The practice of research and publication in the South African context

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Caveats

Probable bias

– The views expressed are those of a research scientist (turned administrator) with experience in the chemical, biological & health sciences

Statistically meaningless

– Sample size (n) = 1
The importance of research and publication from an institutional perspective

Factors influencing the practice of research and publication in the South African context

Changes in practice & their impact – a personal perspective
The importance of research & publication from an institutional (UCT) perspective
An aspirational goal

“If we want independent thought and leadership and a capacity to determine what is best for us, then we not only need researchers and research institutions, but they need to be on a par with the global North”

Dr. Max Price, UCT, 30 June 2013
University Rankings

Times Higher Education (THE) ranking system

- International Outlook – People, Research (7.5%)
- Research – Volume, Income, Reputation (30%)
- Citations – Research Influence (30%)
- Industry Income – Innovation (2.5%)
- Teaching – the Learning Environment (30%)
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Strongly influenced by research profile

Whether we like them or not, rankings are here to stay
Where is UCT situated in the world rankings?

THE World University rankings for 2013-14

- #126 Overall
- #53 in Clinical, Preclinical & Health
- #1 in Africa and #3 in BRICS & emerging economies

Scores

- Overall 50.5
- Teaching 26.3
- International Outlook 77.2
- Industry income 85.6
- Research 31.0
- Citations 84.6
Factors influencing the practice of research & publication in the South African context
The South African context

- DHET’s Research Outputs Accreditation system rewards HEIs on the basis of graduated MSc and PhD students and accredited publication outputs.

- Accreditation is critically important for QC within the NSI.

- The reward system has driven an increase in publication outputs from SA institutions.

- However,….
  - No consideration is given to the quality of outputs (postgraduates or publications).
  - Penalises collaboration (especially international).
  - Open to abuse as a numbers game (“salami science”).
The South African context

- Research is the vehicle for training postgraduate students and postdoctoral fellows.
- Universities are under pressure to increase postgraduate student & publication outputs.
- Supervisory capacity is being stretched.
- The transactional & regulatory environment is increasingly complex, further eroding an academic’s time to read and think.
- Hyper-competition.
The South African context

The principles which regulate the publishing of research findings or ideas are potentially undermined by some of these developments.

Recognised as a growing problem elsewhere, e.g., in the US biomedical research enterprise:

- Alberts, B. *et al.* Rescuing US biomedical research from its systemic flaws. *PNAS* 2014

Evaluating how we evaluate

How well are our evaluation systems for publications, research grants, [postgraduate supervision] & promotions working?

Are they producing and rewarding the best possible research [and trainees], and meeting the needs of young researchers, the institution [and its many stakeholders]?

Vale, R. Evaluating how we evaluate. Mol. Biol. Cell 2012; 23:3285
Changes in the practice of research & publication and their impact

A personal perspective
Changes in practice & their impact: a personal perspective

- Collaboration & teamwork
- Internationalisation
- The demonstration of relevance & impact ("translational" research)
- Bibliometrics, open access and the information tsunami
Advantages & benefits

- Improves the quality and impact of research and its outputs
- Offers the potential to tackle “big” problems

Challenges

- High transaction cost (financial, communication, time)
- Increasingly complex as one moves from uni- → multi- → inter- → trans-disciplinary research
- Reduces one’s “specific activity” (publications/per unit cost or time)
- Attribution of credit can be complex and must be agreed up-front (first or last authorship)
- Particularly challenging for emerging researchers
- At odds with the recognition and reward system in academia which is grounded on individual achievement
Internationalisation

Advantages & benefits

– Improves quality
– Gives greater visibility
– Enriches the postgraduate training experience
– Builds confidence
– Networking

Challenges

– Power (im)balance; ownership
– Different value systems
The demonstration of relevance & impact

- The need to align with national priorities

- Pressure to focus on translation of research findings into an instrument(s) of societal value, (real or perceived) e.g., policy, practice, law, products, processes

- A global phenomenon, not unique to SA

- Long-term implications for the fundamental (“blue skies”) research enterprise?
Funders demand measurables on the impact of their spending

Metrics mania – citation rates, journal impact factors, $h$-index, $g$-index, $i$-10 index, altmetrics…..

“Reducing performance to a few numbers makes sense for a baseball pitcher or hockey goalie, but not for a scientist.”

“But perhaps the most destructive result of any automated scoring of a researcher’s quality is the ‘me-too science’ that it encourages”

Staying abreast with the literature is imperative, but increasingly difficult.

What constitutes “essential reading” in one’s own field?

— The rise of reviews, commentaries, “News & Views”

Data mining tools offer enormous opportunity to generate new ideas & hypotheses by automating the access, distillation and synthesis of data from seemingly disparate fields.