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Cooper Offers Higher Education Prescription for a Knowledge Economy and a Knowledge Society

Reviewed by Hiram E. Fitzgerald and Burton A. Bargerstock

David Cooper, *The University in Development: Case Studies of Use-Oriented Research*. Cape Town: HSRC Press, 2011, 390 pages. ISBN: 978-0-7969-2347-9

During the last half of the 20th century substantive changes in higher education provide strong support for Etkowitz's (2008) contention that we are in the midst of a second academic revolution. While Etkowitz concentrates on the slow but directional interconnection of university-industry-government, which he models as a Triple Helix, a more public and contentious transformation involving civil society is evolving, a movement with various descriptive titles, most generically known as community engagement scholarship (CES) (Fitzgerald & Simon, 2012). Jointly, the Triple Helix and CES transformations have propelled research universities to the fore with respect to their collective responsibility for sparking regional and national innovation. An explicit assumption is that innovation will foster economic and social development to support a thriving knowledge-society constructed on the backbone of a knowledge-based economy with renewed attention to remediating poverty and advancing social justice. While universities in North America and the European Union are at various stages of organizational transformation (Cox, 2010; Powell, 2010), the extraordinary growth of university-community partnerships now cuts across nearly every discipline and every societal domain (Fitzgerald, in press). As Nyden and Percy (2010) note, "The engagement interface is a dynamic, evolving and co-constructed space—a cooperative community of inquiry—where partners work together with activist orientation to seek transformative ends for both the community and the academic setting" (p. 312). The Triple Helix-CES duo moves university-community partnerships beyond simple technology and knowledge transfer, and enters a realm of innovation, risk taking, and evidence-based practices that advances knowledge and simultaneously produces solution-focused applications. It moves beyond the tired contrast of basic and applied research by accelerating use-inspired

basic research (Stokes, 1997) as the dominant methodology for all natural and social sciences engaged in university-community partnerships.

It is within this collage of transformational change that David Cooper carefully and thoroughly crafts a prescription for transforming South Africa's system of higher education, positioning it to provide leadership for the emergence of a knowledge economy and a knowledge society. *University in Development* is not for the faint-hearted or for the quick read-on-the-beach crowd. It is a provocative, deeply intertwined pathway, guided by historical sociology, through 20th century transformations in higher education, international models of institutional research organization, and the development of hypotheses to guide Cooper's case study of five universities in the Western Cape of South Africa.

Cooper draws heavily on Etkowitz's (2008) contention that during the 1970s a third transformation in higher education began taking shape through a Triple Helix of higher education, industry, and government. In contrast to U.S. President Dwight David Eisenhower's 1960s caution to be wary of the growth of the military-industrial complex, society and international events instead co-opted higher education and laid the groundwork for the emergence of the Triple Helix. Cooper provides the context for what he describes as the creation of a third mission for higher education: namely, to foster a social-economic-cultural transformation of society through a "third capitalist industrial revolution." Cooper builds his case through the first several chapters, weaving in and out of Etkowitz's theories and hypotheses, offering examples of knowledge economy practices in higher education in the United States and the European Union, and to a lesser extent in Japan, China, and Australia. Clearly, in Etkowitz's view, higher education's role in the Triple Helix is to provide the science and technological research necessary to fuel innovation in industry via funding from both government and industry grants and

contracts. Moreover, universities are to move the needle on science by shifting greater resources to use-inspired basic research (Stokes, 1997). Cooper notes that the rapid and continuing rise of university-based research institutes and centers in the U.S. and EU occurred synergistically with the influence of the Triple Helix on higher education. The open question is to what extent have South Africa's investments provided the strategic grist to refine its higher education system to position it for leadership in the development of a knowledge society and economy. Specifically, Cooper queries, "What are the major enhancing and inhibiting factors affecting university research centres and units of the Western Cape, in relation to their fulfillment of use-oriented research for wider societal constituencies?" (p. 25). He argues that South Africa's system of higher education seems to have embraced well the U-I dyad within the Triple Helix, but that industry was clearly dominant over government. Cooper calls for a much more equitable role for government investment in higher education's research and development in order to balance the Triple Helix.

However, not content with polemical pot-shooting, Cooper designed a rigorous longitudinal case study to gather direct information on the status of five Western Cape universities apropos of their organizational structures in support of research. Three universities are traditional liberal arts research universities and two are technology universities. Interviews were conducted in 2000, 2005, and 2007 in order to capture evidence of change in institutional research infrastructure that may reflect alignment signaling emergence of Triple Helix models.

Cooper develops and describes in considerable detail, four model approaches to organizing research in higher education. He describes then rejects the "curiosity" focused traditional model (T) comprised of an individual teacher-researcher and her/his graduate students working on issues related to disciplinary driven questions. While such research clearly contributes to knowledge generation, and represents a tenaciously durable approach to research, its translation to practical solutions for societal problems ordinarily follows a linear pathway from basic research to applied research to production, if it ever is actually launched onto that pathway. Three alternate models, A, B, and C, are advocated as structures that will accelerate innovation and, guided by use-inspired basic research, will simultaneously contribute to knowledge production as well

as evidence-based application. Model A (Real Research Center) is seen as fully aligned with the Triple Helix, hierarchically organized with a director, functionally a CEO, with a critical mass of senior researchers, post-doctoral fellows, and graduate students with infrastructure staff and resource support. Cooper's analysis of case study data concluded that such centers in the Western Cape sample were difficult to sustain, despite evidence that Model A organizations in North America and the European Union are highly successful. Model B (New Real Unit) research units are led by a professor with post-doctoral and graduate students who are in partnership with external stakeholders in order to achieve a shared set of outcomes. Case study data provided support for the effectiveness of this approach for university-community partnership growth. Model C (Virtual Centers) centers are networks of researchers and various subgroups who are drawn together by shared interests and experience few barriers to their spontaneous interdisciplinary efforts to jointly examine multi-faceted problems. These centers fared better with respect to productivity, but still seem to have suffered from the heavy reliance on U-I relations, without counterbalancing investments by government to shore up the U-I linkage within the Triple Helix.

Cooper's case study approach found little evidence for what he refers to as "innovation anxiety" among interviewees. Innovation anxiety seems to refer to a deep cultural and individual sense that innovation is the key to creating a knowledge society and that it is the essential glue that binds the university-industry-government triad. Although Cooper found that researchers understood the value of university-industry partnerships, the value was not accompanied by a sense that the university was an essential partner for developing industry and accelerating it toward a knowledge society. Moreover, they apparently engaged in little deep conversation about the role of South Africa's higher education system with respect to creating regional innovation systems motivated by Triple Helix models. In short, he found little evidence that universities were driven by innovation anxiety and therefore did not particularly see themselves as critical players in the Triple Helix with respect to economic innovation and development in the Western Cape.

Etzkowitz (2008) embeds the Triple Helix in a "flourishing civil society" that fuels the "emergence of diverse sources of innovation," and provides the dynamic force for sparking innovation for forming

a “meta-innovation system.” But for Etzkowitz, civil society is akin to an external perturbation that simulates initiative and change within the Triple Helix but is not part of the system dynamics of the Triple-Helix itself. In contrast, influenced by the CES movement in higher education, Cooper argues that extending the new entrepreneurial university from its anchor in technology and industry to the activities and objectives of civil society requires a fully integrated Quad Helix of university-industry-government-civil society so that innovation, economic growth, and societal change are part of a common discourse in which all elements of complex systems are working toward alignment and thereby optimizing sustainability. Cooper brings into focus the critical importance of including the knowledge and voices of people from outside universities, government, and industry if a knowledge society is to take root, and points to the scale of this challenge, particularly in countries where large numbers of people are poor and work outside the economy of large and medium enterprises (pp. 111–115). Indeed as Silka (1999) points out about the dynamic relationships in networks and partnerships, the dynamic process “involves learning to see things in terms of something else in order to overcome differences and arrive at a shared plan of action.”(p. 353).

In *The University in Development*, David Cooper challenges the higher education system of the Western Cape and South Africa to see things differently and develop a shared plan of action by building a Quad Helix network designed to expand use-inspired basic research and construct a knowledge economy that fully embraces the cultural and historical character of South Africa and creates a knowledge society for all of its citizens. Moreover, he challenges higher education to step forward and create the 21st century infrastructure and reward system that will unleash faculty and student innovations for positive change. His message is one that resonates far beyond the borders of South Africa.

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