Institutional ranking in a differentiated higher education in South Africa

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Abstract

Ranking institutions on a league table style is used either explicitly or implicitly by agencies to determine the excellence, performance and reputation of higher education institutions (HEIs). However, there is a growing concern that this tool tends to encourage the drift of missions, foci, purposes and specialisations of knowledge and skills produced by different HEIs globally. This article takes issue with the widely accepted practice of ranking institutions on a league table style. Drawing examples from South Africa, the article begins by describing the inherent drawbacks of league table approaches and proposes alternative forms of determining the performance of HEIs. This is followed by a discussion on South Africa, highlighting the challenges of league table styles to rank HEIs in systems where institutions are differentiated in terms of their purpose and mission, and how these might subtly encourage mission drift. The third section is devoted to the discussion and conclusion.

Keywords: institutional ranking, differentiated foci, mandates, U-Map and U-Multirank

INTRODUCTION

The rise of university ranking systems has generally created anxiety among higher education institutions (HEIs), and created a 'reputation race' in which institutions strive to be placed higher up in the university charts year on year (Richardson 2011). This race is, albeit indirectly, leading to homogenisation of the university sector, as aspiring institutions imitate the model of more successful research-intensive institutions (Neave 1996). Thus, while the ranking scores do 'capture some aspects of each university's overall quality, they don't speak to a diverse range of other issues, such as student satisfaction within these institutions' (Richardson 2011).

Similarly, HEIs in South Africa are compared or 'ranked' even though the word rank is not used. Two criteria used in South Africa are: the institution's performance

in research to define excellence; and its quality of research output and reputation. Another method unique to South Africa is the rating of academics through the National Research Foundation (NRF)[1] in order to judge the performance and reputation of different institutions. Accordingly, institutions continue to be ranked to determine their performance excellence exclusively on research output, reputation and types of programmes offered.

This article is part of ongoing research on the impact of ranking HEIs in systems where institutions are differentiated according to their foci, purposes and mandates. In particular, the article examines the effects of institutional ranking methodology which uses the research performance dimension of research-oriented universities to determine the performance, excellence and reputation of institutions, and the standing of academic staff through the NRF rating. We explore the extent to which the league table style either explicitly or implicitly encourages mission drift in the higher education sector in South Africa. Contrasting the league table methodology, the article explores the use of the U-Map and U-Multirank framework as an alternative tool (see CHEPS 2008; Federkeil and Westerheijden 2009; Jongbloed and Kaiser 2011).

The empirical data was collected from policy documents and practice in South Africa. The data was collected from the Higher Education Management Information System (HEMIS) used by the Department of Higher Education and Training (DHET) for planning, management and monitoring purposes. The data was further collected from international literature and journal articles on the topic. Use was made of descriptors of dimensions of a typical university in the U-Map and U-Multirank to explain the dimensions of three institutional types in South Africa.

CONVENTIONAL REPRESENTATION OF INSTITUTIONAL RANKING

Institutional ranking has become ubiquitous to the extent that even in countries where ranking is neither directly recognised nor practised as official policy, HEIs are ranked along with other institutions globally and internationally. Global ranking of institutions is undertaken by internal and external evaluators to the extent that if institutions do not produce their own ranking, others often do it for them. Sadlack (2006), for example, observes that the Huazhong University of Science and Technology in Wuhan, China, publishes a ranking of Russia's top 100 universities irrespective of whether this is a recognised practice or not.

Although determination of excellence, quality, performance and reputation by using a league table style is generally accepted, this practice does not seem to account for diversities in the higher education sector.

Federkeil and Westerheijden (2009) summarise the weaknesses of conventional ranking by arguing that: (i) ranking focuses exclusively on whole institutions (ignoring internal variance); (ii) the focus is on comprehensive research universities ignoring the diversity of missions and structures; (iii) ranking concentrates on traditional research productivity and impact and aggregation of performance into composite

overall indicators; (iv) using a league table approach implies cultural and language biases, bias against humanities and social sciences, and neglect of non-university research; and (v) ranking does not adequately respond to stakeholder needs.

ALTERNATIVE TOOLS TO DETERMINE INSTITUTIONAL PERFORMANCE

Institutional ranking is motivated by global competition for human and financial resources across the borders of nations and continents. Thus, with global university rankings, particularly the global ranking of research performance, higher education itself has entered an era of open global competition between nations and between individual HEIs as global actors in their own right.

This phenomenon reflects world university competition or market capable of being arranged in a single 'league table' for comparative purposes, while giving even more impetus to intra-national and international competitive pressures in the sector (Van der Wende 2008). The least recognised aspect of institutional ranking is the irreversible move towards diversity in production, and the emergence of new innovations and new products that in turn encourage diversity in higher education (Birnbaum 1983; Van Vught 1996).

Traditional university ranking systems are typified by exclusive foci in areas that carry the greatest ranking weight, such as scientific research performance. One of the benefits of these rankings is that they publicise the accomplishments of universities that perform well, albeit in a specific range of activities (Richardson 2011). Richardson (2011) further reminds readers that current ranking tools work with proxy indicators, since a comprehensive and generally acceptable set of indicators for 'quality' does not exist. Accordingly, quality and excellence are relative concepts and can only be judged in the context of the purposes stakeholders relate to these concepts.

Some caveats about a league table approach are: (i) ranking reflects and underscores global competition where countries with powerful economies become classifiers of institutions globally; (ii) ranking systems purport to evaluate universities as a whole and discount the fact that higher education is, in general, internally differentiated and that institutions which are categorised into a specific category *are not homogeneous* (our emphasis); (iii) the weightings used to construct composite indexes covering different aspects of quality or performance may be of arbitrary character; and (iv) issues of quality and performances are often biased in favour of research (especially in the natural and medical sciences) with little (or no) guidance on the quality of teaching (Van der Wende 2008).

As an alternative, Jongbloed and Kaise (2011) propose multi-dimensional ranking encompassing: (i) *teaching and learning (incl. employability)*; (ii) research and knowledge transfer; (iii) internationalisation (incl. mobility) and community outreach programmes; (iv) institutional and field-based (disciplines); and (v) involving all types of higher education and research institutions and catering for multiple stakeholders needs.

U-Map and U-Multirank[2] tool

The proposed ranking tool is expressed in the U-Map and U-Multirank concepts developed and piloted for use in Europe (CHEPS 2008; Federkeil and Westerheijden 2009; Jongbloed and Kaiser 2011) as a response to conventional tools. Central argument to this approach is that one 'common ranking of all higher education and research institutions worldwide does not make sense for any group of stakeholders' (Federkeil and Westerheijden 2009, 9). Conversely, U-Map and U-Multirank have been coined to 'identify institutions that are comparable, use the U-Map classification tool to find comparable institutions (description of horizontal diversity), and apply ranking instruments to sets of comparable institutions or fields (assessment of vertical diversity)' (Federkeil and Westerheijden 2009, 9).

U-Map classification thus creates 'transparency of diversity' (mapping diversity). It is d*escriptive*, rather than evaluative and has six dimensions, namely: educational profile, student profile, research involvement, knowledge exchange, international orientation, and regional engagement and institutional profiles showing multiple excellences (Jongbloed and Kaiser 2011). The tool eschews ranking HEIs on a league table style, but rather explains institutions on a number of dimensions, each representing an aspect of the HEIs' activities. The mapping focuses on the profiles 'shown through and also act as a tool for universities, colleges, polytechnics, and other types of higher education institutions (HEIs) to present what they do and how that compares to activities of other HEIs' (Jongbloed and Kaiser 2011, 1).

The reality is that different users engage with HEIs for various reasons and are therefore interested in different dimensions and indicators of the performance of HEIs and the programmes they offer. U-Multirank extends the U-Map by adding some elements of the U-Map such as performance and focuses on particular dimensions of the classification and allows comparisons of entire institutions along a single aspect of institutional activity such as education, research, internationalisation, or knowledge transfer. It explains how well HEIs are *performing in the context of their institutional profile.* The first prerequisite for the indicators used in U-Multirank is therefore to reflect the institution's or unit's performance (Jongbloed and Kaiser 2011).

The U-Multirank ranking therefore includes information that is relevant to the different users/stakeholders and their motives. Thus, for different dimensions (research, teaching and learning, knowledge exchange, regional engagement) and different stakeholders/users, the relevance of information about various aspects of performance may differ (Jongbloed and Kaiser 2011).

However, Jongbloed and Kaiser (2011) concede that the complexity of higher education and the paucity of (internationally comparable) data often necessitate the use of proxy indicators of conventional approach. This blurs the distinction between U-Map and U-Multirank, creating unavoidable overlaps that will hopefully diminish with the maturing of U-Multirank over the years (see Jongbloed and Kaiser 2011) on this issue. The multidimensional approach does *not* collapse all dimensions into

one rank, but instead provides a fair picture of institutions ('zooming in') within the multidimensional context provided by the full set of dimensions (Federkeil and Westerheijden 2009). The comparative analysis of a set of institutions on one singular dimension is a focused ranking of these institutions on that dimension according to Jongbloed and Kaiser (2011).

Accordingly, the key elements of the U-map and U-Multirank that distinguish this tool from previous tools are: (i) differentiation of mission, foci, mandate and specialisations of different institutional types globally. In particular, U-Map and U-Multirank accommodate the idea that institutions tend to be created to serve local, regional and international, global mandates; and (ii) the programmes and qualifications institutions offer in the process of knowledge production.

INSTITUTIONAL 'RANKING' IN SOUTH AFRICA

Although the term institutional ranking is not explicit when discussing the performance of research institutions in South Africa, these institutions are nonetheless classified into certain categories generally used to determine their relative status, performance, quality and reputation. These categories denote the ability of institutions to recruit students; to generate external funding; and to engage in international collaborations and partnerships.

The current classification of institutions is the result of the differentiation policy and practice of higher education introduced as a result of reconfiguring the higher education sector in the post-apartheid setting. Three institutional types emerging from the differentiated system are used to frame discussions in the article. The first are research-based institutions. The primary purpose and specialisation of these institutions is to produce research-based knowledge and offer university-type academic programmes ('universities'). These are the University of Cape Town (UCT), University of Fort Hare (UFH), University of the Free State (UFS), University of KwaZulu-Natal (UKZN), University of Limpopo (UL), North West University (NWU), University of Pretoria (UP), Rhodes University (RU), Stellenbosch University (SU), University of the Western Cape (UWC) and University of the Witwatersrand (WITS). UFH, UL and UWC are historically disadvantaged institutions (HDIs), while UCT, UFS, UKZN, UP, RU and SU are historically advantaged institutions (HAIs)

HDIs that are theoretically classified as research institutions are products of past policies and practices. These institutions were established for certain population groups and offered primarily programmes and qualifications in the social sciences and generally received inadequate government funding prior to the 1994 democratic elections. Prior to 1994, HAIs generally received adequate government funding, had excellent infrastructure and qualified staff enabling them to offer programmes in science, engineering and technology (SET), medicine, health sciences, animal programmes and agriculture. HAIs continue to benefit from past practices relating to when institutional performance was determined in the area of research output,

attraction of researchers and academics with international standing, and the most NRF-rated researchers. Accordingly, by offering programmes in SET, health sciences and animal sciences commonly used in the league table, HAIs benefit from this history to compete for ranking alongside other institutions globally.

The second category of institutions is comprehensive universities created from the merger of universities and technikons which offer both university-type and technikon-type academic programmes. These are the University of Johannesburg (UJ), Nelson Mandela Metropolitan (NMMU), University of South Africa (UNISA), University of Venda (UV), Walter Sisulu University (WSU) and the University of Zululand (UZ). The foci and mandates of these institutions include offering both university and erstwhile technikon programmes with teaching as a major component as well as primarily applied research. Comprehensive universities can further be divided into HAIs comprising UJ and NMMU, and HDIs comprising UV, WSU and UZ. Similarly, therefore, HAIs in this category also perform better in research production and the number of NRF rated researchers compared to HDIs in the same category.

The third category is the newly created universities of technology (UoTs). Institutions in this category are the Central University of Technology (UoT), Cape Peninsula UoT, Durban UoT, Mangosuthu UoT, Tshwane UoT and Vaal UoT. Their distinctive feature is a dual-facing purpose of offering sectoral knowledge derived from specific occupational, industrial sectors on the one hand, and specialist disciplines on the other. The primary foci and specialisations of this sector are teaching and applied research required by industry and employers.

Five distinguishing features of the UoT sector are: (i) technology focused programmes, with undergraduate career oriented education and technological competence as attributes; (ii) research and innovation in and through technology and technique in strategic areas, with the attributes of technology transfer and postgraduate programmes; (iii) entrepreneurial and innovative ethos, with the creation of an enabling environment, commercial ventures and student entrepreneurship as attributes; (iv) national and international impact and recognition, with SET enrolments and successful access as attributes; and (v) sustainability in engagement and practice, focusing on regional collaboration, community involvement, school/post-school engagement and financial sustainability (SATN 2008, 7).

The research component of this sector straddles three issues, namely: (i) the application of knowledge to address business and industry related problems (in the broadest sense referring to all sectors of society); (ii) the training of high-level technologists; and (iii) the inclusion of a multidisciplinary focus to research (Du pre 2009, 62; SATN 2008, 15).

Brook (2000) describes the foci of UoTs as strategic research; applied research into professional practice; and multi-level entry and exit points for students. Thus, the sector is 'primarily concerned with the development of vocational/professional education; technological capabilities as important as cognitive skills' (Du Pre 2009, 16).

Table 1: Category A constitutes the top research-intensive universities, category B is teaching and research institutions, and category C is UoTs, teaching institutions and limited research

Category A	Category B	Category C
University of Cape Town	University of the Free State	Vaal University of Technology
University of the Witwatersrand	Rhodes University	Central University of Technology
Stellenbosch University	North-West University	Durban University of Technology
University of Pretoria	University of Fort Hare	Mangosuthu University of Technology
University of KwaZulu-Natal	University of Limpopo	Tshwane University of Technology
	University of the Western Cape	Cape Peninsula University of Technology
	University of Johannesburg	University of Venda
	Nelson Mandela Metropolitan University	Walter Sisulu University
	University of Zululand	

Source: MacGregor (2010)

Table 1 describes the excellence and performance of category A institutions comprising the five 'top' institutions. These institutions comprise three traditionally English speaking universities and two historically Afrikaans speaking universities. Category B represents HAIs that focus mainly on teaching and research, and HDIs that focus primarily on research and teaching in the Social Sciences. Category C, on the other hand, encompasses the new UoTs that also focus primarily on teaching and *applied* research and transfer.

Furthermore, and limited to South Africa, category A institutions have the largest percentage of categories A and B NRF-rated academics and researchers compared to institutions in categories B and C. Category B institutions have a high percentage of C-rated and a low percentage of B-rated academics and researchers. Although some institutions in category B have relatively increased their performance in research excellence, these institutions have generally not reached the threshold to be considered by ranking agencies.

The institutional clusters described above perform a number of purposes. Leading ranking systems are used as reference by top students when deciding where they would most like to study. Similarly, academics and researchers use reputational ranking to further their research profiles and improve their academic standings (Cele 2012).

Table 2: Number of citations of SA HEIs in the Essential Science Indicators (ESI) database (Jan 1999–April 2009)

Discipline	University of Cape Town	University of Pretoria	University of the Free State	University of the Witwaters-rand	University of KwaZulu-Natal	Stellenbosch University	Rhodes University
Biology and Biochemistry	6 788						
Chemistry	3 864			4 661		3 845	
Clinical medicine	21 346	4 496		14 808	5 968	11 405	
Engineering	875	1 533		1 121			
Environment/ecology	8 312	3 823			2 858	4 120	
Geosciences	5 665	4 816					
Plant and animal	7 755	9 546	1 362	2 473	3 465	4 388	2 925
Social sciences general	2 748	637		2 653	729	564	
Agricultural sciences		564			1 182		
Immunology	5 822					3 329	
Microbiology Psychiatry/ Psychology						2 303	

Source: Pouris and Pouris (2010)

Table 2 illustrates citation indices derived from research outputs of the 'top' five universities in South Africa. Thus, the table shows biases towards citation indices in sciences, engineering, health sciences, animal sciences and agriculture used to rank institutions in the 'top' five universities. Although RU is included under and

classified as an HAI in the table, the institution historically specialises in journalism and law and this explains why it is not competing favourably with the 'top' five universities in SET, health and animal research (Pouris and Pouris 2010).[3]

Table 3: The total table research output units per institution as well as percentage contributions by output type (2012)

Institution	Book units	% book publications	Conference proceedings	% total conferences	Journal unit	% total journals	Total institution units	% over all total
UKZN	64.63	4.5	34.47	2.4	1 325.12	93.1	1 424.22	11.5
UP	72.48	5.1	74.28	5.2	1 277.35	89.7	1 424.11	11.5
UCT	93.44	6.7	106.12	7.6	1 991.33	85.7	1 390.89	11.2
SU	91.56	6.9	73.06	5.5	1 158.68	87.6	1323.3	10.7
WITS	54.13	4.9	49.35	4.4	1 010.98	90.7	1 114.46	9.0
UNISA	32.45	3.6	47.64	5.3	812.43	91.0	892.52	7.2
UJ	13.36	3.6	103.91	11.9	738.64	84.5	873.91	7.1
NWU	28.51	3.3	50.08	5.8	790.6	91.0	869.19	7.1
UFS	49.58	7.7	28.28	4.4	566.07	87.9	643.93	5.2
RU	35.46	8.7	23.87	5.8	350.6	85.5	409.93	3.3
UWC	12.22	3.4	38.79	12.5	342.8	93.4	366.88	3.0
NMMU	4.22	1.4	38.79	12.5	268.52	86.2	311.53	2.5
TUT	0.26	0.1	39.83	17.3	189.8	382.6	229.87	1.9
UL	0.37	0.2	0.67	0.3	218.19	99.5	219.23	1.8
UFH	2.24	1.1	4.5	2.2	201.83	96.8	208.57	1.7
CPUT	0.1	0.1	20.29	12.1	147.12	87.8	167.51	1.4
UV	7.1	5.6	7.87	6.2	112.88	88.3	127.85	1.0
DUT	0.47	0.6	12.2	15.2	67.79	84.2	80.44	0.7
VUT	0	0.0	8.21	11.6	66.59	88.4	75.3	0.6
UZ	0	0.0	3.13	4.3	69.78	95.1	72.91	0.6
WSU	0	0.0	3	4.9	57.62	95.1	60.62	0.6
CUT	0	0.0	4.6	7.8	54.33	92.2	58.93	0.5
MUT	0	0.0	1	5.7	16.69	94.3	17.69	0.1

Source: Department of Higher Education and Training (2013)

Table 3 illustrates research output units per institution as well as percentage contributions by output type for the 2012 academic year. The table compares performances in research outputs of 21 universities in South Africa. The comparison includes outputs from books, conference proceedings and journal articles. HAI research-based institutions are performing relatively well compared to comprehensive universities and UoTs. Accordingly, the table represents a typical ranking of institutions according to their performance in research outputs and shows a bias towards citation indices that count towards ranking of institutions globally. The table presents the higher education as a homogenous sector regardless of HEIs' diverse foci, mandates and purposes.

Table 4:   UCT ranking (2008–2012)

Indicators	2008	2009	2010	2011	2012
Accredited publication units	1 086	1 188	1 253	1 314.40	> 1 340
Value of Research Contracts	R473 Million	R519 million	R550 million	R722 million	R682 Million
Number of Research Contracts	977	882	1 056	1 360	1 218
NRF Funding (new awards only)	R165 Million	R184 million	R202 million	R224 million	R208 Million
Postdoctoral Research Fellows	179	189	235	252	286
NRF Research Chairs (SARChI)	n/a	19	28	28	33
NRF Rated Researchers	293	320	336	379	415

Source: University of Cape Town, Annual Report (2012)

Table 4 illustrates UCTs' performance in a number of distinctive indicators that are often used as criteria to rank institutions on a league style table. The table describes the institution's position in the 'ranking' table in South Africa, in Africa, and why it has been competing favourably internationally over the past years. UCT is used as an example in the article because it has been holding position one of the five 'top' universities in South Africa in research performance.

The Qacquarelli Symonds university ranking attributes UCT's success to its strong performance for research that has a global impact. This ranking suggests that South Africa's leading institutions are beginning to have greater global visibility, and that UCT in particular, is producing a significant amount of high impact research (Mtshali 2013).

Although the other four of the 'top' five institutions and some HA comprehensive universities compete for ranking in the country, HDIs and UoTs continue to experience challenges in competing in research partly because they are also focusing on teaching and on expanding access and redress.

U-Map and U-Multirank in South Africa

The adapted U-Map and U-Multirank tools are proposed to measure the performance of institutions in the differentiated higher education in South Africa (see Jongbloed

and Kaiser 2011). We used the U-Map and U-Multirank tools to describe the profiles of the three typical institutional types (clusters) relating to dimensions and indicators that characterise their respective foci, purposes and mandates.

Thus, tables 5, 6, 7, describe dimensions and indicators that characterise the diverse foci, purposes and mandates of institutional types in the differentiated system rather than evaluating institutions' performances against the research performance dimension alone,

Table 5: Representation of dimensions and indicators on the proposed U-Map in South Africa

University type	Teaching and learning profile	Student profile	Research involvement
	Degree level focus	Student type	Academic publications
Research-based	Undergraduate in specific disciplines, postgraduate below masters	Full-time undergraduate, postgraduate below master's, full-time masters and doctoral (international)	Active involvement in research publications
Comprehensive	Undergraduate in specific disciplines, postgraduate below masters + Undergraduate Certificates and Diplomas	Full-time undergraduate, sizable number of post-graduate below master's and majority of part-time masters and doctoral students	Involvement in research output, publication papers and citations
University of Technology	Certificates, Diplomas, limited master's and PhDs	Majority, full-time and limited number of part-time students	Limited involvement in publications papers
	Range of subjects	Student types	Professional publications
Research-based	Disciplines in Science, Engineering and Technology (SET), Health and animal	Majority: Full Time and limited number of part time students (international)	Highly involved in professional publications
Comprehensive	SET disciplines, but also applied SET, and humanities and management	Full-time and part-time students	Moderately involved in professional publications
University of Technology	Applied SET, management, and applied health sciences	Full-time and limited part-time students	Limited activities in professional publication

	Orientation of degrees	Student types	Other research outputs
Research-based	Orientation towards SET, animal and health sciences	Full time undergraduate, master's and doctoral (international)	Large % of A and B NRF rated researchers
Comprehensive	SET, SET applied, management and humanities	Full-time undergraduate, limited number of full-time masters, and part-time doctoral	Moderate % A and B NRF, and large % of C NRF rated researchers
University of Technology	Orientation towards applied SET BTech degrees, applied management sciences and humanities	Full-time and limited part-time students	Generally low % of NRF rated researchers

Source: Adapted from Jongbloed and Kaiser (2011)

Table 5 depicts input dimensions and indicators on a U-Map tool involving teaching, student profile, and research involvement, range of subjects, student types and professional publication. The table shows distinctive dimensions of institutions in a particular category or cluster rather than comparing institutions in the higher education as a homogenous sector.

Table 6: Continuation of U-Map dimensions and indicators in South Africa

University type	Expenditure on teaching	Size of student body	
Research-based	Moderate % expenditure	Large number of undergraduate, masters and doctoral (international)	
Comprehensive	Moderate % expenditure	Average number of student enrolment	
University of Technology	High % expenditure	Medium size to small student body	
	Involvement in knowledge exchange	**International orientation**	**Regional engagement**
Research-based	Compete in international rankings	Large complement of international student and staff exchanges	Limited to moderate engagement
Comprehensive	Limited capacity to compete in international rankings	Pockets of international and staff exchanges	Moderate involvement
University of Technology	Strong in knowledge transfer	Limited international	Strong regional involvement

	Start-ups	Foreign degree seeking students	Graduates working in the region
Research-based	Strong start-ups companies	Attract high % of international students	Graduates working nationally and internationally
Comprehensive	Standard start-ups	Average attraction of international students	Graduates working nationally
University of Technology	Low start-ups	Attract a small number of students in the region (SADC)	Graduates working primarily in regions and local industries
		Students sent out in exchange programmes	Importance of local/regional income sources
Research-based	–	High student % sent in exchange programme	Strong third stream income from local industry and government
Comprehensive	–	Limited number of incoming students	Able to raise third stream income
University of Technology	–	Low number of incoming students	Weak capacity to raise third stream income
	Income from knowledge exchange activities	International academic staff	
Research-based	High % of income from knowledge exchange	High % number of international academic staff	
Comprehensive	Moderate % income from knowledge exchange	Have a moderate % of international academic staff	
University of Technology	Low	Low % of academic staff	
		Importance of international income sources	
Research-based	High % of international income sources	High % of international academic staff	
Comprehensive	Standard	Average % of international staff	
University of Technology	Low	Low	

Source: Adapted from Jongbloed and Kaiser (2011)

Table 6 is an extension of the U-Map and illustrates dimensions of the three institutional types on knowledge production and knowledge exchange, size of master's and doctoral research, exchange programmes for academic staff and students, and attraction of international students.

Table 7: U-Multirank dimensions and indicators

University type	Teaching and learning	% expenditure on research
Research-based	Involved moderately in teaching	High % expenditure
Comprehensive	Involved in teaching and learning	Moderate % expenditure
University of Technology	High involvement	Small to low % expenditure
	Time to degree bachelor	**Research publication output (self reported)**
Research-based	4–5 years	Very high %
Comprehensive	4–5 years	Moderate %
University of Technology	1–3 yrs Certificates and Diplomas and 5–6 years BTec	Low %
	Time to degree master	**Research income from competitive sources**
Research-based	4–5 years	Compete favourably for income from industry, government, and research centres
Comprehensive	4–5 years	Moderate income from industry, government, and research centres
University of Technology	5–6 years	Weak capacity to compete for competitive sources
	Relative rate of graduate unemployment	**Shares of within-country joint research publications**
Research-based	Low rate of unemployment	High % share
Comprehensive	Low rate of unemployment	Moderate % share
University of Technology	High rate of graduate unemployment	Low % share
	Interdisciplinary	
Research-based		High field-normalised citations and highly cited research publications
Comprehensive		Moderate citation rate and low cited publication rates
University of Technology		No field-normalised citations and low cited research

Source: Adapted from Jongbloed and Kaiser (2011)

Table 7 is a representation of the U-Multirank tool exhibiting outputs and inputs of institutional types. The input and output dimensions are: research expenditure, research publication output, research income from competitive sources, post-doc position, and shares of within-country joint research publications. The table suggests that these dimensions are a distinguishing feature of research-based institutions compared to the other two institutional types.

Table 8: Changes in graduation rates and success rates (2002– 2012)*

| University | 2002 | | 2012 | | Increase from 2002–2012 | |
	% Average success rate (A)	% Graduation rate (D)	% Average success rate (B)	% Graduation rate (E)	% Average success rate (B-A)	% Graduation rate (E–D)
Cape Peninsula UoT	75.5	19.1	77.2	23.6	1.7	4.4
Cape Town	80.4	23.4	83.6	26.1	3.2	2.7
Central UoT	70.3	16.4	77.0	24.8	6.6	8.4
Durban UoT	71.8	15.2	79.5	23.7	7.7	8.5
Fort Hare	59.8	9.6	76.3	21.4	16.4	11.8
Free State	75.1	20.2	73.8	20.0	−1.3	−0.2
Johannesburg	75.4	19.9	81.5	23.4	6.1	3.5
KwaZulu-Natal	75.4	19.7	79.3	22.7	3.8	3.0
Limpopo	73.9	15.1	82.5	19.3	8.6	4.2
Mangosuthu UoT	72.7	14.1	78.7	18.1	6.0	3.9
Nelson Mandela	71.3	12.1	78.0	22.5	6.7	10.4
North West	73.0	20.0	83.8	25.0	10.8	5.0
Pretoria	77.1	24.2	80.1	23.3	3.0	−0.9
Rhodes	80.5	23.6	84.8	31.1	4.4	7.4
South Africa	54.3	8.7	66.2	7.8	11.9	−0.9
Stellenbosch	78.2	23.7	84.9	27.9	6.6	4.2
Tshwane UoT	65.6	13.3	74.3	20.8	8.7	7.5
Vaal UoT	67.9	11.7	73.5	18.5	5.5	6.9
Venda	69.9	11.5	83.6	17.1	13.7	5.6
Walter Sisulu	67.2	14.4	78.1	19.6	11.0	5.2
Western Cape	69.1	15.4	80.0	18.9	10.9	3.5
Witwatersrand	77.8	18.8	82.4	22.4	4.6	3.6
Zululand	76.0	14.7	81.3	24.7	5.2	10.0
Vista	63.6	14.6				
Total	68.9	15.2	76.0	17.4	7.1	2.2
All contact universities	72.7	17.7	79.7	22.7	7.0	5.0
DHIs and UoTs	69.5	14.4	78.0	21.1	8.5	6.7
Other contact universities	75.1	19.8	81.0	23.8	5.9	4.0

*Includes students from undergraduate up to doctoral level
Source: Department of Higher Education and Training (2012)

Table 8 introduces graduation and success rates from 2002–2012 as another necessary yet neglected dimension when discussing institutional performance. The table shows that graduation and success rate dimensions cut across the three institutional types as a performance indicator. The table, therefore, suggests that some UoTs compete favourably with research-oriented and comprehensive universities. For example, the Cape Peninsula UoT ranks number one, followed by the Central UoT and the Durban UoT in the table.

In particular, the graduate and success rates in the table underscore the performances of institutions in areas of social and redress dimensions as an indicator of their performance (see Masondo 2013).

DISCUSSION AND CONCLUSION

Limitations of conventional ranking methodologies

The thread running through the article is that the universally established league table style tradition, where quality and excellence fit all institutions, and its use of research performance as a singular dimension to measure the performance of institutions, is narrow and discounts the diversity of institutional missions and mandates (Van Dyke 2005).

The problem with this definition is its methodology and corresponding reliance on specific dimensions and indicators that characterise research-oriented institutions to determine their excellence and performance. These dimensions and indicators are distinctive of traditional research-oriented institutions and overlook the differentiation of purposes, foci and mandates of most higher education systems globally. This tool assumes that the higher education sector is homogenous and, therefore, relies exclusively on dimensions that are distinctive to one category of the sector when determining the performance of institutions across the globe. The methodology underplays the reality that, globally, the higher education sector is heterogeneous as some institutions are oriented towards research and the production of knowledge through research. Others, such as Institutes of Technology, are tilting towards the production of high technological knowledge and skills, while others are mainly teaching oriented, and yet others, such as newer institutions have regional mandates and lean towards the production of *applied* knowledge and *knowledge transfer* of the various sectoral fields.

The problem of this methodology, therefore, lies in the validity of measuring and comparing individual HEIs as a whole, comparing the national system on a holistic basis, and across national and regional borders.

Van der Wende (2008) has a point that the current practice of using one set of indicators to rank institutions with diverse missions, purposes, foci and regional mandates only serves to strengthen the authorities and reputations of some institutions at the expense of all others. Thus, 'reputational ranking institutions on the league table favour research-based universities that are the only kind of institution sufficiently

widespread throughout the world to underpin a single comparison, and the science disciplines are common to these institutions' (Van der Wende 2008, 57).

Fombrun and Van Riel (1997) agree that the prevalent reputational institutional ranking along narrow specific indicators amounts to a subjective collective assessment that depends exclusively on who does the ranking. In contrast, a realistic approach to judge organisations' (*institutions*) values should not be by 'reference to the typical list of values in official documentation – but by looking where they allocate their budgets and the KPIs they set themselves' (Roberts 2009, 8).

The exclusive use of methodology and profiles of research-based institutions to ascertain the performance of the different institutions and ranking has implications for practice.

The methodology encourages academic drift, as other institutional types drift from their regional and social equity mandates and attempt to compete in areas of knowledge production. This practice generally encourages 'mimicking behaviour (imitating the highly reputed institutions), and hence to more homogeneity, rather than diversity' (Van Vught 2007, 19).

Neave (1979) introduces another hidden dimension of mission drift that 'academic drift theories' in practice lead to a situation where different types of institutions or the individual institution are reluctant to serve a variety of needs but rather eager to stabilise themselves and increase their status by getting closer to the most successful ones.

Academic drift is particularly prevalent in the South African differentiated system where the historical reputation of research-oriented institutions is used to recruit the best students nationally and to attract international staff and students. Thus, UoTs in South Africa are inclined to abandon their foci and mandates and to compete for funding from government and from industry to pursue excellence in research. In this competitive environment, UoTs are pressurised to emulate traditional universities by, for example, gradually raising their entry requirements thereby excluding students not admitted to research-oriented institutions. The trend is also emerging where UoTs in South Africa are increasingly changing their offering of mainly undergraduate programmes and concentrating more on teaching in order to offer master's and doctoral research.

In contrast to the trend described above, and in support of regional mandates of newer institutions, Reichert (2009, 123) argues that strong institutional partnerships within the region in research and teaching shield institutions from feeling overly pressed to focus on international comparisons and performance in international catalogues of institutional virtues.

The unintended outcomes of differentiating institutions according to foci and mandates in South Africa, however, is the tendency to channel mass demand away from traditional research-based established universities, and placing it upon comprehensive universities and UoTs (see Neave 2006) on the *unintended effects* of differentiation.

U-Map and U-Multirank ranking

The U-Map and U-Multirank tools offer innovative insights in determining the performance of institutions globally and therefore offset the limitations of traditional ranking tools. In contrast to the established tools, the proposed U-Map and U-Multirank tools accommodate the diverse foci and mandates of different institutional types globally, nationally, regionally and locally. These tools thus account for a variety of dimensions and indicators of the different institutional types compared to a methodology where dimensions of research-based institutions have been the only ones used.

Tables 4 to 6 on the proposed U-map and U-Multirank in South Africa provide an opportunity to describe the distinctive dimensions of the three institutional types and the extent to which these dimensions form part of the institutional foci and mandates of the different institutions. For example, the tables show distinctive dimensions of comprehensive universities and UoTs comprising teaching and learning, and knowledge transfer, among others, compared to the knowledge production and exchange of research-based institutions.

U-Map and U-Multirank are particularly useful in systems where there is less institutional competition and where some institutions concentrate on teaching and on regional priorities and not necessarily on international and national research such as Universities of Applied Sciences (UASs) in Finland. This practice prevails in Finland because of the different and positive societal perceptions and attitudes towards UASs that concentrate on teaching and the fulfilment of regional mandates rather than competing with research-based institutions.

Social justice and redress

The changing graduate and success rate in Table 7 is particularly pertinent when discussing the performance of the different institutions in promoting equity of access and equity of success for the democratic South African society.

Table 7 suggests that in accordance with their regional and local mandate, UoTs are generally performing well in promoting the equity of access and equity success dimensions despite the fact that these institutions enrol mainly undergraduate students with low matric scores. These institutions are ensuring that students with generally poor academic backgrounds are able to complete and graduate despite their lack of the cultural capital needed to succeed at universities.

The positive performance of UoTs in furthering social justice and redress resonates with the findings of Masondo's (2013) research project that examined the extent to which institutional types in South Africa are progressing in advancing social justice and redress. The research proposed the existence of four groups of universities relating to equity indices, namely: (i) those with good equity indices and poor research productivity; (ii) those with poor equity indices and poor research productivity; (iii) those with poor equity indices and good research productivity; and (iv) those with good equity and good research productivity (Masondo 2013).

Although locating institutions into the rigid equity indices above might be simplistic, the general picture suggests that HADs like SU and UCT, perform poorly in equity dimension indices but perform well as high-level knowledge. On the other hand, UoTs and some HDIs produce little research but have a good equity profile (see tables 3 and 8; Masondo 2013) on institutional performances on research and equity dimensions. Table 3 in particular suggests that despite being compelled to provide mass education to students who are generally ill-equipped for universities, comprehensive universities and UoTs in South Africa are performing well compared to research-oriented institutions with better qualified institutions.

CONCLUDING REMARKS

We argue first that only the five 'top' selected research-oriented South African universities will be able to compete with other institutions globally, regionally and nationally as long as research performance continues to be used as an exclusive indicator for all institutions. Thus, UoTs and other HDIs and comprehensive institutions stand no chance of competing against HAIs in the highly renowned functional areas given their starting conditions, their purposes and specialisations.

Second, we endorse the perspective that while the recognition of diverse foci and purposes is necessary in measuring institutions' performance, diversity can be reputational damaging as some institutions might not wish to attract students from less-traditional socio-economic backgrounds with a wider range of qualifications. This tends to deter many well-qualified students from applying since they look for clear reputational assets for their own careers (see Reichert 2009). The U-Map and U-Multirank tools that accommodate the diverse dimensions of the different institutions inherent in their diverse foci, purposes and mandates are proposed to offset the weaknesses of the currently used league table style ranking. This tool, we argue, could mediate the challenges of mission drift.

Lastly, the unintended negative effects of acknowledging diversity of foci purpose and mandate is perceived contradictions by some institutions between policies that enhance value-added to students, and others that address performance in rankings and prestige-seeking strategies. The in this respect is the 'impact of diversity on employability since the effectiveness of institutions in helping their graduates in transition to labour market seems more difficult with diversity of ethnic background' (see Reichert 2009, 39) on this issue.

NOTES

1. NRF rating is a unique South African practice where their peers in research outputs assess individual academics and researchers. Currently the NRF system has three rating categories. A-rating indicating academics and researchers who have contributed to original knowledge and have lists of citation indices in their respective fields but generally in science, engineering and technology, health and animal sciences. B-rated categories are academics who have distinguished

themselves in their respective fields but again SET, health and animal sciences. C-rated academics are those who have distinguished themselves in their respective fields but not as much as those in Category A and B.

2. Although this tool is still at development and pilot stage for possible use for describing institutional profiles in the European context, the tool is proposed as an alternative to the tools currently used for ranking of institutional types in South Africa.

3. Written permission to adapt and use the table has been obtained from Elsevier and will be included in the article submission.

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