University Rankings - Does one size fit all? Bringing the South African Universities of Technology into Perspectives

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Abstract

The practice of university ranking has garnered much debate amongst scholars and decision-makers on its varied applicable criteria. Increasingly, critics have argued for and against the strengths and weaknesses of the ranking metrics, pointing out the absence of comprehensive indicators given the multidimensional characteristics of higher education institutions globally. In this context, a rethink into the practice of ranking and its measuring indices becomes paramount. The article critically examined the question raised by scholars - 'Does one size fits all'? drawing example from the South African Universities and in particular, the Universities of Technology (UoTs). This paper presented some reflections on the diverse background and varied characteristics that depict the higher education institutions in South Africa. The findings posit the need for non-uniform ranking metrics given the differences in institutional settings across the world.

Keywords: university ranking, ranking metrics, Universities of Technology and South Africa

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Introduction

The Higher Education Institutions (HEIs) environment is becoming complex, and increasingly placing more demands on governance, management, performance, and productivity. University ranking has emerged as a driving mechanism for these demands. Although the history of university ranking practice is recent (Komotar 2019), it is becoming a significant actor and powerful influencer changing the higher education landscape, its roles, and purposes. Today, university ranking is a worldwide trend that emerged because of increased globalization and transformations in higher education system. It has become a phenomenon used by different stakeholders as a measuring yardstick for various aspects of higher education activities. Hazelkorn, Loukkola and Zhang (2014) highlights on the four most common use of ranking in HEIs. The authors note that rankings are primarily used for filling gaps in information, benchmarking performance, institutional decision-making, and marketing of the institution. The use of university rankings across the dimensions of teaching, research, reputation, industry-focus, and collaboration has been document in extant literature on the concept (Gadd 2021). In support, Selten *et al.* (2019), emphasizes that the success of any ranking process lies essentially on citations and reputations which translates to measures of quality and performance. Again, scholars have alluded to the use of ranking in measuring university services (Hazelkorn 2019; Kamarudin, Hanaysha & Hussain 2019). Also noted was the use of ranking as an ultimate tool for measuring the institution's level of internationalization (Komotar 2019). Furthermore, the significance and influence of ranking extends beyond HEIs environment and are being applied for other purposes. Accordingly, ranking has become an information tool guiding potential students on their choice of studies and institutions to enrol with (Kamarudin, Hanaysha & Hussain 2019); as an educational cost measuring tool by potential students and parents (Hewitt 2021); governments use of ranking to measure universities performance, while media houses see it as business opportunity for their marketing outfits (Hazelkorn, Loukkola & Zhang 2014). The industries use of universities ranking in employment of labour, individuals use of ranking for future employment opportunities, and the investors use of ranking for decisions on fundings and contributions have all been well acknowledged in the literature (Fauzi, Tan, Daud, & Awalludin 2020; Hazelkorn 2019; Chan *et al.* 2016).

In essence, ranking has become a global phenomenon driving the HEI

environment in which, Komotar (2019), noted that universities worldwide are striving to become world-class institutions by constantly wanting to improve on their ranking positions. These rankings occur at both global and national levels. Within the limits of this article, the authors focused on four leading ranking bodies at global level namely, Times Higher Education, QS World University Rankings, Academic Ranking of World Universities (ARWU) and Webometrics. At the national level, the focus was on the South African Department of Higher Education and Training (DHET) and the National Research Funding (NRF) rating systems. Irrespective of which level (global or national) the ranking is carried out, the motive remains the same, placing a hierarchical table of competition amongst universities. Having said so, many research studies have contested on various aspects of ranking metrics for example focusing on its reliability, inclusion and exclusion of the indicators, and the superiority of the ranking bodies etc. (Gadd 2021; Hazelkorn 2019; Gonçalves & Calderón 2017; Goglio 2016). For this article, the question remains, to what extent do the metric indicators being applied in the university ranking processes consider the multidimensional institutional backgrounds. In essence, does 'one size fits all' in university rankings? This ideology was examined by Goglio (2016), where the scholar elaborated on the multiple audiences for rankings and how these audiences encompass different needs, expectations, and attributes to the value of information on rankings. Drawing from same school of thought, but narrowing to the South African HEIs, the authors examined the criteria applied in the university rankings both at global and national levels. Specifically, the authors bring to the limelight the case of the Universities of Technology (UoTs), given the differences in the settings and historical backgrounds across universities in South Africa, which raises a voice and questions what constitutes ranking criteria as well as its objectives.

Moving forward, the article presents information on the historical background of Universities of Technology in South Africa, then followed by a discursive view on the university ranking system. The article further provides a relook into the university ranking focusing on new ways of thinking for the South African UoTs. The concluding thoughts was presented which proffers the study's recommendation.

Historicising Universities of Technology in South Africa

It is worth discussing the historical trajectories of the universities of techno-

logy in South Africa, to understand the implications for rankings. The South African history is deeply immersed in colonial and apartheid system which was characterized by political, social, economic, and cultural identity divisions. This created patterns of systemic inclusion, exclusion and marginalization of certain races, classes, or groups (Badat 2015). This also reflected in the previous South African higher education system in which institutions were reserved for different races, ethnic and cultural groups (Badat 2015). The colonial history was the foundation under which the higher education was created, skewed to serve the needs of the apartheid government, leading to fragmented education. The Council on Higher Education (CHE 2004) refers to this as 'institution types', namely, universities, technikons and colleges. Many of the South Africans non-white population found routes to education in either technikons or colleges. To expand a bit, technikon – a Greek word, attributes to 'skills' (DSAE 2020), and within the South African education system, it represents a post-secon-dary or non-university higher education institution whose primary focus is on career-oriented vocational education (Bunting 2006; Harvey 2004). In some parts of the world, technikon is equivalent to 'polytechnic'. Technikon education is aimed primarily at developing person manpower, thus preparing people for a particular occupation, industry, and practice. In addition, technikons seek to promote the use and transfer of technology (DoE 1997a, 1997b). In line with these objectives, South African technikons offer a 3-year post-high school National Diploma programmes, aimed at providing the necessary manpower for industries. At the time, du Pré (2010), noted that industries as well as professional bodies (especially international), do not accept and recognize technikon graduates as prestigious when compared to university graduates. Efforts to align the programmes of technikon with global developments to ensure a descriptive and specific nomenclature became paramount. The discriminatory nature of the apartheid policies guiding educational system was found to be debauched. Therefore, at the dawn of the new South African democratic dispensation, a radical move by government aimed at institutional change through transformation, efficiency, and diversification (CHE 2016), in higher education landscape topped the agenda. A view to enhance the social and economic benefits for all South Africans.

There is no doubt that education plays a vital role in the transformation process of every nation. As a result, the sector witnessed a significant change as the post-apartheid government began to dismantle the racial ideological structures in HEIs in the early 2000s. The process of

reorganization saw some institutions merged, while others incorporated into existing ones. The mergers and redesign trimmed down 36 South African public HEIs to 23, comprising of (11 'Traditional Universities'-TU; 6 'Comprehensive Universities'-CU, and 6 'Universities of Technology'-UoT) (du Pré 2010). Continued developments and transformation in the HEI landscape has further birthed 3 more universities making a total 26 HEIs in South Africa (DoE 2022; USAF 2021; BusinessTech 2015). Universities of technology are byproducts of mergers and transition processes between technikons and the previous colleges of advanced technical education (CATEs). This new categorisation represents institutional identities, social diversification and is quite different from the previous apartheid driven stratified and fragmented public institutions. These changes were implemented to fulfil respective institutional mandates, economic and social goals, and mission/visions therein. The traditional universities comprise of both research-intensive universities and universities with strong teaching focus at undergraduate and postgraduate levels, as well as engagement with community-orientated projects. Comprehensive universities offer a combination of academic and vocational qualifications with greater possibilities of articulations between programmes; and the universities of technology offer vocationally oriented qualifications or career-based education, with a strong undergraduate focus (Hall 2015; DHET 2014).

The restructuring gave birth to six (6) Universities of Technologies namely: Cape Peninsula University of Technology (CPUT), Central University of Technology (CUT), Durban University of Technology (DUT), Mangosuthu University of Technology, (MUT), Tshwane University of Technology (TUT), and Vaal University of Technology (VUT). Simultaneously, UoTs began to offer fourth-year level progammes as well as postgraduate qualifications up to doctorate level, parallel to university degrees.

A Discursive Shift: Understanding the University Ranking System

The word 'ranking' draws one's thought and imagination to the ideas of comparison. A simple dictionary meaning of ranking links it to a position in a hierarchy or scale (Merriam-Webster 2022). In view of Werron and Ringel (2017), ranking is a quantified zero-sum comparison of performances, visualized by means of a hierarchical table and repeatedly published by a third party. In academia, ranking refers to 'the rating and ordering of higher

education institutions or programmes of study based on various criteria' (Harvey 2004) while according to Aguillo *et al.* (2010), it is simply put as an 'organisational report card' in an orderly format. Emerging from these definitions is the idea of a hierarchy, which makes one stand out amongst others. The practice of comparisons amongst universities was first captured in Maclean (1900) publication of 'Where We Get Our Best Men', which appeared to have been driven by the need for quality assessment (Hewitt 2021) and organizational performance (Wilbers & Brankovic 2021). Literature suggests that though a few universities sporadically utilized the practice of ranking then, mostly, as an academic exercise (Hazelkorn 2011), it did not occupy an important place in the broader higher education discourse (Wilbers & Brankovic 2021; Gelber 2020; Geiger 2014). The later part of the 20th century witnessed a wider interest in the practice of ranking. The publication by the US News and Work Report in the 1980's titled 'America's Best Colleges' (Lukman, Krajnc & Glavič 2010), attracted much growth in the ranking practices in the United States, and across the globe, including Africa as well as South Africa. The recent surge in ranking cautiousness has been attributed to broader trends. According to Hazelkorn (2011), ranking is driven by social changes attributed to globalisation and transition to the knowledge economy as basis for economic growth; and the importance, need for institutional transparency, and accountability. For some others, it is more about global competitiveness (Hazelkorn & Gibson 2017); marketization and mediatization (Yung Chi Hou 2021); and institutional reputation, quality, and performance (Hazelkorn 2007). Gradually, university ranking has become a familiar phenomenon and prominent as part of the higher education changing landscape.

University rankings classification reflect both at international and national level depending on the intended scope of action. The measuring indices for ranking varies across the board. The authors presented the Table 1 focusing on the four international ranking bodies assumed with greater visibility and have attracted many debates in the academic space which are Times Higher Education (THE), QS World University Rankings, Academic Ranking of World Universities (ARWU) and Webometrics).

Table 1. International ranking bodies and criteria

Ranking Organisations	**Criteria/Indicators**
Times Higher Education (THE)	Teaching, Research, Citation, International Outlook and Industry Income

QS World University Rankings	Academic indicator: Academic reputation, H-Index, citations per faculty and staff with doctorate Employer indicator: Employer reputation, presence on campus, graduate employment rate and Alumni outcome Student indicator: Faculty/student ratio and Student exchange inbound International indicators: International faculty index and international student index

ARWU Shanghai	Quality of education, quality of faculty, research output and performance

Webometrics	Visibility, transparency, and excellence

THE (2022); QS (2022); Shanghai Ranking (2022); Webometrics (2022)

In addition to the international ranking, in which South African universities are evaluated, a similar process is applied at the national level. There are two institutions responsible, which are, the Department of Higher Education and Training (DHET), and the National Research Foundation (NRF). The DHET evaluates all the public universities in South Africa for research performance, which also provides the department the required mechanism for subsidy allocation. The idea is to promote research and knowledge generation needed for national developments. The DHET measuring indices focus on research publication (per capita/ weighted research output), academic staff qualifications and doctoral graduates (DHET 2021a). In addition, the NRF implements rating which encourages South African university academics to publish high quality research output, thereby benchmarking them to the rest of the world. The categories adopted by NRF (2022) are A – Leading international researchers, B – Internationally acclaimed researchers, C – Established researchers, P – Prestigious Awards and Y – Promising young researchers. To this day, the DHET and NRF rating outcome provides a 'league table' that alludes to possible image and reputation position.

Does one size fit all? The Case of South African UoTs

University rankings has gained the foreground in the policy arena of higher education with several calls on its methodological shortcomings and consequences, thus the ideology of 'does one size fits all'? The concept of 'one size fits all' alludes to the methodological applications in ranking processes which fail to recognize the diverse background and institutional settings of the universities. Focusing on the South African universities of technologies (grouped under historically disadvantaged institutions-HDI), this section centers its argument on the various challenges facing UoTs and why 'one size does not fit all' in university ranking. The Report of the Ministerial Committee for the Review of the Funding of Universities (DHET 2013) noted HDIs challenges ranging from their background history, a general lack of physical infrastructure, location in isolated and poor rural areas, and underfunding. While providing a background information on UoTs, the section elaborated on some of the vital challenges which are physical infrastructure, human capital, research and funding, students' attractions as an element of programmes and qualifications offered as well as teaching and learning.

The striking feature of apartheid government policies enhanced and reproduced demographic segregation based on race, class, gender, and location, within the education system. The segregation produced two sets of HEIs, the historically advantaged institutions (HAIs) and the historically disadvantaged institutions (HDIs). The complexity of the apartheid discriminative principles reflected in the infrastructures such as land and buildings needed for the delivery of academic and other services. This was acknowledged in the DHET macro-infrastructure framework (2021_b) which highlighted the lack of consistency in the standard of infrastructure at HEIs. In this context, the traditional universities (HAIs) had architectural buildings comparative to the prestigious universities in the developed world and situated in urban areas, which served relatively a small white population. On the other hand, Technikons which are grouped under the historically disadvantaged institutions (HDIs), were deliberately limited from having edifice buildings and were in marginalized areas to serve the disadvantaged communities. Wangenge-Ouma & Kupe (2020) noted that such posed several implications, which include higher costs of procuring supplies and services, insufficient and unreliable municipal services and constrains possibilities for generating third stream income.

Another significant area where the disparities played out is in human capacity. The resistance to the apartheid government policies of segregated universities set up resulted in the University of Fort Hare being the first to admit non-white students (Morrow & Gxabalashe 2000). Upon graduation, some of these students especially the brilliant ones, became the employees of the white reserved universities or the traditional universities as referred to today. This trend had continued in post-apartheid era as well-skilled academics are mostly attracted to the traditional universities (six of which are research intensive). The resultant effect is the struggle between the UoTs and the CUs with whatever the labour market provides. A glimpse of the state of skills in terms of qualifications is presented in Figure 1.

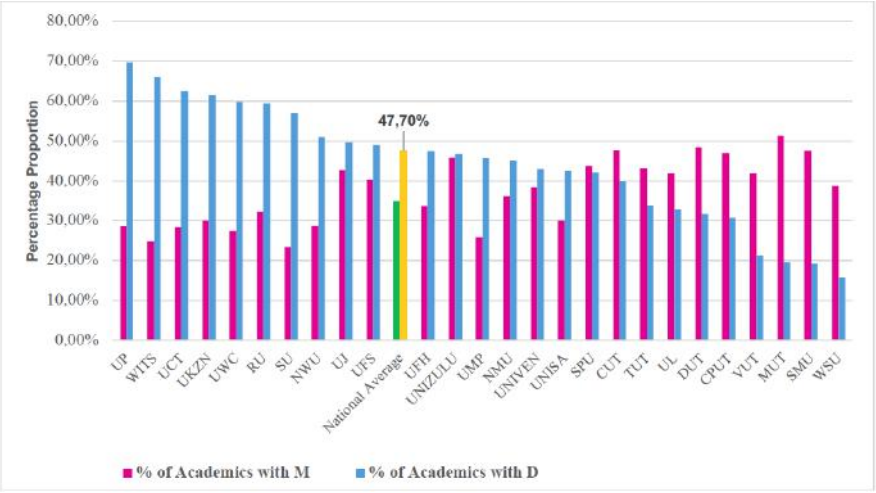


Figure 1: Academics highest qualifications by institutions, 2019 (DHET 2021b)

Arguably, the primary functions and academic goals of every university are the formation of human capital, the development of knowledge, the dissemination and use of knowledge, and the maintenance of knowledge (Pouris & Inglesi-Lotz 2014). Though, the DHET planned target of 46% university academic staff with doctorate degrees was exceeded for the year (DHET 2020b), data emanating from Figure 1 clearly shows that all the UoTs are situated below the national average of 47.7%. This is very much concerning with detrimental effect on research capacity. Walwyn & Cloete

(2016) had long alluded to the shortage of human resources for research and development as a fundamental constraint to the nation's economic growth since the inception of democratic government in South Africa. Understandably, this reflected in the research output of South African universities as shown in Figure 2.

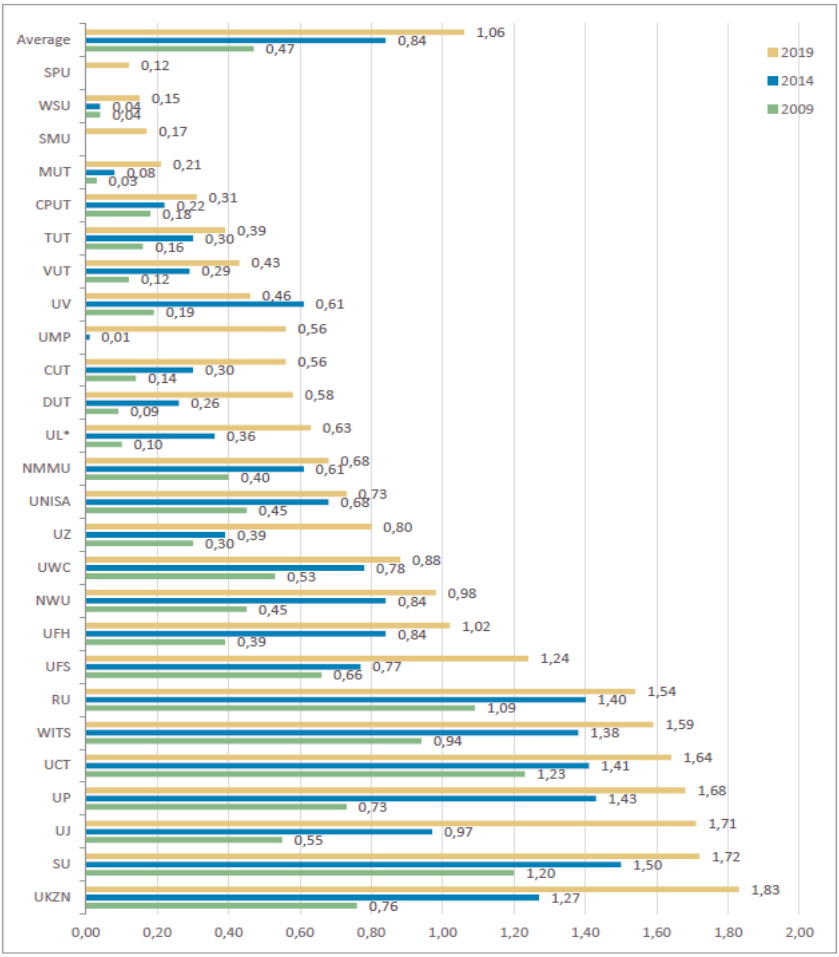


Figure 2: Research output units per capita by institution (cited in CHE 2021b)

Taking a closer look at Figure 1, data revealed that for any of the

years presented, the combined research output of the six UoTs is about 70% of the research output of one of the top six TUs, (which are HAIs). In support, the research output of a UoT academic staff member is approximately one third of that of an academic at a traditional university (Garraway & Winberg 2019; CHE 2019). In essence, the research output of the traditional universities has positioned them well to attract much funding as shown in Figure 2.

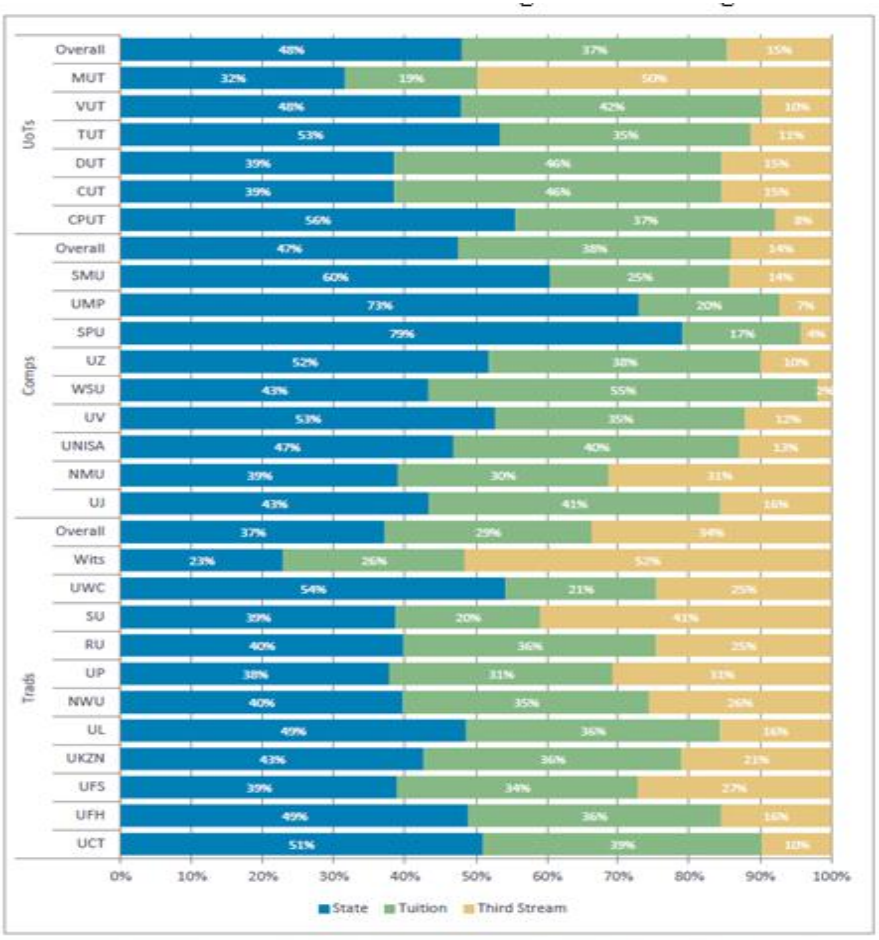
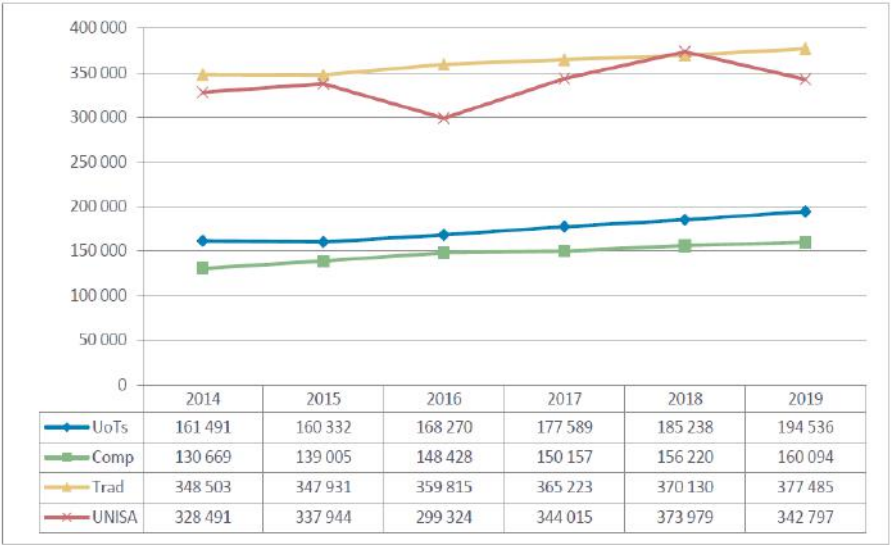


Figure 3: Institutional funding per source and by institutions type 2019 (cited in CHE 2021)

The skilled capacity of the TUs positioned them well in generating funding. Looking at the overall row for each grouping, the TUs attract less state funding (43%), generate 29% of their funding budget via tuition and attract more of external funds (34%). In contrast, UoTs are mostly state (48%) and tuition (37%) based funded, and attract very minimal external funds (15%). This shows how tensed the UoTs strive to keep up the pace within the academic environment.

In addition, these elements have not only given the TUs the lead but have added to their reputation and students' attraction at both undergraduate and postgraduate levels. This is evident in the available data on students' enrollment from 2014 – 2019 as shown in Figure 4.



	2014	2015	2016	2017	2018	2019
UoTs	161 491	160 332	168 270	177 589	185 238	194 536
Comp	130 669	139 005	148 428	150 157	156 220	160 094
Trad	348 503	347 931	359 815	365 223	370 130	377 485
UNISA	328 491	337 944	299 324	344 015	373 979	342 797

Figure 4: Students enrolments by institutional type, 2014-2019. (CHE, 2021)

The statistical data reflected in Figure 4 over the period, 2014 -2019, showed the combined total enrolment in the UoTs is nearly 50% of the TUs combined total enrolment at both undergraduate and postgraduate levels. The most recent data on students' enrolment in the South African universities reflected same trend (DHET 2022). Attributed to this was also the perceptions on the programmes and qualifications offered at both UoTs and

TUs. In early 2005, government efforts towards transformation in higher education to address the injustices of the past resulted in all technikons changing their names to Universities of Technology. Scholars have argued that the objective of establishing technikons for industry manpower development and practice has been maintained till date as they transition to UoTs. Researchers believe that UoTs programmes generally exhibit a knowledge base characterised by principles of practice rather than theoretical principles typical of a traditional university (Shay et al., 2011; Boughey, 2010). Explicitly, the UoTs prepare students for employment, scientific or technical knowledge are taught with the sole purpose of solving practical workplace problems (Coleman 2019; Mouton, Louw, & Strydom 2013; Kraak 2006). UoT pedagogical approaches retained the technikon model where teacher-centered methods and transmission-type learning dominated. Though recently improved as part of the ongoing higher education transformation process, teaching and learning at UoTs are still less resourced. Again, access to the inherited National Diploma programmes (from Technikons) attract less entrance requirements than the traditional university degree programmes. The National Diploma qualifications are often considered as a lower-class qualification and some elite industry practitioners would prefer graduates from the traditional universities (Du Pré, 2010).

Furthermore, UoTs qualifications at Masters, and Doctorates are denoted with 'technology', for example, MTech and D-Tech, as opposed to the TUs MSc and D-Phil degrees. In this context, UoTs qualifications are perceived less prestigious, part of the reason why Garraway & Winberg (2019) argued that UoTs are not fully-fledged universities given their histories. In support, Waghid, (2015) posit that traditional universities are well resourced to produce advanced-level knowledge, quality scientific knowledge, as well as technology, and were able to train highly skilled graduates for the labour market. Swartz et al., (2019) illustrated how the Traditional Universities in South Africa run major industries, and their graduates are appointed to influential positions in government. These scholars further concur that TUs attract the best academics, who are grounded in a strong research culture and are well-established nationally and international with partnerships and networks. In addition, TUs also attracts affluent students, whose parents were educated or belonged to a particular social class and could provide the resources needed to support their children (Swartz et al., 2019). It is therefore not surprising, the reasons behind students' attraction to the traditional universities than UoTs.

Shifting the Goal Post in Ranking - The Case of UoTs

The historical background of the South African universities has shown disparities in the university's settings. Reddy (2004) in the Report on Higher Education and Social transformation in South Africa, noted that to speak of a single, homogenous higher education system in South Africa is to over-generalise, misrepresent, and undervalue the country's history. This is so given that UoTs are viewed as an extension of Technikons but with increased research and post-graduate programmes (Christiansen & Baijnath 2007). For some scholars, the move from Technikons to a university of technology was simply a reputational marking ploy rather than a substantive identity change (Powell & Mckenna, 2009). The South African universities of technologies are ranked at both international and national level using same metrics for the traditional HEIs. In a similar vein, DHET relies on such metrics to assess the research performance of all the public universities, provides the necessary mechanism for subsidy allocation and for funding to HEIs. To meet up with the pace, UoTs are obliged to compete with the traditional universities in the form of post-doctoral fellows, senior lecturers, associated professors and professors, a requirement UoTs merely had capacity for. This is given that UoTs continuously lack the capacity to attract and retain the right caliber of staff or highly skilled personnel to achieve the institution's primary goals. The skilled potential employees would readily accept offers from the traditional and comprehensive universities which are deemed more prestigious to students, researchers, and academics alike (Waghid, 2015; Du Pré 2010). Considering these, the South African universities setting disclaims the ideology of 'one size fits all'. As such the authors posit that ranking measuring yardsticks should take into consideration the diverse characteristics that depict the HEIs environment.

Conclusion

This article focused primarily on extant literature on university ranking and the effect of the methodological applications on UoTs in South Africa. The resource challenges facing South African UoTs are enormous. The overarching nature of these challenges calls for a wider methodological approach when considering university ranking indicators. The transitioning of technikons to UoT's impacted the academic environment in South African higher education institutions. The main aim for the mergers and transitioning of the nation's HEIs was to accommodate the diverse backgrounds of the

students and satisfy the needs and interests, of the new democratic dispensation as well as create an enabling environment for African students to realise their potential and contribute to the necessary range and quality of knowledge, insight, skill, and capability towards the country's development and reconstruction. Nevertheless, this has left the newly formed UoTs in a situation where they are expected to within a short space of time compete with more established HEIs for world rankings and recognitions to qualify for funding. The article concludes that world university ranking agencies should be more diversified and recognize the varied background and institutional settings of universities in South Africa.

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