

Contextual innovation and social engagement: From impact factor to impact

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Innovation trends in developing settings

The terms 'frugal innovation'¹ and 'frugal engineering'² have recently been applied to practices that produce contextually appropriate and desirable technologies, especially in emerging countries such as India. Frugal innovation minimises the use of expensive and scarce resources, or leverages them in new ways, resulting in low-cost products and services. It therefore often has a social mission.¹ Frugal innovations are cheap, use local materials, are robust in harsh environments, are easy to use and repair, and are often adaptations of existing technologies to new uses.² Yet they can incorporate cutting edge science and technology.¹ A famous example of a low technology frugal innovation is the Jaipur foot – a cheap, mass-produced rubber prosthesis suitable for uneven terrain and developing country conditions. Higher up on the scale of technological sophistication is a low-cost ultrasound device developed by GE's operations in China specifically for this market. There is also the Tata Nano, promoted as the world's cheapest car, originating in and intended for India. These examples have also found markets elsewhere. Frugal innovation is considered relevant also in developed economies, where it may mitigate escalating costs and revitalise tired innovation processes.^{1,3} It has been characterised as the 'holy grail' of innovation.⁴

A key attribute of frugal innovation is the involvement of end users as co-designers³ – the knowledge of users is tapped to address their needs and ensure contextual suitability. This attribute is a requirement if products and processes are to reach the end of the innovation pipeline (i.e. implementation) and satisfy any developmental objective. 'Contextual' rather than 'frugal' innovation is perhaps preferable, denoting innovation that is inspired by the desire to confront local challenges, and not only by a low cost imperative.

Engagement and the academic reward system

Universities are major contributors to innovation. In fact, innovation is generally considered a pathway through which they contribute to development, fulfilling what is often referred to as their third mission, in addition to the first two of teaching and research. This third mission, while poorly defined, is typically referred to as community engagement⁵, and has been conceptualised as including both social⁶ and economic⁷ development. Scholarly engagement with civil society is vital if South African universities are to innovate for development. Such engagements elicit knowledge and highlight needs to ensure that innovations are meaningful in their target context and are ultimately adopted.

However, the current academic reward system does not promote engagement and research implementation. Despite the inclusion of citizenship and social awareness in undergraduate curricula and the addition of categories such as 'social responsiveness' to promotion criteria, university research remains embedded in a reward system of publication, citation and funding awards – the 'publish or perish' cycle. This cycle involves applying for research grants, carrying out the research, publishing papers, and using these papers to justify more research grants.

One aspect of the academic reward framework and a source of academics' and institutional resistance to leaving 'the ivory tower' and entering the community, resides in international university ranking systems. These enjoy increasing attention, including in South Africa, and influence institutional reputation among university stakeholders. It has been argued that international rankings disadvantage institutions in a country like South Africa, where empowering marginalised citizens and addressing skills shortages are key priorities. These rankings disregard context and disadvantage developmentally oriented models of higher education.⁸ They also do not measure a university's role in contributing to its local social environment.⁹ In conflict with shifts in policy towards Mode 2 knowledge production – which is context driven, problem focused and transdisciplinary – rankings perpetuate the dominance of traditional Mode 1 knowledge production, focusing on disciplinary publication and neglecting impact beyond narrow academic confines.¹⁰

The National Funding Framework, implemented in 2004, allocates funds to higher education institutions in accordance with the quantity of their research outputs – publications in accredited journals and postgraduate degrees. This policy has resulted in increases in publication outputs,¹¹ a sign that it may further be entrenching the existing academic reward framework.

Similarly, the rating system used by the National Research Foundation (NRF) to assess research productivity and scientific impact rewards publication by providing rated researchers with access to (limited) research funding. Universities publicise ratings as a sign of their research standing. The reputational value placed by the rating system on international publications, especially its focus on journals with high impact factors, conditions the behaviour of researchers in the higher education system. The extension of the NRF rating system to social science researchers has been associated with an increase in publication in international journals, in line with the expectations of the rating system.¹² Publication in local social science (and other) journals, however, may be appropriate for research that is of interest to local communities. Yet the rating system perpetuates the norms of overseas ranking and rating schemes and may discourage locally relevant research.¹³

There also is the risk that, under the guise of engagement, exploitative research and teaching practices earn academic rewards but harm vulnerable communities. For example, the phenomenon of developed world universities viewing the developing world as the 'classroom of the 21st century' has been criticised as a new form of colonialism,¹⁴ focusing on universities' philanthropic ambitions rather than on the interests of the target communities.¹⁵ But engagement is not one-sided, and researchers have opportunities to establish close long-term

partnerships with civil society, innovating collaboratively with it, and addressing and responding to its changing needs.¹⁶

An integrated approach

The conflict between the traditional academic reward system on the one hand, and the emphasis on engaged and relevant scholarship, that has an impact on social conditions, on the other hand, is not irreconcilable. Engagement does not only benefit the community. It can also promote research productivity while supporting contextual innovation. It would do this by providing access to an often untapped source of contextualised knowledge, which, when brought to the surface and processed, can contribute to the developmental mission of higher education, while simultaneously enhancing traditional research outputs.

All of this suggests that contextual innovation needs to be more greatly prized and rewarded by South African higher education, not only for its developmental role, but also for its potential to enhance the country's specific contributions to the global academy. To do truly world-class research means conquering the local and theorising these experiences to the global.

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