or conceptual structure that is designed or is intended to serve as a foundational support or heuristic for the construction of something that expands the structure into something much bigger, and resultantly something much more powerful and all-encompassing. Likewise, frameworks are also rather unfortunately limited by mental conceptions, and analytical ability. In addition to cross cultural research design and the other concepts and ideas we have mooted all along, we believe that the concepts espoused and advocated in this paper have the potential to take science and scientific activity to an altogether higher level when judiciously used in combination with other approaches.
- Better paradigms: A paradigm refers to a distinct set of thoughts or clearly articulated pattern of something that serves as a pattern or model for something that follows it. Likewise, paradigms are also rather unfortunately limited by mental conceptions, and analytical ability. In addition to cross cultural research design and the other concepts and ideas we have mooted all along, we believe that the concepts espoused and advocated in this paper have the potential to take science and scientific activity to an altogether higher level when used judiciously in combination with other approaches.
- Minimizing research errors: This approach and this technique can not only greatly reduce the potential for research errors such as sampling errors and measurement errors, (we also have type I errors and type II errors and alpha errors and beta errors in addition to a few more which are widely known to most researchers) but it can also allow for vastly superior research designs to be formulated and constructed. A Research design is an overall plan for addressing a research question comprehensively, and forms the overall strategy and the overall basis for a research project. It includes theories and models, data collection strategies, and analyses of results for example. We have dealt with these exhaustively in our previous papers, and there is no need to reiterate them here.
- Removal of bottlenecks to research: a bottleneck as symbolized by the shape of a bottle and its constriction is something that prevents or precludes the solution to an issue, or prevents a paradigm from advancing any further. This concept is also somewhat related to a constraint (as exemplified by a constraint in a manufacturing process) that was famously brought to light by the Israeli management evangelist and Guru Eliyahu S Goldratt in his work on the theory of constraints. This approach therefore also has the innate and intrinsic ability to move research to a much higher level, and also move us to a much higher level of understanding.

- Sidelining of outliers: An outlier is something that does not fit in with the general state or scheme of things. It either lies outside the threshold of accepted or anticipated values, or does not fit in with other observations. These are sometimes visually depicted by normal distributions, box and whisker plots or diagrams, etc. They are also generally very well represented in Six Sigma methodology as well. Outliers get automatically eliminated through a synthesis and a resynthesis of ideas, and the reconciliation of opposites wherever necessary. This also automatically has the potential to move science to a much higher level. In other words, what does not fit in with the overall scheme or state of things, automatically gets booted out, because it will not be incorporated into the integration processes.

II. CONCLUSION

This paper has been our umpteenth and umptieth on the core philosophy and the core method of science. The core objective of this paper was to emphasize the importance of what we called “integrationism” as a core and a central method in science, and as a core philosophy of science, (social sciences included), and one that could naturally and reliably be used to generate much better and vastly superior paradigms, frameworks, and concepts in science, and resultantly much higher quality and higher order science as well. We had also recommended that this technique become vital to scientific endeavour as a whole. In order to better perform the task of laying down the bare essentials of this paper, we had also reviewed our earlier papers on scientific method of which there have indeed been many published over the last couple of years or so, and had integrated them seamlessly and in a continuous chain to maximum and productive effect. We then went on to explain and elucidate why we believed and argued that inductivism, (including methodological inductivism and nomothetic approaches) would provide the epistemological basis for this paper, and stand us in very good stead consistently and always. We then also went on to examine and explore other essential prerequisites of this approach including the need and necessity of dogma and ideology-free science, coherentism, reliabilism, internal and external validity, accuracy, rigour, precision, and also explained how this approach could be used to integrate and synthesize paradigms, frameworks, methods, and methodologies as well across a broad spectrum of scientific activity. We therefore hope that this paper will ratify the ideals of our “globalization of science” movement and lead to what we have always called “scientific progress at the speed of light”.