

# A Novel Opportunity for Science and Scientists: How Scientists Can Become Super Inventors

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## ABSTRACT

Discoveries come about in one of two ways. In one, an enquirer discovers something which amounts to connecting the dots in the ocean of existing knowledge, domain of reason. We call them Type I discoveries. In the other, the discovery made cannot come about on the basis of the then existing knowledge. We have coined the name, Type II discoveries for such discoveries. Since ancient times, Type II discoveries have been aptly called, “*Shruti*”, meaning, revealed in Sanskrit.

Type I discoveries can occur when the focus of attention is enhanced, as in deep contemplation, while Type II discoveries can occur when the focus of attention is further enhanced, as in a deeply meditative state, or in devotional prayer, transcending reason.

The article cites references to several ancient and not so ancient Type I and Type II discoveries, and also presents several discoveries that have come to the first author during contemplation/meditation, explaining how they can contribute to transforming education, companies and societies.

The ideas presented in the article offer a novel opportunity to scientists to become super inventors, but they also present a challenge to science as science does not permit transgressions beyond reason.

## **Background**

Scientific discoveries have tremendously contributed to human progress since the renaissance period.

Add to this, the remark of renowned 18<sup>th</sup> century German philosopher, Immanuel Kant, who says, *All knowledge begins with the senses, proceeds then to the understanding, and ends with reason. There is nothing higher than reason*, and it is easy to see why scientists have become diehard believers in the primacy of reason to make discoveries and to solve problems.

Sciences, laws, and policies are all products of reason.

In contrast, the renowned nineteenth century Indian yogi, Swami Vivekananda, asserts, *Indian thought dares to seek and successfully find something higher than reason* [1].

So moved were Harvard and Columbia by Swami Vivekananda's speeches and interactions during his maiden visit to the United States in 1893 that both made him an offer to chair a new Department of Eastern Religions. Nikola Tesla too was influenced by his interactions with Swami Ji. Not long ago, the New York Times and the Wall Street Journal wrote about Vivekananda's continuing influence [2, 3].

### **How the Two Types of Discoveries Come About**

Type I discoveries can occur when an enquiring mind enhances its focus of attention and slips into deep contemplation. Type II discoveries can occur when the focus of attention is further enhanced, as in deep meditation or in devotional prayer. Deep training of the mind through meditation is an approach for harvesting knowledge and processing it. Type II discoveries are not built on existing knowledge. Many of the discoveries of S. Ramanujan are Type II discoveries. Devotional prayers permitted him to slip into the meditative state leading to his discoveries. The same can be said about some of the discoveries of Albert Einstein.

There are many examples of discoveries, some clearly beyond the realm of reason [4].

The scientific discoveries since the renaissance period too have occurred when the discovering scientists unknowingly slipped into a deep contemplation/meditative state. Some notable scientists making these discoveries include, Dmitri Mendeleev, Nikola Tesla, Albert Einstein, S. Ramanujan, and Steve Jobs among others [5].

### **Discoveries of the First Author**

Several discoveries have come to the first author during deep contemplation/meditation. They are all Type I discoveries but they appear have significant implications for education, companies and societies:

1. **The performance in the external world is intricately linked to internal/emotional excellence** [6]. The highest possible performance (minimum variance) cannot be achieved even with the best of the best strategies, including six

sigma, in the absence of an adequate level of internal/emotional excellence. Boost internal/emotional excellence and the performance will zoom.

The pursuit of higher levels of internal/emotional excellence is not an intellectual exercise. The required positive changes have to come about from within. Meditation practices can bring about the required changes from within.

The pursuit of higher levels of internal/emotional excellence is a well-posed scientific problem as emotions can be measured and the process with which to cultivate positive emotions at the exclusion of negative emotions is meditation known for thousands of years. Since emotions can be measured, progress can be audited.

2. **How to Make Discoveries.** The rationale of how to make discoveries as explained in this article is itself a discovery.
3. **Health & Wellness.** Medical professionals tell us that stress is the root cause of 80% of all diseases. Negative emotions produce stress, positive emotions cannot. Meditation reduces stress levels and all the health benefits come to the practitioner. See this work of Nobel Laureate Elizabeth Blackburn [7] and other medical researchers [8].
4. **Nonviolence and Peace.** Negative emotions can lead to violence and discord, whether it is racial strife or a divided nation. Enhancements in the focus of attention cultivate positive emotions at the exclusion of negative emotions and promote nonviolence and peace [9, 10, 11].

These discoveries have led to several new findings;

- i. Turbocharge General Education Requirements with Science of Internal and External Excellence, ASEE paper, June 2017 [12].
- ii. The Theory of Evolution is flawed.
- iii. How to measure and attenuate stress
- iv. Rise and fall of civilizations deciphered
- v. Democracy is not the true arbiter of societal excellence
- vi. Scientific wisdom of the Bhagvad Geeta
- vii. The Brahma Uncertainty Principle

- viii. Din-i-Ilahi 2.0 (religious Harmony)
- ix. Decoding the Significance of Indian-American Heritage

### **Implications for Science and Scientists**

A key to progress is to internalize that there are two approaches to making discoveries, one, to search within the domain of reason, and if or when it is revealed to be insufficient, to transcend reason with the hope to make discoveries and to find solutions.

There are a myriad of challenges facing humanity such as global warming, renewable energy, desalination, etc. The ideas in this article could lead to breakthrough solutions in the hands of enquirers researching these topics.

The article presents a novel opportunity for scientists to become super inventors, but it is also a challenge for science for the classical definition of science does not permit transgressions beyond the realm of reason.

Here, there are two choices, one is to absorb ascension beyond reason and all that it entails by expanding the definition of science, and the second is to christen a new branch, say New Science, with its own journals books and curricula.

### **Further Reading**

1. **Pradeep B. Deshpande**, [Decoding the Wisdom of Swami Vivekananda](https://newsindiatimes.com/decoding-the-wisdom-of-swami-vivekananda/), News India Times, April 5, 2023 (<https://newsindiatimes.com/decoding-the-wisdom-of-swami-vivekananda/>).
2. **Niebuhr, Gustav**, Lemont Journal; Honoring Sensational Swami of 1893, The New York Times, July 11, 1998.
3. **Bardach, A. L.**, What Did J.D. Salinger, Leo Tolstoy, and Sarah Bernhardt Have in Common? The Wall Street Journal, March 30, 2012.
4. **Deshpande, Pradeep B., Aroskar, Sanjeev A., Gupta, Gautam, Sunkara, Mahendra, and Kowall, James P. Kowall**, How Discoveries Come About and How They Can Be Accentuated, News India Times, May 3, 2023

(<https://newsindiatimes.com/commentary-how-discoveries-come-about-and-how-they-can-be-accentuated/>).

5. **Ramanujan–The man who knew infinity and the Akashic Records**, <https://www.youtube.com/watch?v=xGfV8oioA6U>.
6. **Deshpande, Pradeep B.**, The Secret of Exemplary Performance, BizEd (Now called Insights), August 2019 (<https://www.aacsb.edu/insights/articles/2019/08/the-secret-of-exemplary-performance>).
7. **Marchant, Jo**, Can Meditation Really Slow Aging?, Mosaic, July 10, 2014.
8. **Le Nguyen, K. D.**, et al., Loving Kindness Meditation Slows Aging in Novices: Evidence from a 12-week randomized controlled trial, *Psychoneuroendocrinology*, 108, 2019.
9. **Pradeep B. Deshpande**, Equity, Diversity and Inclusion: A Six Sigma Perspective, The South Asia Times, July 15 – 21 2023 (<https://thesouthasiatimes.info/equity-diversity-and-inclusion-a-six-sigma-perspective/?swcfpc=1>).
10. **Deshpande, Pradeep B.**, Racial Harmony, Dialog and Alliance, Universal Peace federation, 2021.
11. **Deshpande, Pradeep B. and Kowall, James P.**, The nature of Ultimate Reality and How It Can Transform Our World: Evidence from Modern Physics; Wisdom of YODA, amazon 2015.
12. **Deshpande, Pradeep B.**, Turbocharge General Education Requirements with Science of External and Internal Excellence, ASEE Annual Conference, Columbus, OH, June 2017.

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## **ABOUT THE AUTHORS**

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