

EFFECT OF CHANGES AND REFORMS ON QUALITY ASSURANCE IN RWANDAN HIGHER EDUCATION

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Abstract

Developing knowledge infrastructure by massive investments in education and training are taken as a benchmark in facilitating the acceleration and possible increases in skills, capacities and competences of Rwandan people has become a priority issue in the recent years. This notion is relevant to Vision 2020 where human resource development and building of a knowledge-based economy are fundamental pillars. In the past years, several policy reforms have taken place in education sector. However, the overarching question is if such changes and reforms are becoming adaptive or complex and if such reforms will not compromise the quality of education in Rwandan Higher Education. The main objective of the study is to investigate the impact of changes/reforms on quality in Rwandan Higher Education in the last 20 years.

Specific objectives are: (i). to establish the changes/reforms that have taken place in the Rwandan higher education; (ii). to assess the impact of the changes/reforms on the quality of higher education in Rwanda; (iii). to examine the effect of modern ICT tools and applications on the quality of higher education in Rwanda. The study considered primary data and both qualitative and quantitative information from 8 institutions, both public and private, namely: Ministry of Education, Ministry of Youth and ICT, University of Rwanda, Independent Institute of Lay Adventists of Kigali, Kigali Independent University, Kigali Institute of Management, Adventist University of Central Africa and Rwanda Tourism University College. In the Ministry of Education, 2 directorates selected were Higher Education Council and Rwanda Education Board. In the University of Rwanda, 5 Colleges including the College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM), College of Arts and Social Sciences (CASS), College of Science and Technology (CST), College of Economics and Business Studies (CEB) and the College of Education(CE). Besides, the center of GIS under the University of Rwanda was selected for its distinct function in promoting geographical information systems and remote sensing. Main research instruments were questionnaires and interviews. Pertinent conclusions include putting in place suitable and more adaptive mechanisms to manage the changes in higher education system and ensure consistency with the Presidential order N^o. 51/01 of 13/07/2010 establishing standards in Higher Learning Institutions.

Key words: *Quality Assurance; Higher Education; Rwanda.*

1 Introduction

Developing knowledge infrastructure by massive investments in education and training are taken as a benchmark in facilitating the acceleration and possible increases in skills, capacities and competences of Rwandan people has become a priority issue in the recent years. This notion is relevant to vision 2020 where human resource development and building of a knowledge-based economy are fundamental pillars. In the past years, several policy reforms have taken place in education sector. However, the overarching question is if such reforms are becoming adaptive or complex and if such reforms will not compromise the quality of education in higher learning education in Rwanda?

According to Miriam Bar-Yam et al. (2002), rapid changes and increased complexity of today's world present new challenges and put new demands on our education system. There has been generally a growing awareness of the necessity to change and improve the preparation of students for productive functioning in the continually changing and highly demanding environment. In confronting this challenge it is necessary to consider the complexity of

the education system itself and the multitude of problems that must be addressed. Clearly, no simple, single uniform approach can be applied with the expectation that significant improvements of the system will occur. In view of such problems, we become increasingly cognizant of the various possibilities of using concepts and methods of the study of complex systems for providing direction and strategies to facilitate the introduction of viable and successful changes. A key insight from complex systems is that simple solutions are not likely to be effective in cases such as the education system, and that providing a balance or coexistence of what seem to be opposites may provide the greatest opportunities for successful courses of action (John Vu, 2010; Humphries, 2013). Thus, complex systems provide a scientific framework for understanding the education system and education reform.

As noted by Kaput et al. (2007), the information age complex society needs diverse skills, and, needless to say, individual desires and talents will not be fulfilled through mass production of standard capability students. Indeed, any strategy for change must contend with the

diverse factors affecting the education system, the interactions of its parts, and the intricate interdependencies within it and with its environment.

Within this context, the Government of Rwanda (GoR) is supporting the transformation of higher education so that it is fit for purpose and internationally credible (MINEDUC, 2009). To facilitate this process, higher education institutions are required to deliver graduates, research, consultancy services and community engagement to support the social and economic development of Rwanda (GoR, 2014). Before 1994, education in Rwanda was reserved for the privileged few, but over the last 17 years access to education has increased tremendously. Today a child born in Rwanda is guaranteed a minimum nine years basic education, six at primary and three at secondary school. The number of students at primary level has more than doubled, there are almost nine times more students in secondary and those in higher education are a massive 17 times more than before. The corruption that used to determine who could have the opportunity to study has been eliminated and the only thing that determines how well a student does in

school is his/her own hard work (IPAR, 2012; GoR, 2014).

The Government of Rwanda, through the Ministry of Education has a mission to transform the Rwandan citizen into skilled human capital for socio-economic development of the country by ensuring equitable access to quality education focusing on combating illiteracy, promotion of science and technology, critical thinking and positive values (MINEDUC, 2010: Education Sector Strategic Plan 2010-2015). The overall structure of the Rwandan education system is evolving rapidly. When the World Bank published a major review of the education sector in Rwanda in 2010 (World Bank 2010), they described a system which divided into five phases: (i) pre-primary, (ii) primary, (iii) lower secondary, (iv) upper secondary and (v) post 19 including higher education.

However, this structure has changed considerably in recent years with the introduction of 9 Years Basic Education and later the 12 Years Basic Education. Rwanda is effectively introducing a radical restructuring of the system into one with four phases, namely; the Pre-primary education, Nine Years Basic Education

(9YBE), Upper Secondary of 12 Years Basic Education (12YBE) and the Post 19 education with a mix of Higher Learning Institutions (HEIs), Technical and Vocational Education and Training (TVETs) and the non-degree awarding high education.

The Ministry of Education (MINEDUC) has two main delivery arms, namely; Higher Education Council (HEC) and Rwanda Education Board (REB). These have distinct functions but they do play complementary roles. The Higher Education Council is mainly responsible for ensuring quality control and also upholding international standards. On the other hand, Rwanda Education Board focuses its core mission as being to “improve education quality, building the capacities and management of teachers, loans and scholarships, monitor the distance learning program, and promote the use of information and communication technology in education”.

Within the context of the SMART Rwanda Master Plan (SRMP) which is a strategic approach of transforming the economy of Rwanda to a knowledge economy through ICT, the Government of Rwanda through both the Ministry of Education and the Ministry of Youth and ICT have put in place

mechanisms that will help to enhance the quality of education at all levels. In a broader context, SMART Rwanda is perceived as citizen-centric. It is business-friendly, accessible and providing sustainable information and service delivery ecosystem, realized through public and private investment, to transform the economy and enhance the well-being of individuals and the community. It will therefore harness the transformative powers of ICTs and their cross-cutting nature to help increase the productivity of other sectors, achieve the targeted 11.5% average GDP and economic transformation hence the 10 SMART Rwanda areas i.e. SMART Education, SMART Healthcare, SMART Governance, SMART Business, SMART Agriculture, SMART Environment, SMART Job Creation, SMART Infrastructure, SMART Girls and SMART Cities (Jean Philbert Nsengimana, the Minister of Youth and ICT, 2013).

In order to be SMART, there is need to be innovative, information-driven, and ICT-enabled (Jean Philbert Nsengimana, 2013). Thus, SMART Education in Rwanda calls for innovative ideas especially on how to manage changes or reforms which have been perceived by many as complex in nature and

style. The main objective of the study is to investigate the impact of changes/reforms on quality in Rwandan Higher Education.

Specific objectives are:

1. To establish the changes/reforms that have taken place in the Rwandan higher education;
2. To assess the impact of the changes/reforms on the quality of higher education in Rwanda;
3. To examine the effect of modern ICT tools and applications on the quality of higher education in Rwanda.

This research has two hypotheses, namely:

1. The changes/reforms in higher education system are positively affecting the quality of education in Rwanda.
2. There is an impact of ICT development on the quality of higher education in Rwanda.

2. Methods

This study was carried out in eight institutions, both public and private, namely; Ministry of Education, Ministry of Youth and ICT, University of Rwanda, Independent Institute of Lay Adventists of Kigali, Kigali Independent University, Kigali Institute of Management, Adventist University of Central Africa and Rwanda

Tourism University College. In the Ministry of Education, two directorates selected were Higher Education Council and Rwanda Education Board. In the University of Rwanda, five Colleges including the College of Agriculture, Animal Sciences and Veterinary Medicine (CAVM), College of Arts and Social Sciences (CASS), College of Science and Technology (CST), College of Economics and Business Studies (CEB) and the college of Education (CE) were selected. Besides, the center of GIS under the University of Rwanda was selected for its distinct function in promoting geographical information systems and remote sensing among others.

The parameters considered include: the teaching methodology, adoption of modular system, assessment styles, transformation of some private higher learning institutions from non-profit to profit making institutions, medium of instruction, merging of public HLIs, periodical curriculum review, tailoring education system to regional reforms and implementation strategies, duration of undergraduate program from 4 years to 3 years, harmonization of education qualification in the East African Community (EAC) and the subsidization of tuition fees

for students studying in other countries in the region.

The focus for this study was to assess the impact of these changes/reforms on the quality of education in Rwanda over a period of 20 years from 1994 to 2014. An overall sample of 84 respondents were selected including 10 directors of quality or academics, 10 faculty deans, 20 lecturers, and 40 students. Questionnaires were administered to 80 respondents and 4 key informants (senior officials in MYICT, REC, HEC and GIS Center) were interviewed and the response rate was 98.8%. The sampling techniques used to collect data were: purposive, convenient and random sampling. Both qualitative and quantitative data were collected. Analyses were done using SPSS and excel packages.

Table 1: Changes/reforms in Rwanda Higher Education

S N°.	Changes/Reforms	Percentage(%) of respondents agreeing with change	Comment
1	Teacher-centered to student-centered learning	84.4	This complies with the Presidential order N°. 51/01 of 13/07/2010 establishing quality standards in higher learning institutions (Art.2.3.1)
2	Adoption of modular system	89.3	This conforms to the National Council for Higher Education, General academic regulations (N°. 34, Revised June, 2013).
3	40% in Continuous Assessment Techniques (CAT) and 60% in final	88.5	This is consistent with the Higher Education Council General academic regulations (N°. 44, Revised June, 2013).

Different sources of information were consulted including national documents such as policies, regulations, procedures and laws governing higher education in Rwanda. Other sources include articles by scholars on education systems from other places.

3. Results and Discussion

This section presents the research findings on the changes/reforms that have taken place in Rwanda over the period of 20 year from 1994 to 2014 and their impact on quality in higher education.

3.1. Observed changes in Rwandan Higher Education

Table one below highlights the changes that have taken place in the last 20 years, and the policies and laws guiding the changes in higher education.

	exam previously and currently 60% in CAT and 40% in the final exam		
4	Transformation of private higher learning institutions from non-profit to profit institutions.	37.9	In accordance with the Law N ^o . 27/2013 of 24/05/2013 Governing Organizations and Functioning of Higher Education (Art. 9). However, the low percentage (37.9 %) indicates that most of the private higher learning institutions still operate as non-profit.(optional to private institutions).
5	Medium of instruction (French to English)	92.3	In accordance with the Education Sector Strategic Plan 2010-2015, by The Ministry of Education, Rwanda.
6	Merger of all Public Higher Learning Institutions into one University (University of Rwanda)	84.2	This tally with the Law N ^o . 71/2013 of 10/09/2013 establishing the University of Rwanda (UR) and determining its mission, powers, organization and functioning & Law N ^o . 27/2013 of 24/05/2013 governing organization and functioning of higher education (Art.17)
7	Periodical curriculum review	64.5	This harmonizes with the Inter-University Council for East Africa Rolling Strategic Plan 2011/12 – 2015/16 & also go with the Rwanda Handbook for Academic Quality Assurance and Enhancement and the Maintenance of Standards in Higher Education (Revised August, 2007)
8	Tailoring Education system to regional reforms and implementation strategies	55.4	This correlates to the Presidential order N ^o . 51/01 of 13/07/2010 establishing quality standards in higher learning institutions (Art.2.6.1)
9	Number of years for undergraduate program from 4 to 3 years	60.6	This squares with the statement from the Minister of Education, Dr.Vicent BIRUTA: “Govt to slash duration of tertiary education on November 13,2013: http://www.newtimes.co.rw/news/index.php?a=72068&i=15540 : Accessed on 26, July,2014. This also agrees with the National Council for Higher Education; General Academic Regulations, Revised June 2013.
10	Harmonization of education qualification in the East African Community (EAC)	49.3	This corresponds with the Regional Report on the study of the Harmonization of the East African Education Systems And Training Curricula the EAC Secretariat, Arusha, Tanzania April, 2011
11	Subsidization of tuition fees for students studying in any other country within EAC.	27.2	This is consonant with the Inter-University Council for East Africa Rolling Strategic Plan 2011/12 – 2015/16 & The Law N ^o . 27/2013 of 24/05/2013 governing organization and functioning of higher education (Art.3). However, subsidization is case specific depending on the form of management (i.e. public and private institutions of higher learning). The low percentage (27.2 %) indicates that people have no idea about this policy.

3.2. The impact of the changes/reforms on the quality of higher education

In order to assess the impact of the changes/reforms in higher education, it was necessary to establish the necessary requirements and quality standards guiding quality assurance in Rwanda.

3.2.1 Necessary requirements to enhance quality in Rwandan higher education

Table two below presents the requirements and the level of agreement from different respondents.

Table 2: Necessary requirements to enhance quality in Rwandan higher education

S N°.	Requirements	Percentage (%) of agreement by respondents
1	Necessary physical infrastructure (classrooms, library materials, offices, conference rooms, laboratories, toilets, etc.)	97
2	Quality of programs delivered	92
3	Didactic materials available/Learning resources and student support (desktops, laptops, projectors, white/green boards, etc).	97.4
4	Access to internet and e-learning resources	96
5	Qualified academic staff (number of PhDs and M Sc holders)	86.7

From table two above, respondents over 85% strongly agree with the highlighted requirements to enhance quality in higher education. Referring to the Presidential Order N° 51/01 of 13/07/2010 establishing quality standards in higher learning institutions, the quality standards are as follows:

i. Space (Art.1.1.1-1.3.1)

Space per student to use lecture/theatre rooms normally should be 1m^2 . 1m^2 per 4 students shall imply room for improvement while 1m^2 per 5 students shall be considered unsatisfactory.

Space per student to use seminar rooms normally should be 2m^2 . 1m^2 shall imply

room for improvement while less than 1m^2 shall be considered unsatisfactory.

Space per student to use the laboratories normally should be 2.5 m². 1.5 m² shall imply room for improvement while less than 1.0 m² shall be considered unsatisfactory.

Study space to use the library normally should be 250 m² for every 1000 registered students and/or members of academic staff. 100 m² for every 1000 students and/or academic staff shall imply room for improvement while less than 100 m² shall be considered unsatisfactory.

Space for two members of academic staff (Full Time) to use for offices normally should be 2.0 m². 1.0 m² shall imply room for improvement while less than 1.0 m² shall be considered unsatisfactory.

Space per member of administrative staff such as Deans, Directors and Heads of Departments in use for offices normally should be 4 m². 2.5 m² shall imply room for improvement while less than 2.0 m² shall be considered unsatisfactory.

Toilet facilities should be located on the campus so that staff and students have reasonable access to them. Normally there should be one toilet for every 50 registered students and members of staff (separate facilities for men and women). One toilet for every 100 registered students and members

of staff shall imply room for improvement while less than one toilet for every 100 registered students and members of staff shall be considered unsatisfactory.

ii. Quality of programs delivered (Art. 2.1.2)

All academic programs, undergraduate and postgraduate, shall be designed, delivered and assessed in line with the requirements of the: National Qualifications Framework for Rwanda; General Academic Regulations; and Academic Quality Manual.

iii. Didactic materials available (Art. 2.5.1)

Institutions must ensure that the resources available for the support of student learning are adequate and in line with the requirements of the Norms for the Internal Quality Assurance of Programs, Norms for learning Resources, and ICT. Institutions must ensure adequate and appropriate laboratories and other practical facilities. Where an institution uses the facilities of another provider, a Memorandum of Understanding must be in place.

iv. Academic Staff Qualifications (Art.4.1.12)

The ratio of academic staff with a PhD qualification to the total academic staff strength normally should be at least 15%. The ratio of 10% shall imply room for improvement while less than 10% shall be considered unsatisfactory.

The ratio of academic staff with a Masters Degree qualification to the total academic staff strength normally should be 90%. The ratio of 50% implies room for improvement while less than 50% shall be considered unsatisfactory.

**v. Access to internet and e-Learning
(refer to Vision 2020)**

ICT is central to Rwanda's Vision for 2020, and ICT in education is one of the core pillars of the country's National Information and Communications Infrastructure Policy and Plan, adopted in 2000.

3.2.2. The impact of changes/reforms on quality of Higher Education in Rwanda

To assess the impact of the changes in Rwandan higher education, Chi square tests were run and to determine the level of association, contingency coefficient was applied.

Comparing both, the Chi square calculated is greater than the tabulated (i.e. $\chi^2_{calculated} > \chi^2_{tabulated}$). Hence, the null hypothesis is rejected and the alternative hypothesis is accepted. This means that the variables are correlated, (i.e. Observed changes/reforms in Rwandan education system are positively affecting the quality of education).

Decision may also be based on the p-value. In this case, p-value (0.000) is less than the alpha (5% significance level) and the null hypothesis is rejected.

To determine the level of impact, contingency coefficient (C) was calculated (table 4). Contingency coefficient is a measure of association based on chi-square. The value ranges between 0 and 1, with 0 indicating no association between the row and column variables and values close to 1 indicating a high degree of association between the variables in comparison. The following table four provides symmetric measures from the variables under study.

Since the obtained contingency coefficient indicated in table four is equal to 0.573, the association of variables is regarded as moderate. Although there is a positive correlation between the changes/reforms and quality in higher education, some

efforts have to be invested in managing the changes.

Table 3. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.989	2	.000
Likelihood Ratio	6.906	2	.032
Linear-by-Linear Association	7.522	1	.006
N of Valid Cases	47		

The test statistic $\chi^2_{calculated} = 22.989$ whereas the $\chi^2_{tabulated} = 5.991$.

Table 4. Symmetric Measures

	Value	Approx. Sig.
Nominal by Nominal Contingency Coefficient	0.573	.000
N of Valid Cases	47	

3.3. Contribution of ICT tools and applications on quality of Rwanda Higher Education

ICT development in Rwanda has served as a catalyst for socio-economic transformation and development. It is one of the cross-cutting pillars in the Vision 2020. Through SMART Rwanda, the ICT sector reaffirms its role as a leader in innovations. The sector aims to do things Smarter, which is to do more with fewer resources. In order to examine the effectiveness of modern ICT tools and applications on the quality of Higher Education in Rwanda, respondents from different institutions were investigated. Of these, 66.1% indicated that ICT tools contributed highly (over 60%) to quality improvement in Higher Education. Through

key informant interviews with officials from GIS-University of Rwanda, Rwanda Education Board, Higher Education Council and the Ministry of Youth and ICT, it was established that ICT tools and applications contributes significantly through various government sectors.

In the last 20 years, major changes happened in Rwanda as a result of ICT tools and applications and this has been envisaged through various sectors of economy.

4. Conclusion and recommendations

Higher education in Rwanda has a unique and important role to play in resolving the skills gap. Much has been achieved, notably; improving quality assurance through guiding revision of curriculum (teaching, learning and assessments)

policy development, institutional audits, and research and establishing standards for national qualifications framework among others. Nonetheless, there is room for future improvement. Addressing the challenges resulting from some complex changes and reforms need to be managed carefully.

Basing on the findings from this study, it is recommended: (i) To provide ample time for changes and reforms to be adapted in the higher education; (ii) To monitor and evaluate changes before initiating further changes; (iii) To enforce quality standards

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as stipulated in the Presidential order N^o. 51/01 of 13/07/2010 establishing standards in Higher Learning Institutions; (iv) Create awareness of the Modular System in all higher learning institutions as a strategy to promote multiple registration and admission of students (full time, part-time, and for short courses) in any given academic calendar; (v) Streamline the operational policies and plans that will help fast track development and also achieve Quality oriented goals in the University of Rwanda.

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