

*A sociotechnical system transformation involves the co-production of interrelated social, technological, and behavioral change...it is a change in skills, infrastructure, industrial structures, products, regulations, user preferences, and cultural predilections. This is a radical change in all elements of the configuration. (J. Schot, W. Steinmueller: **Three Innovation Policy Frameworks: R&D, Innovation Systems, and Transformative Change: Science Policy Research Unit (SPRU), University of Sussex, UK, 2018**)*

EDITORIAL

The academy in the world, intellectuals, multilateral organizations and governments -many of them with traditionally overlapping agendas-, have reflected on the role of Technology, Science and Technoscience in times of pandemic; not only because of the imposition of a world undergoing digital transformation, but also because the considerations on public policies in this matter must go through models for a new form of knowledge production whose impacts or innovations, as well as their sociotechnical and consequent regulations, must serve to involve many social actors, but mainly to understand that a new agenda of priorities is underway for broad social and productive sectors in crisis, that is: a world intensive in knowledge, innovation and development, but localized and sustainable, is envisioned.

The UN's conclusions on its Policy Brief: Education during COVID-19 could not be more forceful: the impact of the crisis caused by COVID19 on education is unprecedented. It has delayed the achievement of international goals in education and has disproportionately affected the poorest and most vulnerable.

However, and although the educational community has shown resilience and has laid the foundations for recovery... There remains a risk of spiraling into a negative feedback loop of exclusion and learning losses.

Even before this forced submission to the devastation generated by the Pandemic, Johan Schot and W. Edward Steinmueller of the Science Policy Research Unit (SPRU), at the University of Sussex in the United Kingdom, had anticipated that the two policy frameworks of innovation followed by public policies in the world: Innovation plus Development (R&D), and Innovation Systems, must be intervened to give rise to a third party called transformative change. The first two had abandoned the context and needs of Latin America due to the fact that they evolved from the logic of the distribution of the territory at the end of World War II; Therefore, although relevant, they did not have guiding answers to face the substantial negative consequences of the phenomena arising from modern economic growth in the first world -climate change- nor those derived from inequity and poverty in the third world. This new framework involves a question about how to use science and technology policy to overcome social needs and to address the issues of inclusive and sustainable societies from a more fundamental level than previous frameworks or their associated ideologies and practices...this implies a social innovation since the emphasis is on many of the social elements and their relationships with technological opportunities.

The framework that obeys transformative change, they indicated, required a development process that is best seen in the 17 Sustainable Development Goals (SDGs) of the UN of 2015: end poverty; guarantee food security and zero hunger; get general Health and Wellness; provide Quality Education; pursue gender equality and the empowerment of women; have clean water and its sanitation; generate and access non-polluting energy; offer decent work and economic growth; build an industry, innovation and adequate infrastructure; Reduce inequalities between and within countries; constitute sustainable cities and communities; raise awareness of responsible production and consumption; encourage climate action; the underwater Preserving Life; protect the Life of terrestrial ecosystems: Forests, desertification and biological diversity; defend peace and justice with solid institutions; and seek alliances to achieve the objectives.

Now, as the SDGs were not being – nor are they being achieved – even if industrial processes and practices are transformed, it is natural to argue that it is better to focus on innovation policies that support the emergence of new systems focused on planning, on inclusive collective action characteristic of modernity: what Schot and

Steinmueller call a transformation of the sociotechnical system, which may include high-tech solutions or innovations of old technologies, but involving civil society, users, those seeking services offered by innovations, consumers and their environments, industrial and professional users, entrepreneur-users, actor-users, intermediary-users; user-citizens; or user-consumers, among many more.

In the Colombian case, the transformative change of the sociotechnical system is made more difficult by the weak capacity and contribution in Science, Technology and Innovation, whose causes are multifactorial, but for the matter at hand it coincides with the low capacity to generate scientific knowledge. : According to SCIMAGO, in 2019 the country's contribution to world scientific production was just 0.33%, placing it below Brazil, Mexico, Chile, and Argentina. Where barely 4.5 articles are published per billion dollars of GDP per capita, which is less than what Argentina, Brazil and Chile publish, according to WIPO in 2021. And although according to SCIMAGO, in 2019 Colombia ranked in ranked 47th out of 231 countries in the world ranking of the H-index, it was not positioned as one of the three best Latin American countries.

But, paradoxically, it turns out that the incentives for the generation of quality scientific production are insufficient; In Colombia, this dynamic is reinforced, according to the government, by the asymmetric structure of incentives of Decree 1279 for public HEIs, which privileges research over extension and teaching... Therefore, said structure gives a low weight to technological production; of innovation, and artistic. And, at the same time, the path of indexing resorts to increasing the H-index for journals to get their contents cited, and to circulation along the SCOPUS path to punish inbreeding from above. What has become is a detriment to national academic communities that are increasingly marginalized.

That is to say: to the situation of Covid 19 in the world, and which in Colombia is unfortunately very critical, the existence of a capacity of Colombian society to recover its initial state after the disturbance to which it was caused has ceased is assumed. subdued by the catastrophic pandemic, and overcome this previous state of affairs since many local problems were, and still are, poorly resolved, moderately resolved, and many unresolved: that is, it will be necessary to redesign and strengthen a proven existing social resilience - product of the prolonged Colombian social conflict partially overcome by a successful peace process - from local technoscience; as indicated by Markus Brunnermeier - German economist and professor of economics at Princeton University - in his book *The Resilient Society*... The question is not to foresee everything but to be able to react... to learn to recover quickly.

It should be noted that if inequities become more severe, the consequences of climate change and pollution begin to hit harder, and the phenomenon of migration appears to contribute to greater conflicts, popular unrest will appear and will continue to threaten. Consequently, science, technology and innovation will have to appear to provide answers, therefore it is pertinent and urgent to formulate policies that develop not only a new framework but also begin to experiment with new policy practices, that face to social and environmental challenges and contribute to more peaceful and low-cost transitions to new socio-technical systems.

Finally, as the UN indicated: every negative spiral of worsening socioeconomic circumstances suggests that there is an opposite image, that of a positive spiral that can lead us to the educational future we want, a future of inclusive change in teaching, of of the potential of individuals and of collective fulfillment, in all walks of life, through investment in education... There is unlimited momentum and untapped resources that we can count on for the restoration not only of basic educational services, but of their basic aspirations. It is the responsibility of governments and the international community to stay true to the principles and carry out reforms, not only to give children and young people the promised future, but so that all educational actors find their role in making it a reality.

The *Visión Electrónica Journal*, then, has understood that it must transform its traditional ways of relating to the context and move towards better dialogues with authors in accordance with local needs based on scientific and technological practices established in the academic communities of our interest. The main idea is to disseminate knowledge-intensive local development experiences. Peter Murphy - an Australian university professor dedicated to studying the relationship between intellectual creativity and innovation, quoted by Hoevel in *The Academic*

Industry - stated clearly: ... First of all, it is necessary to end “the tyranny of boredom” that has been “unleashed on the most intellectually gifted”, finding “ways to reinvigorate the imagination at the heart of the university and society at large by restoring a congenial place for adventurers of the mind”. In other words, to the freedom in the search for the truth we must add the potentiality of situated Knowledge, which means that each context, according to its environmental, social and cultural particularities, level of development, expectations of its populations and opportunities, demands different types of knowledge and relationships between them.

In this issue of *Visión Electrónica*, corresponding first number of 2021, in the **Research Vision** section there are articles with topics in: *Classification of Facial Expression of Post-Surgical Pain in Children*, *Artificial intelligent device for physical and mental state monitoring in pulmonary cancer oncology* ; *Simulator of surface electromyography*; *analysis of losses due to climatological factors in 5G technology for the metropolitan areas of the city of Bogotá*; *generator for a low power wind generator*.

In the **Case-Study Vision** section articles in: *Evaluation of a teleoperated vehicle*; *neural network to detect cardiac arrhythmias*; *3D Organ Reconstruction from Computed Tomography*; *Functional analysis for PIICO IoT platform*; *Home automation control and monitoring through IoT*; *Modeling of a thermal plant*; *prototype for recognition of characteristics in people and vehicles*; *Artificial vision application*.

For the **Current Vision** section, *two articles about NOAA Satellite Weather Stations*; and *Methodology for the selection of an electric biogas generator*.

In the **Context Vision** section: one about *Relations between history of mathematics and training of engineers*

In the **Bibliographical Vision** section: *Ricardo Silva Romero and his book: Río Muerto*.

And **Historical Vision**: *Ubiratan D'Ambrosio or the Ethnomathematician who incited peace*

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