

The relationship between the third mission and university ranking: exploring the outreach of the top ranked universities in BRICS countries

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Abstract: This study aims to understand the relationship between the third mission of the university and university ranking. In particular it explores the outreach of the top ranked universities in BRICS nations. Relevant literature review helps the research to understand the third mission of the university and how it relates to university ranking. Following the study maps out the top ranked universities in BRICS nations in four ranking systems such as QS, Times, ARWU and MosIUR. It further reviews the mission and vision (as mentioned in their websites) of the top ranked universities from BRICS nations to understand the strategies of these universities to address the third mission. The findings of the study indicate that the top ranked BRICS universities indicate clear aspiration of their third mission. They reasonably capture their third mission with relevant strategies and outreach activities in their vision and mission statements. However, there are no clear indications about measuring the third mission strategies and activities of these institutions, which needs to be studied further in detail.

Keywords: Third Mission, University Ranking, Higher Education, BRICS

Understanding the Third Mission of the University

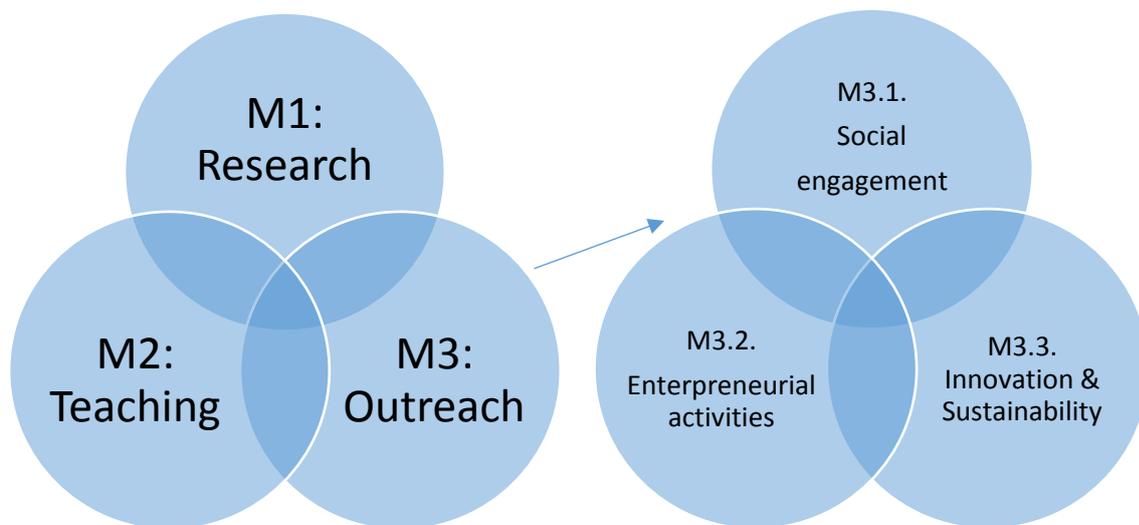
Developing a clear understanding of the third mission of the university is important as there are misconceptions about it. Most scholars address the third mission as the contribution of education to social progress that universities not only produce new knowledge but do so with social and economic perspectives in mind (Spiel, 2017). Brundenius & Göransson (2011) affirm that the third mission is what universities do in order to be relevant in society? The other two missions being teaching and research. Knowledge generation and dissemination are the two missions of universities, the third mission is that universities extend the generated knowledge outside academic environments for the benefit of the society. For Lenartowicz (2015) the identity of traditional European Universities consists in the intertwining of only two processes, such as the introduction of continuous change in the scope of scientific knowledge and educating new generations of scholars who will carry on this activity. According to IGI Global (2018) the third mission refers to an additional function of the universities in the context of knowledge society that universities must engage with societal needs and market demands by linking the university's activities with its own socio-economic context. The Russel Group (2017) defines the Third Mission as activities concerned with the generation, use, application of knowledge and other university capabilities outside academic environments. Marhl & Pausits (2011) consider the third mission as a vehicle to let universities leave the ivory tower and to increase the collaboration and exchange with the society.

The third mission helps universities to strengthen the ties of universities with industry and society, which could be relatively linked to the Triple Helix concept. The Triple Helix refers to the triadic relationship between university, industry and government (Stanford University, 2018). The concept of Quadruple Helix refers to any fourth relevant entity such as community, individuals, innovation, internationalisation and others (Leydesdorff, 2018). These and other similar concepts remind us about the relevance of the third mission of the

universities. While many consider these concepts useful and helps university extends itself, some argue that the third mission sometimes poses challenges, particularly when external stakeholders such as industry, government, community, individual or similar entities push their vested interest and personal agenda on universities. Zhou (2009) suggests to carefully look into the dynamics of the collaboration and interaction of university with other stakeholders, in particular to see who drives the collaboration and interaction and on what cost and benefit. Rubens et al (2017) point out of the changing role and expectations of the university, faculty and staff when external, in particular entrepreneurial activities are carried out.

Zomer & Benneworth (2011) highlight the rise of the university’s third mission with a question, ‘are universities drivers or recipients of change? They consider some of the societal shifts and their implications for higher education demands strategic responses from universities. One of the key shifts for them is competitiveness and the urgent imperative of usefulness of universities, which is often the result of the pressure from policy-makers to contribute to solving urgent societal problems. They indicate that policy-makers have become increasingly aware of the economic and political value of universities in stimulating innovation for social advancement that has pushed universities to accept broader, explicit societal responsibilities, emerging as the third mission. Loi, & Di Guardo (2015) provide four patterns/classification for the institutionalisation of the third mission. Need for coherence, focused on balancing public functions and third mission activities, patent disclosure to avoid exploitation, openness to participate in external change and to satisfy external needs and entrepreneurial activities as a source funding. Having explored different understanding of scholarly world on the third mission, it is necessary to conceptualise the third mission in this study that would further develop the study. Figure 1 presents the conceptualisation of the third mission of university.

Figure 1: The Third Mission Conceptualisation



The Russel Group (2017) report on the economic impact of Russel Group universities indicate the direct and indirect impact of universities teaching and research. The direct impact of the teaching is that students gets economic returns to their higher education qualifications and in-direct impact of teaching to the society with social returns that more citizens would be

qualified and contribute to the overall economic growth and social advancement. The direct impact of research is that there are research related revenues to universities and the in-direct impact of the research supports productivity, economic growth and enhances innovations for social advancement. Montesinos, et al (2008) indicate that the third mission 'services to society' has 3 dimensions, such as; a non-profit – social approach, an entrepreneur focus, and an innovative approximation. In other ways, the third mission includes social enterprising and innovative dimensions. Marhl & Pausits (2011) propose the following elements to characterise the contribution of universities in the third mission; human resources, intellectual property, spin offs, contracts with industry, contracts with public bodies, participations into policy making, involvement into social and cultural life and public understanding of science.

Relationship between the Third Mission and University Ranking

It is important to ask this question; does ranking include the third mission as a key criteria to rank universities? Montesinos, et al (2008) recommends that ranking systems must consider the third mission 'services to society' as a key criteria in ranking. Marhl & Pausits (2011) provide relevant indicators to assess the quality of the third mission activities of universities. Spiel (2017) highlight four key criteria for third mission; expand teaching to the relevance of society/economy, expand research to the relevance of society/economy, networking with society/economy, future orientation and sustainability. She considers social engagement, knowledge transfer and technology & innovation transfer as three key dimensions of third mission of the university.

Academic and leaders of universities share strong interest on embracing the third mission of the university. Brandt et al. (2018) accounted 23 Deans across 19 faculties on their views for supporting this mission activities at universities, who largely supported third mission activities and indicated that the implementations of third mission activities help improve the visibility of the university. Koryakina, Sarrico, & Teixeira, (2015) record the perceptions on university managers on existing barriers for third mission activities. They indicated government regulations and funding allocation as external barrier and organisational characteristics as internal barrier in implementing third mission activities. The result of their study also highlighted some tensions between a growing emphasis on third mission activities and their institutionalisation process within universities.

There are supportive and opposing views about university ranking. Some see university ranking as a modern development, which cannot be stopped but could be enhanced to work better. Some consider that ranking leads to unwanted practices of universities. Universities are tempted, for example, to improve their performance specifically in the areas that are measured by ranking agencies, resulting in tension between improving quality or ranking position (Rauhvargers, 2013). Yet others such as Marginson (2013) believe that university ranking is likely to keep growing and become more specialized and therefore it is preferable to take ranking into account. The expert group on assessment of university-based research of the European Union (EU) (2009, p.9) pointed out that 'rankings enjoy a high level of acceptance among stakeholders and the wider public because of their simplicity and consumer-type information'. Therefore, ranking systems should be reviewed to value universities more broadly, rather than for their performance in the few areas the agencies identify. Marhl & Pausits (2011) indicate that many ranking systems have indicators to rank the first and second mission of university, whereas, the third mission lacks any cohesive

methodology. Table 1 indicates the criteria of the four ranking systems and their link to the third mission activities.

Table 1: Comparing what ranking measures

	Criteria	Weightage	Third Mission Activities
Quacquarelli Symonds (QS) Ranking (2018)	Academic reputation	40%	
	Employer reputation	10%	
	Student to faculty ratio	20%	Social engagement
	Citation per faculty	20%	
	International faculty ratio	5%	
	International student ratio	5%	
The Times Higher Education World University Ranking (Times) (2018)	Research: volume, income, and reputation	30%	
	Citation: research influence	30%	
	Teaching: the learning environment	30%	
	International outlook: people and research	7.5%	
	Industry income: innovation	2.5%	Entrepreneurial activities & Innovation
Academic Ranking of World Universities (ARWU) (2018)	Quality of education (Alumni 10%, Award 10%)	10%	
	Quality of faculty (staff awards and prizes 20%, highly cited researchers 20%)	40%	
	Research output (papers published in Nature and Science 20%, papers	40%	

	in indexed in sciences and social sciences 20%)		
	Per capita performance	10%	
MosIUR (2018)	Quality of applicants, training level, interactional competitiveness, resource base	-	
	Recognition of awards, R&D activities,	-	
	Education affordability, relationship with labour market, regional links, campus quality, communication with society,	-	Social engagement Entrepreneurial activities Sustainability
NIRF (2018)	Teaching and learning resources		
	Research and professional practice		
	Graduation outcome		
	Outreach and inclusivity		Social engagement
	Perception		Sustainability
Folha de S. Paulo (2018)	Research		
	Teaching		
	Internationalisation		
	Innovation		Innovation
	Market value		Entrepreneurial activities

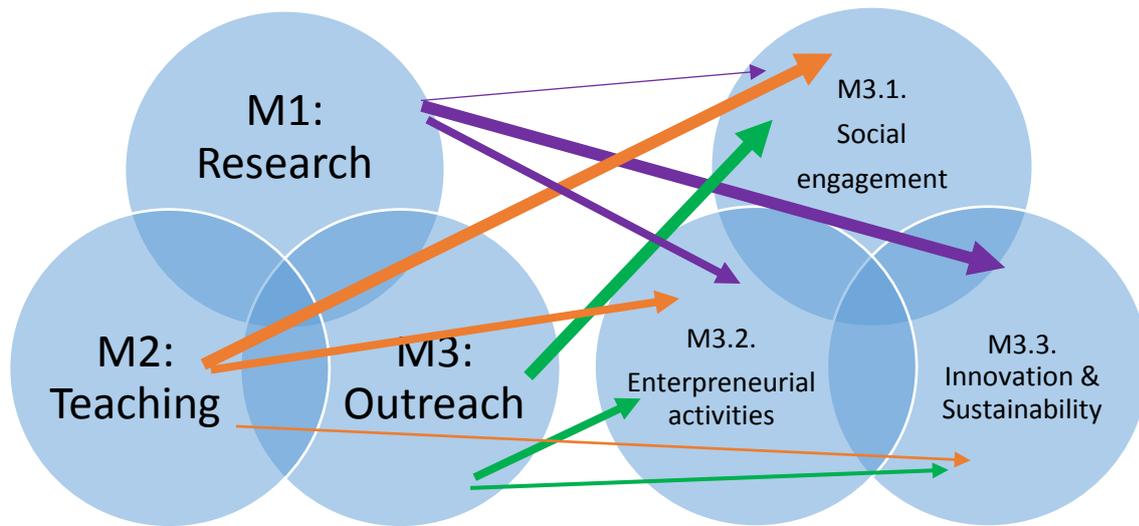
It seems reasonably clear from the above table that some of the ranking systems, such as QS and Times give importance to research output, indicating evaluation of some third mission activities, while ARWU has no clear criteria to measure third mission activities. MosIUR seem to embrace broader criteria, particularly with sufficient attention to third mission activities. Being relatively a new system, MosIUR seems to have paid attention to the ongoing debates on ranking. Stolz, Hendel & Horn (2010) used the Berlin Principles on Ranking of higher education institutions that has 16 broad and comprehensive principles to benchmark 25 higher education ranking systems in Europe. They recommend benchmarking to improve ranking practices through existing exemplary models. Marhl & Pausits (2011) following the Delphi method with three rounds of expert discussion, using three dimensions, such as; continuing education, social engagement, technology transfer & innovation, arrived at 54 indicators that are very broad. Future research may compress these 54 indicators into manageable numbers that may lead to build clear standards to assess the third mission activities of university. The 12 third mission activities and the 54 indicators that Marhl & Pausits (2011) highlight could be classified under the three broad third mission activities that the current study has developed, such as social engagement, entrepreneurial activities, innovation and sustainability.

The question, can all universities embrace third mission widely. Some universities may address the social engagement dimension, while others may address entrepreneurial dimension and some others may focus on innovation and sustainability dimension or the combination of them.

David (2017) addressed the tension for universities to respond to economic and/or social needs in which he explored access, equity and social justice in some of the selected Indian Universities composed of public, not-for-profit private, for-profit private higher education institutions. He argued that public universities in India largely embrace social responsibilities and sustainability dimensions, while for-profit institutions embrace entrepreneurial and innovation dimensions and not-for-profit institutions attempt to pay attention to all the three dimensions. Govinder, Makgoba (2013) developed an equity index in South African higher education. They tried to estimate the duration it may take for South African higher education to achieve 'higher education for all'. They estimated that it will take around 382 years for South African higher education to achieve zero index that reflects the demographics of South Africa with respect to graduates and overall staff.

Cross, David & Shonubi (2014) developed a model of socially embedded university in which, they proposed three models of universities, such as; high performing and low participating university, low performing and high participating university and hybrid university. They argued that universities that performing high in research, may not be teaching larger student population, while universities that are high participating may not be performing high in research and some universities may try to balance both. Following this argument, addressing the question, can all universities embrace the third mission widely, may offer the following proposition: universities that are teaching oriented may address social engagement dimension, while universities that are research oriented may address innovation dimension and universities that are labour market oriented may address entrepreneurial dimension. However, universities with a specific focus or a combination of two or three focuses may involve in one of more dimensions, although the intensity of their third mission activities may vary. Figure 2 presents the complexity of the third mission actualisation and interaction in universities.

Figure 2: The Third Mission Actualisation and Interaction



BRICS Universities in Ranking

BRICS: Jim O' Neill (2011) was the first to use the term BRIC in the Goldman Sachs' report, saying that Brazil, Russia, India and China (BRIC) would emerge as major economies by 2030. The foreign ministers of these nations met in New York during 2006 to discuss BRIC cooperation. The organisation became BRICS when South Africa joined during 2011. There have been six BRICS summits so far, the fifth at Durban in March 2013. Russia is a member of G8 while the others are members of G20. Nearly 40% of the world's population, live in BRICS nations and more than 25% of the World's land (Bremmer, 2017).

Research Profile of BRICS: Rensburg, Motala & David (2016) studied on the research collaboration among BRICS nations, part of this work is much relevant for the discussion in this study. The analysis of the National Innovation Systems (NIS) of BRICS countries (RedeSist, 2010) indicates that BRICS NIS is strongly influenced by their historical evolution, with all except China and Russia influenced by their colonial history. The study however does not provide any clear comparisons of the NIS of BRICS countries given the complexities. According to Research Trends (2007), among the top 20 countries by research output, China is in 5th place, Russia in 10th place, India in 12th place, and Brazil in 18th place. Ranked by citation China is in 13th place, Russia in 17th place, India in 19th place and Brazil in 23rd place. In this ranking, all are located in North America and Europe except Brazil, India, China, Japan and Korea.

According to the knowledge economy index (KEI) ranking (World Bank, 2012) Sweden is ranked top followed by Finland and Denmark. Out of 145 countries on ranking, Russia is ranked 55, Brazil 60, South Africa 67, China 84 and India 110. KEI's education ranking of Russia is 44, Brazil is 61, South Africa is 81, China is 95 and India is 111. Several studies have confirmed that the research output of the nation is strongly linked to the GERD and BERD of the country. Among BRICS China has got a higher GERD and BERD than the

others, Russia and Brazil show significant investment in research. India and South Africa have to enhance their GERD and BERD. Table 1 provides key indications on research output of BRICS.

Table 1: Research Profile of BRICS

	Researchers in R&D (per million people) ^a	Research Output. ^b	H index ^c	Patent applications, residents. ^d
Brazil	710	55,803	305	4,804
China	968	392,164	385	535,313
India	137	98,081	301	9,553
Russia	3,120	39,766	325	28,701
South Africa	389	13,627	231	608

Source: a. World Bank (2010-2011), b & c SCImago (2012), d. World Bank (2012)

Amongst the BRICS, Russia has got the highest number of researchers per million, followed by China and Brazil. India and South Africa have got the lowest, yet the average is understandable for India given the size of its population in comparison to South Africa. Although Russia has got the highest number of researchers per million, China's research output is much higher than Russia. India in comparison to Brazil and South Africa has got a better research output although India's number of researchers per million is the lowest. In all the BRICS nations the H index factor seems to be similar, China with the highest and South Africa with the lowest. In terms of patent applications China is much ahead of the others while South Africa seems to fall behind. Table 2 explains the research output of BRICS nations in terms of research publication, citations and H index ranking.

Table 2: SCImago Journal & Country Rank from 1996-2012

	Documents	Citable documents	Citations	Self-citations	Citations per document	H index
Brazil	461,118	446,892	3,362,480	1,151,280	10.09	305

China	2,680,395	2,655,272	11,253,119	6,127,507	6.17	385
India	750,777	716,232	4,528,302	1,585,248	7.99	301
Russia	586,646	579,814	3,132,050	938,471	5.52	325
South Africa	125,303	118,747	1,170,454	260,828	11.36	231

Source: SCImago (1996-2012)

China dominates research output in terms of total number of documents, citable documents, citations and self-citations. However, in terms of citations per document South Africa leads among BRICS followed by Brazil and India. South Africa's share of scientific publication with international co-authorship increased from less than 20% during 1997 to over 55% by 2008. However, almost half of South Africa's joint research is a result of collaboration with Europe (SAccess, 2013). Table 3 presents the number of international collaborations.

Table 3: Number of International Collaborations

	1996	2000	2005	2012
Brazil	37,238	29,061	29,988	24,558
China	18,484	16,234	14,314	15,577
India	16,922	14,997	19,121	16,278
Russia	23,283	27,177	32,162	29,530
South Africa	29,962	29,954	43,477	47,193

Source: SCImago (2012)

South Africa has the most international collaborations among BRICS followed by Russia, Brazil, India and China. The number of international collaborations declined in Brazil from 1996 to 2012 while it steadily decreased in China until recently. The number of international collaborations drastically increased in South Africa from 1996 to 2012 while, until recently, it steadily increased in Russia and India maintained similar numbers during this period.

Table 4: Top Five Collaborating Partners

	1 st	2 nd	3 rd	4 th	5 th
Brazil	USA 11.1%	UK 3.5%	France 3.4%	Germany 3.1%	Italy 2%
China	USA 8.9%	Japan 3%	UK 2.3%	Germany 1.9%	Canada 1.7%
India	USA 6.7%	Germany 2.7%	UK 2.3%	Japan 1.9%	France 1.5%
Russia	USA 10.3%	Germany 10.1%	France 5.3%	UK 4.3%	Italy 3.4%
South Africa	USA 15.1%	UK 11.7%	Germany 5.7%	Australia 4.5%	France 4.5%

Source: Adams, J. & King, C. (2009) Thomson Reuters

The USA is the number one collaborating partner for all the BRICS nations. European countries such as the UK, Germany, France and Italy seem to have considerable partnerships with BRICS. Canada and Australia are the other two countries that BRICS partners with and Japan is the only Asian country to do so. This table indicates that none of the BRICS nations is one of the five top partnering counties for other BRICS nations. This table very clearly clarifies the level and state of research collaboration among BRICS.

Table 5: BRICS Research Collaboration within BRICS

	Brazil	China	India	Russia	South Africa
Brazil		NA	NA	0.8%	NA
China	NA		1%	0.43%	NA
India	NA	1%		0.58%	NA
Russia	0.8%	1.5%	0.58%		NA
South Africa	NA	NA	NA	NA	

Source: Adams, J. & King, C. (2009) Thomson Reuters / NA – not available

This table illustrates the state of research collaboration within BRICS. Only Russia, followed by India and China, show some indication of partnering with other BRICS counterparts in

research collaboration. South Africa and Brazil indicate no significant research collaboration with BRICS. However this analysis is not complete as there is not enough data available. The absence of such data could be considered also a sign of limited research collaboration within BRICS.

BRICS and University Ranking: David & Motala (2017) explored the ranking of BRICS universities in some of the leading ranking systems. Based on this and other studies, the current research explored some of the top global university ranking systems and listed the number of top universities from BRICS nations from four ranking systems such as, The Times Higher Education World University Ranking (THEWUR), Academic Ranking of World Universities (ARWU), Quacquarelli Symonds (QS) and MosIUR which are listed in table 6.

Table 6: Number of BRICS universities in some world rankings

	Brazil	Russia	India	China *	South Africa
QS (2019) Top 500	5	15	9	22 (4)	3
Times (2018) Top 500	2	4	5	14	4
Shanghai / ARWU (2018) Top 500	6	4	1	51	4
MosIUR (2018) Top 174	3	13	5	10 (4)	2

Source: QS, Times, ARWU, MosIUR websites

Table 6 shows the number of universities from BRICS that are listed among the world's top 500 universities by QS, Times and ARWU ranking systems, and lists the top 174 in MosIUR ranking. China has the highest number of top universities among BRICS nations with 22 in QS (of which 4 are from Hong Kong), 14 in Times, 51 in ARWU and 10 in MosIUR (of which 4 are from Hong Kong). Although Indian higher education system is comparable to China is size, it does not many top ranked universities as China does. India has 9 top universities in QS, 5 in Times, 1 in ARWU and 5 in MosIUR.

The representation of top Indian universities in ARWU ranking seems little compared to the other ranking systems. Brazil has got 5 universities among top 500 in QS, 2 in Times, 6 in ARWU and 3 in MosIUR. Russia has 15 top universities in QS, 4 in Times, 4 in ARWU and

13 in MosIUR. And South Africa has 3 top universities in Qs, 4 in Times, 4 in ARWU and 2 in MosIUR. Table 7 provides the list of top-ranked BRICS institutions by the four ranking systems.

Table 7: Top-ranked BRICS institutions

	QS 2019	Times 2018	Shangai/ARWU 2018	MosIUR 2018
Brazil	Uni. São Paulo 251-300	Uni. São Paulo 118	Uni. São Paulo 151-200	Uni. São Paulo 122
China	Tsinghua Uni. 22	Tsinghua Uni. 17	Tsinghua Uni. 45	Peking Uni. 33
India	IIT-Bombay 170	IIS 251-300	IIS 401-500	AIIMS 125
Russia	LMSW 90	LMSW 199	LMSU 86	LMSU 25
South Africa	UCT 200	UCT 156	UCT 301-400	UCT 145

Source: QS, Times, ARWU, MosIUR websites

University of Sao Paulo stands top on all the four rankings in Brazil. Tsinghua University from China is the top university in three of the four rankings, while Peking University is rated high from China by MosIUR. Indian Institute of Science is rated as top Indian University by two rankings, while QS rates IIT-Bombay as top university in India and MosIUR rates AIIMS high. Moscow State University is rated top university from Russia by all the four ranking and University of Cape Town is rated as top university from South Africa by all the four ranking systems.

Exploring the outreach of top BRICS Universities

Having a clear foresight and vision contributes to the third mission of universities, in particular, for carrying innovative research and extending the outcome to the benefit of the wider society (Pirainen, Dahl Anderson & Andersen, 2016). Inman & Schuetze (2010) recommend that the community engagement and service of mission of universities be locally

and regionally focused to benefit the local and regional communities and society. The European indicators and ranking methodology for university third mission draft green paper (ESNA, 2012) that the third mission has received sufficient policy attention, while embedding it into universities third mission strategies needs serious attention.

The policies and vision on higher education of all the five BRICS countries have relatively integrated the third mission activities. Higher Education in India Vision 2030 (FICCI, 2013) indicates that the focus of higher education in India is to further intellectual capital and to deliver economic and social values. India has announced the excellence funding to top 10 public and 10 private universities. Paula Renata Souza, the former Brazilian minister of education, in her address at OECD (2018) on post-secondary education and opportunities for investment and trade, expresses entrepreneurial interest of the sector. Taradina (2014) highlights the Russian universities competitiveness enhancement project offered a roadmap containing annual and overall programme target indicators that are comparable with some of the global ranking systems. South African Universities Vice-Chancellors Association (SAUVCA, 2002) Position Paper envisages productive partnership between higher education sector, government and civil society, highlighting the social engagement aspect. KPMG (2010) made an overview of education in China and it indicated the growth of vocational education contribute to the industrialisation and labour market needs of China. Table 8 indicates the third mission strategies and activities of the top ranked BRICS universities.

Table 8: Third Mission strategies and activities of Top Ranked BRICS Universities

University	Vision	Mission
Uni. São Paulo, Brazil (2018)	The University of Sao Paulo (USP) is the largest higher education and research institution in Brazil. It has outstanding projection around the world, especially in Latin America, and develops a large number of Brazilian masters and doctors who work in higher education and research institutes. It is a public and free university, with open access for students selected by the 'vestibular' (Brazilian entrance exam for universities). Many of these students, after graduation, hold strategic and leading functions in different segments of public and private industries. USP is distributed in seven campi that comprise 42 learning and research units, four hospitals, four museums and six specialized institutes. In addition it has	The University of Sao Paulo (USP) was founded in 1934. Armando de Salles de Oliveira, then governor of Sao Paulo, was the responsible for the decision of creation of the University of Sao Paulo (USP). He signed the State Decree No 6,283, which established this institution on January 25th, 1934. USP is a public institution being therefore totally autonomous in didactical, scientific, administrative, financial and patrimonial affairs. The ultimate goals of USP are: (I) to promote and develop all fields of knowledge through teaching and research; (II) to deliver higher education in order to qualify professionals and scholars to pursue research and teaching in all fields of knowledge, as well as qualification for professional activities; (III) to extend services to society that are inseparable from teaching and research. USP, as a public university, is always open to all currents of thought and is thus

	multiple experimental laboratories and centers of scientific and cultural diffusion. It encompasses all the areas of knowledge and offers 240 undergraduate courses and 300 PhD programs.	governed by the principles of freedom of speech, education and research.
Moscow State university, Russia (MSU, 2008)	Moscow State University's 1998 charter established "democracy, openness and self-government to be the main principles in the life of Moscow University; the main goal is freedom to teach and to study as well as to develop oneself as a personality." This reflects the long standing tradition of Moscow State as being the most prominent higher education institution in Russia.	The main tasks of the University are: a) to satisfy the demands of the person in intellectual, cultural and moral development by getting the undergraduate, postgraduate degrees and additional professional education based on indissoluble unity of study process and research b) to satisfy the demands of society in qualified specialists with higher professional education, who combine deep professional knowledge with high culture and civil activity by implementing educational programmes of higher and additional professional education in the field of science and social sciences c) conduction of fundamental and applied scientific researches in the field of science and social sciences in a close connection in a close connection with educational process, participation in innovation activities, distribution and propaganda of scientific knowledge d) retraining the staff with higher education and scientific teachers of high qualification e) formation among students of University the civil position, abilities to work, preservation and multiplication of moral, cultural and scientific values, spread of knowledge among population, increase of their educational level
Indian Institute of Science,	IISc aims to be among the world's foremost academic institutions through the pursuit of	Imparting world-class higher education in an environment of fundamental and applied research in science and

<p>India (2018)</p>	<p>excellence in research and promotion of innovation by offering world-class education to train future leaders in science and technology and by applying science and technology breakthroughs for India's wealth creation and social welfare.</p>	<p>engineering</p> <p>Conducting high-impact research, generating new knowledge, and disseminating this knowledge through publications in top journals and conferences</p> <p>Applying faculty expertise towards the success of national science and technology initiatives</p> <p>Applying deep knowledge in various areas to create knowhow and developing such knowhow for utilization by industry and society</p>
<p>Tsinghua University, China (2018)</p>	<p>In 1914, the third year after the establishment of Tsinghua School, the predecessor of Tsinghua University, teacher Qichao Liang quoted two sentences from China's ancient philosophy book, The Book of Changes, to encourage students to study diligently and behave kindly. Later, Tsinghua University summarized the motto accordingly as "Self-discipline and Social Commitment". Tsinghua University also holds the academic spirit of "Rigor, Diligence, Veracity, and Creativity", the spirit of "Patriotism, Devotion and Pursuing Excellence", and the tradition of "Actions Speak Louder than Words."</p>	<p>Years after the start of Department of Electrical Engineering, Professor Mingtao Zhang, the then Head of the Department of Electrical Engineering, spoke to students in one meeting as follows: "You are here at the Department of Electrical Engineering of Tsinghua University both for scholarliness and integrity, while the later one is more crucial for young peoples." In 1992, the then China's Premier Rongji Zhu, who graduated from the Department of Electrical Engineering in 1951, again mentioned these words at the 60th anniversary of the foundation of the Department of Electrical Engineering and elaborated it as "Conscientious academics and honest behavior", which commendably echoed the motto of Tsinghua University. Then it was regarded as the motto of the Department of Electrical Engineering.</p>
<p>University of Cape Town, South Africa (2018)</p>	<p>UCT is an inclusive and engaged research-intensive African university that inspires creativity through outstanding achievements in learning, discovery and citizenship; enhancing the lives of its students and staff; advancing a more equitable and sustainable social order and influencing the global higher education landscape.</p>	<p>UCT is committed to engaging with the key issues of our natural and social worlds through outstanding teaching, research and scholarship. We seek to advance the status and distinctiveness of scholarship in Africa through building strategic partnerships across the continent, the global south and the rest of the world.</p> <p>UCT provides a vibrant and supportive</p>

		<p>intellectual environment that attracts and connects people from all over the world.</p> <p>We aim to produce graduates and future leaders who are influential locally and globally. Our qualifications are locally applicable and internationally acclaimed, underpinned by values of engaged citizenship and social justice. Our scholarship and research have a positive impact on our society and our environment.</p> <p>We will actively advance the pace of transformation within our university and beyond, nurturing an inclusive institutional culture which embraces diversity.</p>
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It is necessary to analyse the vision and mission statements of these five higher education institutions in line with the three third mission dimensions that the current study has identified in order to understand the third mission focus of these institutions. It is important to acknowledge that this is not sufficient to understand the third mission activities of these institutions, for which, the study must be extended to beyond reviewing the vision and mission statements which future studies may focus. Table 9 analyses the third mission dimensions among BRICS top universities vision and mission statements.

Table 9: The third mission dimensions in BRICS top Universities’ vision and Mission

Third mission / University	Social engagement	Entrepreneurial activities	Innovation and sustainability
Uni. São Paulo, Brazil (2018)	Strongly embedded	Rarely embedded	Moderately embedded
Moscow State university, Russia (MSU, 2008)	Strongly embedded	Rarely embedded	Moderately embedded
Indian Institute of Science, India (2018)	Moderately embedded	Rarely embedded	Strongly embedded
Tsinghua University,	Moderately	Rarely embedded	Strongly embedded

China (2018)	embedded		
University of Cape Town, South Africa (2018)	Moderately embedded	Rarely embedded	Strongly embedded

The analysis is made on to what extend the third mission dimensions are captured and are embedded in the vision and mission statements of the five selected BRICS universities. In the vision and mission statements of the institutions from India, China and South Africa, the innovation and sustainability dimension is strongly embedded while in the institutions from Brazil and Russia social engagement is strongly embedded, the social dynamics in the history of these countries might have influenced this. Entrepreneurial activities is rarely embedded in all the five institutions from the five countries, partly for the reason that they are all public institutions.

Concluding note

This study aims to understand the relationship between the third mission of the university and university ranking. In particular it explores the outreach of the top ranked universities in BRICS nations. Relevant literature review helps the research to understand the third mission of the university and how it relates to university ranking. Following the study maps out the top ranked universities in BRICS nations in four ranking systems such as QS, Times, ARWU and MosIUR. It further reviews the mission and vision (as mentioned in their websites) of the top ranked universities from BRICS nations to understand the strategies of these universities to address the third mission. The findings of the study indicate that the top ranked BRICS universities indicate clear aspiration of their third mission. They reasonably capture their third mission with relevant strategies and outreach activities in their vision and mission statements. However, there are no clear indications about measuring the third mission strategies and activities of these institutions, which needs to be studied further in detail.

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