UNIVERSITIES AND ECONOMIC DEVELOPMENT IN AFRICA

Pact, academic core and coordination EXECUTIVE SUMMARY OF SYNTHESIS REPORT

Nico Cloete, Tracy Bailey and Peter Maassen



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For a description of the various HERANA project components, participants and publications, visit the website at http://www.chet.org.za/ programmes/herana/.

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A note about the data timeframe

This synthesis report and its associated case study reports were written in 2010 and published in early 2011. It should be noted that the data on which these reports are based ranges from 2001–2009. In particular, the academic core data cover the period 2001–2007, while the national and institutional policies, plans and project information is based on data collected in 2009.

The project group

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Network	Higher Education Research and Advocacy Network in Africa (HERANA)		

Executive summary

The context

In recent decades the phenomena of 'globalisation' and the 'knowledge economy' have been accompanied by new challenges and increasingly important roles in development for new competencies and skills as well as for research, innovation and technological development.

Higher education is now recognised as key to delivering the knowledge requirements for development. Research has suggested a strong association between higher education participation rates and levels of development, and that high levels of education are essential for the design and production of new technologies, for a country's innovative capacity and for the development of civil society.

This has persuaded many countries – including rapidly developing nations such as China and India – to put knowledge and innovation policies, and higher education, at the core of their development strategies. The ability of developing countries to absorb, use and modify technology developed mainly in high-income countries will drive more rapid transition to higher levels of development and standards of living.

The role of higher education in development in Africa has remained unresolved. Following independence, universities were expected to be key contributors to human resource needs. The idea of 'development universities' emerged during the 1970s, when it was argued that governments should steer universities towards a development role. This was not done, partly because many governments had no coherent development model, and instead steering became interference and universities became sites of contestation. States and academics became sceptical of the role of universities in development, and higher education came to be seen as a 'luxury ancillary' – nice to have, but not necessary.

During this period the World Bank, especially, concluded that development efforts in Africa should concentrate on primary education. Dramatic declines in expenditure on higher education followed: spending per student fell from USD 6 800 in 1980, to USD 1 200 in 2002, and later to just USD 981 in 33 low-income sub-Saharan African countries. Lack of investment in higher education delinked universities from development, led to development policies that had negative consequences for African nations, and caused the closure of institutions and areas of higher education that are critical to development.

During the 1990s and early 2000s some influential voices (including the World Bank) started calling for the revitalisation of African universities and for linking higher education

to development. Ahead of the UNESCO World Conference on Higher Education in 2009, a group of African education ministers called for improved financing of universities and a support fund to strengthen training and research in key areas.

The research

Much research into the relationship between higher education and economic development has been econometric in nature. Little research has focused on the characteristics and dynamics of the relationship between higher education and development, or on contextual and institutional factors that facilitate or inhibit these relationships. This study addresses some of these gaps.

To understand the contributions of African universities to economic development, the report argues that the unique characteristics of universities should be a starting point. The analytical point of departure has been that the conditions under which each university contributes to economic development are influenced by the following three related factors:

- The nature of the pact between universities, political authorities and society;
- The nature, strength, size and continuity of the university's academic core; and
- The level of coordination, implementation and connectedness of universities in the larger policy context.

The aim of the project was to investigate the complex relationships between higher education and economic development in selected African countries with a focus on the context in which universities operate, the internal structure and dynamics of the universities, and the interaction between the national and institutional contexts. It also aimed to identify factors and conditions that facilitate or inhibit universities' ability to make a sustainable contribution to economic development.

The project began with a review of the international literature on the relationship between higher education and economic development. This was followed by case studies of three systems that have effectively linked their economic development and higher education policy and planning – Finland, South Korea and North Carolina state in the US.

The next phase involved collecting data at both the national and institutional levels in eight African countries and universities included in the study. In seven of the countries the national ('flagship') university was selected: the universities of Botswana, Ghana, Nairobi (Kenya), Mauritius, Eduardo Mondlane (Mozambique), Dar es Salaam (Tanzania) and Makerere (Uganda). In South Africa, the Nelson Mandela Metropolitan University (NMMU) was regarded as comparable in terms of size and profile to the other African institutions. The University of Cape Town, Africa's top-ranked institution, was included in the analysis of the academic core.

The research team visited the eight African countries and universities between February and June 2009. Interviews were conducted with a range of individuals in universities and

in government ministries and agencies, and higher education commissions. The analysis also drew on policy and strategy documents at national and institutional levels, and on quantitative data including national development indicators and statistics.

A feature of the study is that concepts such as 'pact', 'academic core' and 'coordination' were operationalised by, among other things, developing and using specific indicators that allowed comparable empirical evidence to be gathered.

Evidence of a pact?

The research assumed that the stronger the 'pact' in a country (i.e. broad agreement between government, universities and core socio-economic actors about the nature of the role of universities in development), the better universities would be able to make a significant and sustainable contribution to development. From interviews and documents analysed, the most important findings in this regard were:

- None of the African countries had a clear development model or strategy, although Mauritius was moving in that direction. Some countries had national development plans (Uganda, Botswana and Mozambique), others had poverty reduction strategies (Ghana and Mozambique), and several had grand national visions cast into a distant future. But these were often based on 'best practice' policy-borrowing from first world countries, and lacked implementation plans or systematic monitoring mechanisms.
- There was lack of agreement between national and university stakeholders about a development model, except in Mauritius, and about the role of higher education in development. Mauritius came closest to a development model with a generally agreed national vision and associated policies, but coordination, implementation and monitoring was lacking. The other countries had changing national priority announcements and a range of non-complementary policies in different centres of power.
- Mauritius was also the only country that stated upfront that knowledge drives economic growth. Knowledge was not considered key to development in the other countries.
- Excluding Mauritius, knowledge economy awareness was seldom reflected in more than one ministry's policy or in national vision statements, and was mostly absent from the policies of ministries responsible for higher education. Except for Botswana and Uganda, this articulation was generally stronger at the national than at the institutional level.
- At the institutional level, the knowledge economy was articulated in the policies or plans of the universities of Botswana, Mauritius and Makerere. No university had specific policies regarding its role in economic development. But this role was embedded in the strategic plans or research policies of Botswana, Nairobi, Mauritius and Makerere.

What is the role of higher education in development? There are different notions. One, dominant in and outside universities, is an 'instrumentalist' role that assumes universities have a concentration of expertise that should be applied to pressing social problems. A second 'engine of development' notion has taken hold in many advanced countries and

focuses on strengthening knowledge and innovation as crucial productive forces without which no country can participate in the global knowledge economy. A third notion is the university as 'self-governing' institution that contributes to development indirectly by, among other things, producing high-level skills and scientific knowledge. The research found that:

- At national and institutional levels, the most obvious unresolved tension was between the self-governance and instrumental roles. This reflects the well-known tension between institutional autonomy, and engagement or responsiveness.
- At national level the dominant expectation was that universities should contribute directly to development (the instrumental role), stressing contribution via expertise and capacity building rather than producing new scientific knowledge. A constant complaint was that universities were not contributing enough to development, usually referring to tackling social problems rather than economic development.
- The engine of development notion was stronger among government stakeholders than in universities, but it could be that governments see knowledge in a narrow instrumental way, rather than as an engine of development. It was surprising that support for a knowledge economy approach was weak among university leaders. The University of Mauritius was the only institution with 'engine of development' as the dominant discourse, corresponding with the view of government.

The academic core

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The university's unique contribution to development is via knowledge – either transmitting knowledge to individuals (teaching), or producing and disseminating knowledge that can be applied to the problems of society and economy (research, engagement). Universities can only participate in the global knowledge economy and make a sustainable contribution to development if their 'academic core' is strong. The study investigated the strength of the academic core at the African universities, and whether the academic core was strengthening or weakening.

CHET identified eight performance indicators, some based on notions of flagship universities as producers of new knowledge and the next generation of academics, and others pertinent to the African context. The 'input' indicators were: enrolments in science, engineering and technology (SET); postgraduate enrolments; the academic staff-to-student ratio; proportion of academic staff with doctoral degrees; and research funding per academic. 'Output' indicators were: graduation rates in SET fields; and knowledge production in the form of doctoral graduates and publications in recognised ISI journals. From their scores institutions were categorised into the following groups:

- Group 1: Cape Town, the only university that was strong on all input and output ratings.
- Group 2: Mauritius, Makerere and NMMU, which had medium ratings on both the input and the output sides.
- Group 3: Dar es Salaam and Nairobi, which had overall medium ratings but which were weak on the output side.
- Group 4: Botswana, Ghana and Eduardo Mondlane, which had weak ratings on both the input and the output side.

With the exception of Cape Town, the universities were primarily undergraduate teaching institutions and did not have academic cores that lived up to expectations contained in their mission statements. Except for Cape Town and NMMU, the universities struggled to compile the data, and it became clear that an important task in developing the academic core would be to improve the definition of key performance indicators and the systematic, institution-wide capturing and processing of data.

Input indicators

There was considerable variance in the input indicators, with the strongest being manageable student–staff ratios and a relatively high level of staff with PhDs, which could partially account for solid undergraduate success rates. But success rates have to be seen in the context of a flagship university in a national system of low participation rates – their students are an elite group.

The teaching loads at all but two universities were satisfactory in 2007, and indicated that their academic staffing resources met the teaching needs of their students. The exceptions were Ghana and NMMU whose student enrolments increased at higher levels than their totals of academic staff. This finding does not support the stereotype of 'mass overcrowding' in African higher education, certainly not at flagship universities.

Two areas of great concern were low numbers of doctoral students, and lack of research funds. The dramatic increase that occurred in masters enrolments and graduations did not translate into increased enrolments in doctoral studies. In some cases, universities enrolled more than 50 masters per PhD student, when an ideal ratio should be no more than five masters per doctoral student. While coursework masters degrees increase the pool of highly-skilled workers beyond the bachelor degree – a feature of many knowledge economies – they do not seem to prepare students for doctoral studies.

Not enrolling and graduating PhDs has serious consequences. First, one of the core tasks of the flagship university in any country is to reproduce its own academic staff, and to produce academics for other higher education institutions in the system. Second, it has to respond to increasing demand in the knowledge economy for people with doctorates in institutions other than the university.

Output indicators

There was some convergence regarding output indicators, with the exception of Cape Town. Output indicator data showed varying SET graduation rates, with the highest at Botswana, Mauritius and Cape Town, closely followed by Dar es Salaam. But doctoral output was very low, with five universities producing 20 or fewer doctorates in 2007, Makerere, Nairobi and NMMU producing between 20 and 40, and only Cape Town more than 100.

In South Africa there is a high correlation between the proportion of academics with a doctorate and research publications produced at a university. 'ISI-referenced publications'

represents a narrow notion of research output, but it is what makes a flagship university and its academics part of the global knowledge community.

The study showed that in 2007 more than half of permanent academics had doctorates at Nairobi, Cape Town and Dar es Salaam. This is very strong capacity. But it did not translate into research productivity. The target for permanent academics was set at one research article published every two years. Only Cape Town achieved a ratio of one article per academic per year, NMMU a ratio of one article per academic every three years, and Makerere a ratio of one every five years. At the other universities, each academic was likely to publish on average only one article every ten or more years.

During interviews with academics, three broad factors affecting the production of doctorates, research training and publication emerged.

The first was limited research funding at all the universities except Cape Town, and cumbersome procedures and restrictions on what funds can be used for, which makes consultancy more attractive. It emerged that consultancies have major advantages over research grants, providing direct supplementation of income and greater flexibility over how funds are spent, and having other benefits such as travel and being invited to join networks. But since there is no pressure to publish or to train postgraduates, consultancies do not strengthen the academic core.

Except for the South African system, the lack of incentives to publish at the African universities is also a problem, starting with very little earmarked research funding from government. Internal competitive funding sources are mostly for young academics and doctoral students, with many senior academics saying the amounts are not worth applying for. In some cases, while some money is available for equipment, it is nearly impossible to get equipment maintenance funds. Governments and universities should explore incentive systems such as that in South Africa, where the government financially rewards institutions for PhD graduates and accredited publications.

A second factor, with the exception of Cape Town, is the huge increase in taught masters courses which do not necessarily lead to doctoral study. This could be part of the serious 'pipeline' problem that is curtailing PhD numbers and, hence, an essential ingredient in the knowledge production process. The third factor distracting academics from knowledge production at these universities is supplementary teaching. Many academics teach privately within the university on 'parallel' courses for fee-paying students, as well as on courses for publicly-funded students. And many also teach outside the university in private institutions. This leaves little time or energy for PhD supervision or research and publication, weakening the academic core.

The lack of knowledge production at many of Africa's flagship institutions is not simply a lack of capacity and resources, but a complex set of capacities and contradictory rewards within a scarce-resource situation. To 'refocus' universities, attention will have to be paid to incentive structures that encourage knowledge production.

Coordination and connectedness

Knowledge policies aimed at improving the capacity of a country to participate in the global knowledge economy have become increasingly important. The study probed the coordination of knowledge policies across ministries involved with higher education, science, technology and innovation, and those responsible for economic development or planning. Regarding implementation, at the national level it looked at the role of the ministry responsible for higher education steering and funding. At the institutional level, indicators dealt with aspects such as incentives and rewards, special teaching and research programmes that link to economic development, and funding support for research.

The concept of 'connectedness' was used to depict looser forms of interaction such as the linkages and networking between the university and external groupings including business, foreign donors and community groups or agencies. The extent to which selected university development projects or centres were connected to external groups in ways that either strengthen or weaken the academic core, was also explored.

National coordination

There was a range of coordination activities in most of the African countries. Mauritius, Kenya and South Africa had the highest rating for coordinating polices and building agreement at the national level.

The most common structures for promoting coordination and consensus-building were forums. But these were said to be largely talk shops; follow-up to agreements was weak and there were few attempts to monitor progress and implement decisions. There were attempts at coordination through the creation of 'super-ministries'. A perpetual problem was the absence of cooperation between departments of education and science and technology – but merging them did not seem to guarantee more effective coordination either.

There was a lack of supporting policies across relevant departments, and the focus of policies often depended on the interests of changing government ministers. In all eight countries there were national policies that promote research and innovation, but mostly within science and technology departments. Funding from government through education departments was mainly for teaching and infrastructure, with only on average 1–3% available for research. The exception is South Africa which allocates 13% of its annual subsidy or block grant funding on the basis of the research outputs of universities. Academics often described government's contribution to research funds as 'negligible' and, in all countries, including South Africa, there was dissatisfaction with the national research councils in terms of funding and processes.

In terms of the interaction between universities and government, five of the eight countries (Mauritius, Mozambique, South Africa, Tanzania and Kenya) had some form of structure for linking universities to government, although these did not necessarily result in effective

coordination. There was a strong connection between university and government leaders, but it seemed more political than productive.

In response to weak ministries, all the countries have established higher or tertiary education councils, which are more distant from ministerial influence. These structures are better placed and resourced than ministries to play a coordinating role. They are all going through some form of 'role redefinition', but for example in Botswana, Mauritius and Tanzania they are assuming a diversity of roles – from system planning to leadership capacity building and, in some, funding allocations.

Implementation

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South Africa is the only country with steering capacity, a stable funding regime and a sustainable ratio of sources of income. But it does not have a vision of the role of higher education in development, so steering is mainly internal to higher education. Uganda and Mozambique have the most serious national-level capacity problems. In a number of countries the government subsidy system is unstable and discourages enterprising behaviour, 'penalising' institutions for raising third-stream income by subtracting the amounts raised from the next year's government subsidy.

At the institutional level, only the University of Mauritius had specific structures and appointments linking its activities to economic development. Most were focused on research, innovation and technology, as well as support for small and medium enterprises. Mauritius also had a focus on work-based learning, and on economic development in research and innovation clusters. NMMU also scored high on implementation. While many universities had some form of incentive for academics to engage in research, none incentivised academics to engage in (economic) development-related research or teaching per se.

Connectedness to external stakeholders

Most of the universities talked about the importance of engaging with external stakeholders in their institutional plans or research policies, and there was evidence of such engagement through teaching, research, consultancy and other forms of 'service' activities from which a wide range of external stakeholders benefited. Only two of the universities – Nairobi and Mauritius – had units dedicated to coordinating activities with external stakeholders.

Linkages with industry were generally confined to units or centres rather than at institutionallevel partnerships. And except for ad hoc consultancies at NMMU and Mauritius, there was virtually no evidence of university engagement in research and development with or for industry – largely because the industrial sector in most of the countries is underdeveloped and there is limited private sector R&D. Some universities, such as Mauritius, are creating university-industry liaison offices.

Interaction with the private sector took two main forms. The first was in education and training, for example using people from the private sector on curriculum committees, for

work placements, and for specific customised training programmes. The second, prevalent form of interaction was business development and support for small and medium enterprises.

Foreign donors

Development aid to higher education in Africa picked up in the past decade, and a CHET study estimated that about USD 1 billion was donated to higher education in Africa from 2000 to 2005. It found widely divergent approaches to development aid with no generally accepted 'development model' linking a set of key drivers for development.

Some interviewees said not all donor agencies take government priorities into account, and others spoke about tensions between responding to the agendas of foreign donors in order to secure funding, and addressing local needs. Some commented on lack of clarity about and changes in what donors want to fund. Coordination of agendas and projects was a major problem, along with the administrative effort required to account to multiple donors. There was little coordination between donors in terms of funding areas and activities.

Only two universities have established strong donor coordination structures, Dar es Salaam and Eduardo Mondlane. The latter probably received the largest proportion of donor aid among the universities, but had the weakest doctoral enrolments, partly because many doctoral candidates study overseas and, more importantly, because there was no coordinated triangle of government, university and donor support. Mozambique's government 'outsourced' research and PhD training to donors and was mainly funding undergraduate teaching.

Connecting development activities to the academic core

University leaders each identified five to ten projects or centres with an economic development or poverty reduction focus. Information was gathered on 44 such projects and centres across the universities. The initiatives ranged from long-term research programmes to short-term consultancies, institutionalised training and small business support in various fields including public health, environmental issues and poverty alleviation.

The projects fell into three groups. The first group included projects/centres that were strongly connected to national or local priorities, had more than one funding source and, in some cases, had a connection to an implementation agency. At the same time, they were strengthening the academic core through training postgraduate students, being part of international academic networks, and publishing in peer-reviewed journals and books.

A second group of projects or centres was connected to external stakeholders in some respects, and went some way towards strengthening the academic core, but were not strong on either. The third group of projects was often well-connected to external stakeholders via funding or implementation agencies, but were largely disconnected from the academic core.

Conclusion and some implications

In summary, in his seminal book *The Higher Education System* (1983), Burton Clark argued that three forces of coordination keep higher education systems from falling apart – the state, the market and the academic oligarchy. These form three nodes in a 'coordination triangle'. The study adapted Clark's triangle to depict the three nodes as government, universities and external groupings, and argues that in order for universities to sustainably contribute to development:

- There needs to be a pact about the importance of knowledge in development and the special role of the university.
- The academic core needs to be strengthened, particularly in terms of knowledge production.
- There must be greater coordination among the increasing number of actors and agencies (government departments, business and foreign donors) involved in higher education.
- University development activities must strengthen rather than weaken academic core capacity.

The following implications for African countries and universities can be derived from the findings and analysis in this report:

- It is necessary that a dialogue about the role of higher education in development be stimulated between government (and not just the education departments), higher education stakeholders and funders. Serious thought has to be given to stronger forms of policy coordination/alignment amongst the different stakeholders.
- University leadership seminars are bound to continue to disappoint as long as there is not more agreement about the role of higher education in development, and relevant government officials and key members of higher education governance structures are not part of the discussion and capacity building.
- In all the countries studied there are tertiary/higher education councils/commissions. It is important to clarify the roles and functions of these bodies, and to consider what role they can play in promoting greater agreement (pact formation) and coordination between key stakeholders around higher education and development.
- Considerably more discussion and research are required about what constitutes the academic core and how to strengthen it just producing more postgraduates, or providing incentives for publication, will not solve the problem.
- The reward system for academics needs further study because it seems that academics are not incentivised by institutions, governments and some funders to strengthen the academic core.
- One approach to dealing with the shortage of research funds for academics that should be explored is the establishment of an Africa Research Council that could stimulate research throughout the continent on a basis of quality, and not regional or national interests.
- Concepts such as 'community service', 'third mission' and 'engagement' either tend to reflect an instrumentalist service notion of the role of higher education or have

become clichés that obscure more than clarify this role. A more useful direction might be to investigate the relationship between core knowledge activities and connectedness to external stakeholders.

- Some development-related projects/centres were world class in terms of international recognition and cutting-edge research, while also strengthening the academic core of the universities. The challenge is how to increase the number and scale of these types of activities.
- There is a need to improve and strengthen the definition of key performance indicators, as well as the systematic, institution-wide capturing and processing (institutionalisation) of key performance indicator data.
- For the university to make a sustainable contribution to development, a number of strategies need to be developed to strengthen knowledge production in higher education in Africa. Key to this will be more successful ways of coordinating and strengthening the government, university and foreign donor triangle.

HERANA-Related Publications

	Title	Author(s)	Status	Publication date	
Book	Books and Reports				
1	Linking Higher Education and Economic Development: Implications for Africa from three successful systems	Pillay	Published	April 2010	
2	South African Higher Education Performance Indicators 2000–2008	Bunting & Cloete	Published	September 2010	
3	Universities and Economic Development in Africa: Pact, academic core and coordination	Cloete, Bailey, Maassen	Published	March 2011	
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5	Higher Education and Democracy: Integrated report	Mattes	Draft 1	April 2011	
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8	Country and University Case Studies: Botswana	Bailey, Cloete, Pillay	Draft 4	May 2011	
9	Country and University Case Studies: Ghana	Bailey, Cloete, Pillay	Draft 4	May 2011	
10	Country and University Case Studies: Kenya	Bailey, Cloete, Pillay	Draft 4	May 2011	
11	Country and University Case Studies: Mauritius	Bailey, Cloete, Pillay	Draft 4	May 2011	
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1	Higher Education, Donor Organisations, Nation States and Development (Routledge)	Maassen & Cloete	Published	2009	
2	Higher Education and Development in Three OECD and Eight African Countries (Springer)	Cloete		Forthcoming	
3	Universities and the Effects of External Funding: Sub-Saharan Africa and the Nordic countries (Johns Hopkins University Press)	Maassen	Draft 4	Forthcoming	

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1	At Arm's Length: The relationship between research and policy in arts and culture, 1992–2007	Deacon	Published	February 2011
2	Higher Education and Economic Development: A literature review	Pillay	Published	February 2011
3	The Limited Impact of Formal Education on Democratic Citizenship	Mattes & Mughogho	Published	June 2010
4	NMMU: An engine of economic growth for South Africa and the Eastern Cape region?	Pinheiro	Published	April 2010
5	Research Output at Eight African Universities	Boshoff	Published	June 2010
6	The Research–Policy Nexus: Mapping the terrain of the literature	Bailey	Published	January 2010
7	The Impact of Formal Education on Democratic Citizenship Across Continents	Mughogho	Presented	July 2010
8	Education, Legislators and Legislatures in Africa	Mattes & Mozaffar	Editing	February 2010
9	Scientific Capital and Engagement in African Universities: The case of the social sciences at Makerere University	Langa	Editing	March 2011
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1	Contribution of Higher Education to Regional Socio-economic Development: A case study of the University of Buea in the Fako Region, Cameroon	Fongwa	Graduated (distinction)	
2	Contextual and Policy Positioning of Higher Education for Development	Watson	Submitted	
3	Higher Education and Social Development: Contributions of higher eduction to student leadership	Mwollo-ntallima	Submitted	
4	Higher Education Policy Changes in Madagascar	Rasoanampoizina	Submitted	
5	Responsiveness and its Institutionalisation in Higher Education	Van Schalkwyk	Submitted	
6	Governance of Higher Education Demand and Supply in Malawi	Chivwara	Draft 1	
7	Human Capital Formation in Kenya	Gwendo	Draft 1	
8	Provision of Access and Skills Development by Private Universities	Wanjiku	Draft 1	
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