Evaluation of a quality assurance framework for promoting quality research, innovation and development in higher education institutions in Zimbabwe

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Abstract: In the spirit of quality assurance, this paper presents a self-evaluation and peer review of the external quality assurance framework for research implemented by the national quality assurance agency for Zimbabwe. Documentary analysis and semi-structured interviews were used to develop a self-evaluation report which was then subjected to international peer review as is the norm in quality assurance evaluations. The evidence from self-evaluation indicates that the quality assurance framework generated significant improvement in the quality and quantity of research with gaps identified in doctoral training and supportive structures for research. Peer review recommended the inclusion of a performance-based research funding arrangement akin to the Research Excellence Framework (REF) used in the United Kingdom whilst throwing caution on the contentious nature of the REF. The paper recommends the development, implementation, and review of quality assurance frameworks for research to guide institutions, enhance research, and to maintain consistency and harmony in the research system. These findings can be adapted by different national quality assurance agencies involved in the regulation, promotion, and enhancement of the quality of teaching, innovation, knowledge production, and engagement/ outreach in higher education.

Keywords: Research, innovation, quality assurance framework, self-evaluation, peer review.

Introduction

The world-over, quality assurance frameworks are well-recognised systematic mechanisms for improving the quality of research, innovation, and education to achieve national goals within set standards (Davidson *et al.* 2020). The key challenge that many nations face is that of ensuring that the frameworks allow opportunities for continuous improvement (Rexeisen *et al.* 2018). Indeed, as alluded to by Cleven *et al.* (2009), 'to build further on something that is not properly evaluated means to take high risks'. The Mauritius Qualifications Authority (2018) recommends periodic review of the quality assurance frameworks to evaluate their effectiveness in achieving their intended purposes, identifying best practices and gaps therein.

This paper presents the evaluation of the quality assurance framework (QAF) for research in Zimbabwe using a methodology involving a reflective 'self-evaluation' exercise which is then subjected to external peer review (Mintzberg & Quinn 1998, Lillis 2012) for purposes of validation, continuous innovation, and improvement (Vlasceanu *et al.* 2004). Self-evaluation is a planned, participatory, systematic, and comprehensive quality review/reflection initiated by an implementing agency/ institution, detailing what was done, how it was performed, and with what results, identifying the strengths and weaknesses thereof (Campbell & Rozsnyai 2002). Self-evaluation is aimed at documenting evidence (contextual setting, challenges, interventions, and activities) and to assess the effectiveness of the QAF's performance against the interventions and expected outcomes. The ensuing complementary 'external' peer review of the self-assessment report confirms areas of good practice; identifies areas needing improvement; and provides the basis for quality improvement (Mauritius Qualifications Authority 2018).

First, the article situates knowledge production through research in the global, regional, and Zimbabwean contexts. The article proceeds to outline the research objectives and the research methodology, before presenting the findings that address the research objectives, and conclusions.

Situating knowledge production in global, regional, and Zimbabwean contexts

Knowledge production (through research and innovation) and the concomitant enterprise development are inextricably intertwined with socio-economic develop-ment (Mattoon 2006, van der Wende 2009) and are at the core of the mission of contemporary universities the world over (Frondizi *et al.* 2019). Furthermore, know-ledge quality is measured by its utility in the society in terms of bettering the lives of people (Chotikapanich 2008).

The divide between the production of knowledge, as mostly measured by research publications, and the dissemination and utilisation of it, as predominantly measured by patents and metrics on knowledge transfer and uptake, has been well debated (Collyer 2016). Despite accounting for 16% of the world's population, Africa lags behind in research and intellectual outputs compared to their Global North and Global South counterparts (see Table 1). UNESCO estimates that, in order to reach the global average number of researchers/scholars per million citizens, Africa requires at least one million new doctoral degree holders. At present Africa averages 198 scholars to every million inhabitants in comparison to, for example, approximately 4,000 in the United Kingdom. Granted, Africa faces so many challenges that negatively affect research productivity. These range from cultural constraints; coloniality of power; underinvestment in human, financial, and material resources; brain drain through migration; non-conducive institutional environments; to inadequate infrastructure and poor implementation of projects and policies (Quijano 2000). There is also the geopolitics of research and innovation, as revealed by some African scholars who have pointed out that they face marginalisation and discrimination to the extent that they are often required to publish their research as mere case studies whilst similar work done in the Global North automatically assumes global relevance (Baber 2003, Nolte 2019). Africans are agreed, however, that in order for their respective nations to prosper, research and innovation should be moved from the periphery to the core.

Table 1. Global share of scholarly publications by region (1990–2015).

Region	Global share of publications			
	1990	*2000*	*2008*	*2015*
North America	41.6	36.7	31.7	28.6
Europe	34	40.2	42.6	39.3
Asia	14.5	21.1	28.4	39.5
Latin America and the Caribbean	1.7	3.2	5.0	5.2
Oceania	2.8	3.3	3.5	4.2
Africa	1.4	1.4	2.0	2.6

Sources: UIS (2005), UNESCO (2015).

Globally, significant proportions of knowledge and innovations are generated by higher education institutions (HEIs). In Africa, with few research institutes or organisations outside the higher education systems, HEIs are critical in the creation and transfer of knowledge and technology. African nations therefore recognise the centrality of strengthening their higher education systems in their quest to improve knowledge production, knowledge reproduction, innovation, and socio-economic development. To this end, national governments have undertaken various policy and structural reforms in line with Agenda 2063 of the African Union aimed at leveraging

knowledge and skills to transform and develop Africa sustainably (AUC 2014). One of the most critical reforms was the establishment of external higher education quality assurance agencies (Li 2010) to regulate, promote, and enhance the quality of learning, innovation, knowledge production, enterprise development, and community outreach. This followed the global trend in taking a strategic approach to enhancing higher education quality and the benefits thereof (Stensaker & Leiber 2015). To date thirty-six African countries and all fifteen countries in the Southern African Development Community (of which Zimbabwe is a member) have established external quality assurance agencies.

Table 2. List of African nations with/without quality assurance bodies.

Region	Country	Agency
1. Central	Cameroon	Ministère de l'Enseignement Supérieur
2. Central	Central African Republic	Comité ad'hoc de Coordination du dispositif de l'Assurance Qualité pour l'Enseignement Supérieur
3. Central	Chad	
4. Central	Democratic Republic of Congo*	Agence Nationale d'Assurance Qualité (ANAQ)
5. Central	Equatorial Guinea	None
6. Central	Gabon	None
7. Central	Republic of Congo	None
8. Central	São Tomé & Príncipe	None
9. Eastern	Burundi	National Council for Higher Education (NCHE)
10. Eastern	Comoros	None
11. Eastern	Djibouti	None
12. Eastern	Eritrea	None
13. Eastern	Ethiopia	Higher Education Relevance & Quality Agency (HERQA)
14. Eastern	Kenya	Commission for University Education (CUE)
15. Eastern	Madagascar*	Ministère de l'Enseignement Supérieur et de la Recherche Scientifique (MESUPRES)
16. Eastern	Mauritius*	Mauritius Qualifications Authority (MQA)
17. Eastern	Mayotte	None
18. Eastern	Reunion	None
19. Eastern	Rwanda	Higher Education Council
20. Eastern	Seychelles*	Seychelles Qualifications Authority (SQA)
21. Eastern	Somalia	None
22. Eastern	Tanzania*	The Tanzania Commission for Universities (TCU)
23. Eastern	Uganda	National Council for Higher Education (NCHE)
24. Northern	Algeria	National Commission for Quality Assurance Implementation in Higher Education (CIAQES)
25. Northern	Egypt	National Authority for Quality Assurance and Accreditation of Education (NAQAAE)
26. Northern	Libya	None

Table 2. *Continued.*

Region	Country	Agency
27. Northern	Morocco	Agence Nationale d'Evaluation et d'Assurance Qualité de l'enseignement supérieur et de la recherché scientifique (ANEAQ)
28. Northern	Sudan	Evaluation and Accreditation Corporation (EVAC)
29. Northern	Tunisia	Instance Nationale de l'Evaluation, de l'Assurance Qualité et de l'Accréditation (IEAQA)
30. Northern	Western Sahara	None
31. Southern	Angola*	Instituto Nacional de Avaliação e Acreditação do Ensino Superior (INAAES)
32. Southern	Botswana*	Botswana Qualifications Authority (BQA)
33. Southern	Lesotho*	Council for Higher Education (CHE)
34. Southern	Malawi*	National Council for Higher Education (NCHE)
35. Southern	Mozambique*	National Council for Accreditation and Quality Assurance in Higher Education (CNAQ)
36. Southern	Namibia*	National Council for Higher Education (NCHE)
37. Southern	South Africa*	Council on Higher Education (CHE)
38. Southern	Swaziland*	Swaziland Higher Education Council
39. Southern	Zambia*	Higher Education Authority (HEA)
40. Southern	Zimbabwe*	Zimbabwe Council for Higher Education (ZIMCHE)
41. Western	Benin	Ministère de l'Enseignement Supérieur et de la Recherche Scientifique
42. Western	Burkina Faso	Conseil Africain et Malgache Pour L'Enseignement Superieur (CAMES)
43. Western	Cape Verde	None
44. Western	Gambia	National Accreditation and Quality Assurance Authority (NAQAA)
45. Western	Ghana	National Accreditation Board (NAB)
46. Western	Guinea	None
47. Western	Guinea Bissau	None
48. Western	Côte d'Ivoire	None
49. Western	Liberia	National Commission on Higher Education (NCHE)
50. Western	Mali	Direction Nationale de l'Enseignement Superieur et de la Recherche Scientifique (DNESRS)
51. Western	Mauritania	None
52. Western	Niger	None
53. Western	Nigeria	National Universities Commission (NUC)
54. Western	Saint Helena	
55. Western	Senegal	Authorite Nationale d'Assurance Qualité de l'Enseignement Superieur (ANAQ-SUP)
56. Western	Sierra Leone	None
57. Western	Togo	Ministère de l'Enseignement Supérieur et de la Recherche Scientifique* Southern African Development Community member countries.

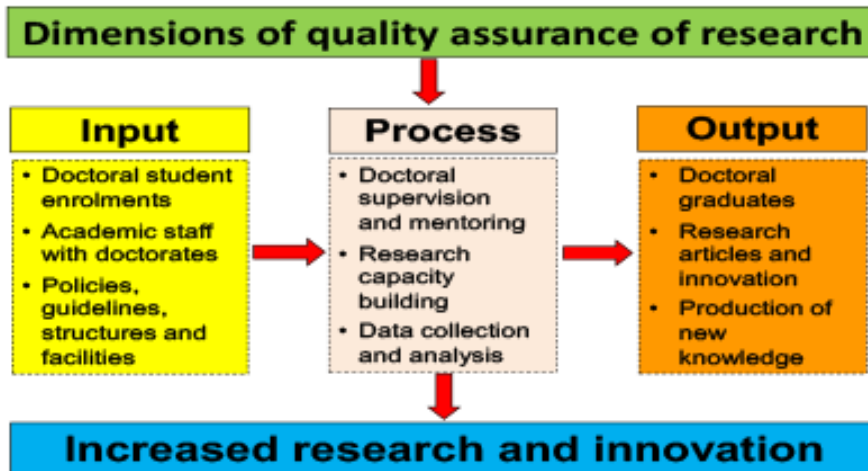*Source:* https://afriqan.aau.org/list-of-quality-assurance-bodies-in-african-countries/

Figure 1. Indicators of quality assurance for research in HEIs. *Source:* Shabani *et al.* (2014).

Most of the external quality assurance agencies have focused their activities on improving quality and teaching at undergraduate levels, because undergraduate students constitute the majority of the enrolments in HEIs. However, some that have increasing numbers of postgraduate students, and are also making more investment in research, have also extended their focus beyond improving undergraduate teaching and learning. They have developed and implemented frameworks for improving the quality of research as well. Even for those HEIs that focus more on teaching, academics should engage in research in order to inform their teaching (Gupta 2017). Figure 1 is an example of the quality assurance dimensions for improving research in higher educations.

Although Pascarella & Terenzini (2005) reported an increase in research (along with teaching and engagement) in HEIs, there is limited research on whether this improvement can be attributed to the effectiveness of the quality assurance frameworks. As indicated by Lillis (2012), a key hypothesis is to determine whether the QAF for research was effective in improving performance. Evaluating the effectiveness of research frameworks requires the assessor to fully comprehend the contextual setting in terms of challenges, interventions, activities, and expected outcomes. This paper uses the case of Zimbabwe's national quality assurance agency, the Zimbabwe Council for Higher Education (ZIMCHE), to evaluate its quality assurance framework for research and innovation.

Research objectives

This study investigates the effectiveness of the QAF administered by ZIMCHE in promoting research and innovation in Zimbabwe. The specific objectives were:

1. Present a self-evaluation of the ZIMCHE's QAF for research based on the established guidelines on the quality dimensions for research;
2. Conduct a peer-review exercise to assess the self-evaluation report and identify best practices and areas needing improvement; and
3. Make recommendations on the development and review of the QAF for research.

Methodology

This paper draws from quantitative and qualitative data derived from primary and secondary sources. Secondary data was obtained from documentary analysis, described by the Institute of Development Studies (2013) as a process of collecting and systematically extracting and reviewing information from written documents. The documents included national and institutional publications, reports, guidelines, proposals, minutes of meetings, and newsletters relating to research challenges, QAF development, policies, interventions, operational procedures, and achievements over a ten-year time period from 2010 to 2020. The analysis was descriptive, highlighted trends, captured areas of good practice, and identified gaps.

The primary data was collected from views, experiences, and practices of purposively selected participants through the use of semi-structured, recorded, and transcribed interviews. Participants who were either familiar with the development and implementation of the QAF or who had user-perspectives of the framework were interviewed. These included policymakers, implementers, and users, including two officials from the parent ministry, six members of the ZIMCHE, research directors from fifteen universities, and ten researchers from Zimbabwean universities. The interviews sought insights from participants in order to gain a deeper understanding into the development, implementation, and effectiveness of the QAF in achieving the intended research enhancement goal. The appropriate protocols regarding ethical approvals from the institutions and participants were observed.

Using the analysed primary and secondary data, a self-evaluation report was prepared. The self-evaluation of the QAF included the background to the QAF development and an evaluation of the following interventions:

1. The policies and guidelines to stimulate research in higher education institutions;
2. Strategies to improve doctoral training;

3.   Research capacity development strategies; and
4.   Supportive structures to stimulate research.

Peer-review methodology was then employed to interrogate the self-evaluation. Tennant (2018) asserts that peer review is a formidable quality control measure aimed at assessing the accuracy, relevance, and significance of processes and outputs within the self-regulating academy and research fraternity. Peer reviewers with impressive records of experience and expertise in a similar area are called upon to review each other's work (Thomas 2018). These professionals bring valuable external insights from regional and international institutions. Accordingly, four international experts, one from South Africa and three from the United Kingdom (UK), were identified and given the self-evaluation report to review over a period of two months. The reviewers provided their commentaries on the areas of commendation and gaps requiring improvement regarding the interventions for improving research as indicated in the QAF. These commentaries were guided by their experiences and also used bench-marking to evaluate areas of good practice and areas needing improvement. The choice of a peer reviewer from South Africa was motivated by the need to provide a South–South assessment, taking into cognisance that South Africa features amongst the top producers of research publications on the African continent. In fact, South Africa and Egypt produce half of the research publications from the continent (AOSTI 2014). The peer reviewers from the UK were selected based on the long-established partnership between the University of Nottingham, UK, and the ZIMCHE.

Findings

The findings are presented in relation to research objectives as shown in Table 3.

Table 3. Sections related to the research objectives.

Research objective	Section
Present a self-evaluation of the ZIMCHE's QAF for research based on the established guidelines on the quality dimensions for research	Self-evaluation report of the QAF for research
Conduct a peer-review exercise to assess the self-evaluation report and identify best practices and areas needing improvement	Peer analysis of the self-evaluation report
Make recommendations on the development and review of the QAF for research	Critical reflections on the development and review of the QAF for research

Self-evaluation report of the QAF for research

The self-evaluation report covers a descriptive analysis of the development of the QAF for research and an evaluation of the achievements and gaps identified for each of the interventions: policies and guidelines; doctoral training; research capacity development; and supportive structures. A short summary will conclude the self-evaluation.

Development of the QAF for research in Zimbabwe

The QAF for research was aimed at creating a harmonised and coherent roadmap for managing and promoting knowledge production and research impact in line with national imperatives. The QAF helps in setting research priorities and conducive environments at national and institutional levels and to plan and allocate resources accordingly to encourage research to thrive. In developing the QAF, ZIMCHE followed best practice which involves the following stages:

1. Problem identification through research,
2. Benchmarking,
3. Stakeholder involvement in identifying expected outcomes,
4. Aligning the outcomes to national goals,
5. Identification of interventions, activities, and outputs,
6. Assigning project champions.

The QAF development process took a period of two years commencing with a baseline survey in 2010 wherein the Ministry of Higher and Tertiary Education (assisted financially and technically by UNESCO and ADEA–WGEMPS [Association for the Development of Education in Africa – Working Group on Education Management and Policy Support], respectively), undertook a survey to assess the challenges facing HEIs with a view to utilising the results to inform the review of the national research and development strategy (Machawira 2010). The findings of the baseline survey were then presented to stakeholders, eliciting engagement, discussions, and international benchmarking that led to the development of the QAF. The QAF comprises five sections, as illustrated in Figure 2: (a) Problem, challenges, and rationale; (b) Interventions; (c) Activities and outputs; (d) Outcomes; and (e) Desired impact.

Problem, challenges, and rationale

Zimbabwe has a well-developed national research infrastructure and used to have one of the most research-intensive knowledge production systems in Africa, earning a
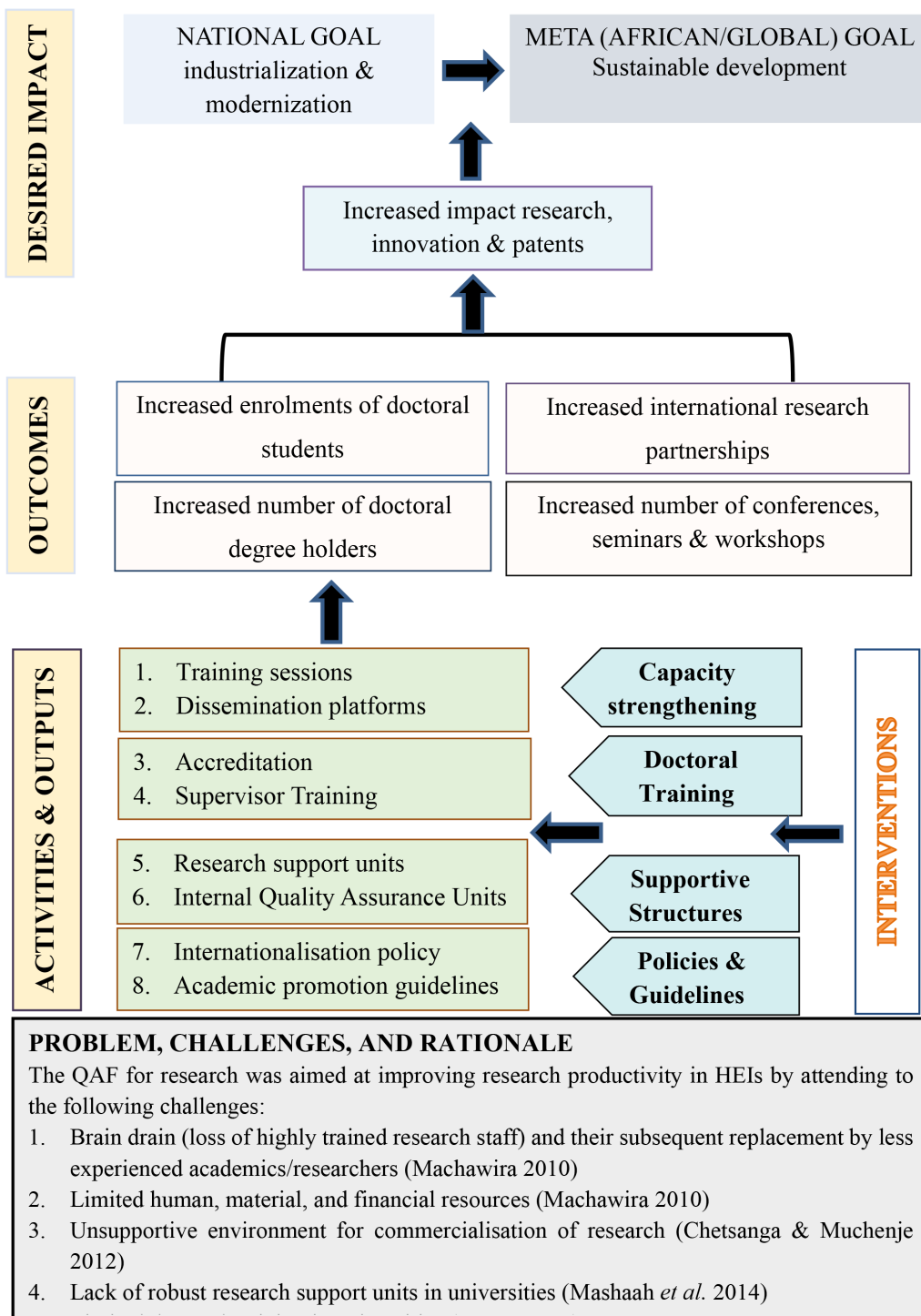
**Figure 2.** Framework for strengthening research and innovation in Zimbabwe (ZIMCHE 2012).

respectable position among the top ten (Tier I publishers) from 1995 to 2007 (Uthman & Uthman 2007). Zimbabwe's well-developed higher education system consists of twenty-four public and private universities registered with ZIMCHE, with an estimated one in eleven adults holding a degree. This sound intellectual base, together with the rich heritage of natural resources, position the country favourably to show greater potential to achieve high levels of knowledge generation, innovation, and socio-economic growth. Unfortunately, the prolonged economic crisis from 2000 to date, coupled with isolation from the international community, took a significant toll on the country's research missions and caused a significant decline in research productivity.

HEIs are catalysts of the high-level skills critical for knowledge production and thus they remain the fulcrum on which the country's future research, development, and innovation initiatives are pivoted (Cloete *et al.* 2015).

Studies in Zimbabwe (Machawira 2010, Chetsanga & Muchenje 2012, Mashaah *et al.* 2014, Garwe 2015) revealed five debilitating challenges leading to the decline in the quantity, quality, and contribution of research in HEIs. The first was the shortage of the requisite financial and material resources to support research and innovation development. Limited access to physical and electronic library resources (books and journal articles) featured among the material resource challenges. Where electronic resources were available, information retrieval was hindered by restrictions in access to the internet due to poor connectivity, low bandwidth, and/or frequent power outages.

The second critical challenge was the massive brain drain of senior academics from HEIs, and their subsequent replacement by less experienced academics/researchers. This implied that the higher education system no longer had the critical mass of highly qualified and experienced academics and researchers needed to sustain doctoral training and specialised academic research. The paucity of experienced research mentors and advisors had other negative consequences. For example, breaches of academic and research integrity started to occur with more pronounced frequency. There were reports of incidents where plagiarism and cheating were rampant among both students and academics (Garwe & Maganga 2015). In addition to reporting similar tendencies elsewhere, scholars found academics to be more inclined to publish in journals with low impact (Madhan *et al.* 2018). Furthermore, the increase in student enrolments meant that lecturers concentrated on teaching with very limited time dedicated to research.

As of 2020 there are twenty-four registered universities, twenty of which are operational. It should be highlighted here that in 1990 the country only had one university and in 2010 there were thirteen operational universities. The proportion of academics with doctoral degrees, an internationally recognised measure of research
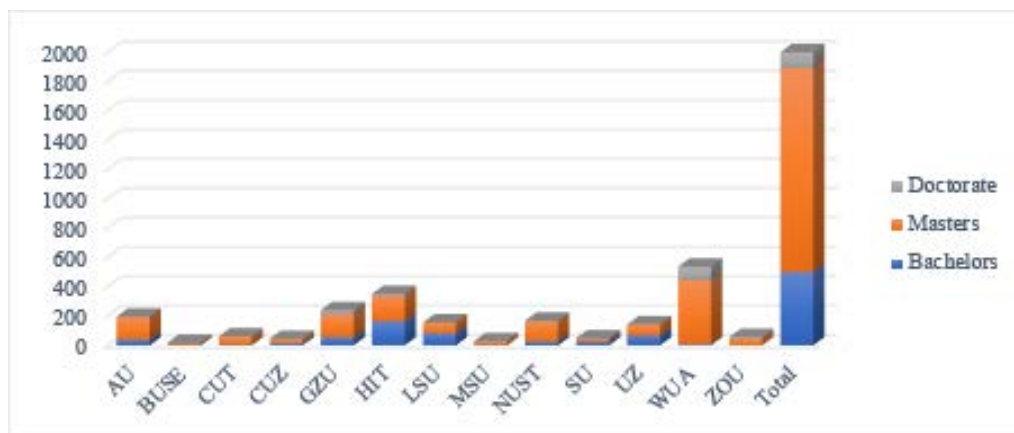
Key: NUST – National University of Science & Technology

AU – Africa University	BUSE – Bindura University of Science Education
CUT – Chinhoyi University of Technology	CUZ – Catholic University in Zimbabwe
GZU – Great Zimbabwe University	HIT – Harare Institute of Technology
LSU – Lupane State University	MSU – Midlands State University
ZOU – Zimbabwe Open University	SU – Solusi University
UZ – University of Zimbabwe	WUA – Women's University in Africa

Figure 3. The proportion of lecturers with doctoral degrees. *Source:* adapted from Machawira (2010).

capacity, had dropped from around 80% in 1999 to 8% in 2010 (see Figure 3). In contrast, as of 2011, Ethiopia, Ghana, and South Africa had 8.6%, 38%, and 34% academics with doctorates (National Planning Commission 2011, Government of Ghana 2013, Molla 2014).

The third challenge cited was the unsupportive environment for the commercialisation of research and innovation resulting in industrialisation and modernisation of the country (Chetsanga & Muchenje 2012). The fourth challenge was the lack of strong institutional support structures and systems to guide, incentivise, and promote research (Mashaah *et al.* 2014).

The final challenge regards the limited doctoral training in universities (Garwe 2015). Doctoral education and training in universities provide a pipeline of future academics and researchers, and where this pipeline is not adequate, it points towards a future of inadequate capacity to generate knowledge and innovation at levels commensurate with the country's socio-economic imperatives. The challenges that affected doctoral training were similar to those affecting research, as articulated above, and they also mirrored those reported in other African countries (Mohamedbhai 2011, Kahsay 2015). In addition to these, specific challenges regarding doctoral training related to the inflexible regulatory framework and the non-cohesive national training system Garwe (2015), as discussed below.

Inflexible regulatory framework

A study by Garwe (2015) revealed that most academics in Zimbabwean universities opted to study for their doctorates at foreign universities as a way of avoiding what they perceived to be 'rigid' doctoral training regulations. The prevailing ZIMCHE standards required the major supervisor to have an earned doctorate from a recognised university, to be at the level of at least an associate professor, and to have successfully supervised at least two doctoral students to completion. In addition, the major supervisor ought to be employed by the university offering the doctorate on a full-time basis. Granted, such a quality guidelines have the best intentions and are best practices backed by research (e.g., Muriisa 2015); however, they should be contextualised to suit the national environment and needs. According to the ZIMCHE standards, each supervisor should be allocated no more than three doctoral students for effectiveness and to leave room for teaching, research administration, and university service. Many people have argued that, in the wake of the current advances in information technology, virtual supervision should be considered a viable option (Garwe 2015).

Non-cohesive national training system

The ten universities that currently offer doctoral training in Zimbabwe use varied standards and formats and in some instances, even in a single institution, faculties/ disciplines use different training models (Garwe 2015). Efforts to find documents or research studies that characterise the doctoral training models and principles akin to those in other contexts (e.g., European Commission 2011) did not yield any positive results.

Interventions

In a bid to improve research, innovation, and patents and to address the foregoing challenges, the higher education stakeholders developed the QAF for research, as shown in Figure 2. The interventions constituting the QAF included: putting in place policies and guidelines to stimulate research in HEIs; strategies to improve doctoral training, research capacity, and development strategies; and putting in place supportive structures to stimulate research. These interventions compared favourably with the framework for research suggested by Shabani *et al.* (2014). ZIMCHE was tasked with the responsibility of ensuring that the interventions and activities were implemented in a timely manner within the agreed quality standards to achieve the outputs and outcomes set in the QAF. This paper evaluates the effectiveness of the QAF for research and innovation in HEIs in increasing research in Zimbabwe.

Policies and guidelines

In a bid to improve the quality of academic staff in HEIs and thus spur research productivity, ZIMCHE introduced stringent minimum benchmarks/standards to guide HEIs in appointing, grading, and promoting academics (ZIMCHE 2013). In the words of one participant:

> *The move was also intended to strengthen the currency and validity of what is taught by academics. In 2018 the Minister of Higher and Tertiary Education, Innovation, Science and Technology Development tasked the Association of Vice Chancellors to review these guidelines and convert them into enforceable ordinances/regulations. The commendable aspect of these promotion regulations is that they were harmonised and thus applicable to all universities in Zimbabwe.* (RD 9)

Research shows that when 'criteria for decision-making regarding promotion are standardised fairness and equity are achievable' (Powell & Butterfield 1994: 82).

Table 4 shows the salient features of the promotion guidelines. Whilst Table 4 focuses only on minimum expectations for research, each university determines its own criteria for teaching and community service. In addition, each university determines the weightings for the types of research outputs, intellectual property, and recognition. These include publications (for example, books and book chapters), copyrights, licences, technologies, procedures, teaching and learning models, patents, research awards/grants, and spin-offs. Most universities engaged research directors to promote research and innovation and the utilisation of the products thereof.

Table 4. Harmonised appointment, grading, and promotion benchmarks for academic staff.

Academic position	Qualifications/Publications	Grading/Promotion criteria
Assistant Lecturer/Research Fellow Teaching Assistant	At least a recognised Bachelor's Degree	Appointed on one-year contracts renewable up to a maximum of three years during which they must acquire a recognised Master's Degree
Lecturer	A minimum of a Master's Degree	Can be granted tenure after serving for a three-year period provided they have published a minimum of 5 articles in refereed journals (or assessed equivalent, e.g. copyrights, patents, trademarks)

Academic Position	Qualifications/Publications	Grading/Promotion Criteria
Research Fellow	A minimum of a Master's Degree	Can be granted tenure after serving for a three-year period provided they have published a minimum of 7 articles in refereed journals (or assessed equivalent, e.g. copyrights, patents, trademarks)
Senior Lecturer	Earned Doctorate/PhD/DPhil	May be tenured on appointment provided they have published 6–10 articles in refereed journals (or assessed equivalent, e.g. copyrights, patents, trademarks)
Senior Research Fellow	Earned Doctorate/PhD/DPhil	May be tenured on appointment provided they have published 8–12 articles in refereed journals (or assessed equivalent, e.g. copyrights, patents, trademarks)
Associate Professor	Earned Doctorate/PhD/DPhil and 21–34 publications in refereed journals (or assessed equivalent, e.g. copyrights, patents, trademarks)	Tenured on appointment
Associate Research Professor	Earned Doctorate/PhD/DPhil and 24–39 publications in refereed Journals (or assessed equivalent e.g. copyrights, patents, trademarks)	Tenured on appointment
Professor	Earned Doctorate/PhD/DPhil and a minimum of 35 publications in refereed journals (or assessed equivalent, e.g. copyrights, patents, trademarks)	Tenured on appointment
Research Professor	Earned Doctorate/PhD/DPhil and at least 40 publications in refereed journals (or assessed equivalent, e.g. copyrights, patents, trademarks)	Tenured on appointment

Source: ZUVCA (2018).

A participant from ZIMCHE indicated that:

> *The standards set by the ZIMCHE for academics teaching and supervising in degree programmes insist on the academic having their highest academic qualification pitched one or more levels higher than the level of the taught/supervised programme.* (NQAA 2)

In other words, for an academic to teach/supervise undergraduate students, they should be the holder of a relevant master's degree. In the same way, teaching at the

master's level requires one to have obtained an earned doctorate/PhD/DPhil from a recognised university. Doctoral candidates should be supervised/mentored by professors with earned doctorates. Major challenges to postgraduate training arise from the fact that the share of academics with doctorates in Zimbabwean HEIs range from 3% to 12.5% at the highest (Machawira 2010, Garwe 2013).

In view of the foregoing, Zimbabwe embarked on a major drive to increase doctoral training as a way of increasing the pool of academics capable of supervising and mentoring students enrolled for master's and doctoral degree programmes, and who would then contribute to the national programme of churning out more doctorates through the ripple/multiplier effect. Scholars found a positive correlation between academics with doctorates and high research outputs (Cloete *et al.* 2015) and recommend that HEIs intending to foster a culture of research ought to aim for a 'critical mass' of academics with doctoral qualifications (MacGregor 2013). It should be highlighted that this can only be achieved within favourable and supportive working environments.

Doctoral training

The positive correlation between doctoral training and knowledge production is widely acknowledged as a precursor for sustainable individual, institutional, national, and global development and competitiveness (Mouton 2011, Kotecha *et al.* 2012, Benito & Romera 2013). Subject to contextual variations, the doctoral qualification can assume different nomenclature and acronyms, such as doctorate and Doctor of Philosophy (PhD or DPhil), the holder of which assumes a universal title of Doctor (Dr) irrespective of the study discipline, model of study, awarding university, or country of award (Poole 2015). Doctoral training is the highest level of formal academic award (Kiley 2009, Green 2012) wherein the trainees acquire what Walker & Yoon (2016) termed 'doctoral capital'. This refers to the collective competencies to become autonomous researchers with specialist skills, disciplinary knowledge, values, and attributes (for example, discipline and resilience) to conduct groundbreaking research and innovation that address societal challenges (Lariviere 2011, Sursock 2017). Dubbed the 'global brand' (Clarke 2014: 17), disciplines and professions consider the doctoral degree as important in performing the 'agency' role to:

> educate and prepare those to whom we can entrust vigour, quality and integrity to the field. This person is a scholar… someone who will creatively generate new knowledge, critically conserve valuable and useful ideas, and responsibly transform those understandings through writing, teaching and application. We call such a person a 'steward of the discipline'. (Golde & Walker 2006: 5)

In the context of Africa, higher education massification and the attendant spike in the demand for highly skilled researchers and knowledge workers have intensified governments' efforts to improve doctoral training as an integral component of their development agenda. In the past decade alone, Africa undertook several initiatives to promote doctoral training that include research studies, workshops, seminars, conferences, dialogues, and collaborative agreements towards training a critical mass of doctoral students (IAU 2012, IAU-ACUP 2012, Kotecha *et al.* 2012, Kigali Communiqué 2014, Namuddu 2014).

Upon the realisation that only a minority of academics held doctoral degrees (8% in 2010) and only two state universities were offering doctoral training programmes, Zimbabwe planned to increase the numbers through in-country training. This strategy of increasing the quantity of doctoral cadres trained in Zimbabwean universities was made against the backdrop of a serious brain drain attributed to the non-return of foreign-trained Zimbabweans. The major push factors were the brain drain and the regulatory framework which requires holders of master's degree to be taught and supervised by academics who hold doctoral degrees. As of 2015, six state universities were offering doctoral education and training programmes with a total enrolment of 150 and 28 PhD students graduating that year, indicating a 0.18% share of total enrolments and a 0.2% share for doctoral graduates. The universities went on a marked recruitment drive of attracting doctoral degree holders from the diaspora to broaden the base of supervisors for doctoral students (Garwe 2015). Table 5 shows the doctoral student enrolments in Zimbabwean universities by gender as of July 2019.

Table 5 indicates an increase in the number of institutions offering doctoral training programmes from two in 2010 to ten in 2020, while the number of doctoral students rose to 649, representing a share of doctoral enrolment of 0.53% of total enrolment and 4.37% of postgraduate enrolment. The distribution of doctoral student enrolment by discipline is reflected in Figure 4. The greatest share of doctoral students is in the social studies, commerce, and education disciplines.

In the attempt to harmonise doctoral training standards, the interviews conducted revealed the existence of a ZIMCHE, University of Nottingham, and University of Zimbabwe forthcoming project aimed at developing a harmonised national framework for doctoral training. NQAA 3 highlighted that '*The framework is intended to guide institutions craft their own institutional frameworks on doctoral recruitment; structure and types/models of doctoral programmes, pedagogical practices, and the organisation of doctoral supervision.*'

Table 5. Doctoral student enrolments in Zimbabwean universities by gender as of July 2019.

Institution	Male	Female	Total
State Universities			
Midlands State University (MSU)	118	47	165
University of Zimbabwe (UZ)	97	57	154
Great Zimbabwe University (GZU)	14	7	21
Zimbabwe Open University (ZOU)	50	13	63
Chinhoyi University of Technology (CUT)	45	20	65
National University of Science & Technology (NUST)	20	10	30
Bindura University of Science Education (BUSE)	20	5	25
Lupane State University (LSU)	0	0	0
Harare Institute of Technology (HIT)	0	0	0
Manicaland State University of Applied Sciences (MSUAS)	0	0	0
Gwanda State University (GSU)	0	0	0
Marondera University of Agricultural Sciences & Technology	0	0	0
Zimbabwe National Defence University (ZNDU)	0	0	0
Sub-Total	364	159	523
Private Universities			
Women's University in Africa (WUA)	17	27	44
Catholic University in Zimbabwe (CUZ)	5	2	7
Africa University (AU)	52	23	75
Zimbabwe Ezekiel Guti University (ZEGU)	0	0	0
Solusi University (SU)	0	0	0
Reformed Church University (RCU)	0	0	0
Arrupe Jesuit University (AJU)	0	0	0
Sub-Total	74	52	126
TOTAL	***438***	***211***	***649***
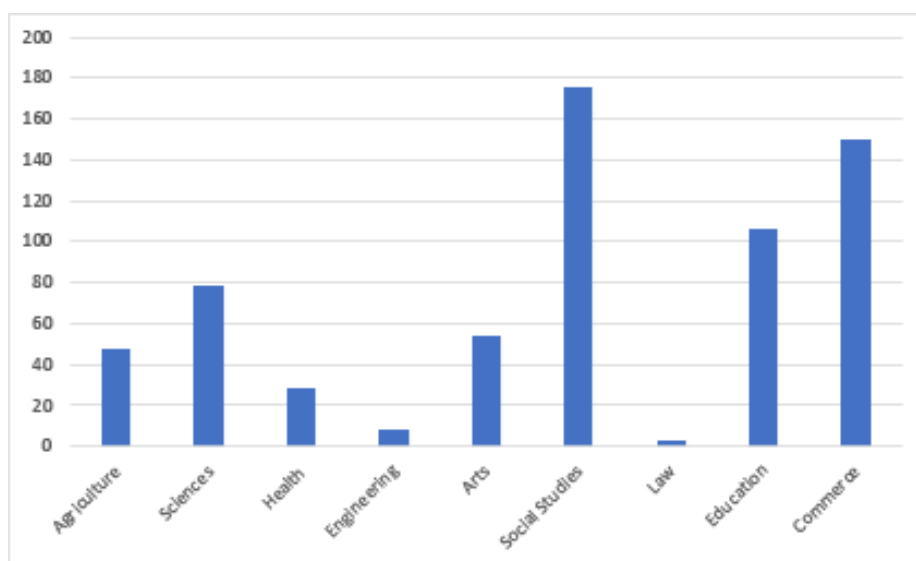
Figure 4. Doctoral student enrolment by discipline.

Research capacity development

Research capacity development refers to efforts to 'increase the ability of individuals and institutions to undertake high quality research and to engage with the wider community of stakeholders' (ESSENCE on Health Report 2014: 1). Studies highlight the efficacy of research capacity development for both students and academics in HEIs in promoting an enquiry-based approach to problem solving (Lansang & Dennis 2004). Research capacity development includes components such as capacity building and capacity strengthening of individuals, groups, institutions, and/or systems (Cooke 2005). Strategies to improve research capacity include partnerships, training, and mentorship programmes.

Some of the success factors in running effective doctoral education and training programmes include research and research writing courses aimed at providing academics and students with the requisite competencies. These are critical for nurturing a culture of research in institutions, and for empowering researchers to be competitive enough to disrupt their 'spaces' and improve national and international development. The main activities discussed here are training programmes and research dissemination platforms.

The Government of Zimbabwe through the Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development and its competent authority for quality assurance, the ZIMCHE, launched the Research and Intellectual Outputs, Science, Engineering and Technology (RIOSET) Expo. This annual event provided Zimbabwean intellectuals with a platform to exhibit their innovations and research outputs. The expo had four segments:

1. An official opening segment that mimicked a grand graduation ceremony complete with an academic procession made up only of academics wearing doctoral regalia. A distinguished lecture by a member of the Presidium would then ensue.
2. A conference segment with plenary and parallel sessions. Following a rigorous peer-review process, the outstanding research papers were published in the *Journal of Zimbabwe Studies*.
3. Exhibitions (inclusive of visual arts). A team of adjudicators were responsible for selecting those products and artefacts that could be commercialised.
4. Performing arts. The best performers were given awards to motivate them.

Supportive structures

Robust institutional research structures have emerged as critical 'must haves' for institutional research capacity strengthening (Kirkland & Ajai-Ajagbe 2013). For example, a research support unit (RSU) is a one-stop node offering support for

research to academics and students. It is responsible for promoting research through coordinating and facilitating researcher upskilling; grant applications; award negotiations; and transparent decision-making; as well as maintaining compliance with regulatory, disciplinary/professional, institutional, funding, and research integrity in general. Quality assurance criteria for institutional RSU efficiency include: the quantity and quality of publications per annum; number of researchers assisted; total funding secured; total grant applications/awards per year; levels of compliance; and level of satisfaction amongst beneficiaries of the services provided.

Apart from all universities having engaged research directors to promote research and innovation, only three universities have well-established RSUs. These units work together with relevant university structures to promote a culture of research by assisting researchers in proposal development and grant applications, identification of international research partners, and project management. ZIMCHE does not have guidelines on institutional research management, but expects HEIs to develop their own innovative research management structures in line with their legal Acts, the QAF, and international best practices.

Summary remarks

This self-evaluation report was prepared on the basis of an analysis of data from primary and secondary sources. Arguably, this self-evaluation report shows that a significant amount of work has been covered in implementing the framework and that the QAF is essential for the improvement of research in Zimbabwe. The areas of intervention that lagged behind significantly are doctoral training and supportive structures. However, for purposes of guaranteeing continuous improvement, the QAF for promoting the quality of and productivity in research work in the country's higher education system requires external evaluation to confirm good practices and to identify gaps based on international trends and expert input.

Peer review of the self-evaluation report

The ZIMCHE QAF for research significantly improved the quantity and quality of research in Zimbabwe in the following areas:

1. Policies and guidelines,
2. Doctoral training,
3. Capacity development/strengthening,
4. Supportive structures.

In each of these areas the peer reviewers highlighted areas of commendation and areas needing improvement as follows:

Policies and guidelines

Commendation
There is obvious awareness of the need for research productivity to be guided by clear policy and efforts have been made to design such policies. The need to contextualise such policies to reflect the socio-economic realities obtaining on the ground is highlighted. This would require the involvement/engagement of all stakeholders in policy formulation so as to help address all key variables for the success of the policies. This would require involving academics, university executives, policy makers, ZIMCHE, the business sector/industry, students, etc.

Gaps identified
Existing policy guidelines appear to be top-down. Academics consider research to be an intricate part of their professional development and thus a personal activity requiring that any form of research management should involve them. There is no clarity on what/whether a document or documents exist that institutions can draw from in formulating their own policies and strategies for promoting quality research. No mention was made of policies on performance management of academics. For example, as a way of showcasing research impact in the local communities, industry, government, and the nation at large, some universities stipulate input and output indicators of research prowess (Rieu 2014). Input indicators include:

1. Research grants/income achieved compared to expectations from each level of academic per year with much more being expected from the professoriate (Buller 2012);
2. Research collaborations and partnerships considering that HEIs are part of local, national, regional, and global ecosystems;
3. Numbers of postgraduate students;
4. Evidence or research impact (policies developed, high-level decisions based on research evidence, etc).

Output performance indicators include:

1. Number of research outputs (per individual, team, or institution);
2. Quality of research outputs (for example, journal impact factor, level of article, number of citations per article, licences, patents);
3. Quantity of thesis/dissertations per year;

4.   Academic awards/distinctions based on research (for example, editorships, special awards).

In other systems, governments require HEIs to participate in competitive (performance-based) research funding arrangements wherein a proportion of resources for research are allocated to those HEIs and academics whose research productivity meets set standards (Mo & Wang 2008). South Africa is amongst the many countries that has a 'direct reward system' that gives financial incentives to researchers and HEIs to increase research outputs (Pillay 2003, Vaughan 2008). A major criticism of this system is that it has the potential to promote quantity at the expense of quality (CHE 2009), as exemplified by the fact that only 57% of the publications that were awarded a governmental subsidy in 2007 were published in internationally accredited journals (Kahn 2011).

An extreme example of the performance-based funding system for research is the Research Excellence Framework (REF) used in the UK, which accounts for the larger chunk of research funding for HEIs. The point of departure from other performance-based funding systems is that REF draws on peer review of research outputs in order to measure quality as opposed to the use of various scientometric indicators that measure only the quantity of research outputs. According to Sutton (2020), whilst improving research performance, the REF can be contentious and can cause disgruntlement and inequalities amongst institutions and academics. Indeed, Weinstein *et al.* (2019) found that 57% and 29% of researchers in the UK were in favour of or against REF 2021, respectively.

Doctoral training

Commendation

Again here, there is awareness of the importance of doctoral training, and steps have already been taken by ZIMCHE to encourage HEIs to develop such training. Although the need to harmonise such programmes has been noted, there is also a need to emphasise the importance of structured doctoral programmes, with competent supervision and assessment. For example, in order to highlight the importance of standards in doctoral training, the European Universities Association (EUA) established a Council for Doctoral Education (EUA 2010).

Gaps identified

Doctoral training in Zimbabwe does not indicate issues and challenges that are topical in other African countries: for example, Ethiopia, Ghana, and South Africa. These include inefficiencies relating to the rates of participation, progression, completion, and

institutional and national throughput, as well as issues of relevance, inclusivity, and employability (World Bank 2010, UNCTAD 2011, FDRE 2012, Cloete *et al.* 2015). As a result, it is difficult to provide a comprehensive assessment of the progress Zimbabwe has made in improving the quality and relevance of doctoral training.

There is no clarity as to what doctoral training looks like in these institutions. What formal structures exist for training and supporting supervisors and students? Who does the training? What programmes/courses do they offer? What material is available? What resources are available? Is funding made available? What supporting documents are students given?

Capacity development/strengthening

Commendation
Attendance at national and international research fora, including conferences/workshops/seminars, is critical for academics to participate in global and topical conversations by way of capacity strengthening. Whilst the self-evaluation report indicates the importance of the RIOSET Expo, nothing is mentioned regarding attendance at similar international events.

Gaps identified
The self-evaluation narrative seems to suggest that capacity development interventions were successful, thus considering capacity development as an end in itself. There is no clarity as to how the interventions have been translated into specific activities by institutions or an evaluation of how well they are working. This is contrary to the view of Cooke (2005) that capacity development is not an end in itself but a means to an end wherein research productivity gains reflect the effectiveness of capacity development. Indeed, Gadsby (2011) asserts that the impact of the capacity development interventions is not easy to access.

The central role of effective communication in capacity development efforts was not mentioned in the self-evaluation.

Supportive structures

Commendation
The existence of research directors at all HEIs is commendable and should be complemented with robust RSUs. The stance by ZIMCHE to encourage HEIs to develop their own institutional research support structures is good since they are encouraged to benchmark. Best practices elsewhere show that impact research is

directly correlated to freeing academics from the administrative burden associated with research support, allowing them to concentrate on the intellectual demands of research. This is made possible by the professionalisation of RSUs by staffing the units with friendly, capable, experienced, and appropriately qualified staff.

Gaps identified

Reference is made to the existence of RSUs, but there is no clarity as to what these look like. Are there personnel such as research managers and administrators who provide support to various aspects of research activity and research funding? Are there related structures at faculty/department level to provide discipline-specific support? What does research quality assurance look like at institutional level?

Research funding should also be channelled to strengthen support structures for the various aspects of research: for example, doctoral training support (put together academic teams to develop doctoral training courses); research management teams, for example, research managers and administrators, ethics committees, technical support, grant application teams; libraries should be well-equipped and provide access to up-to-date databases; funding should be provided to subscribe to both print and electronic journals, purchase research-related software, set up computer labs, and provide efficient information and communication technology, as well as offering advisory and specialist services to facilitate research (Jubb 2016, Klain Gabbay & Shoham 2019).

Critical reflections on the development and review of the QAF for research

This paper has presented the rationale, development, and evaluation of the QAF for research in Zimbabwe. In line with the third objective, this section highlights the consideration points for adoption by institutions and quality assurance agencies, particularly in Africa where the agenda for improving research and innovation is shared amongst all nations (AUC 2014). To begin with, consistent with the assertion by Davidson *et al.* (2020), the QAF for research was confirmed as an important guide and harmonisation tool for improving research at institutional and national level. Secondly, the QAF should be developed by a range of stakeholders, taking into consideration contextual issues regarding challenges, resources available, and national imperatives. Thirdly, the paper endorsed the methodology of self-evaluation and peer review as an effective assessment tool for evaluating the effectiveness of quality assurance frameworks. This was in agreement with existing literature which found self-evaluation and peer review to be cornerstone tools in quality assurance (Campbell & Rozsnyai 2002, Vlasceanu *et al.* 2004, Lillis 2012). Finally, ZIMCHE, a national

quality assurance agency, played a critical role in the development, implementation, and review of the QAF, drawing from its strategic oversight mandate over quality assurance of higher education in HEIs.

Conclusion

The QAF approach was acknowledged as a best practice in improving the quality of research and innovation globally and in Zimbabwe. The QAF presented the following quality interventions: (a) relevant national policies, standards, and guidelines; (b) doctoral training; (c) research capacity strengthening; and (d) institutional research support units. Using self-evaluation and peer review quality improvement methods, this paper identified gaps in the implementation of the QAF for research in Zimbabwe. Self-evaluation showed that, despite clearly defined interventions and standards outlined in the QAF, gaps still existed regarding doctoral training and supportive structures for research.

Drawing from the gaps identified by peer reviewers, the paper recommends that ZIMCHE needs to harmonise doctoral training by developing a common framework to guide issues like doctoral recruitment, structure and types/models of doctoral programmes, pedagogical practices, and the organisation of doctoral supervision. Regarding research resources and researcher/institution performance management, the paper recommends the inclusion of a performance-based research funding arrangement akin to the Research Excellence Framework (REF) used in the United Kingdom whilst throwing caution on the contentious nature of the REF.

In summary, the self-evaluation and peer-review methodology is a powerful continuous improvement tool for use by different national quality assurance agencies in reviewing their quality assurance frameworks for research. The paper concludes that the development, implementation, and review of quality assurance frameworks for research are needed to guide institutions, enhance research, and to maintain consistency and harmony in the research system. These findings can be adapted by different national quality assurance agencies involved in the regulation, promotion, and enhancement of the quality of teaching, innovation, knowledge production, and engagement/outreach in higher education.

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