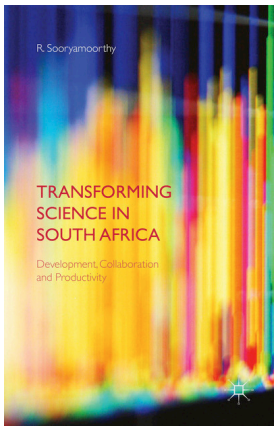
'No man is an island, entire of itself ...'

BOOK TITLE:
Transforming science in South Africa: Development, collaboration and productivity



AUTHOR:
Radhamany Sooryamoorthy

ISBN:
9781137493064 (hardcover)

PUBLISHER:
Palgrave Macmillan, London; EUR89.99

PUBLISHED:
2015

REVIEWER:
Anna Crowe

EMAIL:
aacrowe@hotmail.com

AFFILIATION:
Former lecturer in the Department of Zoology and the School of Education, University of Cape Town, Cape Town, South Africa

POSTAL ADDRESS:
8 Alster Avenue, Newlands 7700, Cape Town, South Africa

HOW TO CITE:
Crowe A. 'No man is an island, entire of itself ...' S Afr J Sci. 2016;112(3/4), Art. #a0149, 2 pages. http://dx.doi.org/10.17159/sajs.2016/a0149

Science and scientists can play vital roles in society. Both have contributed in varying degrees to the success of nations, and the frontiers and multidimensionality of science are being extended at rates unprecedented in history. Therefore, although opportunities abound, each new development makes it more difficult for individual scientists to conduct cutting-edge research on their own. This opens, and indeed necessitates, opportunities for scientific collaboration, if the advancements of science are to be used fully to society's advantage. In short, the era of scientists acting as intellectual islands is over.

I anticipated reading *Transforming Science in South Africa: Development, Collaboration and Productivity,* hoping that I would find reasoned explanations about how South African scientists might adapt their approaches to science collaboratively, so that they can effect such transformation. In particular, I was excited to know more about 'the South African model' of scientific collaboration advertised on the back cover of the book. As the author of this book, Professor Sooryamoorthy, is a sociologist, I was also interested in viewing the practise of science from a sociological perspective.

The book includes Sooryamoorthy's research about scientific collaboration and the research productivity of scientists, some of which has been previously published as academic papers. The historical review of science in Africa and in South Africa in particular emphasises changes in levels of collaboration between scientists and identifies a body of literature potentially of value to scholars interested in the general development of science in Africa.

One chapter is devoted to developing a conceptual understanding of scientific collaboration, but there is no explicit explanation as to how this concept is specifically applicable to the remaining chapters of the book. An explicit conceptual or theoretical framework which connects the nine chapters together would have made the book a coherent story.

A number of different types of research methodologies are used to explore relationships between the scientific collaboration and productivity of South African scientists. A bibliometric study of the research publications of South African scientists from 1945 to 2010 identifies key characteristics relevant to scientific collaboration and productivity. These key characteristics are used to further explore qualitative and quantitative relationships between scientific collaboration and productivity the period 1975–2010. In-depth interviews with 204 scientists from one province, KwaZulu-Natal, are analysed qualitatively and quantitatively to determine relationships between the previously identified key characteristics of scientific collaboration and productivity. The findings of these analyses are supported by a qualitative analysis of an in-depth interview with one eminent scientist, also from KwaZulu-Natal.

However, the statistical techniques described and the statistical results produced are confusing in how they are presented and are therefore difficult to interpret in the way that the author has interpreted them. The extremely low r^2-values (coefficient of determination – i.e. the amount of information explained by the regression) reported in the regression analyses used to assess relationships between aspects of the scientists' collaboration and productivity cannot be used to support some of Sooryamoorthy's conclusions. For example, these analyses do not conclusively support that 'the data permit prediction of the degree of collaboration of scientists in the basis of certain known [identified] factors', or that 'collaboration has shown its strong connection to productivity' in the selected sample of scientists. Further, the regression analyses suggest that other important aspects of scientific collaboration and productivity have yet to be identified.

Although the way that scientists collaborate in South Africa might be 'unique' when compared with how scientists collaborate in the rest of Africa, the author fails to present sufficient evidence or arguments to convince the reader that the model which he describes is sufficiently different from international best practices to warrant being called 'the South African model'.

This book was difficult to read for a number of reasons. The text is dense, detailed and sometimes unnecessarily repetitive within paragraphs and sections of chapters. Often statistics are presented in the text when they would have been easier to assimilate if the information had been summarised in a table. Furthermore, some complex tables are unnecessary because they contain only one value from the table that is referenced (and repeated) in the text. Detailed footnotes are used, but their explanations are only given towards the end of the book. This breaks a reader's concentration. Some sentences begin with 'it' or 'they' and the reader has to pause momentarily while they figure out to what 'it' or 'they' refers. Some paragraphs start with acronyms used as nouns (e.g. 'HBUs ...') – which is jarring, especially when the acronym is not in common use. In some instances, terms and concepts are used without qualifying what they mean. For example, 'Mode 2' is used to describe a new form of knowledge production, but no explanation is given for the meaning of Mode 2. Terms and concepts which are subtly different are used interchangeably – for example, 'relevant' and 'significant'.

More problematic is that sometimes, but not always, Social Sciences, and/or Medical Sciences, and/or Veterinary Sciences and Mathematics are combined in the data analyses or the statistics reported. The branches of Sciences are defined differently within and between chapters. For example, Natural Sciences is often reported separately from Physics and Chemistry within a comparison, despite the fact that Physics and Chemistry are Natural Sciences. Consistent use of a defined set of branches of science would have made comparisons between sets of data possible and valid.

The term 'scientists' is inconsistently used in the book. For example, categorising 'scientists' as either 'academics' or 'scientists' in the quantitative analyses is confusing at best, and dangerously sloppy at worst.

Independently of its intellectual value, the book provides a valuable accumulation of a spectrum of knowledge about how science was, and is, practised internationally and within South Africa. However, the price of this book in rands will probably make it unaffordable to most South Africans.

Curiously, given that collaboration is the central theme of this book, Sooryamoorthy chose to write it on his own. This book would have benefitted had it been written together with a scientist and a statistician.

Title of review taken from: Meditation *XVII by John Donne (1572–1631)*