

Editorial

Systematic research, as the primary engine of human progress, undoubtedly has dictated the course of history, altered geopolitical power balance and reshaped our daily life. While the results of some research required decades or even centuries for their utility to unlock, some breakthroughs have altered the world immediately. Fleming’s accidental discovery of penicillin and its subsequent mass production in the 1940s transformed modern medicine immediately and saved hundreds of millions of lives worldwide. Less than a decade after the discovery of nuclear fission in 1938, the fundamental understanding of nuclear energy was weaponized, permanently changing the world order. This also introduced a highly efficient low carbon energy, immediately reshaping the global infrastructure.

On the other hand, some “sleepers discoveries”, that seem abstract and useless when first introduced have remained dormant for decades or even centuries before becoming foundational. In 1847, when George Boole developed Boolean algebra, a system of symbolic logic that reduced thought to true/false parameters, it was viewed as purely a theoretical branch of philosophy and mathematics with no practical utility. It took more than a century for Boolean algebra to become mathematical backbone of digital computing and electronic switching circuits. Albert Einstein’s discovery that gravity affects time during his formulation of general relativity in 1916, viewed only as a theoretical curiosity in cosmology for almost a century, is a vital component of the Global Positioning System (GPS) technology today.

Conversely, many discoveries arrive as a result of scientific research directly accelerated by urgent societal challenges. Development of high-

yielding, disease-resistant varieties of cereal grains combined with advanced agricultural techniques expanded the global food supply substantially during the green revolution of the mid-20th century. The rapid development of mRNA vaccine technology during the COVID-19 pandemic demonstrated how a crisis can accelerate possibly decades of scientific refinement into a matter of months. Similar is the case of present day massive scientific investment and research in battery chemistry, driven by the visible threat of climate change and fossil fuel depletion.

It seems that quantum computing research represents the next paradigm shift in scientific exploration. Unlike classical computers that rely on binary bits 1 and 0, quantum computers utilize qubits, leveraging the quantum mechanical principles of superposition and entanglement to process vast amounts of complex data simultaneously. Future advancements in this field are expected to revolutionize cryptography, optimize global logistics, and accelerate the discovery of novel materials and life-saving pharmaceuticals.

It is obvious that scientific research, as a tool for expanding human capability, cannot stay neatly inside traditional academic boxes any longer. Progress now requires a fusion of diverse fields of study. Pesquisa, the multi-disciplinary journal was founded to build bridges between distinct areas of research in science, social science and languages. The manuscripts featured in this edition span an impressive breadth of topics—from the empirical sciences and technological advancements to social dynamics, and literature. By bringing together such a diverse array of methodologies and perspectives, we aim to encourage a cross-pollination of ideas. We firmly believe that the results of research showcased in this issue of Pesquisa would be instrumental in sparking fresh ideas needed to reshape our daily life and culture.

In the article “Rail Freight Growth in Emerging Economies”, Bobby

Thomas critically analyses the dependence of rail freight transport between India and China on the economic growth of both countries. Surprisingly, his study suggests that rail freight volume in these emerging economies is shaped primarily by periodic macroeconomic and structural disturbances rather than a consistent acceleration in tune with the GDP growth. In their article, Anjaly Shiju and Anu Jossy Joy identify sustainability as the key driver of employer branding of organizations. In her article, Ann Maria Renny assesses the role of financial technology in developing economies by analysing digital financial transformation in India and concludes that proper regulation and implementation of FinTech contribute positively to the economic growth of a country. In the article “Carbon Pricing and Economic Growth: Navigating the Macroeconomic Transition in Emerging Markets”, Amal George examines the relationship between carbon pricing systems and macroeconomic growth trajectories in emerging economies. This study concludes that well-designed carbon pricing policies can support long-term sustainable growth.

In recent years, AI-powered tools are transforming the educational landscape by offering individualized support, enhancing engagement, and predicting learning needs of learners. Rosna Francis and Geetha C.A explore the evolution of AI-driven solutions in inclusive education and identify key areas with potential for the adoption of AI tools for creating truly inclusive educational environment. Anu C. Unni and Geetha C.A examine the relevance of life skills education in equipping teachers with the necessary tools to navigate the evolving educational landscape in the digital age. Ankita Shukla et al. argue that intentional, structured pedagogical interventions foster deeper ethical self-development than traditional content-driven instruction among educators. They present a contextually relevant model -Educational Design Research (EDR) approach- for strengthening teacher preparation and framing morally grounded and socially responsive educators.

Preserved through local beliefs, rituals and customs, the sacred groves of the Indian state of Kerala have survived for generations as community protected spaces. Shobha Karinchan and Shalima M.C examine how these groves have assisted in the preservation of biodiversity through indigenous customs, myths and ritual practices of the region. In the article “European Hegemony Over the High Ranges of Travancore and its Impact”, A Bhavani and Anusha K Sukumaran examine how the forest laws and policies of the colonial rulers paved the way for the transformation of the land and soil, culture, society and economy of the western ghats region of the princely kingdom of south west India.

In their article, Ashish Joseph et al. provide a critical evaluation of the Indian Super League (ISL) franchise system, its revenue system, the development of broadcast rights in the ISL and the social impact of the ISL since its inception in 2014. They identify the inherent weaknesses of the ISL structure as evidenced by the collapse of the media rights valuation by 98% over the short span of less than twelve years. Ajai P. Krishna and Praveen Thariyan examine how occupational stress affects job performance through a study conducted among local self-Government employees of the Indian state of Kerala.

We extend our deepest gratitude to our contributing authors for their innovative research, as well as to our dedicated peer reviewers and editorial board who have maintained the highest standards of academic integrity throughout the evaluation process.

Prof. Dr. Saji Joseph
Chief Editor