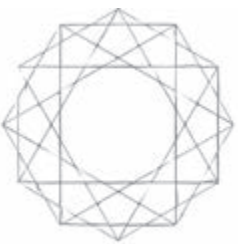
Knowledge for a sustainable world

A southern African–Nordic contribution



Knowledge for a sustainable world

A southern African–Nordic contribution

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AFRICAN MINDS

SANORD
Southern African-Nordic Centre

Published in 2015 by

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ISBNs
978-1-928331-04-9 Print
978-1-928331-05-6 e-Book
978-1-928331-06-3 e-Pub

Copies of this book are available for free download at
www.africanminds.org.za and http://sanord.net

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Preface

At end of September 2015, after a long process of consultation and debate, the United Nations general assembly replaced the eight Millennium Development Goals (MDGs) with 17 Sustainable Development Goals (SDGs). According to the High-Level Panel appointed by UN to initiate debate about a new set of goals, the MDGs had neither focused sufficiently on the most marginalised people, nor addressed important aspects of development with regard to democracy and inclusive growth. But most importantly, the MDGs had fallen short in relation to sustainable development, the most fundamental challenge facing us all.

The High-Level Panel proposed that the world's post-2015 agenda be driven by the following five key transformative shifts:

1 *Leave no one behind*. This is crucial for ending extreme poverty and ensuring that no one is denied universal human rights, including the right of every individual to education.
2 *Put sustainable development at the core.* This points to the importance of social inclusion and of meeting the aspirations of all people by 2030.
3 *Transform economies for jobs and inclusive growth*. Part of this shift also includes access to quality education and skills.
4 *Build peace and effective open and accountable institutions for all.* This implies that all of humanity should live in freedom from fear and enjoy fundamental human rights.
5 *Forge a new global partnership*. This is directed towards good governance and civic participation.

By suggesting these shifts, the High-Level Panel hoped to refocus the world's attention on ending the rampant inequality of opportunities while inspiring the next generation to believe, and act on the belief, that a better world is within reach. From 2013 to 2015, these proposed shifts were intensely debated by many different kinds of actors, including academics, and eventually agreement was reached on 17 SDGs.

The new SDGs not only added more goals, but also fresh global perspectives. The new goals concern the entire world, rather than focusing

only on the so-called 'developing world' as the MDGs did. How to act sustainably, what technologies and systems can and must be developed to ensure sustainability, and how rich and poor alike must *co-operate* to make this happen is our common challenge. The role of higher education in this effort is acknowledged as being of vital importance.

At the Southern African-Nordic Centre (SANORD) conference in Malawi in December 2013, the theme of which was 'Contributions of universities towards attaining the millennium development goals', grave concerns were raised that the universities would not be sufficiently involved in the discussions about the new SDGs, and that universities would not be seen as important sites for developing goals and solutions to the challenges facing the world. It seemed that the High-Level Panel were calling on 'experts', but bypassing the institutions that consistently inform and renew the knowledge of those experts through research, and research-based education. Discussions about the role of network in relation to the emerging SDGs continued at the subsequent SANORD conference held in Sweden in June 2014, the theme of which was 'A sustainable future through information technology and welfare development'. An awareness that SANORD, as a university network, had particular duties and opportunities grew among participants at both conferences, and the importance of communicating the content of their discussions more widely was recognised.

What is contained in this book are some of the best papers from the two conferences. The chapters emphasise important areas for present and future collaboration within the network, and by doing this, also point to areas in which SANORD members are engaging with the SDGs. The chapters highlight topics that we think need attention as we join efforts to implement the mandate given to us by the UN General Assembly, namely: how to improve the world's knowledge base and knowledge-based engagements to achieve the 17 new goals.

SANORD has a particular regional profile, and thus attempts to share knowledge about the value of specific regional experiences – how the Northern welfare states work, for example, or the interregional tolerance and solidarity between citizens of the South. These variations help us to learn from one another, and by bringing such different cultures together, SANORD stands out as an organisation with much to contribute to global debates about the SDGs. In particular, our North–South/South–North linkages put SANORD in a position to make sure that the SDGs, and the global challenges associated with them, are placed squarely on the agendas of higher education institutions in our regions. Our regional network, perhaps more than any other, represents the global interconnectedness that

is seen as a precondition for the successful implementation of the SDGs.

The burden of challenge is no longer focused on the low-income countries; and solutions will be found only if we *all* share the load, carrying costs according to our relative wealth. To make the world aware of this, and galvanise responses capable of bringing about this change is the challenge facing our university network and, similarly, other organised initiatives.

Because SANORD is owned by the universities, and run by university leaders, it is also a network that can rapidly activate its members to address what is urgently required, namely: research and knowledge dissemination that improves our chances of achieving the SDGs. The SDGs invite this kind of engagement, not only because they challenge us academically, but also because they open up a new role for university-based knowledge. The SDGs, as organised within the UN, are to be driven by constant interaction between science and politics (the so-called SPI forums.)

This book is but a small contribution to an ongoing process within SANORD, but hopefully one that inspires great creativity in relation to the SDGs. That SANORD's 2015 conference in Windhoek is dedicated to debating the 17 SDGs, is another indication of our willingness to prioritise this matter.

Acknowledgements

Peer reviewing a book with authors from so many different disciplines is not easy. Therefore strong praise is due to the anonymous reviewer who accepted this difficult task, and whose comments contributed immeasurably to improving the rigour and focus of many of the chapters. We would like to thank the many authors who contributed to the book, and worked hard to meet tight deadlines amid all their other responsibilities. And, of course, many thanks are due to the SANORD board and to the staff at the SANORD office at the University of the Western Cape in South Africa for support and funding. The assistance of Mary Ralphs, freelance editorial manager, as well as Peter Bosman our designer and typesetter, and Francois van Schalkwyk our publisher at African Minds, helped to make this book a reality.

Frequently used acronyms and abbreviations

AIDS	acquired immune deficiency syndrome
BEE	black economic empowerment
BRICS	Brazil, Russia, India, China and South Africa
CHANCO	Chancellor College, Malawi
CONSAMS	Consortium of New Southern African Medical Schools
CRPD	UN Convention on the Rights of Persons with Disabilities
DSSU	Disability Support Services Unit
HIV	human immunodeficiency virus
ICF	International Classification of Functioning, Disability and Health
ICF-CY	International Classification of Functioning, Disability and Health – Child and Youth version
ICT	information and communication technologies
IMF	International Monetary Fund
MDGs	Millennium Development Goals
MEPI	Medical Education Partnership Initiative
MIM	Malawi Institute of Management
NGO	nongovernmental organisation
OECD	Organisation for Economic Cooperation and Development
PWD	Person/people with disabilities
R&D	research and development
SANORD	Southern African-Nordic Centre
SDGs	Sustainable Development Goals
TRIPS	Trade Related Intellectual Property Rights
UK	United Kingdom
UNAMSOM	University of Namibia School of Medicine
UNIMA	University of Malawi
WHO	World Health Organization

Introduction

The Southern African Nordic Centre and the Sustainable Development Goals: Opportunities for critical interventions

Tor Halvorsen

The notion of knowledge for sustainable democratic development raises the question of how knowledge can contribute to the emergence of an alternative political economy, capable of replacing that which currently regulates, subjugates and exploits so much of the world and its resources in the short-term interests of a small minority. To develop this alternative, the democratic forces who are seeking to transform the present economic system need information, knowledge and support from researchers and educators.

All those who joined the debates about the Sustainable Development Goals (SDGs) that emerged from United Nations' Post-2015 Development Agenda (UN 2013), accept that the world's economic system has to change (ICS/ISSC 2015; UN 2015). Carbon emissions must be reduced and the burning of fossil fuels must be stopped. In addition, poverty must be brought to an end through the provision of meaningful work for all the economically active citizens of our planet.

Yet, and this is the contradiction, economic growth or, to use the words of the High-Level Panel of Eminent Persons who were invited to formulate some initial ideas about the Post-2015 Development Agenda, 'sustainable and inclusive growth' remains a primary goal for many (UN 2013: 2).[1] In other words, the very economic systems that are responsible for the overheating of our planet are now expected to somehow reverse this process, and to save humanity and the environment as we know it from immanent extinction. The problem with this is that the most important means of reorientating the global economic system towards so-called green growth are inseparably tied into furthering the interests of the world's multinational corporations, which exist to accumulate capital and provide high returns to shareholders for their investments.

As Evans and Sewell (2013) and Mikler (2013) have argued, the role played by multinational corporations is growing but remains poorly understood.

Increasingly, these massive companies shape what has been called neo-feudal globalism, based on a kind of moral economy that is currently expressed in slogans related to 'corporate social and environmental responsibility'. This moral economy was praised by the High-Level Panel (UN 2013), but the fact is that these organisations operate within a system that lies largely beyond the control of national states (Münch 2011), and they are increasingly dictating the formulation of national policies on trade, investment, mobility and various other economic issues. As noted by Andrew Gamble (2013: 65), modern corporations have become

> a key and much-neglected third party in the relationship between states and…operating within the market catallaxy, and within national states, seeking to shape both to their advantage. If they want to build up their capacity and increase their competitive advantage, states must support their leading companies and enable their expansion, while at the same time seeking to attract foreign companies to set up production facilities and distribution networks within their jurisdictions. Tax, regulatory, and financial regimes all must be adjusted to ensure that a country is 'open for business'. In this way jealousy of trade has also become jealousy of investment.

As a result, not democratic but *competitive* states have become the global moral economy's ideal. This moral (and neo-feudal) ideal is inappropriate in relation to enabling humanity to meet the challenges of sustainable development in the context of global warming and the massive environmental degradation it is causing.

In our competitive world, the politics of knowledge aims to stimulate and support economic growth. In this context, knowledge is valued for its role in propelling technological innovation, and innovation is defined as a means of increasing both productivity and product development so as to continuously improve the innovators' position in the competitive market. Two of the world's major economic blocs – the OECD (Organisation for Economic Cooperation and Development) and the BRICS countries (Brazil, Russia, India, China and South Africa) – both seem eager to support knowledge generation in so far as this supports the growth and expansion of the current global political economy. However, if this knowledge is derived from, produced by, and captured within, an economy of competition and accumulation, how likely is it that it will ever contribute to sustainable development or deliver jobs for all? Will current innovations ever lead us into a different kind of political economy, in which the demand for products that emit CO_2 will reduce in time, or are they more likely to continue to support the policy of infinite

growth, driven by competition and in which success is measured according to ever-increasing levels of accumulation and energy consumption?

The pessimistic view is that science and science-based education is being increasingly drawn into this economic paradigm, and is being turned into a tool for competitive states and multilateral companies alike. At the same time, spaces for the development of alternative paradigms and forms of knowledge are decreasing. My question is whether collaborations and partnerships across the North–South divide, such those supported by the Southern African-Nordic Centre (SANORD), can provide the kinds of networks in which alternative knowledge about a future sustainable human and environmental world can emerge in our anthropocene age? If so, then SANORD, and similar kinds of networks, will be a vitally important voice in how the new SDGs are implemented.

The political economy envisaged by the new SDGs

If we look again at the report of the High-Level Panel (UN 2013), which initiated debate about the fact that the deadline for the implementation of the millennium development goals (MDGs) would soon pass, there is clearly a new focus on the political economy. This focus was largely missing from the MDGs. In addition, the new SDGs emphasise the need for sustainability to be the overarching criterion against which all actions are measured. Development that prioritises poverty alleviation *and* enhances sustainability has become the yardstick for measuring progress, and all the SDGs are now envisaged within a global context that aims to bridge the divide between high- and low-income countries. Thus on the first page of the High-Level Panel's report, they note: 'Most seriously, the MDGs fell short by not integrating the economic, social and environmental aspect of sustainable development as envisaged in the Millennium Declaration'. Nevertheless, the High-Level Panel's 2013 report offered few surprises. Rhetorical statements about our common challenges masked a semantic avoidance of the glaring contradictions between the dominant model of economic growth and the ideals of sustainable development. Accordingly, the Panel seemed to assume that poverty will be alleviated only by stimulating economic growth via capital accumulation.

It is often argued that the world needs a fundamentally transformative shift in the way the global economy works to secure jobs and inclusive growth, to end extreme poverty, and to improve livelihoods for all. However, programmes of action designed to deliver this rapid shift seldom include anything more than continuing to harness innovation to enhance the capacity of private businesses to create value, as if this is ever going to drive

sustainable or inclusive growth. In fact, such programmes offer little more than the continuation of existing inequalities and the relentless growth of greenhouse gas emissions, while providing very little space for truly innovative contributions from the academic community.

The voices of economists, engineers, scientists, social scientists and experts in the humanities, who could be developing alternative paradigms for an economy based on a total transformation of energy consumption and the sharing of work opportunities, are absent from the High-Level Panel's report. Instead, as noted in their report (UN 2013: 2), the High-Level Panel met with business representatives who indicated their willingness to share accountability for the future development agenda. Indeed, the 'business community' appear to have wholeheartedly accepted the role of change agent, listing what they need from governments if they are to do more: 'Sound macroeconomic policies, good infrastructure, skilled workers, open markets, a level playing field, and efficient and accountable public administration'. In other words, the business community are continuing to advocate the kinds of 'good' governance strategies that the World Bank, the OECD and others have long advocated, and that essentially drive competition on their 'playing fields' and according to their rules, rather than collaboration between states (Halvorsen 2013).

The need for an alternative political economy

An alternative economic policy, which the new SDGs (at least theoretically) invite us to debate, is being proposed by academics who are sceptical about the ability of businesses (or economic blocs, such as the OECD or BRICS) to drive inclusive growth or a rapid enough shift away from carbon energy consumption to save our planet.[2] This alternative paradigm takes, as its point of departure, goals that seem to be in line with the rhetoric used by the High-Level Panel, but its programme of action stands in stark contradiction to theirs.

On 10 May 2013, when researchers at the Mauna Loa observatory in Hawaii announced that CO_2 concentrations in the air had passed the critical 400 parts per million mark (Smith 2015), many simply became more fearful and confused. However, this crucial information also initiated a new global debate about how to formulate an alternative political economy in which economics is no longer seen as being beyond politics or as ruled by its own laws that only neo-liberal economists profess to understand.

The economic crises that affected many of the higher-income countries in 2008 and 2009, and were initiated by corrupt financial institutions, also contributed to this shift, and added credibility to the arguments of those who are critical of the notion that the free market is the 'best way to organise

society'. Many acknowledged that it was time for social and political innovation, and that economic imperatives cannot continue to have free rein. First of all, politics has to be disengaged from its reliance on market forces.

Despite the imperatives of corporate social and environmental responsibility, it has been widely acknowledged that neither market incentives (as some economists believe) nor wealthy economic actors, can be relied upon to be socially responsible. Proponents of neo-liberalism often advocate the notion of 'planning not to plan'. But how can we avoid further global warming, the acidification of the oceans, and the massive water and food insecurity that this will bring about, without a plan? Environmental crises and human crises now seem to be inextricably linked; their challenges have become one and, contrary to what neo-liberal economists from Hayek onwards have argued, a response to this requires planning.

In part, these developments have challenged the academic community to move beyond its main role into new territory. The absolute limits on growth, and the consensus that all human beings have a right to life and to be valued by society, has forced scholars to think about an alternative global political economy. The question is: to what degree is the academic community grasping this opportunity, and to what degree has it already been co-opted into supporting neo-liberalism? If the SDGs are to be taken seriously, a planned, concerted and co-ordinated alternative has to be advocated in contrast to that being promoted by organisations like the OECD and BRICS.

The capturing of the academy

Shortly after its establishment, the OECD put the politics of science and education (essentially science and science-based education) on its agenda. The organisation now boasts of having influenced and shaped high-school curricula globally through its Programme for International Student Assessment (PISA).[3] The use of the PISA programme to subtly blame and shame participating countries is forcing many states to conform to how the OECD chooses to measure learning and knowledge. The OECD's influence on the politics of universities, and in particular on those that focus on research, is of similar magnitude. Thus, while the OECD has not yet created a PISA test for higher education, evaluation and ranking standards, ratings and rewards systems (all linked to funding formulas) are harnessing the universities and their research programmes into the service of neo-liberalism's economic agenda. As the authors of one OECD report argue:

> The accelerating importance of the global knowledge economy has had qualitative implications for the way in which countries pursue economic

> development planning. One of the most significant consequences has been attempts to integrate higher education and research systems into macroeconomic policies for stimulating technological renewal (research and innovation policy). Research and innovation policy differ radically from previous generations of science and technology (S&T) policy in three key respects that resonate well with the needs of low-and middle-income countries. It: a) emphasises the need for universities and other public research providers to pursue research agendas that are anchored in the needs of the society which they inhabit; b) promotes public–private partnership as key mechanisms for achieving linkages between the economy and higher education and research; and c) embraces a system perspective. (Olsson and Meek 2013: 8)

As the OECD seeks to become a more global player, it expects to 'extend the existing body of knowledge, and the experiences and the policy networks of the OECD, to developing countries in the context of the current and future priorities of the Organization in the field'.[4] Given their 'successes' in transforming the EU and other OECD member countries, they seem to think that the time has come to spread the OECD gospel to Africa. Accordingly, in September 2013, the OECD hosted a conference in Addis Ababa as a follow-up to a conference held in Marseille in July of the same year. The theme of the Marseille conference was 'Increasing evidence-based approaches in the design and implementation of innovation and research policy in developing countries'. The theme of the Addis conference was: 'Implementing research and innovation policy at policy and institutional levels in Africa'. Policy-makers and research managers (from higher education institutions to development agencies) and leading academics in the fields of innovation, higher education and development were invited.

Based on presentations at the Addis conference, the OECD's diagnosis of the situation in Africa seems to be that the universities (and other research institutions) should pursue research agendas that are anchored in the needs of the societies they live in; promote public–private partnerships that link their economies to science and science-based education. At the centre of all this, the OECD was pushing for the adoption of their almost mystical 'system perspective'. Consequently, debates about implementation followed the same lines of reasoning that have so far guided educational reform in the OECD member states. Essentially discussion was about how to:

- Transform collegial institutions into organisations that compete for 'market share' and research funding, with managers who promote and prioritise these forms of competitiveness above the competition for knowledge.

- Make universities more responsive to the needs of corporate 'users of knowledge' via public–private partnerships.
- Develop 'centres of excellence' that extract the best resources from the universities and link these to externally governed multilateral funding organisations that are accountable to neither the universities nor the countries concerned.
- Make universities adjust to the so-called system perspective, which enforces a division of labour between different science and science-based education institutions, and, in particular, between different universities. Within this paradigm, 'overlap' is seen as a waste of resources, rather than as a means of deepening and extending knowledge.

By way of contrast, the German universities, which inspired the establishment of elite universities in the United States in the last two centuries, were so excellent precisely because there was so much overlap in their research, and this gave rise to a kind of academic competition. The contemporary ideal is to rationalise resources, and create single-purpose 'outlets' of knowledge for users. What comes with this 'system thinking' (besides undermining academic competition) is institutional specialisation. This supposedly enhances the ability of institutions to compete in the global knowledge market, and seems to be based on the notion that not everyone can be good at everything, but many can be good at something, as long as they are willing to compete.

In line with this trend, universities and research institutions worldwide are now subjected to being valued by ratings bureaus. In theory, all institutions are equally eligible to win prizes for 'producing knowledge'. However, the criteria for success were developed in the North, and, so far, the majority of the prizewinners have been from institutions in the North – how surprising; something must be done to infuse a more competitive spirit![5]

It can be argued that the High-Level Panel's report has far too much in common with OECD policies and strategies on education. That is, the Panel seem to advocate the use of education as a tool of human capital development, and for focusing on innovation, arguing that good governance equates to the kind of 'economic' governance that secures investment in production and stability for business and trade (UN 2013: 8–9). In this, the (unstated) assumption seems to be that growth in trade will be secured by the World Trade Organisation, whose role in promoting knowledge as a kind of trade in services and in the ownership of intellectual products (via the TRIPS Agreement for example, which is discussed in more detail later in the chapter) coincides neatly with the OECD's strategies. The role of knowledge institutions within this framework is to be rated highly, and to be rewarded

with research funding from external sources for 'quality' teaching. Individuals within this framework are seen primarily as 'human capital', and as a crucial input and output of universities.

Seen in these terms, nothing is more important for universities and nations than the competition for prime 'human capital'. Perhaps it is not surprising then that a report in which the OECD presented its ideas about creating a global labour market for human resources in science and technology is called, *The Global Competition for Talent: Mobility of the Highly Skilled* (OECD 2008). Accordingly, many countries have come to see universities as little more than talent-catching machines to entice high-quality 'human capital' into improving their industries and stimulating market growth. However, for universities to become such machines, the egalitarianism of the public higher education system as we have known it (particularly in the Nordic countries) will vanish.

The OECD has made the promotion of science and science-based education into policy for its members. In the OECD's terms, this policy aims to improve both quality within universities and the quality of the human capital delivered to the working world. However, its focus on 'best practices' is also gradually transforming egalitarianism into elitism (Münch 2007). The kinds of 'best practices' rewarded by the OECD (and the ratings agencies) are becoming a precondition for gaining the competitive edge. The theory is that all countries that participate in this chain of development will benefit from the global market for human resources that is being created, but this is the kind of supply and demand linkage that harnesses entrepreneurial universities to the knowledge economy.

As a result, many universities have been captured by the ideology of relevance as defined by the world's dominant economies, and by actors within their state and public administrations that such economies are seen to need. Within this regime, numerous experiments are taking place about how to use the market to reduce CO_2 emissions, engaged engineers are talking about the 'greening of technology' and 'entrepreneurs' are apparently coming up with an abundance of energy-saving technologies. The framework for all this, however, as secured by the OECD's plan for what they call the global economy, is still market-led growth under the slogan 'the plan not to plan'. The core actors in this process, as reflected in the High-Level Panel's report, are large corporations, which not only shape the OECD's policies, but also define the knowledge needs of member countries.

Of course, the kind of competition that rankings and ratings systems promote leads to the standardisation of knowledge, and to the kind of rationalisation within knowledge institutions that undermines their creativity

and independence (Fourcade 2009). Thus, despite the obvious economic crises afflicting the capitalist system, the distance that is necessary for research institutions to produce knowledge for an alternative paradigm is steadily being diminished (Streeck 2013). The creativity required for the kinds of 'innovations' that will be capable of transforming 'the way we consume and produce' as the new SDGs hope to do, is being sacrificed by research institutions as they attempt to conform to externally driven evaluation systems that focus on promoting the orthodoxy of 'growth at all costs'.

Of course, increasing the competition between institutions for research funding tethers the universities to certain economic interests (and not to society as donors and corporations allege). This risks transforming the drive for knowledge into a quest for technological innovation, while increasing specialisation undermines traditional forms of academic competition, and fosters an understanding of knowledge as a utility rather than a cultural product. But perhaps only cultures dominated by utilitarianism would try to transform science and science-based education into a 'system' in the ways advocated by the OECD (Halvorsen and Vale 2012).

As Mahmood Mamdani has shown (2011, 2012), there are alternatives, supported by other donor organisations, that understand that knowledge is more often *grown* than produced. Such organisations also know that the growth of knowledge has the potential to transform society in job-creating directions far more than the growth of 'knowledge products' does for 'users' in the growth-obsessed economies that are driven by ever-increasing energy consumption and non-inclusive growth.

Multinational corporations and their role as global social actors

As indicated, the High-Level Panel placed great emphasis on its dialogue with 'businesses', and seems to trust the promises made by large corporations to contribute to achieving the new SDGs. And the trust seems to be mutual. The impression created is that the transformation that has to happen will be realised through the efforts of established economic actors (despite the kind of capital ownership and human exploitation they represent) if only their leaders will be more socially and environmentally responsible; that is, be willing to extend their so-called corporate social responsibility programmes in ways that are more environmentally responsible. No interventions are envisaged to control the free market or the concentrations of wealth and ownership that cements the influence of the multinationals.

While many academic activists (including within SANORD) see the present environmental and economic crises as an opportunity to develop alternatives to the concentration of economic power and resources in the

multinational corporations, these same multinationals are using the debate about the SDGs as an opportunity to proclaim that they are offering political solutions. Within a globalised world, mostly shaped by the liberalisation of trade, the movement of capital, and freedom of investment, perhaps it should not be surprising that the same companies that have benefitted from these changes, are now seeking to legitimise them politically and ideologically.

However, globalisation is not driven by any political centre. There is no 'global state', and most importantly, there is no concerted democratic influence that can speak with authority to global processes. In this 'vacuum', leaders of big business have emerged as political players, funding political parties and academic think tanks as means of furthering their interests, and influencing policy development and change. Apparently they are now also being given a mandate to achieve the SDGs. Nina Kolleck (2013) has described how big corporations seek to extend their social and political mandate just like the early feudal patriarchs did. In a study of global corporations (that excluded companies involved in global finance) she found that multinational corporations are driving institutional reshuffling, or what can be called an instructional conflation, that involves fusing both politics and knowledge in 'company policies'.

> Business representatives have begun to create networks that help shape public understanding of political concepts by influencing the establishment of norms, institutions, and discourses…The analysis of story lines has illustrated that global companies see themselves as the most competent and indispensable players in defining societal goals. At the same time, global companies benefit from the dominance of neoliberal norms, financial benefits, free-market systems, and structural connections between mass media and politics…It is unlikely that the economic crises will cause significant changes in the business discourse on sustainable development. (Kolleck 2013: 135–148)

Kolleck's insights have been built on extensive research into the power held by global companies. Nevertheless, such research is still in its infancy because economists tend to view large corporations within an unexplained abstraction (the 'market'), which they claim is driven by a transcendental force ('competition'). The power of the 'free market' now undoes any national powers that try to regulate it, but in the 'interests' of the mass-producing, mass-consuming public. Even democracy seems to be defined by this producer/consumer dynamic, and the new SDGs seem to be more focused on potential changes in consumption and production than on the democratic empowerment of people or on how democracy might encourage anti-consumerist behaviours.

Within the nation state, the global power of multinational corporations seems to be leading to the economisation (as opposed to democratisation) of state functions. In other words, the number of legally embedded regulations, and the bureaucratic offices needed to implement these regulations in ways that align with the interests of these companies, is growing. Only the wealthiest and most powerful states can challenge this process. Even the Nordic countries are moving away from the democratic welfare state towards the competitive state model, and ushering in the kinds of changes in priority of knowledge that this brings with it. Building on data from the IMF and the UN Conference on Trade and Development, Kolleck (2013: 4) showed that:

> All the world's major industrialized sectors are now controlled by five multinational corporations at most, while 28% have one corporation that accounts for more than 40% of global sales…in 2008, the top 20 non-financial corporations' sales were worth US$4.3 trillion, equivalent to the combined national expenditure of the bottom 163 states, and greater than the gross domestic product (GDP) of the bottom 137 states…[the assets of] many of the top 20 corporations are as large as middle-income or emerging states such as Chile, Algeria, and the Philippines. On the basis of national expenditure, they are as large as many of the top 30 high-income states. Only the world's largest and most influential economic powerhouses, such as the United States, Germany, Japan and (relatively recently) China may be said to rival them.

Essentially, global companies are shaping a highly concentrated and oligopolistic global 'economy' that is also highly political in its workings. To quote from Schmidt and Thatcher (2013: 415) who have analysed the development of neo-liberalism in Europe:

> It is important to note that firms generally do not act on their own but rather form broad coalitions to promote their interests. They have needed vital 'accomplices' – not only elected politicians and political parties but also unelected officials. Coalitional influence is visible in EU debates about regulation of financial markets, mergers, and corporate governance, in which large firms and their managers have coalesced with EU and national governments officials to form advocacy coalitions behind neo-liberal ideas of expanding and protecting competition.

The earnings of the global companies dwarf the budgets of the global organisations created to regulate them, such as the World Trade Organisation and the OECD. However, the regulatory organisations have played a major role in streamlining the new global regime, and created space for company

involvement in politics. The role of what (Gill and Cutler 2014) called 'the new global constitution' in promoting the power of the multinational corporations cannot be underestimated, and it seems to have strongly influenced those behind the SDGs into seeing the multinational corporations as *the most important* source of change.

The growth of the multinational corporations has, however, coincided with growing global inequalities in personal wealth and power. With their headquarters in rich and highly developed states – that account for '80 per cent of world output, 70 per cent of international trade, and 90 per cent of foreign direct investment' (Mikler 2013: 5) – representatives of these companies experience the world as increasingly free of trade regulations, but only because they are so well supported by the competition between states, and by the multilateral trade organisations, that they have captured and transformed for their own ends. In other words, these corporations now set the agenda for the world's multilateral system, and increasingly *also* for the perceived knowledge needs and regulations of the global knowledge community.

One often-cited example of how big companies have used the authority of the law, their own economic interests, and those of the knowledge sector, relates to the writing of the Trade Related Intellectual Property Rights' (TRIPS) Agreement, which is administrated by the World Trade Organisation. This agreement had the explicit (and articulated) purpose of privatising knowledge for the sake of trading it more efficiently. In describing how TRIPS overtook the World Intellectual Property Organization, Montes and Popov show how much pressure the middle- and lower-income countries are under to adjust to and adopt Western technology and knowledge, and how much they lose out under the TRIPS Agreement:

> Total losses of Western companies from piracy were estimated by the IIPA (International Intellectual Property Alliance) at US$ 16,4 billion in 2007…However, losses of developing countries from the implementation of TRIPS are several times higher…US$60 billion a year. (Montes and Popov 2011: 124)

Given where the big companies have their headquarters, the following is revealing:

> A World Bank report estimates that the net annual increase in patent rents resulting from TRIPS for the top six developed countries in this field will be US$40 billion (with the top beneficiaries being the USA with $19 billion, Germany with $6.8 billion, Japan with $5.7 billion, France

> with $3.3 billion, United Kingdom with $3 billion, and Switzerland with $2 billion). (Montes and Popov 2011: 130)

In their interactions with states and the multilateral system, the big corporations thus shape the legal basis for enacting public authority; that is, they are creating a legal framework for a global constitutionalism that secures their economic interests. The formation of tax policies is another example. As Mikler (2013: 8) put it, the overall result is

> a democratic deficit wrought by the demise of states whose sovereignty is universally attacked, leading to the undermining of citizenship and a splintering of collective communities into individuals, with these individuals increasingly little more than consumers.

A legitimate state is now seen as one that exercises its (softer) laws, rather than hard power towards the global companies, to complement (not regulate) the activities that these companies enact 'on behalf of the global public'. This is also what constitutes the contemporary hegemonic moral economy, creating relations between employers and employees that are reminiscent of feudalism. What seems to be guiding the High-Level Panel's appeal to business (and providing the basis for their mutual trust), is that 'corporate social and environmental responsibility' is gradually being enshrined in public law and constituting the core values of the contemporary moral economy.[6]

In her discussion of the World Business Council for Sustainable Development, Kolleck unpacks the notoriously unclear concepts of 'sustainable development' and 'corporate social responsibility', showing how these are used to promote the hegemony of the big companies in the area of the 'environment'. With reference to formulations that litter corporate mission statements such as how companies 'participate in policy development to create the right framework conditions for business to make an effective contribution to sustainable human progress' (2013: 136), Kolleck argues that such business networks

> could be regarded as promoting change in corporate behaviour in favour of sustainable development… Yet they could also be seen as organisations that engage in *greenwashing* efforts and allow businesses to artificially bolster their image as promoters of sustainability. However, these business networks attempt to position themselves as leading pro-sustainable development organisations. They promote global companies as providing solutions in the debate on long-term policy and regulations and have sought to showcase their members as stewards of environmental and societal objectives. (2013: 139)

Global companies thus embody the rhetorical, symbolic, semantic and programmatic shift from government to governance, by merging public and private powers and creating a new kind of 'global public' and moral economy based on the values and powers that come with private ownership. And in academia (particularly in highly rated business schools), the multinationals establish 'centres of excellence' that study corporate development and social responsibility – now with a sustainable twist, where 'sustainability' refers primarily to corporate survival (and, at best indirectly, to that of the rest of world).

International business law is a growing industry, mirroring the transformation of the accounting profession. Accordingly, accounting knowledge is being regulated to fall within the systems preferred by the world's four largest accounting firms, along with the global adoption of accounting standards formulated primarily by British and American companies. (For an overview of the growth of the large firms, and the role of the accounting profession and its regulations, see Botzem 2012). And while British and American company law is being adopted globally (ostensibly to harmonise corporate governance), what is known about economies and how they work is being changed at the behest of the big companies, because of the political influence they wield.

The engineering profession, too, is caught up in this power structure. While the 'greening of technology' is seen as the highest hope for sustainable growth, and might lead to more efficient uses of energy, it is also undoubtedly promoting an overall expansion in the use of energy, and thus a continued reliance on carbon resources. And underpinning all this is a pervasive silence about the radical lifestyle changes we urgently need to make to preserve much of the life that exists on earth.

BRICS and knowledge

China is now emerging as a new base for companies with global reach. So far, the other BRICS countries are less important in terms of their support for the biggest or most influential multinational corporations. With BRICS, comes the question of whether there will be alternative sources of development?

In addition to the New Development Bank being established by the BRICS countries as an alternative to the IMF and the World Bank, BRICS established its own knowledge policy in 2015. According to MacGregor (2015b), some 160 scholars at the BRICS Academic Forum held in Moscow in May 2015, 'approved a 190-page report titled *Towards a Long-Term Strategy for BRICS Countries*, developed by the BRICS Think Tanks Council'. My question is to what degree this will offer an alternative to Western-dominated ideas about the science and science-based-education sectors' roles

in innovation, and to the idea that universities as global players need to be detached from nation states so as to better serve the global economy.

Will BRICS support demands for alternative science and science-based education that a new political economy requires? Common to protests in the West against the hegemonic knowledge=innovation paradigm (like the student occupations in the Netherlands in early 2015; see Rooieravotr 2015) is the view that science and science-based education should be culturally embedded and play a clear role within the nation state. Under the auspices of this kind of science, research is done on a whole range of issues that are seemingly 'useless' as far as innovation is concerned, but which make room for academic freedom. Academics in the social sciences and the humanities, in particular, are mobilising all over Europe and in southern Africa to defend the need for this kind of research and to protest against dwindling research funding (see Higgins 2013).

It is possible that the BRICS alliance came about by default – put a name to something and it becomes reality, as in Kantian philosophy? However, their gathering in Durban in March 2012 indicates that a level of progress is being made by this combination of countries interested in promoting mutual interaction and formulating a common response to global governance. Their identity as emerging economies, and their potential for promoting mutual economic growth, are positive factors uniting the BRICS nations. What they are united against, however, is their under-representation in the global multilateral system and in the structures of its governance. The BRICS countries have suggested a number of reforms, and the establishment of their own development bank must be seen in this context. But they are also working to counter their sense of inferiority and marginalisation in terms of science and science-based education, and the feeling of being dominated by so-called Western knowledge, which is too often portrayed as seemingly neutral global knowledge, and through which Western interests are invariably advanced.

To give just one example: BRICS's policy research centre, located at the Catholic University in Rio de Janeiro, has published an analysis of the registering of intellectual property and investments in research and development by the BRICS countries (Fernandes et al. 2012). In their analysis, they state that knowledge ownership has helped create the vast cleavages that exist in the world, and note how the current system of patents and intellectual property rights is reproducing these cleavages. They also note how important it is that Brazil, India and South Africa (after much struggle and a legal battle) managed to defeat the global pharmaceutical giants in relation to the manufacture and sale of generic antiretrovirals. Nevertheless,

the tremendously important success achieved in the health sector is seen as a 'deviant case', a historically necessary exception, and not as setting a general precedent for a new knowledge policy.

However, to support this paradigm means propping up a system that is entirely dominated by the West. The United States Patent and Trademark Office and the TRIPS Agreement, linked to the World Trade Organisation's overall free-trade strategy are just part of the story. At the BRICS Think Tanks Forum in 2011, the Brazilian representative stated that Brazil needs to overcome its linear innovation model (the implication being that this is old-fashioned)(ORF 2013). However, the linear model also presupposes the independence of the academic community and a certain distance from the innovation process. The proposed model involves creating incentives for patents that lead to the creation of new products following R&D done by academics in the context of co-operative relations between universities and businesses. One might as well be listening to the OECD's Higher Education and Research for Development Programme advising countries in Africa on how to be better actors in the innovation process.

Some BRICS members seem to be expressing their dual identity by joining the 'global' (that is Western) system, and attempting to reform the system from within. Brazil, India and South Africa, in particular, have condemned the global inequalities related to knowledge and access to knowledge, and have criticised the ways in which current knowledge systems work to reproduce Western ownership of the 'knowledge industry'. However, while strategies exist to bypass this Western system in emergency situations (as in the antiretrovirals case), there seems to be a strong urge to be part of the system, and to use it to pursue the same kinds of innovation strategies that the OECD promotes; this urge is perhaps most clearly evident in China (see Mikler 2013).

To elaborate more on this duality, the academic forum held in Durban in March 2013, prior to the so-called leadership summit was instructive. The purpose of the meeting was to promote the advisory role that academics and think tanks can play in politics. Those (mostly academics and professors) at the meeting seem to have agreed on the need to create a particular knowledge tradition that BRICS can support. This was reported as follows:

> BRICS should intensify its support for collaboration amongst academics and scholars through a variety of institutions, networks and programmes that advance education, research and skills development. This includes valuing local languages and cultural practices and establishing the required support mechanisms to make this possible. BRICS should

> consider the establishment of an independent BRICS rating agency for educational institutions as well as a BRICS university. The Forum proposes the establishment of a data bank with primary data on the five countries, as well as a digital platform with detailed information on researchers and institutions dealing with BRICS issues. The delegations note Brazil's offer to host the digital platform and the data bank. (*Pambazuka News*, 2013)

This creates the impression that BRICS's Academic Forum aims to build its own knowledge base as an alternative to the Western model. Such a base would, for example, include a variety of languages and not depend on English; member countries would develop their own (e)valuation systems and criteria, as well as new exchange networks and new academic standards (based on their own university traditions). In addition, they would build data from below and within member countries' own contexts. The driving force behind all this, the BRICS Think Tanks Council, was born at the Durban meeting in March 2013.[7] In his keynote address Jeffrey Mabelebele, CEO of Higher Education South Africa, argued that

> without active participation of these institutions [public universities, science councils, research institutes, and so on] in the shaping of a BRICS agenda, this noble concept will face a determined intellectual combat strategy from the West to undermine its prospects. (Mabelebele 2013)

However, when we look at how BRICS is developing, we have to question whether BRICS is, in fact, doing anything more than copying the Western neo-liberal agenda when it comes to addressing the crucial issues of energy and poverty. China, for example, has joined the World Trade Organisation, and seems to be busy annexing Western systems of standardisation, etc. Effectively, this means that China is supporting and working within the very organisations and frameworks created by the OECD. Thus, the same utilitarian orientations that dominate the European Union's knowledge politics (that is, the human capital, knowledge and innovation paradigms) are present in the BRICS notion of the 'developmental state'. Indeed, the developmental state and the neo-liberal political economy seem virtually identical when it comes to the production and consumption of energy from fossil fuels; both show an equal disregard and refusal to take responsibility for how these economic activities wreak environmental havoc and create human degradation. Mabelebele and others who support the BRICS Academic Forum seem to be proposing exactly the same knowledge policies as those propagated by OECD.

With the exploitation of carbon resources (coal and oil), the energy accessible for economic development and public infrastructure burgeoned. Carbon energy made it possible for particular nation-states that owned these resources to occupy entire countries (as compared to previous periods that saw trade occurring primarily between cities). This was the prelude to the contemporary market penetration by multinational corporations. Since then, academic competition has made universities into global entities or knowledge 'nodes', whose funding relies on their capacity to serve the carbon privileged.

Reactions to this 'academic capitalism' are growing, but so far, relatively few alternative networks have been created. SANORD is one. As an academic network of co-operation among equals, that is run by the leaders of member institutions, SANORD has a great opportunity to contribute positively to the inevitable changes that we face.

SANORD's contribution to developing an alternative

US academic historian and environmentalist Richard Smith (2011, 2015) has suggested alternative academic priorities that could grow out of networks of academic co-operation like SANORD, which exist beyond the competition inherent in academic capitalism that so much of our world has fallen captive to. His suggestions are not surprising but also not easy to implement. He has argued that we need to:

- Contribute knowledge that helps us quickly and brutally reduce energy consumption in the North, rendering extreme consumerism and the production of short-lived products unnecessary.
- Promote alternatives to the industrialisation of agriculture, fisheries, forestry and mining (and many more sectors, but these are the ones where knowledge is most rapidly undermining nature).
- Transform all sectors that drive consumerism (particularly the banking sector).
- Get rid of the extremely resource-consuming military–industrial complex.
- Develop renewable energy sources.
- Transform trade so that we produce what we can and import what we have to.[8]

All of these are urgent; the last one can feasibly be achieved very quickly, and involves developing alternatives to the kinds of economic knowledge now supporting and promoting the World Trade Organisation.

Numerous major industrial accidents globally have made it clear that we are living in a new historical époque that was described, just before the Chernobyl disaster, as a global risk society by Ulrich Beck (1986). But more

importantly, inclusive growth, as envisaged by the OECD, for example, will never be inclusive enough, and will forever depend on growing energy consumption. Jobs will never be created as they should, and the biggest risks to our destruction remain the human and the individual despair, evident in the drowning of refugees in the Mediterranean, of being born into a meaningless life.

If we live in a new historical period, it is one that calls for a return to the old history of the earth when solar energy was the only source of energy. This certainly put limits on growth as we know it, but it also creates the potential for *planning* and for ensuring that there is creative work for the many for the common good and for the good of society.

This is the kind of vision that drives SANORD, and many of the individuals and institutions within its network. At each of its biennial meetings, this vision grows, and its publications (like this one) provide a means of sharing how SANORD members are determining their research priorities. Like the work documented in this book, the research is often conducted at a small scale, using minimal resources, but the vision is steadily gaining momentum, forging dynamic collaborations and pathways to new knowledge.

Contributions to this book

In line with the priorities of the SDGs, and reflecting several focal points of the SDGs debate, this book is divided into two parts. The chapters in Part One focus on several of the major social challenges facing humanity. Part Two focuses on some of the kinds of collaborations and critical interventions that SANORD members are involved in and encourage.

The first three chapters in Part One highlight an issue that, even in the new SDGs, remain weakly elaborated: the place of people with disabilities in different cultures. As shown by Vyvienne M'kumbuzi, Hellen Myezwa, Tonderai Shumba and Alice Namanja in Chapter 1, disability prevalence and the magnitude of the problems that people with disabilities in southern Africa face on a daily basis, calls for urgent attention. Of the 17 SDGs, several are relevant to the issue of inclusion and respect for all, but history has repeatedly shown how easy it is to neglect this group unless they are supported by organisations, programmes and professionals that make sure that their voices are heard and facilitate attitudinal change in society. The SDGs are an important means of highlighting this issue.

In Chapter 2 Pedzani Monyatsi and OS Phibion highlight the need for universities to lead the way, and provide a model for others by creating enabling environments for people with disabilities. If universities do not stand out in their practice and show the world we can make sure no one is left

behind, whatever their circumstances, our authority in debates about how to tackle the SDGs will be weaker. Monyatsi and Phibion show how, even with minimal resources, universities can be sites of progress, implementing policies supportive of the disabled, thus for once uniting theory and practice.

In Chapter 3, Elizabeth Kamchedzera discusses the issue of disability in relation to students, using the University of Malawi's Chancellor College as a case in point. This chapter explores the need to not only formulate policies, but also to implement them effectively if we really want to ensure that no one is left behind.

In Chapter 4, Victor Mgomezulu shifts our focus to the need for universities to be independent organisations, with a strong commitment to developing reliable and critical knowledge, and to speaking truth to power while being inventive and creative. In this context working conditions for academics in the Southern institutions urgently need attention. If wages, research funding and the space for academic reflection is so minimal that researchers are forced into becoming consultants (for example), the value of universities and researchers in promoting dialogue between the scientific and political arenas will be compromised. In other words, if knowledge is to contribute to the SDGs as is argued, academics must be secure in their independence and work in universities that have academic autonomy. Accepting that the chances of these institutions growing their income streams massively in the near future are slim, Mgomezulu makes some innovative proposals about affordable incentive schemes that have the potential to reward academics and encourage independent research.

Of the 17 SDGs, a number are relevant to the issue of 'a new global political economy', and goal 8, (to 'promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all') is often cited as being particularly relevant in this regard. In Chapter 5, Dan Darkey and Hilde Ibsen remind us of the complexities involved in achieving these goals (and particularly goal 8) by delving into the social roles and family traditions behind the South African economy. They focus particularly on social mobility of rural African women and their journeys into the urban middle class. As we seek to formulate policies that are capable of propelling local economies in the direction of economic justice and the redistribution of wealth, while supporting sustainable development, the social mechanisms pointed to in this article need to be very well understood.

In the next three chapters, Luke Mwale (Chapter 6) Miroslaw Staron (Chapter 7) and Henri-Count Evans draw our attention to ICT and technology, raising issues that the SDGs talk to in very general terms. Technology and innovation are seen as important for green growth. But how

technology is to be shaped in ways that secure more influence for the poor and vulnerable, and those who are likely to suffer most from climate change, has hardly been discussed. Technology, in itself, is no solution, and history shows that technology tends to simply reproduce and reinforce the power structures within which it emerges. Despite the fluidity of ICT as a tool, special efforts are necessary to make it relevant to users that need it most, and to make it part of strategies that ensure that the burdens of economic transformation are fairly shared. Indeed, humanity has never before had such wide access to technologies with which to focus on and tackle our common challenges. In Chapter 8, however, Henri-Count Evans, highlights the fact that all too often both individuals and organisations are failing miserably, missing out completely on the opportunities that ICTs offer. His chapter serves as an important wake-up call.

The chapters in Part Two focus on providing concrete and workable examples of what is involved in achieving goal 17: to 'strengthen the means of implementation and revitalize global partnerships for sustainable development'. Often little more than wishful thinking in the past, goal 17 has now been reframed as one of the most important SDGs. Inter-university collaborations, North–South and South–South, provide real examples of how higher education institutions can act within global partnerships. These chapters not only remind us of the importance of knowledge for SDGs, but also that how knowledge is acquired and shared within institutional networks has the potential to promote or destroy the basic preconditions for meeting the SDGs.

In Chapter 9 Berith Nyqvist Cech and Lars Bergström describe a fascinating pedagogical approach that completely undermines the stereotype of Northern experts imparting wisdom and knowledge to passive Southern students. Similarly, in Chapter 10, Quentin Eichbaum, Marius Hedimbi, Kasonde Bowa, Celso Belo, Keikantse Matlhagela, Ludo Badlangana, Peter Nyarango and Olli Vainio outline the development of an exciting and innovative institutional network of new medical schools that are working in mutually collaborative ways with medical schools in the United States and Sweden.

In Chapter 11, P Assmo and R Fox describe how an international collaboration and innovative use of technology as a pedagogical tool can help communities develop a keener awareness of how deeply racism can be embedded in people's daily lives and routines. So far, debates about the SDGs show a high level of awareness that racism and other forms of prejudice have the potential to undermine any solutions to the global environmental challenges facing humanity, as well as the need to guarantee every person the basic right to a dignified life. Assmo and Fox's chapter is a reminder of how long-lasting the structural effects of racist policies can be on all levels of social

life if they are allowed to develop. On a global scale, we expect the SDGs to help us fight all kinds of racism and prejudice, especially those that lie hidden in economic, social and political global interactions. Those debating the SDGs could learn from the case study described in Chapter 11, to understand what we think is under-communicated in the 17 goals, that is: racist practices, as they hide in the structures of society, need a common global policy if they are to be uprooted. Universities need to make it a priority to show how structural racism fuels racist attitudes, and that this might represent a much greater threat to our common future than is often understood.

In the final chapter, Rebecca Ward and Ida Mbendera return to the theme that universities can and must be important actors in promoting the SDGs; they are important for knowledge and they are important as global networks. Ward and Mbendera introduce a number of issues that are of growing importance in the field of knowledge and higher education, particularly when it comes to framing curricula that are relevant to the SDGs. These include: the use of new technologies to link distant campuses and persons; the development of private initiatives that do not use any public money; and the issue of how to develop equal partnerships across continents and from very unequal points of departure. In their chapter, they provide one possible answer to the question of how to address the aspirations of many young persons eagerly searching for study opportunities, but who seldom have the means, nor the points of access needed to make their dreams come true.

The SDGs seem to presuppose a strengthening of the public space, and access to public knowledge. The chapters in Part Two of the book highlight that co-operation between universities is the best way to keep public space open and to ensure equal access to all of students regardless of their economic, social or racial backgrounds. The immense growth of higher education as a 'market', and the relegation of universities to part of the service economy is a threat to the kind of solutions the SDGs propose. There is good reason to believe that further privatisation of the higher education and research arenas will escalate the cleavages of inequality on our planet, and thus reduce space for critical knowledge and collective solidarity. The SANORD network, and the examples of collaboration documented in this book, clearly demonstrate the value of cross-regional institutional co-operation within the public academic space.

Global democracy, sustainability and work for all

As Smith (2011) argued, the world urgently needs new energy sources and an entirely different approach to energy use. The beginning of this century can thus also be seen as the beginning of the end of the carbon economy, and as the start of a political transition away from our economies being so heavily

reliant on resources such as coal and oil. In the coming years, humanity will have to develop alternatives to the OECD's (and the WTO's) push to ensure that the carbon economy conquers the last frontier: the oceans and the exploitation of the planet's most vulnerable areas, the North and South Poles (see Altvater 2015).

Given our various locations, SANORD members are in a position to watch over both poles, together and separately. We thus have a 'bi-polar responsibility': to push ahead with the development of alternatives to the hegemony of global capitalism. Included in this, is to contribute to creating an alternative discourse within debates about the implementation of the SDGs. As 'new political economy' globalists argue, we live in a new age because there is no turning back: if more CO_2 is absorbed by our oceans, no technological fix will be able to reverse global warming. How this becomes part of discourses within national politics depends on our ability to break away from the present moral economy and neo-feudal social relations.

The end of the carbon period is also likely to be characterised by a move away from dis-embedded to embedded economies. For now, we are used to the neo-liberal approach in which economic relations of production are cleansed of social commitments with the help of state regulation and legislation. The kinds of democracy that have evolved so far can be characterised according to how much they have influenced this dis-embedding process. Essentially, democracy has become shallow and sidelined by the relations between states and the global economy. That is, globalisation is the result of these relations being conducted almost entirely beyond the reach of popular democratic influences. The end of the carbon economy will demand a new kind of economic re-embeddedness from both local communities and national states.

Nevertheless, the contemporary global economy also dictates that democracy is the only internationally valid and acceptable form of governance. The question therefore is whether democracy itself can be globalised in such a way that it puts *social* demands at the top of national agendas which in turn formulate environmental restrictions that make democratic politics within nation states guide national economies once more. The new agenda has to prioritise 'environmental politics' as well as a 'new economic (non-growth) model' that secures the sustainable use of resources, the redistribution and reconfiguration of technology, just and more equal consumption, and most importantly, work for all, as discussed in the 2015 SDGs.

The tipping point seems likely to occur when democratic demand creates a global regime that is *capable of governing* the economy, *as opposed to being governed by* the economy as is now the case. The crucial questions for SANORD are, what does such a change demand of science and science-

based education, and how will SANORD's knowledge network contribute to this? SANORD is part of a collaborative network of universities that has no ambition to be part of the OECD/BRICS-type of knowledge culture, which is driven by competition between universities or states, or a combination of these. For this reason, SANORD is one of very few academic networks that can really focus on developing alternatives to the dominant paradigm.

In this we have already had some help: the University of Bergen, on behalf of the Norwegian public, each year awards the Holberg prize in the disciplines of humanities, social science and law. A large number of those who have so far received this prize have engaged in the debate about how to develop an alternative political economy, and how to support nascent social movements that are behind this project. Manuel Castells, who won the Holberg prize in 2012, has travelled the world looking for spaces where a new embeddedness is emerging, that is, where a local democracy and economy reinforce each other while encouraging inclusive employment practices and reduced energy consumption. He has documented many such cases. Based on these, he has created a list of the important elements in what he calls a use-value economy. Included in this list are consumer co-operatives, producer co-operatives, urban farmers, barter networks and time banks, communal living, the transformation of urban transportation systems, community banking, volunteer-based social services, counselling networks and other voluntary associations, P2P digital sharing and open-source innovations in the computer world (Castells 2011).

If SANORD is to contribute to the debate about the SDGs and add impetus to the moves towards a transformative shift in the global political economy, then adding to the body of research about these kinds of developments, as it has already begun to do, will be a novel and lasting contribution.

Notes

1 To quote the High-Level Panel in a bit more detail: 'We call for a quantum leap forward in economic opportunities and a profound economic transformation to end extreme poverty and improve livelihoods. This means a rapid shift to sustainable patterns of consumption and production – *harnessing innovation, technology, and the potential of private business to create more value and drive sustainable and inclusive growth*' (UN 2013: 2, emphasis added).

2 Joseph Stiglitz (2002: 73), for example, talking to an African audience, called for 'an agenda for the new development economics', and has contributed to economic networks working for alternatives to the hegemonic neo-liberal paradigm. Although Stiglitz still locates himself within a 'growth paradigm', he is at least critical of the 'competitive state', and has provided a good analysis of how to start developing an alternative to neo-liberal hegemony. He also noted

that this 'task is not easy: the competitive paradigm is taught in virtually every graduate programme in the world' (Stiglitz 2002:73; see also Fourcade 2009). In other words, the task is to open the minds of young people to alternatives, including alternative forms of knowledge through curriculum reform. This demands that those who propose alternatives obtain tenure in the academy – however many alternative thinkers have been squeezed out of universities all over the world. It is easy to see that if curriculum reform does not happen – and in an even more radical way than Stiglitz suggests – the SDGs as they are now will be of no value in bringing about real change.

3 As of September 2015, the OECD website contained over 300 documents and press releases related to the PISA project; see http://www.oecd.org/general/searchresults/?q=press releases on PISA&cx=012432601748511391518:xzeadub0b0a&cof=FORID:11&ie=UTF-8.

4 This extract was on the OECD website, on a page titled 'About IHERD: Objectives', accessed in November 2013.

5 African universities are now working on developing alternative ways of valuing knowledge production, using criteria that reflect their own ideas about what constitutes useful or valuable knowledge. So for example, Ihron Rensburg, vice-chancellor of the University of Johannesburg, has said: 'If the conversation about university rankings is important, then the starting point would be to design a ranking system for Africa that encourages positive conduct – precisely because we know that rankings are influential, for example in resource allocation' (quoted in MacGregor 2015a; see also the African Association of Universities on Quality Assurance at www.aau.org).

6 This development is, I think, best described by Münch (2011: 95) who argues that the neo-feudal nature of the 'social partnership' between employed and employer means that corporate social responsibility programmes are replacing state- and labour union-supported welfare schemes, and that this is a consequence of the hegemony of, in particular, the kind of neo-liberal economics promoted by the United States. To use his own words: 'Die soziale Grundlage dafür ist die Durchsetzung der Chicago–Schule der Ökonomie in der Welt der Wissenschaft aufgrund der Hegemonie der amerikanischen Universitäten, ihre Konsekration durch Nobelpreise und ihre politische Durchsetzung.'

7 A declaration was issued that reads as follows: 'We, the BRICS Think Tanks Council (BTTC) wish to celebrate the bonds between BRICS countries by declaring our mutual intention to enhance cooperation in research, knowledge sharing, capacity building and policy advice.' Key nodes in the different countries were listed as: the Institute for Applied Economic Research in Brazil, the National Committee for BRICS Research in Russia, the Observer Research Foundation in India, the China Center for Contemporary World Studies, and the Human Sciences Research Council in South Africa. The full text of the declaration is available at http://www.brics.fudan.edu.cn/wp-content/uploads/brics_think_tanks_council_declaration_201303.pdf.

8 This is a condensed version of Smith's much longer list.

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PART I: CHALLENGES

Chapter 1

Disability in southern Africa: Insights into its magnitude and nature

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In 2011, the World Health Organization published the *World Report on Disability*, which estimated the global prevalence of people living with some form of disability at 15 per cent (WHO 2011). This prevalence rate is only one reflection of disability prevalence, as patterns of disability are acknowledged to vary considerably between and within countries, depending on specific health and environmental conditions. Variability in relation to definitions of disability, as well as in the methodologies and quality of data collection, are other factors that affect estimates of prevalence (Mont 2007). In the first section of this chapter, we analyse how disability is defined in southern Africa and use a review of available data to present existing statistics on disability prevalence in the region. In the second section, we explore how definitions of disability have shaped the ways in which disability is measured. Our findings are based on research we conducted in two villages in Namibia and one in Malawi, which revealed much higher prevalence rates than estimates based on national census data would predict.

Defining disability

In many parts of the world, including in southern Africa, disability has been, and in some cases still is, understood in relation to mythological and religious beliefs. People with disabilities (PWDs) were perceived to be receiving punishment from God, or the ancestors, or as possessed by evil spirits (Wa Munyi 2012). These perceptions led to PWDs being excluded from many aspects of community life. In extreme cases, children born with disabilities have been killed in an attempt to destroy the evil spirits believed to be possessing them.

In the twentieth century, advances in science created an understanding of disability based on medical and biological knowledge. This 'medical

model' viewed disability primarily as an individual problem, and focused on the provision of curative medical care by health professionals. The medical model took root in global health organisations such as the World Health Organization, Médecins Sans Frontières, the International Red Cross, etc., and gradually also began to influence the health sectors in various parts of the world, including in southern Africa. Within this framework, impairments in body function were seen as being aligned to specific health conditions (WHO 2010).

In the early 2000s, in response to the advocacy work carried out by the disability-rights movement, disability was redefined again – this time as a social rather than purely an individual problem. This meant that, in addition to funding medical research and developing assistive devices, health organisations began to focus on addressing the infrastructural and social barriers affecting PWDs. A range of social approaches developed in an attempt to close the gaps between people with disability and those without (WHO 2010).

Understandings of disability within the medical and social sectors have thus evolved in response to changing worldviews (see Table 1.1). In 2001, the World Health Organization (WHO) published the International Classification of Functioning, Disability and Health (ICF), which defined disability as an umbrella term for the impairments, activity limitations and participation restrictions that result from the interaction between any person with a health condition and various environmental or personal factors (WHO 2001).[1] Prior to the publication of the ICF, terms such as 'cripple' or handicap' were used interchangeably with the terms 'disabled' and 'disability'.

A midpoint between the medical and social model is now fairly prevalent at the level of health policy in most parts of the world. Known as the 'bio-psychosocial model', this combines both medical and social approaches, is centred on individuals, and considers people and their health problems within a social context. To unpack the term a little:

- The *bio*logical aspect refers to the physical or mental health condition.
- The *psycho*logical aspect recognises that personal and psychological factors influence functionality.
- The *social* recognises the importance of the social context, pressures and constraints on functionality (Overland Health 2015).

The ICF classifies human functioning along a continuum that allows for the grading of degrees of ability, and is more positive and inclusive in its outlook than earlier models tended to be. It also rates the level of difficulty that an individual experiences while performing certain activities in terms of 'little

Table 1.1 Traditional and modern terminology related to disability

Example	Description of disability	Traditional term	Modern/ICF term
Amputated leg	Significant deviation or loss	Crippled	Structural impairment that impacts on physical, physiological or psychological functioning
Difficulty walking	Difficulties experienced executing a task or action	Disabled	Disability/activity limitation
Unable to get to work to earn a living	Problems an individual may have in a life situation	Handicapped	Participation restriction

Source: Adapted from WHO (2001)

difficulty', 'moderate difficulties', 'significant difficulties' and 'unable'. Activity limitations and participation are further measured in terms of *performance* (which involves describing what an individual does in their current environment) and *capacity* (which describes an individual's potential ability to execute a task or action, and aims to indicate the highest level of functioning that an individual might reach under defined circumstances) (WHO 2001).

In response to a need for further classification of childhood disability, the WHO developed the ICF Children and Youth Version (ICF-CY). This framework for measuring health and disability covers children from birth to 18 years, and comprehensively captures the 'universe of functioning in children and youth', including play and schooling (WHO 2007).

Classifying levels of ability on a continuum means that individuals can be seen as potentially moving from impairment to participation restriction and back to being classified as 'not disabled'. This depends predominantly on:

- *Access to health care and rehabilitation services*. For example, a person who has a leg amputated (impairment of structure) following gangrene due to uncontrolled diabetes (impairment of physiological function) is unable to walk (activity limitation/disability), and would be classified as disabled. However, if an appropriate rehabilitation service is provided (including stump bandaging, muscle strengthening, balance re-education, and a prosthesis) and the person learns to walk again, with or without a crutch, the individual moves from being unable to walk to walking, at which point, according to the ICF, he or she is no longer considered disabled.

- *Social attitudes.* Consider a 10-year-old boy who has a hearing and a speech deficit from birth. Both are considered activity limitations/disabilities. His parents believe the boy will never achieve anything so they decide not to send him to school. They believe the boy is better off at home because other children laugh and make fun of him. The boy's parents and the other children are displaying negative attitudes, often shaped by ignorance, which lead to the boy being prevented from attending school (participation restriction). If social interventions encourage more positive attitudes and behaviours, the parents might become better informed, and facilities might be developed for the boy in an appropriate school or class that caters for children with 'special needs'. With resources that facilitate his learning and communication skills, the boy could ultimately be integrated into a class in an ordinary school. Accordingly, the definition contained in the UN Convention on the Rights of People with Disabilities (CRPD) recognises that 'disability results from the interaction between the person with impairment and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis' (UN 2006).

The conceptual framework provided by the ICF for understanding disability is helpful in capturing the complexities of different experiences of disability, and it takes into account the myriad factors that impact on the quality of individual and social life. Of course, the way in which disability is defined is important in determining how prevalence is estimated. And an awareness of the prevalence of different types of disability then shapes societal responses, as well as the manner (urgency, rigour and scope) in which rehabilitation services are developed and provided.

Contemporary understandings suggest that rehabilitation efforts should be designed to respond to the different kinds of challenges experienced along the disability continuum. Thus, what Gordon (1983) described as primary interventions target the prevention of impairment, and include, for example, addressing issues of diet, exercise, nutrition, immunisation, health education, health promotion, etc. Secondary interventions include health-care services that aim to prevent illnesses, injuries or impairments from developing into disabilities or activity limitations (Gordon 1983). Examples of this are the control of hypertension and diabetes mellitus using exercise, diet and health education as well as medication and/or surgery. Tertiary interventions include actions targeted at enhancing environmental conditions and social attitudes so as to prevent disabilities from restricting people's participation in society; examples would be legislation to prevent discrimination in the education

and employment sectors, advocacy and community education, as well as environmental and infrastructural changes aimed at making public spaces and amenities increasingly accessible via the construction of ramps and handrails, etc. (Gordon 1983). Clearly the aim of these primary, secondary and tertiary interventions is to improve the quality of life of PWDs, creating opportunities for them to participate in, and contribute to, the social, economic, civic and political development of their communities.

Disability in southern Africa

For obvious reasons, governments and health services worldwide require legislation to define disability. In the past, disability was crudely classified according to categories such as 'upper limb', 'lower limb', 'deaf/dumb', 'blind', 'mental deficiency', 'trauma' and 'other'. Using, such categories, statisticians sought to enumerate absolute disability without considering the question of degree, and therefore excluded what they perceived as 'minor' limitations. This approach did not acknowledge different kinds of impairments, or that their effects on individuals differ. Nor did it allow for the fact that some people have a single impairment while others have multiple impairments, or that some are born with impairments and others acquire impairments after birth, etc. Since 2007, several southern African countries have signed or ratified the CRPD, and most use one of the paradigms outlined earlier to legally define or classify disabilities (see Table 1.2).

The measurement of disability in southern Africa

Drawing data from national censuses is common when generating disability estimates in southern Africa. However, because the definition of disability differs from country to country, and because the methodologies used in collecting census data (and particularly disability-related data) differ, estimates tend to be incomparable across countries (Mont 2007). In addition, the questions usually contained in census questionnaires seldom capture the richness of human functioning inherent in current definitions and models of disability – either in terms of type of disability (physical, mental, sensory, and psychological) or functional domain (body structure/function, activities, and participation). A further disadvantage of census data is that the focus on physical disability results in an underestimation of disability related to mental health (Mont 2007). Suliman et al. (2011), quoting the 'burden of disease' work by Murray and Lopez, report that neuropsychiatric disorders cause up to 17.6 per cent of years lost due to disability (YLLD) in Africa.

Nevertheless, census data is still largely used for international comparisons of disability prevalence, because in many of the lower-income countries,

Table 1.2 Definitions of disability in southern Africa

Country	Definition of disability (disability paradigm)	Source, year	Ratification of UNCRPD
Angola	–	–	Not yet
Botswana	–	–	Not yet
DR Congo	–	–	Not yet
Lesotho	–	–	2008
Madagascar	–	–	Signed 2007, not yet ratified
Malawi	Long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder persons, full and effective participation in society on an equal basis with others. (Bio-psychosocial)	Disability Act, 2012	2009
Mauritius	A person who is unable to ensure by himself [*sic*], wholly or partly, the necessities of a normal individual as a result of a deficiency, whether congenital or not, in his [*sic*] physical or mental capabilities. (Medical)	Disabled Persons Act, 1988	2010
Mozambique	–	–	2012
Namibia	A physical, mental or sensory impairment that alone, or in combination with social or environmental barriers, affects the ability of the person concerned to take part in educational, vocational, or recreational activities. (Bio-psychosocial)	National Disability Council Act, 2004	2007
Seychelles	Suffering from a physical or mental disability on account of injury, disease or congenital deformity. (Medical)	National Council for Disabled Persons Act, 1994	2009
South Africa	The loss or elimination of opportunities to take part in the life of the community, equitably with others that is encountered by persons having physical, sensory, psychological, developmental, learning, neurological or other impairments, which may be permanent, temporary or episodic in nature, thereby causing activity limitations and participation restriction with the mainstream society. (Bio-psychosocial)	National Council for Persons with Physical Disabilities, 2006	2007

Country	Definition of disability (disability paradigm)	Source, year	Ratification of UNCRPD
Swaziland	–	–	2012
Tanzania	The loss or limitation of opportunities to take part in the normal life of the community at an equal level with others due to physical, mental or social factors (Bio-psychosocial)	National Policy on Disability, 2008	2009
Zambia	A 'permanent' impairment resulting from the interaction between health conditions and external contextual factors. (Bio-social)	Persons with Disabilities Act, 2012	2009
Zimbabwe	A person with a physical, mental or sensory (visual, hearing or speech) functional impairment, which gives rise to physical, cultural or social barriers inhibiting him [*sic*] from participating at an equal level with other members of society in activities, undertakings or fields of employment that are open to other members of society. (Bio-psychosocial)	Disabled Persons Act, 1992	2013

Notes: In Lesotho, disability is not defined in any legal document, despite the publication of the National Disability and Rehabilitation Policy in 2011. According to a study of living conditions among people with disabilities in Lesotho, conducted between 2009 and 2010, disability tends to be defined according to the ICF (Kamaleri and Eide 2011). Questions asked in Lesotho's 2006 census described disability in terms of the medical model (Lesotho Bureau of Statistics 2007).
The constitutions of Angola, DR Congo, Botswana, Mozambique and Lesotho provide for the protection of PWDs, but provide no definition of disability.
For signatures and ratifications, see UN (2012).

including in the majority of countries in southern Africa, this is often the only source of data available. Disability prevalence in southern Africa as obtained from census data is shown in Table 1.3.[2]

In their report, *Disability and Poverty in Developing Countries: A Snapshot from the World Health Survey*, Mitra et al. (2011) have published the only other data pertaining to the prevalence of disability in the general population in southern Africa. In general, they estimate higher disability prevalence rates than those that are reflected in national census data. For example, their report gives the following estimates: Malawi – 12.97 per cent, Mauritius – 11.43 per cent, Zambia – 5.78 per cent and Zimbabwe – 10.98 per cent.

To sum up, data pertaining to the magnitude of disability in southern Africa is predominantly census based. However, data for the region is incomplete, often dated, and in isolated cases, disability is excluded from national census questionnaires. In addition, the available data does not consistently reflect the ICF. Instead, disability is defined in various and dissimilar ways, and data collection methods lag behind internationally accepted best practice. For example, census questionnaires tend to ask respondents to self-identify

Table 1.3 The prevalence of disability in southern Africa based on census data

Country	Population in millions*	Prevalence of disability (%)†	Year
Angola	20.2	1.0	2005
Botswana	2.0	2.9	2011
DR Congo	69.6	15.0	2011
Lesotho	2.3	3.7	2006
Madagascar[a]	23.2	–	–
Malawi	15.4	4.0	2008
Mauritius	1.2	4.8	2011
Mozambique	24.5	2.5	2007
Namibia	2.4	4.7	2011
Seychelles	0.1	2.6	2010
South Africa	51.7	7.4	2011
Swaziland[b]	1.2	3.0	1997
Tanzania	47.6	7.8	2008
Zambia	38.0	15.0	2010
Zimbabwe[c]	15.0	2.9	2002

Sources: * UN (2012); † Population census data for each country

Notes: a: The 1993 census data for Madagascar do not include prevalence of disability. In 2003, the government estimated disability prevalence to be 7.5 per cent (Ministère de la Santé 2003). Madagascar planned to conduct its third census in 2009 but failed to do so because of social and political instability.
b: The last available census report for Swaziland (2007) does not state the disability prevalence; therefore the last reported prevalence is 3 per cent (1997 census).
c: Zimbabwe's most recent census was conducted in 2012, and attempted to count the number of economically active PWDs but analysis of the data on disability was incomplete at the time of writing (see ZIMSTAT 2013b); disability was defined as 'a person having the following problems: difficulty moving, totally blind, difficulty seeing; difficulty speaking; deaf; difficulty hearing; difficulty learning/mental handicap; chronic fits/epilepsy; strange behaviour/mental illness; lack of feeling – hands or feet/leprosy; albinism (ZIMSTAT 2013a: 118). Thus, disability was defined using both impairments and activity limitations, which is inconsistent with the legal instruments available in Zimbabwe.

as disabled but PWDs (and especially with mental disabilities) are often hidden from the world, and so might not have opportunities to respond to questionnaires. In other words, all indications are that census-based disability rates for the region are underestimated.

An alternative data-collection method

In this second section of the chapter, we describe how we have attempted to overcome the limitations of census data and develop the means to arrive at more accurate disability estimates. That is, we designed an alternative means for collecting disability data that defines disability using the concept of activity limitation, and that encourages PWDs, their families and their communities to participate in the research process. Part of our motivation for this was the fact that, since the UN adopted the CRPD in 2006, many governments and international development agencies have begun turning their attention to the inclusion of PWDs in socio-economic development initiatives (Mont 2007). And although a number of countries in southern Africa have not yet ratified the CRPD (see Table 1.2), there is growing acknowledgement that the Millennium Development Goals will never be fully and completely realised unless PWDs are included in social and economic development programmes (UN 2012).

A further motivating factor was that the goal of eradicating poverty was made central to the UN's post-2015 development agenda (UN 2013). The new SDGs focus on the very poorest and the most excluded people, and acknowledge that the MDGs were silent on the effects of conflict and violence on development. PWDs are often marginalised and very poor (DFID 2000; Filmer 2008; Mitra et al. 2011); a vast number have become disabled as a result of conflict, war and violence – the wars in Angola and Mozambique offer many visceral examples in this region. Many PWDs are also subjected to ongoing domestic and sexual violence because of their disability (WHO n.d.). The first transformative shift proposed in the UN's post-2015 development agenda is, 'Leave no one behind' (UN 2013), and disability is specifically mentioned as one of the target areas in this regard.

If the social conditions and economic opportunities of PWDs are to improve, accurate data will be required to enable rehabilitation resources and services to be appropriately directed and implemented. Furthermore, measuring the prevalence of disability over time will make it possible to monitor the impact of rehabilitation programmes, and if data is collected that allows for a bio-psychosocial analysis, participation restrictions will provide indicators of social integration, economic opportunities and the status of human rights.

Setting, population and sampling

The study was conducted in two rural villages in Namibia (Okamatapati and Iiyale) and one village in Malawi (Lizimba, which is in the district of Mangochi). The selection of the villages was done in collaboration with a number of stakeholders. At the sub-district levels in both countries, representatives of PWDs, together with traditional leaders and the lead government department responsible for providing services to PWDs, participated in the selection of study sites. Other stakeholders, such as development partners, signalled their willingness to integrate PWDs into development programmes in the locality. In Namibia, the impetus for the survey came from the Ministry of Health and Social Welfare's directorate for Community-Based Rehabilitation, which desired to strengthen its rehabilitation services. In Malawi, the impetus came from the College of Medicine at the University of Malawi, which had an existing partnership with a community in the area selected because its annual field placements for public health students take place there.

In addition, the communities chosen had to fulfil the following selection criteria:

- Be geographically isolated and have difficulty accessing rehabilitation services.
- Have PWDs that could benefit from rehabilitation services.
- Have community workers who were willing to expand the scope of their services to include PWDs.
- Have a district hospital within reasonable proximity that would be able to provide technical expertise and sustain services to PWDs in an ongoing way.

The survey methodology was first piloted in Namibia, and later adapted and used in Rwanda and Malawi, as has been described in detail in M'kumbuzi et al. (2014). In this chapter, we report on the process and findings from Malawi and Namibia. Four instruments were used to collect data as outlined below.

1 *Area-profile surveys.* Survey questionnaires were adapted from an instrument contained in the *Guidelines for Implementing Community-based Rehabilitation in Zimbabwe* (MOHCW 2002). The questionnaire was used to profile the villages and their districts in terms of population characteristics, education, health and rehabilitation services, economic activities and resource persons already available for rehabilitation activities.
2 *A home-entry checklist*. The research team and community workers developed this checklist collaboratively to provide researchers with guidelines on a culturally acceptable way to enter homes (see Box 1.1). The checklist encouraged researchers to acquaint themselves with the home

Box 1.1 The home-entry checklist

- Greet home dwellers.
- Introduce the survey team.
- Introduce the survey.
- Explain the purpose of the visit.
- Determine the number of people that permanently live in the house (follow-up questions might be necessary).
- Determine how many are children (0 to 18 years) and adults (18+ years).
- Determine the number of PWDs in the house.
- Classify PWD/s as child or adult and obtain their exact age.
- Classify and record the type/s of disability.
- Record the house number and the name of the head of the household.
- Thank participants.

dwellers, and to communicate the purpose of their visit and the intentions of the study to respondents. The home-entry checklist also reminded researchers to verify the population data obtained from the appropriate government department and recorded in the area profile.

3 *Disability-screening tools*. Adult and child disability screening tools were developed based on the activity limitations section of the ICF (WHO 2001) and the ICF-CY (WHO 2007). Prior to being used in the study, researchers worked with community members and community workers to assess the validity of the screening tools. The child-screening tool included age-appropriate questions about children on issues such as feeding/suckling and learning difficulties. Age-appropriate developmental milestones were included so that these could be assessed. The screening tools also collected socio-demographic data on the PWDs and their caregivers. Box 1.2 shows the screening form developed for use with children.

4 *Rehabilitation management plans*. First a form was developed to guide detailed and comprehensive clinical and rehabilitation assessments. The form was adapted from the standard assessment tools routinely used by rehabilitation personnel for such assessments. It documented clients' histories, problems and the underlying causes of those problems, and this information was then used to design a tailored rehabilitation management plan (including referral to other health and support workers where appropriate).

Box 1.2 Child-screening form for children aged 0 to 18 years

If there are any problems fill in this form and bring the child/ren with the mother/caregiver to the assessment point.

Name of the child ..... Age of the child .....

Gender .....

Name of the mother/guardian .....

Region ..... District .....

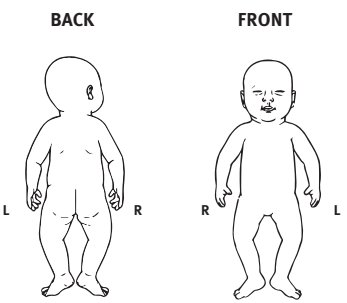
Traditional authority .....

Village ..... Screening Point .....

Name of the community worker .....

Contact details .....

Mark with an X the part on the body chart where the client has difficulty



Please ask the mother or caregiver the following questions:

1. Was the child born before 8 months?
2. Was the child yellow at birth?
3. Did the child cry at birth?
4. Does the child suffer from fits?
5. Is the behaviour of the child different from other children?
6. Does the child have difficulty with any of the following?
   a. Mental functions
   b. Special sensory functions

Seeing	Hearing	Pain
Taste	Smell	Touch

   c. Communication (including preverbal communication)

d. Body systems
   Cardiovascular Respiratory
   Reproductive Digestion/Metabolism/Endocrine/Genitourinary
   Neuromusculoskeletal and movement-related functions

e. Mobility (walking)
   Head control Bed rolling
   Standing

f. Self care
   Washing Toileting
   Dressing Eating/Suckling
   Drinking Looking after one's health

g. Domestic life
   Finding shelter Shopping
   Preparing meals Cleaning the house
   Caring for property Interpersonal relationship (including caregiver and child interaction)

h. Major life areas
   Education Play (object and peer play)
   Economic transactions

i. Community social and civic life
   Recreation and leisure Religion and spirituality
   Human rights Political life and citizenship
   Community life (e.g. membership of churches, clubs, etc.)

Assessment point . . . . . .

All clients must bring their health passport books to the assessment points.

All of the above instruments were developed in English. The home-entry checklist and the disability-screening tools were translated into Otjiherero for use in the village of Okamatapati and into Oshiwambo for the village of Iiyale in Namibia. Both tools were also translated into Chichewa for use in the village of Lizimba in Malawi. A typical forward and back translation was done by two independent translators, and a workshop was held involving community workers, village chiefs, rehabilitation experts and researchers at which consensus on the final version of each document was reached.

Two field trials were undertaken in Namibia to test the validity and applicability of all the instruments. The study as a whole involved a five-phase process as outlined in Table 1.4.

Table 1.4 An outline of study procedures followed in Namibia and Malawi

Activity categories	Specific activities
Preparation	1. Training of mid-level and community rehabilitation workers on: what disability is; what causes disability; what rehabilitation services are and which ones are available in the locality for PWDs; the potential for the rehabilitation of PWDs. 2. Refining tools and translating them into the local languages for use when screening for and assessing disabilities in children and adults. 3. Training researchers in the use of documentation for enumerating the population profiles for each household, transect and village, as well as in how to enumerate the proportion of the population observed to be disabled, and to disaggregate this by age group and gender.
Pre-survey	1. Training mid-level and community rehabilitation workers to identify, screen and refer PWDs. 2. Mobilising the community by informing them about: * how to access services to manage different disabilities such as mental and physical, learning, visual and hearing; * how to relate to disabled people's organisations (DPOs); * the causes of disability, the benefits of rehabilitation, and the need for prevention; * immunisation, good nutrition, well-maintained sanitation, hygiene, and environmental safety; * the need to encourage influential community members to sustain community rehabilitation services. 3. Making researchers aware of the context in which the survey was to take place by profiling the demographic, socio-economic, geo-political and physical landscapes of the selected study sites.

Activity categories	Specific activities
Survey	1. Multi-disciplinary teams conducted a 'door-to-door' survey with community workers to audit the population data made available during the pre-survey stage, and to establish the disability profile by screening for disability, disaggregating data by age and gender, and by activity limitations.
Post-survey	1. Physical and objective assessment and examination of identified PWDs was done at outreach points by multi-disciplinary rehabilitation teams which included physiotherapists, mental health practitioners, ophthalmology technicians, orthopaedic technologists, education and social welfare practitioners, and medical services. 2. A rehabilitation plan including referral was instituted for each client. Involvement of the family and community and capacity building was planned and encouraged or implemented. 3. Sustainable stakeholder involvement was arranged in an attempt to develop an ongoing community rehabilitation service. 4. All documents pertaining to the initial survey and its outcome, including client screening and assessment forms, were handed over to the relevant district hospitals.
Data analysis	1. Data from the screening instruments and rehabilitation assessment forms were entered into well-known and widely used spreadsheet software. Population data were enumerated by age and gender for each village and tallied against the enumeration data obtained during the door-to-door survey. Descriptive statistics were computed to characterise the demographics of PWDs. Proportions were computed to summarise the activity limitations.

Results

Table 1.5 summarises the population data for the surveyed areas. Table 1.6 presents the overall prevalence of disability for each survey site. Tables 1.7 and 1.8 summarise the types and frequency of disabilities observed in children and adults respectively. Overall, hearing and talking disabilities were the highest disability clusters among children; difficulties with walking were the most frequently observed disabilities among adults.

Community response

Community responses were initially directed by the local leaders' understandings of the survey objectives, they at first found it very difficult to fathom why the study teams wanted to mobilise their whole community to deal with matters

Table 1.5 Population data for survey sites

	Namibia site 1: Okamatapati	Namibia site 2: Iiyale	Malawi: Lizimba
Total population	4 000 (34% is 18 years or younger)	257 (36% is 18 years or younger)	399 (8.3% is 18 years or younger)
Number of households surveyed	185	42	86
Average age (years ± SD)	Not available	Not available	33.43 ± 10.5

Note: During the initial survey in Namibia, age-related data was not collected.

Table 1.6 Prevalence of disability

	Namibia		Malawi
	Okamatapati	**Iiyale**	**Lizimba**
Prevalence of disability in adults (%)	5.39	7.00	23.80
Prevalence of disability in children (%)	2.18	2.33	9.01
Total prevalence (%)	7.57	9.33	14.78

Table 1.7 Types of disability according to activity limitations in children, 0–18 years

	Namibia		Malawi	Total
Activity limitations	**Okamatapati**	**Iiyale**	**Lizimba**	
Seeing	2	0	1	3
Learning	6	0	3	9
Hearing	6	1	3	10
Walking	3	0	2	5
Talking	6	1	4	11
Sitting	2	0	1	3
Crawling	2	0	1	3
Feeding / sucking	2	0	1	3
Strange behaviour	1	0	4	5
N[a]	30	2	22	

Note: a: Children might have had multiple disabilities; N = the number of disabilities recorded, not the number of children.

Table 1.8 Types of disability (activity limitations) in adults (18+ years)

	Namibia		Malawi	Total
Activity limitations	**Okamatapati**	**Iiyale**	**Lizimba**	
Seeing	2	4	5	11
Toileting	6	0	3	9
Walking	3	2	10	15
Talking	6	1	4	11
Sitting	2	1	1	4
Washing	2	2	4	8
Feeding	2	Not enumerated	0	2
Dressing	0	2	6	8
Strange/inappropriate behaviour (mental health condition)	5	3	4	12
N[a]	28	16	37	

Note: a: Respondents might have had multiple disabilities; N = the number of disabilities recorded, not the number of adults.

of disability. Early meetings were mainly attended by PWDs. However, over time, advocacy by other community members improved the response rates, and educational programmes generated further interest. The educational programmes were highly interactive, and included audio-visual and multi-media presentations defining disability, its causes, the rehabilitation services available in the area, and the role of the community and organisations representing PWDs in meeting the needs of PWDs. During the pre-survey phase, technical experts, including physiotherapists, orthopaedic technologists, ophthalmologists, mental health specialists, as well as education and social welfare officers, addressed the community at each study site in a meeting to which all members of the community were invited. The purpose of the educational programmes was to demystify and de-stigmatise disability, to facilitate community participation in the door-to-door survey, and especially to try to limit barriers to access to PWDs during the household survey.

Consequently, no resistance was encountered during the door-to-door survey, and no reports were received of PWDs hiding from researchers. PWDs from neighbouring villages also responded to the survey after hearing about it, and although they were not enumerated in the surveys, they were given access to services to satisfy ethical considerations.

Discussion

Prevalence

The prevalence of disability in the villages surveyed was two to three times higher than the figures reported in national census data from both countries. Apart from national censuses and the World Health Survey mentioned earlier (Mitra et al. 2011), this study marked the first disability survey in Malawi and Namibia since 2006. The findings typically mirror the estimate of 15 per cent provided by the WHO (2011) for a defined community, as well as the results of the World Heath Survey snapshot, which indicated a prevalence of 14.78 per cent for Malawi (Mitra et al. 2011).

Our findings suggest that the planning and provision of services for PWDs in these countries is likely to be grossly inadequate, as stakeholders are tending to rely on data that could be significantly inaccurate. The findings are somewhat perplexing in that both Malawi and Namibia define disability in their legislation using a bio-psychosocial paradigm, and both countries have ratified the CRPD. Nevertheless, a wide margin exists between our findings and the most recent census data on disability prevalence. This margin might be attributable to a lag between practice and knowledge, or that those entrusted with administering the census lacked the awareness, time or resources to incorporate their knowledge into their data-collection and analysis.

The difference in disability prevalence between the two districts in Namibia, highlights the fact that randomly sampling districts in a country like Namibia might not generate data that can be reliably generalised to the country as a whole. A truer picture would emerge from surveying individual districts, and might warrant the extra time and effort from researchers, as their findings would then more accurately inform policy and service development. Rather than being a limitation, purposive sampling in the case of disability prevalence studies might well provide data that is better able to inform the prioritisation of services and service development where resources are scarce.

Disability was higher proportionally in adults than in children in all three villages surveyed. This might merely point to the more diverse causes of disability (congenital and acquired) that occur in adults than those more typical for children.

The nature of disabilities observed

The observed frequency of learning difficulties in children may be a reflection of speech and hearing difficulties, which had a similar distribution, and make the case for paying greater attention to the educational needs of children with disabilities. Adults experienced more difficulties with mobility. Although this survey did not attempt to determine the causes of disabilities that were

recorded, it is reasonable to assume that walking aids or similar assistive devices would be beneficial.

Difficulty with mobility can preclude PWDs from participating in many activities and aspects of civic and political life (WHO 2011). On a more basic level, it can limit the ability for self-care, so that individuals require assistance with bathing or going to the toilet. Such needs tend to deny PWDs their dignity, lower their self-esteem and reduce their independence (see Thornicroft et al. 2007; WHO 2011), and are often ultimately responsible for PWDs being left behind or left out of development agendas.

Disabilities related to mental health were cumulatively the second most frequently occurring cluster. We believe that this finding is a fair reflection of what pertains. It also demonstrates that accurate data can feasibly be obtained, even for persons with mental health challenges. We believe that the study methodology (community mobilisation combined with a door-to-door survey) worked effectively to ensure that persons with mental health challenges were identified. We attribute this to the educational programme, which helped to destigmatise disability, and to the high levels of community participation that occurred in all phases of the study.

The survey paradigm: our definition of disability

In the survey, we used the concept of activity limitation to define disability. Judging from the perceptions of health workers involved in our study, disability seems to be strongly identified as a medical issue in Malawi and Namibia, even though disability data has been excluded from demographic health surveys in both countries. Interestingly, the rehabilitation team in Namibia, who also participated in the survey, needed some assistance to develop their awareness of the medical causes of impairment. They were all social workers, and tended to define disability operationally from within a purely social paradigm, which tends to downplay the role of rehabilitation workers in primary prevention activities, and can lead to social workers being excluded from care programmes that are driven by health departments.

The instrument we used for detecting disability lacked a rating scale for the severity of the disability. In addition, no distinction was made between PWDs' capacity and their performance of activities, nor were participation restrictions among adults investigated. These are important measures in relation to the ICF. The fact that they were excluded from the study means that the prevalence of disability in all three villages might in fact be higher than observed. We also did not attempt to determine the causes of disabilities observed, as this was beyond the scope of the study. Causal factors are, however, important for the planning of ongoing prevention and primary health care interventions.

The implications of adopting the ICF framework is important in that it informs choices made within research programmes. Ideally, this should be discussed openly in research teams, to make individual researchers aware of their own assumptions and biases. This would also help researchers to ensure that their findings respond appropriately to community needs rather than to goals predetermined by funders or other stakeholders.

The right stakeholders and duty bearers, namely the ministries of health, social welfare and education in both countries, were involved from the outset.

Implications

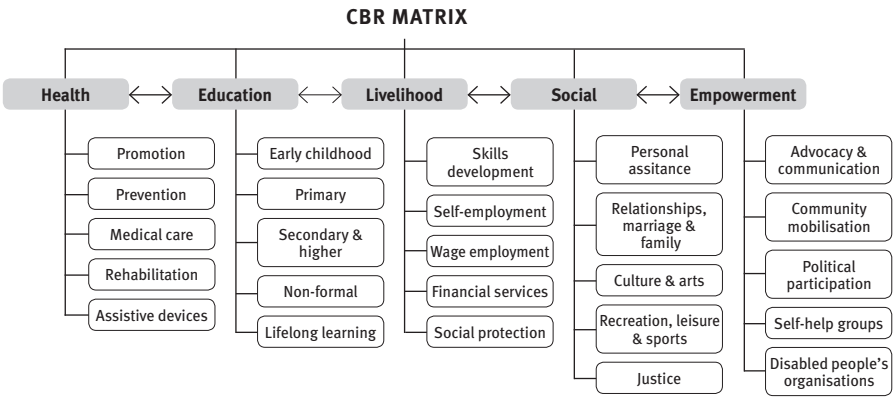
Our findings challenge official (census) data, and will hopefully contribute to a deeper awareness of the magnitude and nature of disability in southern Africa. Hopefully, this awareness will not become an end in itself, but will translate into meaningful policies and programmes that encompass broader social and human-rights perspectives on disability.

The immediate priority for further research will be to evaluate the extent to which the insights from this study can be used to inform those offering services to PWDs in districts and villages throughout Namibia and Malawi. That is, more information is needed about what services, beyond medical and physical rehabilitation, PWDs in the region are able to access. If health authorities are using census data to estimate their own service provision, it seems likely that very little provision will have been made for PWDs.

The relationship between disability and poverty is reported liberally in the literature. For example, although the discourse on increasing access to schooling for children with disabilities has done the rounds for some time, little progress has been made over the years. Filmer, in his 2008 paper, 'Disability, poverty and schooling in developing countries: Results from 14 household surveys', finds a 'vicious cycle of low schooling attainment and subsequent poverty among people with disabilities'. Such findings call for some brave decisions to be made to ensure, for example, that all children, including children with disabilities, obtain the kind of education that will facilitate the breaking of this cycle. These decisions require courage because they challenge attitudes that view PWDs as recipients of charity, and instead place PWDs on a path to empowerment. In addition, these decisions require that economic priorities be reconsidered to *include* PWDs. Their inclusion, in turn, requires the installation of appropriate infrastructure, as well as further training for those in the health and social services sectors to ensure that all service providers are more attuned to inclusivity in the delivery of their services.

Ensuring that PWDs enjoy basic human rights is embedded in international and in country-level legislation in most southern African

Figure 1.1: The WHO's community-based rehabilitation matrix



Source: WHO (2010)

countries. The aim of this legislation is 'to empower PWDs and to ensure their participation in political, economic, social and cultural life' (Bury 2003). The WHO's *Community-Based Rehabilitation Guidelines* capture the essence of this approach, describing a matrix of five key development areas – health, education, livelihood, social and empowerment – in which the mainstreaming and empowerment of PWDs and their family members needs to be promoted (WHO 2010) – see Figure 1.1.

As the figure shows, each element in the matrix includes five areas of activity. The ICF underpins the WHO *Guidelines* in terms of defining disability. Consequently, provision for inclusivity can be mapped on the activities contained in the community-based rehabilitation matrix. This is a daunting task as it includes all the major life areas. Hence, prioritising programmes that have wide impact, and are both cost-effective and have proven benefits, would be a good place to start.

Our experience of working with the health authorities in Namibia and Malawi indicated a bias towards the medical model of disability. As in many other countries, the private and public health-care systems appear to concentrate their prevention and intervention efforts on major communicable diseases rather than on the non-communicable diseases or on the other causes of disabilities (Suliman et al. 2011). We recommend, therefore, that countries in the region refocus on this aspect of health-care provision, both in relation to training rehabilitation professionals and the provision of rehabilitation infrastructure. Shrinking health budgets demand that the planners who inform health policy make careful decisions regarding resource allocation, and

that both the direct (treatment) and indirect (impaired functioning in work and other social roles) costs of not tackling disability are considered (see also Suliman et al. 2011).

Conclusion

As noted, the disability prevalence rates observed in our studies of two villages in Namibia and one in Malawi are two to three times those reported in the most recent census data for the two countries. This finding makes it clear that, despite having adopted the CRPD, several southern African countries provide no guidance on how to define disability and others continue to use a medical paradigm when collecting census and other forms of demographic and health data. Mauritius, Namibia and the Seychelles, for example, promulgated legislation that defines disability prior to the development of the CRPD, and have not reviewed this since their countries ratified the Convention. Lesotho, Namibia and South Africa seem to have ratified the CRPD amidst the flurry of activity that occurred immediately after it was adopted by the UN in 2006, but their subsequent commitment to the ethos of the Convention has been less than energetic. Their disability-data collection systems, therefore, seem to lag behind policy and legal understandings of the issue.

We recommend that rehabilitation experts conversant with the epidemiology of disability should participate in framing questions on disability for use in census and other data collection questionnaires. Efforts made in this regard by Rwanda (see Thomas 2005), should be emulated. In addition, researchers should be encouraged to redouble their efforts to monitor disability trends in the region, and development partners should be encouraged to prioritise the funding of disability research as a central feature of their development agenda.

Additional surveys, using contemporary methods of defining disability, would help to more accurately quantify and describe human functioning and the needs of PWDs in the southern African region. While census data on disability contains such numerous limitations, its usefulness as a basis for shaping rehabilitation services will remain limited, and might even be obstructing the release of the kinds of resources that would help PWDs contribute more fully to the realisation of the post-2015 agenda.

Notes

1 The kinds of personal factors referred to here include the particular background of an individual's life and livelihood that are not related to their health, such as gender, age, etc.

2 When compared to census data, smaller local surveys tend to report higher rates of disability. This might be because smaller studies are able to pose more detailed

questions that relate specifically to disability (see Eide and Loeb 2006). However, smaller local surveys can also underestimate some forms of disability as people sometimes avoid reporting socially stigmatised conditions (Mayhew 2001). Research methods that include the self-identification of disability, are based on diagnosable conditions only, and on the actual performance of activities of daily living (eating, bathing, dressing etc.) tend to result in lower prevalence figures for disability. These methodologies can also result in discrepancies when cross-national comparisons are made (AIHW 2003). For example, in Zambia's 1990 census, the question 'do you have a disability?' yielded a disability level of only 1 per cent (Eide and Loeb 2006). By contrast, a function-based study, using the United Nations Washington Group Questions and detailed survey questions, yielded a disability prevalence of over 13 per cent (Eide and Loeb 2006; see also http://www.cdc.gov/nchs/washington_group/wg_questions.htm).

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Chapter 2

Facilitating access to higher education for students with disabilities: Strategies and support services at the University of Botswana

Pedzani Perci Monyatsi and OS Phibion

By the close of the twentieth century, higher education in Botswana, like in many developing countries, had been transformed from the preserve of the elite into a more accessible arena that annually enrols large numbers of students from all sectors of society. This change reflects shifts in demographics, economics and politics, as well as a significant improvement in the number of children who have access to primary and secondary education. The adoption of the Universal Declaration of Human Rights in 1948 (which ushered in efforts by the United Nations to promote social, economic and cultural rights in tandem with civil and political rights), the 1989 Convention on the Rights of the Child (which became binding in international law in 1990), the 1990 World Conference on Education for All (held in Jomtien, Thailand), and the Dakar Framework for Action (adopted in 2000), have all pressured many countries around the globe to commit to improving citizens' access to education.

After the 1990 Jomtein Conference, the principle of education for all was strongly emphasised, and the international community was urged to prioritise *basic education*. At the same time, it was acknowledged that different learners have different basic learning needs and different ways of meeting their needs. As noted by Torres (1999), basic learning needs vary with individual countries and cultures, social groups and population categories (according to race, age, gender, culture, religion, territory, etc.) and with the passage of time. The Dakar Framework espoused six goals that all emphasise:

- Full and equal access, especially for the most vulnerable and disadvantaged.
- Equitable access to basic and continuing education for all adults.
- Equitable access to appropriate learning and life-skills programmes (World Education Forum 2000).

Signatories to the Dakar Framework committed themselves to: 'Ensuring that by 2015 all children, particularly girls, children in difficult circumstances,

and those belonging to ethnic minorities, have access to and complete free and compulsory primary education of good quality' (World Education Forum 2000: goal 2). For the purposes of this chapter, people with disabilities can be counted among those in 'difficult circumstances'.

With these commitments, many nations of the world expressed support for the goal of education for all, and went on to develop targets and strategies that reflect country-specific priorities, conditions and challenges, often linked to the Millennium Development Goals (MDGs) and subsequently to the Post-2015 Development Goals. Regionally, the South African Development Community developed a Protocol on Education and Training in 1997, which calls for regional co-operation in enhancing the provision of education and training in various ways, including:

- Widening provision and access to education and training, as well as addressing gender equality.
- Increasing equitable access, improving the quality and ensuring the relevance of education and training.
- Rationalising admission requirements to education and training institutions and accreditation of qualifications (SADC 1997).

As will be shown, the government of Botswana has worked hard to create a non-discriminatory society that espouses the democratic principle of equality before the law. Furthermore, institutions such as the University of Botswana have emulated the government by attempting to create optimum environments for disabled students. Nevertheless, students with disabilities still face daunting challenges. The purpose of our study was to investigate factors that enable and hinder equity, access and equality at the University of Botswana, with particular emphasis on students with disabilities.

Our main research question was: how does the university foster social cohesion, reduce inequality and raise the level of knowledge, skills and competency in society, as well as promote equality of opportunity and participation in the civic, cultural and social life of the nation? From this central question, the following sub-questions were key:

- What strategies and structures has the university put in place to facilitate the achievement of equity, access and quality for students with disabilities?
- What procedures and criteria are used to select students with disabilities?
- What challenges face the university in achieving equity, access and quality for students with disabilities?

Before providing details of our study and our findings, we offer some background information about disability in Botswana, and about the history of government and university policies related to this issue.

The context

Since attaining independence in 1966, the government of Botswana has shown an interest in the welfare of people with disabilities. For instance, in the 1970s, the government commissioned a study on the nature and prevalence of disabilities in the country, the results of which were used by the health ministry to introduce the Special Services Unit for the Handicapped in 1975 (Republic of Botswana 1996). This unit has since been integrated into the Ministry of Health's Rehabilitation Services Division. In the 1970s, the Ministry of Local Government Lands and Housing established the Department of Social Welfare and Community Development. The services delivered by this department were not specifically aimed at disabled persons, but were intended to benefit all who were in need. Since 1992, the Ministry of Labour and Home Affairs has taken over the Division of Culture and Social Welfare and works with local authorities to provide social welfare services to the whole population, including people with disabilities.

Botswana's 2001 Population and Housing Census showed that 58 976 people were living with disabilities, and about 66 per cent of these were living in rural areas. According to the 2011 Census, this figure had risen to 59 103, accounting for 2.92 per cent of Botswana's total population (Hlalele et al. 2014: 151).[1] Of the total number of disabled people in Botswana in 2011, approximately half were male and half female. Hlalele et al. have provided the following breakdown of the prevalence of different types of disability in Botswana:

- Sight/visual impairment: 40.7 per cent.
- Hearing impairment: 17 per cent.
- Impairment of leg/s: 11.7 per cent.
- Speech impairment: 9.9 per cent.
- Mental health disorder: 7.8 per cent.
- Impairment of arm/s: 6.3 per cent.
- Intellectual impairment: 3.3 per cent.
- Inability to use the whole body: 2.5 per cent (2014: 152).

In general, the government has opted to take a policy rather than a legislative route in addressing issues related to people with disabilities (Grobbelaar et al. 2011; Kotze 2012). That is, the government's National Policy on Care for People with Disabilities, adopted in 1996, signalled the government's intention to take a multi-sectoral approach, integrating the issue of disability into various development initiatives across sectors such as health, education, institutional capacity building, social welfare and environmental conservation (Grobbelaar et al. 2011). The policy set out nine principles

that state-run entities should adopt to enhance the quality of life of people with disabilities in Botswana; that is, all government departments are expected to:

- Recognise and protect the human rights and dignity of every individual.
- Acknowledge that participation in the basic entities of society – the family, social grouping, and community – is a core aspect of human existence.
- Strive for a self-sufficient society through the formation of an environment within which all peoples, including those with disabilities, can develop to the fullest possible extent.
- Ensure that people with disabilities have the responsibility and the right to determine their own well-being.
- Ensure that families are given clear objectives in relation to socialising, educating and caring for family members with disabilities.
- Ensure that people with disabilities are proactively integrated into society.
- Recognise that caring for people with disabilities is a continuous process that requires family and community involvement more than institutionalisation.
- Ensure that equal opportunities are available to all members of society, but acknowledge that variation according to the needs and abilities of individuals is inevitable.
- Ensure that care for people with disabilities is co-ordinated effectively, and in a spirit of co-operation and beneficial interaction (Republic of Botswana 1996: 5).

The policy also assigned roles to the various government ministries. It is important to note that the principles of the policy are based on guidelines contained in various national development plans issued by the government of Botswana, and in the World Programme of Action Concerning Disabled Persons that was adopted by the United Nations in 1982. Accordingly, the government also funds organisations that provide disability-related services. For instance, in 2012, Kotze (2012: 21) indicated that 'the Botswana Council for the Disabled receives an annual budget of BWP25 million [approximately US$2.5 million] from the government, which is expected to cover its own running costs and those of its affiliates'. However, as early as 2001, the government acknowledged that

> the sustainability of NGOs has mainly depended on donor funding over the last three decades. International NGOs and governments from developed nations have been supporting indigenous NGOs' work in different areas of social welfare, poverty alleviation, disability, cultural development, environmental management, training and development of

> Small, Medium and Micro Enterprises etc. Support has often taken the form of funds, personnel, equipment and technical assistance. (Republic of Botswana 2001: 6).

One key factor that has hindered the implementation of Botswana's policy on disability is that the policy failed to define disability, and this has rendered it inadequate in many respects. For example, it has been argued that the policy encouraged 'a purely medical approach that focuses on the "disability" as in need of cure and rehabilitation instead of providing the necessary conditions in the society to enable children [and others] with disabilities to realise their full potential' (Deen 2014: 1).

Nevertheless, in relation to education, the government has committed itself to educating students with disabilities and, although special education has long been an integral part of the education system, the 1994 Revised National Policy on Education added new impetus to this by enabling the education ministry to increase access to education for children with special needs. Through this policy, the government committed itself to providing education for all children, including those with disabilities, acknowledging that education is a fundamental human right. Prior to this, special units in regular schools dominated the provision of special education. Hopkin (2004: 89) has since observed that Botswana's government then adopted 'an "open" system of special education in which children with special needs were mainstreamed or integrated into ordinary schools'. Since the policy was issued, it has been recognised that all children tend to benefit when those with special needs are included in the general education environment (Matale 2000).

In 2013, in an attempt to further address issues of people with disabilities, the government issued its Inclusive Education Policy Plan which seeks to ensure accessible and equitable education for all. According to the assistant minister of education and skills development, Patrick Masimolole, the government's aim in developing the policy was to

> achieve an inclusive education system which provides children, young people and adults with access to relevant, high quality education which enables them to learn effectively, whatever their gender, age, life circumstances, health, disability, stage of development, capacity to learn or socio-economic circumstances. (quoted in *The Voice BW* 2013)

Inclusive education is thus the government's latest approach to addressing the diverse needs of individuals in the general education system in Botswana. This is not surprising as the government has long considered equity to be

a hallmark of its education policies, and has constantly sought strategies to provide equal opportunities for its citizens. Provision has long been made for the education of children with disabilities and, to support teachers in this regard, special centres were established by the education ministry to disseminate information about cognitive, behavioural, and other educational challenges that students with disabilities might face. In 1994, in the Revised National Policy on Education, the ministry recommended that all trainee teachers be exposed to special education programmes. According to Hopkin (2004: 94):

> Other developments in this direction were that appropriate programs have been developed in the Primary and Secondary Colleges of Education. Pre-service programs leading to the Diplomas in Primary and Secondary Education include Special Education as a mandatory component. A Special Education option is available in the Diploma in Primary Education. Programs offered in the University of Botswana now include a range of Special Education training programs from Diploma to Masters.

Tertiary education in Botswana includes certificates, diplomas, degrees and other advanced courses offered by various institutions. Data published by Commonwealth Education Online (2015) indicates that tertiary education in Botswana is provided by approximately thirty vocational and technical training centres, four teacher-training colleges, two colleges of education and two universities. Other tertiary institutions include the Institute of Development Management, the Botswana College of Agriculture, the Botswana Institute of Administration and Commerce, and the Botswana College of Distance and Open Learning.

The University of Botswana

The University of Botswana was established by an Act of Parliament in 1982. The institution is an offshoot of the University of Botswana, Lesotho and Swaziland, which was established in 1963 as a joint institute to serve these three countries (Mokopakgosi 2013). Its vision is to be 'a leading academic centre of excellence in Africa and the world'.

Two of the core values it espouses are cultural authenticity and equity, which the institution tries to achieve 'by ensuring that the diversity of Botswana's indigenous values and cultural heritage forms an important part of the academic and organizational life of the institution' and 'by ensuring equal opportunity and non-discrimination on the basis of personal, ethnic, religious, gender or other social characteristics (University of Botswana 2015).

With regard to students with disabilities:

> The University of Botswana is non-discriminatory in its admission procedures and is committed to providing wider access, high quality, and innovative services to students with disabilities. The University has created an inclusive learning environment in which students with disabilities have equal opportunity for education, can participate in all university activities and competently realize their academic, career and personal goals. (University of Botswana 2015)

As early as 1982, the university established its Disability Support Services Unit (DSSU) to offer support to all students with disabilities. Services provided include: diagnostic support and needs assessments, assistive devices, as well as psychosocial networks, and referrals.

Students with disabilities are encouraged to request academic 'accommodations' as soon as they receive notification of acceptance to the university, but can also submit such requests at any time during the academic year (University of Botswana 2015). Students wishing to request support from the DSSU are advised to:

- Register with the DSSU as soon as possible.
- Provide verification of their disability by a medical practitioner, physician, and/or allied health professional; and/or,
- Provide documentation of any professional assessment of their condition to guide the unit in providing the appropriate services (University of Botswana 2015).

Research methods

Due to the aims and the nature of the study, document analysis (see Bowen 2009), was employed to generate some initial data about the registration of students with disabilities at the university. Our primary research methods were qualitative, however, as we wanted to focus on how students with disabilities at the University of Botswana experience their environment. Following methods advocated by Schurink (1998), as well as McMillan and Schumacher (2010), our aim was to obtain respondents' perspectives on issues that affect them. Accordingly, semi-structured interviews were conducted with:

- Two officers in the university's Admissions, Liaison and Exchanges Unit, which oversees admissions and therefore plays a role in determining access for people with disabilities.
- Two officers in the DSSU, which aims to ensure that the university environment is responsive to the needs of students with different abilities.
- An officer in the Department of Institutional Planning, which deals with

issues pertaining to the institutions' physical infrastructure, and thus directly affects the experiences of many students with disabilities.
- Three lecturers in the education faculty's Special Education Unit who deal with academic issues affecting students with disabilities.
- Six students with disabilities; of these, two had visual impairments, two used wheelchairs and two had learning difficulties.

In total, 14 respondents participated in the study, and were selected because they possessed rich information about the experiences of students with disability. We developed a semi-structured interview questionnaire that was based on our research questions and the documents we reviewed. The questionnaire was first tested with selected officers in the units described who were not part of our respondent group. Respondents were informed that their participation was voluntary and that they could terminate the interviews at any time. They were also informed of the importance of their participation to the study. All the respondents were interviewed individually, and notes were taken during each interview.

Data analysis

Interview data was analysed in relation to the research questions. The data was coded so that emerging patterns and themes could be identified and documented. After this, responses were interpreted, and attempts were made to understand the perspectives of the respondents in relation to the policy and other documents that we reviewed.

Findings

The findings are presented according to the research questions that guided the study.

Strategies and structures used to ensure equity, access and quality

To ensure access, equity and quality, the University of Botswana set up various structures. A senior employee noted that 'One of the structures in place is the Admissions and Liaison and Exchange Services Unit which is responsible for admissions and selection of students into the university's programmes. This is the department that is responsible for supporting students.' Another structure is the Student Affairs Division, which is responsible for, among other things, creating a holistic environment for students that 'ensures that learning is their central focus, and by establishing and developing a range of learning, social, cultural and recreational opportunities that will facilitate the full realization of their potential for academic and personal growth' (University of Botswana 2013: 5).

The DSSU is, however, the major structure that facilitates the achievement of access, equity and quality for disabled students at the university. A senior member of the unit noted:

> The Unit was established to particularly take care of the needs of the students with disabilities at the University of Botswana. The purpose of the DSSU is to offer support and remove barriers such as curriculum, social, cultural and environmental issues in relation to students with disability.

The unit's assistant manager echoed these sentiments, explaining that

> much as members of the DSSU do not take part in the initial admission (selection) of students with disability into university programmes, there is an important role we play. The admissions department always refers potential students for specialist assessment, which gives us the opportunity to impact the process.

The two DSSU officers interviewed were in agreement with these comments and further explained their mandate. One of them pointed out:

> As specialists we advocate for policies and practices that are disability compliant or inclusive. We are in the process of unpacking the university's and the government's access policies. For instance, access for whom? How will the policy be implemented with regard to the marginalised? The policies need to be domesticated for them to be relevant.

Another senior officer declared that the DSSU have made giant strides in creating a conducive environment for students with disabilities, noting that 'the unit boasts a staff complement of seven. There is a braillist in place for the visually impaired, an orientation/ mobility instructor for the visually impaired, an assisted technology technician, and a scribe for those who cannot write'.

A student who uses a wheelchair pointed out that the university is providing a lot of support in many areas such as user-friendly walkways, a minibus [that can carry a wheelchair] and so on. But he lamented the fact that

> there are no recreational facilities for students with disabilities at the university. In fact nobody cares about this but some of us were engaged in sports before we met with accidents, and we would like to continue where we stopped.

These sentiments were echoed by several students interviewed, and are mirrored by Onyewadume and Nwaogu (2006) who found significant inadequacies in

the provision of recreational facilities for pupils with disabilities at school level in southern Botswana.

A student who is visually impaired recounted:

> I lost my vision a long time after graduating as a primary school teacher. I had given up on advancing my studies and I felt really depressed. I was fortunate to be admitted to the University of Botswana because since arriving here I was provided with a mobility assistant by the DSSU, and this has made my studies here easier and more enjoyable as I am able to go anywhere I want with his assistance. I hope that after graduating I will get the same assistance.

Another student pointed out:

> Through the assistance of the DSSU, I was able to acquire this walking device which has made my life and studies more manageable and easier. I am able to attend classes and visit the library with ease.

University policy states that

> a wide range of services are provided to students who have disabilities, the main aims being to ensure equal access and full participation of people with disabilities in higher education. Some of the assistance provided is assessment and development of individual academic plans, liaison with academic staff for academic assistance and arrangements for the taking of examinations. (University of Botswana 2013: 7)

The university has mandated the DSSU to create an environment that promotes access and participation of students with disabilities in the curricula and co-curricular activities. The DSSU strives to provide an environment that not only enhances their inclusion in university activities, but also increases students' chances of success in their studies and of engaging in lifelong learning.

Through its disability policy, the university is committed to promoting equal opportunities in university life. A senior officer in the Department of Institutional Planning at the university pointed out that in order to increase access, equity and quality for people with disabilities

> the University of Botswana developed infrastructure such as the creation of more classroom space. These classrooms are accessible even to students with disability who use wheelchairs. Furthermore, students who are physically challenged are always allocated space in classrooms on the ground floor while some rooms are accessible through lifts. Most of the roads and walkways have ramps to facilitate ease of movement.

This is in line with the legal requirements of the government's Building Control (Amendment) Regulations of 2009, which require a local building authority to issue Disability Access Certificates for the construction of all non-domestic buildings. The certificate serves to confirm that the design of any proposed structure caters for the accessibility needs of people with disabilities.

Efforts to improve the welfare of students with disabilities are further reflected in the university's 2009/2010 Annual Report, in which it was pointed out that

> during the 2009/2010 academic year, the University of Botswana Disability Support Services made visible strides…through the procurement of a wheelchair mini-bus to meet their special transportation needs. The vehicle has provided specialized transport services to facilitate safe and secure transportation of students with disabilities. (University of Botswana, 2010: 18)

Another senior officer in the DSSU concurred with this assessment and emphasised that 'The University of Botswana has over the years created a friendly environment for students with disability by providing students with motorised wheel chairs [so that they can] move around with ease'.

This is clearly in line with the *University of Botswana Strategic Plan to 2016 and Beyond* (University of Botswana 2008: 17), which stated:

> In 2007, capital funds were released to enable the significant expansion of physical facilities that had been proposed to the Government, reflecting a policy commitment to major expansion…Extending access to education and increasing opportunities and levels of participation in tertiary level education remains essential to the achievement of Vision 2016, the delivery of the National Human Resource Development Strategy and for advancing the economic development of the Nation in a global economy.

Procedures and criteria for selection of students with disability

There are no special admission requirements for students with disabilities; that is, all admissions are purely merit based. Admission regulations stipulate the basic entry requirements to undergraduate degrees and diploma certificates as follows:

> The normal basic requirements for entrance to Undergraduate Degree and Diploma programmes shall be the Botswana General Certificate of Secondary Education (BGCSE) with a grade C or better in English

> Language, but other qualifications may be accepted on their merit as alternatives. (University of Botswana 2014: 11)

However, special requirements have been made for primary school teachers who want to upgrade their qualifications from certificate to degree level. A senior officer in the Department of Admissions, Liaison and Exchange Services at the university explained:

> Apart from the normal entrance requirements, the university has over the years developed other entrance routes specifically for those groups that would not enter the institution through the usual route because of certain historical instances. For example, most if not all primary school teachers until the 1994 Revised National Policy on Education had either a Form 3 academic attainment or a fail, while others had entered the teacher training colleges with a primary school qualification. The entry requirements for University of Botswana programmes were a Cambridge Overseas Certificate. In order to cater for these primary school teachers to upgrade their qualifications to degree level, they entered through a Mature Age Entrance Examination.

While this access route may not be necessary for many students with disabilities, it illustrates that the university is willing to make special arrangements, and that precedents have been set in this regard. It also illustrates that the university is flexible enough to respond to the specific needs of particular communities. Another respondent explained that to cater for disadvantaged students such as those from remote rural areas and for people with disabilities,

> the University of Botswana, at some point, had a quota system for those students from the disadvantaged areas and those with disability. This was in recognition of the fact that the environment where one operates can have an impact on the performance of these students in one way or the other. But the government [later] terminated the sponsorship based on this because it felt that all areas in the country have developed since independence, and resources have been distributed equally to enable all students to compete well.

Challenges facing the university

The mostly positive responses obtained by student respondents to our study seem to suggest that the University of Botswana is doing a very good job in facilitating access, equity and quality for students who are disadvantaged in various ways, but clearly some challenges still hinder such students. For instance, an officer in the DSSU pointed out that

> because admission is based on merit, most of our potential students are left behind. They miss out on this opportunity. This is exacerbated by the fact that assessment of students is done after they have already been admitted.

Another officer explained that the university

> does not have clear admissions procedures which the DSSU has recommended since benchmarking with other universities to learn about best practices when it comes to special dispensations in admissions procedures for people with disabilities. With regard to admissions, DSSU works closely with departments and faculties to provide advice on access issues, and this includes the Admission Office as well.

A senior officer complained that

> support from management and parents is very minimal. Another problem is that even the central government is not doing much to relieve the problems of students with disabilities. Until the Botswana Government comes up with a national policy on people with disabilities, like they did with people living with HIV and AIDS, nothing is going to improve. One of the main challenges is that the unit does not have a budget to operate effectively.

A further challenge relates to attitudes shown towards people with disabilities. One student noted that:

> Lecturers do not recognise that some of us are slow learners due to our disabilities and we need a different pace in order to understand issues. Lecturers maintain a fast pace in their delivery as if we are the same. They always say that they have a course outline to cover and students with disabilities are delaying their progress. Some do not even give handouts to guide us.

These realities clearly contradict the university's stated vision and mission. However, in response to some of these difficulties, the DSSU has taken the initiative, offering additional learner support programmes and services, particularly in relation to information and communication technologies. There is an awareness that technology now permeates key areas of academic study, including teaching, learning, access to information, the use of the library and various assessment processes. This was creating a 'digital divide' between students with and without disabilities, in relation to access and participation in curricular activities (University of Botswana 2015). Essentially, the DSSU has realised that students with disabilities require advanced and specialised

adaptive and rehabilitation technologies designed to help them access and participate fully in curricular activities.

Discussion and recommendations

From the findings of this study, it can be argued that the University of Botswana has made significant progress towards achieving access, equity and quality with regard to catering for students with disabilities. In particular, the establishment of the DSSU in 1982 has helped the institution to co-ordinate academic and other support services for students with disabilities. The DSSU has been mandated to create an environment that not only promotes the access and participation of students with disabilities in curricular and co-curricular activities, but also increases their chances of success in their studies.

In addition, the university has made significant efforts to provide the infrastructure that is conducive to quality learning for students with disabilities. Buildings have been modified and other infrastructure such as ramps and handrails has been provided to meet the needs of these students and promote participation. The provision of motorised wheelchairs is another step in the right direction. Further use of assistive technologies could take these initiatives to greater heights.

Administratively, efforts have been made to provide qualified staff to manage the necessary systems and processes. The DSSU, in particular, collaborates with faculties and departments on matters pertaining to meeting diverse learning needs of students with disabilities. This is a very strong indication of deliberate moves towards greater inclusion. As the oldest institution of higher learning in Botswana, it seems only right that the university should take the lead in this way. Nevertheless, the university needs to work harder to improve the attitudes of both students and lecturers towards people with disabilities. Until stigmatisaion and negative attitudes change, issues of equity and quality will remain pipedreams.

The support of those in political office has been essential in facilitating what the university has achieved so far, and the University of Botswana should be urged to take advantage of this conducive political environment to increase the access and participation of people with disabilities in their programmes. It is well known that, since achieving independence from Britain in 1966, the government has done an excellent job of investing in education for all its citizens. However, the government must be encouraged to provide additional support to those who are marginalised, including people with disabilities, and to act strongly as it did when the country faced the scourge of HIV and AIDS. More resources need to be channelled to this area if the targets of Vision 2016 and beyond are to be met.

One of the major challenges that the disability sector is facing is declining donor support. Major donors are leaving Botswana because the country is now in the middle-income category, and is therefore perceived as being able to afford to use its own resources for development. In addition, the global recession has created an uncertain financial situation for NGOs. Perhaps it is time for Botswana to focus on its own local resources. For example, the university's Faculty of Education has had a viable Special Education Programme in place for decades that might well have impacted positively on the whole education system. This would be a valuable topic for further research.

While the 1996 Disability Policy is a notable one, it is recommended that the government consider domesticating the United Nations Convention on the Rights of Persons with Disabilities, and enacting a law that mirrors this convention. This would be achieved if civil society and other groups were to vigorously lobby the government. The domestication of the UN convention would make the implementation of disability support and resources easier and relevant for all concerned. Another challenge that faces the University of Botswana specifically is lack of adequate funding to meet the requirements of PWDs. It is therefore recommended that the university administration escalate its efforts to raise more funding by engaging other sectors of society such as the private sector and NGOs. Additional funding would enable the institution to acquire more targeted assistive devices and other resources that could help to further improve the lives of students with disabilities.

Note

1 In the 2011 Census, Botswana's total population was estimated at 2 024 904.

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Chapter 3

Access and equity for students with disabilities at the University of Malawi: The case of Chancellor College

Elizabeth Tikondwe Kamchedzera

In 2013, the United Nations High-Level Panel on the Post-2015 Development Agenda concluded that this 'universal agenda' must be driven by the following 'five big transformative shifts' (United Nations 2013):

- Leave no one behind.
- Put sustainable development at the core.
- Transform economies for jobs and inclusive growth.
- Build peace and effective open and accountable institutions for all.
- Forge a new global partnership.

The Panel argued that these five shifts will help to eradicate 'the barriers that hold people back, and end the inequality of opportunity that blights the lives of so many people' (UN 2013: ii). Implicit in the first shift is the recognition that inclusivity is a major goal of development. If we also accept that tertiary education is a key driver of development, the inclusion of people with disabilities in tertiary institutions becomes a vital aspect of any national development agenda. Of course, as the Panel pointed out, the impact of these shifts will 'depend on how they are translated into specific priorities and actions' (UN 2013: ii)

This is not the first time that global organisations working for equitable development have advanced an agenda that aims to ensure that more people with disabilities have access to education. Indeed, several international standards and frameworks have stressed the importance of access and equity in education.[1] For example, the United Nations Convention on the Rights of Persons with Disabilities (CRPD) (UN 2006) emphasises the principles of non-discrimination; full and effective participation and inclusion in society; respect for difference and acceptance of persons with disabilities as part of human diversity and humanity; equality of opportunity and accessibility. More specifically, Article 24 of the CRPD recognises the rights of people

with disabilities to inclusive education, and Article 9 provides the following guidelines for governments:

> To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas.

Malawi ratified the CRPD in 2009, and this too has influenced the development of policy on inclusive education.

In this chapter, I first provide some background about the prevalence of disability in Malawi and about government policy on inclusive education, before describing some research I conducted about conditions of learning at Chancellor College (CHANCO). The largest of five colleges affiliated to the University of Malawi, CHANCO is located in the southern city of Zomba, and has five faculties, namely: Humanities, Science, Law, Social Science and Education. CHANCO has a total student population of about four thousand. Out of these, 39 are students with disabilities. The College first admitted students with disability in 1972. By 1999 a total of eight students with visual impairment had graduated from the University (Msowoya 1999). Since 2000, the University of Malawi (UNIMA) has atempted to increase access for students with disabilities at their CHANCO campus. For instance, such students are exempted from taking the University Entrance Examination and they are admitted based on their Malawi School Certificate Examination (MSCE) results (UNIMA 2007). At the time of writing, CHANCO was still the only one of the university's five colleges that catered for such students. UNIMA has indicated willingness to accept 'more students, taking into account special needs and gender, for a stronger and more competitive workforce' (UNIMA 2012: 3) into any of its colleges that are ready to enrol students with disabilities. In my research, I used various means to examine the experiences of students with disabilities at CHANCO, and key concepts related to access and equity were used to investigate the effectiveness of the delivery of inclusive education by the College.

Background

The Post-2015 Development Agenda is particularly relevant for Malawi, which has a significant population of people with disabilities. The country's 2008 population census revealed that there were 498 122 people with

disabilities in Malawi, representing a prevalence rate of 3.8 per cent (NSO 2008). The data suggests that the prevalence rate is relatively low. However, it is possible that sensitisation and intervention programmes on the causes of disability conducted by the Federation of Disability Organisations in Malawi, the Directorate of Special Needs Education and other organisations are making a positive impact. Of the 498 122 persons with disabilities, the census data indicated that 49.9 per cent were male and 51.2 per cent were female. The literacy rate among people with disabilities stood at 56 per cent overall, with 64.7 per cent of males with disability and 47.9 per cent of females with disability being literate. The prevalence rate of disabilities in what the report defined as 'the higher education sector' and in the age group 15 to 24 years, was 5.6 per cent. Here too, the literacy rate for male students with disability was higher than that for female students with disability.

In terms of the categories of disability, out of the total number of persons with disabilities, 27 per cent had a visual impairment, 16 per cent had hearing impairments, 6 per cent had a communication disorder, 22 per cent had physical disabilities, and 29 per cent experienced 'other' unspecified disabilities (NSO 2008: 41, Table 3.3). Visual impairment is therefore the most prevalent form of disability in Malawi, and, as shown later in the chapter, this is also true of the students with disabilities who have registered at CHANCO since 2004.

The Post-2015 Agenda is also pertinent for Malawi because of policies the country has adopted in its quest to comply with international frameworks. Thus, according to Malawi's current education policy (see Ministry of Education 2007), inclusive education has to extend to tertiary education. Similarly, Malawi's *National Education Sector Plan 2008–2017* stipulates that special-needs education programmes should feature prominently at all levels of the education sector (MOEST 2008). The education ministry has therefore committed itself to ensuring access and equity in relation to educational opportunities for students with disabilities. Recognising barriers such as shortage of space and other resources, and taking into account special needs and gender factors, the National Education Sector Plan nevertheless enjoined the Malawi's education institutions to aim to double enrolments in educational institutions. More directly, in its National Special Needs Education Policy, the Ministry of Education (2007: 15) set out its general vision as follows: 'For learners with special educational needs to achieve their potential enabling full participation in the community'.

The expressed mission is 'to provide access to quality and relevant education to all learners with special educational needs in Malawi for their survival, growth and development' (Ministry of Education: 2007: 15). Its

stated goal is to 'develop the personal social and academic competences of learners with special educational needs' (2007: 16). Furthermore, in 2012, Malawi's Disability Act was signed into law, making provision for inclusive education at all levels.

Theoretical and conceptual frameworks

The so-called medical and social models of disability are often used as conceptual frameworks for understanding and responding to disability (Oliver 1990; Shakespeare 2006). The medical model dominated understandings of disability for the better part of the twentieth century (Hargrass 2005; Priestly 2003). This model defines disability in terms of individual deficits (Shakespeare 2006), and views the causes of disability in terms of functional limitations or psychological losses (Vlachou 2004). That is, disability is viewed as a problem or a measurable defect located in an individual, and is seen as requiring cure or eradication by medical experts (Priestly 2003; Vlachou 2004). This assumes that medical and rehabilitative interventions are the only means to resolve disability, and that people with disability should strive for 'normality' (Hargrass 2005). Underpinning these assumptions is what Oliver (2004: 19, 2006: 8) called the 'personal tragedy theory of disability'.

The deficiencies of this model are clear when it is juxtaposed with the social model, which shifts the location of disability from the individual and focuses instead on society's responses to difference and people's different abilities (Bolt 2005; Priestly 2003; Shakespeare 2006). The idea underpinning the social model is that disability, in part, derives from 'externally imposed restrictions' (Oliver 2004: 19). Alongside this redefinition of disability, a politics of disability has gradually emerged, which advocates that barriers to participation for people with disabilities be both recognised and removed at all levels (Oliver 2004, 2006).

In the education sector globally, the social model has influenced the notion of inclusive classrooms, and resulted in attempts to have students with disabilities learn in mainstream schools (UNESCO 2001) as has been the case in Malawi. Inclusive education is consistent with the social model because it rejects stereotypes and discrimination, lobbying instead for social awareness and acceptance of diversity in the delivery of education. As stated by the UN (2006), inclusive education recognises the fact that all children are different and that children with disabilities should be able to access and participate in the education system. At the same time, equity should be emphasised. In both high- and low-income countries, inclusive education has been widely accepted in principle by policy-makers – see, for example, the Salamanca Statement (UNESCO 1994).

The advantage of viewing inclusion as a right is that no group of students can be left behind. It also means that although questions of feasibility, effectiveness and efficiency may be real and critical, they cannot be allowed to override students' rights to education. However, as Lindsay (2007) argues, if inclusion is accepted as a human right, regardless of its effectiveness, differing views and understandings of social and human rights are likely to create conflict around the implementation of policy and practice. In Malawi, both models seem to have influenced the development of policies on inclusion, but no conflict is evident. Disability is now viewed as a crosscutting issue in the sense that it cuts across all sectors, including education, agriculture, health, the economy, etc. As a human rights issue, it is accepted that everyone has a right to education irrespective of their differences.

Literature review

The literature on access and equity for students with disabilities at tertiary level in Malawi is sparse. However, studies conducted elsewhere do provide some useful insights into the issues under discussion.

Access: enrolment of students with disabilities

Rickinson (2010) and Steff et al. (2010) have noted that students with disabilities are more likely to access higher education through non-traditional routes, but provided no insight into why this is the case. In terms of subject areas, Rickinson's 2010 synthesis of current trends reveals that enrolment of students with disabilities is high in certain subjects (such as creative arts, design, agriculture and related subjects) while fields such as medicine, mathematical sciences, languages and law show very low enrolments. By way of explanation, Rickinson cites Gosling (2009) as offering a variety of reasons ranging from the under-achievement and low aspiration levels that tend to be common in students with disabilities (including at school level), to issues of social class and ethnicity, or a combination of all these factors. As Gosling pointed out, 'we cannot rule out the possibility that prejudice against disabled students and ignorance about what they are capable of, with appropriate support, has also contributed to their under-representation' (see Rickinson 2010: 4).

Inaccessible physical environment and infrastructure

Other studies have revealed that when students with disabilities access universities, they face challenges in their learning related to the physical environment and infrastructure. For instance, Singleton and Aisbitt (2001) observed that the inaccessibility of buildings (with stairs, narrow corridors,

and inaccessible bathrooms) often constitutes a major barrier for students with disabilities. Duguay (2010) adds that, in spite of developments in international and national legislation as well as policies that promote access and equity for students with disabilities, built environments remain a major problem.

Equity when enrolled

Several studies have noted that once enrolled, students with disabilities suffer mixed reactions, from stigmatisation to hyper-sensitivity. Studies linked to the UK-based Premia project (2004) reveals that the challenges are even greater when university personnel underestimate the effects of students' disabilities, minimise them, or ignore their impact. Furthermore, the Premia material indicates that preconceived notions about what students with disabilities can or cannot do often presents problems for students. On the other hand, staff who are supportive, open-minded and sensitive to students' disabilities often have a great impact on students' confidence and success. Such staff are often able to encourage students to advance in their studies, and to excel by giving their best. When learning conditions ensure the possibility of equitable participation for all students, academic performance improves (Premia 2004).

A lack of the necessary support for students with disabilities has been widely identified as a barrier to inclusive education. To give just one example, Steff et al. (2010) revealed the multiple challenges encountered by students with disabilities once they enrol in tertiary institutions as including:

- Expectations that students will naturally adapt to university life and a lack of appropriate forms of support from institutions.
- Attitudinal discrimination by university personnel and other students.
- Lack of awareness and understanding with respect to disability issues.
- Underestimation of the impact of a disability.

Steff et al. also observe that students with disabilities face a constant struggle to prove that they are as capable as other students. They point out that funding is a major problem that leads to shortages of academic and other personnel who are qualified to support students with disabilities. Inadequate funding also means that institutions seldom provide the necessary support for students with disabilities such as: braillists and sign-language interpreters; adaptive technologies and adapted academic resources; appropriately designed assignments and exam papers; or accessible physical environments (Steff et al. 2010). All of these factors put students with disabilities at a disadvantage and make the learning process unfair.

Similarly, Jacklin et al. (2006) have observed that students with disabilities experience a range of challenges and frustrations once they

enter tertiary education. Karangwa (2008) also observed that the absence of institutional interventions at universities in Ghana and Tanzania led peer communities to start providing support. Nevertheless, academic support has to be provided to students with disabilities if they are to succeed in the sector (Richardson and Wydell 2003). This is also stipulated in the international standards and frameworks related to inclusive education, such as the Salamanca Statement (UNESCO 1994) and the CRPD (UN 2006).

Research questions

My main research question was an open one, indicating the exploratory nature of the study, and was formulated as follows: to what extent has access and equity been inclusive of students with disabilities at CHANCO? Sub-questions included:

- How many students with disabilities (including visual impairment, hearing impairment, albinism and physical disabilities) have enrolled at the College since 2004?
- How accessible was the physical environment and infrastructure for these students at the time of the study (in 2014)?
- How fair are learning conditions for students with disabilities at the College?

Research design and methodology

Armstrong (1998) contended that if new possibilities and practices within inclusive cultures are to be opened up, research needs to involve teachers and students. Accordingly, I decided to include qualitative research methods in the study. This included interviewing both staff and students at the College, as well as organising focus groups with different groups of students during which I hoped to use 'naturalistic enquiries' to collect data in a natural setting (Newby 2010). This provided opportunities for me to find out how participants in my research constructed meanings in their own contexts, and allowed me to compare learning conditions at the college for students with and without disabilities.

Sampling strategy, sample size and research sites

Purposive sampling was used to select the participants and research site. The total sample size for the study was 34 people. These included 12 students (six female and six male) with disabilities (including visual impairment, physical and motor disabilities and albinism) pursuing various degree programmes. The justification for selecting students of both genders and with different types of disabilities was to gather information from a variety of perspectives

in relation to the students' experience. I included albinism as a category of disability, because in Malawi people with albinism have long been sidelined.

Participants without disabilities were also selected in order to get the perspectives of other students, as well as lecturers and administrators in the College. Of these, 12 students without disabilities (six female and six male) plus a female student from the students' union called 'a student welfare officer' offered their perceptions. In addition, six lecturers (one female and five males) were included on the basis that they had students with disabilities in their classes. Respondents from the institution's administration/management included the Vice-Principal and Assistant Registrar (academic) because they form part of the policy-making body, and are responsible for academic issues and the welfare of all students. A braillist was also included because he supports and assists several students with visual impairment with their academic work, and familiarises them with the campus and its surroundings.

Data collection

Three data collection methods were used because the nature of the study required an in-depth analysis from multiple perspectives. The first method involved an examination and analysis of enrolment records, to determine the number of students with disabilities who had enrolled in the College. As 'no document is innocent', the documents were treated not simply as a reflection but also as a construction of social reality (see Rose and Grosvenor 2001: 51).

The second data collection method involved interviewing various people on the question of whether the learning conditions for students with disabilities is fair. In this regard, a semi-structured interview questionnaire was used to collect data from the vice-principal (hereafter labelled M1), the assistant registrar (academic) (labelled M2), six lecturers (labelled L1, L2, L3, L4, L5 and L6) and the student welfare officer.

The third data collection method involved focus group discussions with: six female students with disabilities; six female students without disabilities; six male students with disabilities and six male students without disabilities. Discussion topics were linked to students' perceptions of the accessibility of the environment and the fairness of learning conditions. The focus groups provided insights on the issues at hand from the students with disabilities, and also from those without disabilities, who all learn together. Focus groups held with students who do not have disabilities were useful because these students study with, and sometimes support, students with disabilities. These students were therefore able to provide their perceptions of the lived experiences of students with disabilities with respect to whether learning conditions were fair to all. An attempt was made to mitigate the risk that the participants

might not feel free to express their thoughts by creating separate groups as described, and by reassuring participants that everyone was free to express their thoughts and views without fear of reprisal.

Ethical issues

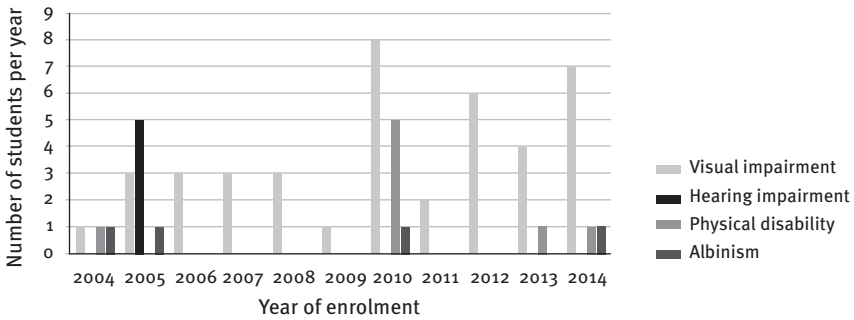
As pointed out by Lewis (2003), any research raises ethical considerations, and this is particularly true when vulnerable groups are researched (Rose and Grosvenor 2001). The following ethical issues were taken into consideration in conducting the study: the need for informed consent, confidentiality and anonymity, as well as confirmation that there would be no betrayal or deception. Accordingly, a letter was sent to the relevant authority to secure the consent of the College for the study. Participants were also fully informed about the nature and purpose of the study, how data would be used and what their participation would require. The importance of the study was explained, along with the fact that it was the first of its kind. This information seems to have encouraged the participants, enhancing their willingness to participate and helping to secure their consent. All prospective participants were informed that they had the right to refuse participation, and to withdraw from the study at any point (Cohen et al. 2007; Denzin and Lincoln 2005).

Participants were also assured that all information given would be treated with the strictest confidentiality and that their anonymity and privacy would be protected. By chatting and cracking jokes about unrelated issues before focus group meetings began, the participants were encouraged to relax and allow their voices to be heard. Throughout, their behaviour and responses were monitored closely, with the researcher checking for signs of discomfort and/or distress. No participants showed signs of discomfort at any point in the process, and the entire study was characterised by tact, honesty, sensitivity, dignity and respect for the privacy of the participants. In addition, once the findings had been interpreted, they were presented to all participants who were available, and their comments were noted.

Data analysis

The data collected via the interviews and focus group discussions were analysed following Braun and Clarke's (2006) six phases of thematic analysis. Phase one required me to review the data, and group the responses, looking for patterns and themes. Phase two involved first-level coding, which proved useful in summarising segments of data and laid a foundation for later higher-order coding that constituted phase three. In phases four and five, I reviewed, refined, combined and named the themes where possible. Phase six was the final stage of data analysis and reporting, including the formulation

Figure 3.1: Enrolment at Chancellor College by disability type, 2004–2014



Source: Data supplied by the Student Resource Centre, Chancellor College

of 'thick' descriptions, interpretations and discussion (Miles and Huberman 1994; Punch 2005). Threats to reliability were minimised by conducting a pilot study.

Limitations of the study

The study was small scale, focusing on just one public institution that enrols students with disabilities and thus offers limited insights into the issues of access and equity for students with disabilities at tertiary level in Malawi. As noted, CHANCO is the only public higher education institution in Malawi that enrols students with disabilities. Research has yet to be conducted on issues of disability in relation to the private colleges and universities.

Findings

The findings are presented according to the major themes of the study, namely, access and equity.

Access in relation to student enrolment

Article 24 of the CRPD, as well as Malawi's Disability Rights Act, requires that education should be accessible to people with disabilities. The total enrolment of students with disability at the College between 2004 and 2014 was 58, of which 31 were boys and 27 were girls. As illustrated in Figure 3.1, the total number of students with disabilities enrolled at the College between 2004 and 2014 has fluctuated. In terms of disability types, students with visual impairment have been in the majority, followed by students with hearing impairment, physical disability and albinism.

Table 3.1 Enrolment of students with disability at Chancellor College, by course and gender, 2004–2014

Degree	Male	Female
Bachelor of Education	19	10
Bachelor of Arts	3	13
Bachelor of Social Science	3	4
LLB (Honours)	2	_
Master's	4	_

Source: Data supplied by the Student Resource Centre, Chancellor College

An analysis of the College's enrolment records shows that the students with disabilities are indeed selected into the university on merit. In addition, in 2004, the university undertook to 'ensure affirmative action with regard to gender, and the mentally and physically challenged' (UNIMA 2004), and in 2012, the university reiterated its willingness to enrol 'more students, taking into account special needs and gender' (UNIMA 2012: 3).

In terms of programme enrolment, certain programmes had higher proportions of students with disabilities. Of the 58 students with disabilities enrolled between 2004 and 2014, 29 (50 per cent), were pursuing a Bachelor of Education, 16 (28 per cent) were pursuing a Bachelor of Arts degree, 7 (12.1 per cent) were pursuing a Bachelor of Social Science degree, 2 (3 per cent) were pursuing a Law degree, and 4 (7 per cent) were pursuing a master's degree. See Table 3.1.

According to the university's selection process, each faculty has a cut-off point, and remaining eligible applicants are then directed to the Faculty of Education. Clearly, accessibility to the various programmes is characterised by disparities, and it is not surprising that the majority of students with disability pursue Bachelor of Education degrees. These findings mirror those of Mwaipopo et al. (2011) and Rickinson (2010).

Perceptions of access in relation to the physical environment

In the course of the study, participants were asked to indicate whether the physical environment and infrastructure in the college were accessible for students with disabilities. Their responses indicated that most of the students find the physical environment and the buildings inaccessible, and that this makes it difficult for students with disabilities to reach many areas of the

college. Many students have to depend on their friends to guide them or push their wheelchairs, etc. As one participant explained:

> If you go to Chirunga hostel, you will find drains have not yet been modified, whereby those who want to go to the library need someone to push them. So during examination time, some people are very busy and they cannot help. They will be complaining that 'every time we should be pushing you, we have our exams to attend to'. This means that the person will just stay there [at the hostel], and will not go to the library. The same applies to the girls' hostels. For example, at Kamuzu hostel, they laid rough pavements, which means that if there is nobody who can push them, it is very difficult for [students] to go to the library. (Student welfare officer, Interview)

It is important to note that the wheelchairs available to most of the students who need them are very basic, and need to be pushed, so students in wheelchairs have no alternative but to ask for assistance. Several other participants also noted that key areas of the campus are inaccessible for students with disabilities. As the vice-principal explained,

> Talk about the library: the library is the central place for every student, but those with disabilities have problems going up to access the books because of the nature of the structure, the way it was put up. (interview)

The vice-principal lamented that even though the library has no lift, all books, journals and other learning materials are housed on the first and second floors, making them difficult for the students in wheelchairs to access. In addition, the ground floor entrance that leads to the stairway has metal security bars that create a major obstacle for those with visual impairment.

Similarly, a female student with disabilities reported that 'Some of the lecturers' offices and classrooms are upstairs, and it is difficult for those who use wheelchairs to access such rooms' (Focus group). A male student without disabilities reported that

> in most cases, students with disabilities fail to access essential services, not only for their academic endeavours, but also for their social, spiritual, and physical development. Such disability-unfriendly facilities include the cafeteria, sports complex, and chapel. (Focus group)

Several participants in focus group discussions suggested modifying and improving the physical environment by, for example, constructing more pavements and ramps to render the environment more accessible for students with disabilities.

These perceptions and experiences mirror the findings by Singleton and Aisbitt (2001) about universities in the UK, and those by Duguay (2010) about campuses in South Africa. However, they also reveal clear gaps in Malawi's commitments in relation to the CRPD. They underline that although some areas of the physical environment may be accessible, many students with disabilities face crucial barriers to learning, such as the inaccessibility of the main library.

Perceptions of equity and fairness

Both Article 24 of the CRPD and Malawi's Disability Rights Act emphasise the need for practicality in relation to fairness. Thus, both call for 'reasonable accommodation' in ensuring that people with disabilities enjoy their human rights. In this study, participants were asked to indicate how fair they thought the conditions for learning were for students with disabilities in the College. Responses were mixed.

Some aspects of the College's responsiveness to the academic needs of students with disabilities were regarded as fair. Appreciation was expressed that the College was gradually responding to the needs of students with disabilities. Participants indicated that Braille materials were available for students with visual impairment, although these were still inadequate. An alternative library has also been made available for students using wheelchairs, although it lacks the facilities and resources of the main library. One student without disabilities reported that 'the main library allows students in wheelchairs to take out books from the reserve even though students without disabilities are not allowed [to do this]' (Focus group).[2]

To emphasise that there is equity/fairness in the learning process, one female student with disabilities stated that 'the students with disabilities are accommodated in the class taught by the same lecturer' (Focus group). In other words, all students, irrespective of their differences, are taught by the same lecturers in the same classes. Another female student with visual impairment stated, 'there are other lecturers who are open to assist us in class, if we ask them a question where we didn't understand, they invite us to their office, and they provide us with the learning materials' (Focus group). During the focus group discussion with male students with disabilities, one participant indicated that students with disabilities were given extra time to complete their assignments because lecturers understand the challenges that these students were facing. He stated that 'all departments understand if we ask for extensions because we are facing problems when it comes to information and we cannot submit in time. They understand our problems. So it is fair' (Focus group). Several respondents reported that attempts were made during classroom learning to accommodate students with disabilities. For example,

these students are given a chance to sit in front; in addition, some notes and all assignments are translated into Braille for those with visual impairment.

Another male student with visual impairment expressed appreciation for the way in which the College administrators manage the examinations process. The student elaborated, 'if we are about to write exams, the administration tells the lecturers to give the transcriber the exam scripts in good time so that they can be transcribed into Braille for us. So we have no problems with the issues of writing the exams' (Focus group). It was also noted that students with disabilities are allowed to write their exams in a separate room if they wish to do so.

Perceptions of unfairness and inequity

Despite the perceptions of fairness outlined above, most participants in the study were of the view that the learning conditions for students with disabilities were generally unfair. This related to several factors, as outlined below.

First was the lack of support services. For instance, evidence from the focus group discussions and an interview with one of the lecturers (L3) revealed that the College had no systematic support services for students with disabilities. As a result, students with visual impairment and those using wheelchairs are forced to depend on their friends to collect books for them from the library. L3 questioned how effective the learning of these students was:

> They depend on their fellow students and therefore even if they want to exploit a particular aspect on their assignment or anything or an exam, for example, they will still depend on somebody who is not even an expert. I think it becomes quite a challenge.

The braillist also argued that learning conditions were unfair because the lack of guiders might make students with visual impairment miss classes. To address these kinds of problems, participants suggested that the provision of additional support would enhance their learning.

It was also revealed that, because of their dependence on others, students with impairments are vulnerable to anything from simple teasing to serious abuse by students without disabilities, and this can dramatically affect their learning. For instance, one female student with disability explained, 'We are sometimes abused by male students without disabilities especially when we ask them to assist us, for example, to help us with mobility' (Focus group).

Second, a lack of information about the inclusion of students with disabilities made it difficult for lecturers to include them in the learning process. L2 described his experience as follows:

> To some extent, this problem is a creation of the administration in the sense that there is no information whatsoever at the beginning of every academic year as regards the number of students with visual impairment, or indeed students with disabilities in general, who have joined the College. If there is indeed such information, then it is not shared with the lecturers. If such information was shared early enough, it would somehow be easier for lecturers to plan ahead. It's so sad that I have to learn that I have the visually impaired amongst my students while in class. I had such a bad experience a couple of years ago which haunts me up to now. I was teaching my first lesson of a certain first-year English course, and at some point I asked a question and pointed at a certain gentleman wearing sunglasses to answer the question. The gentleman sat still and seemed to be staring at me behind his sunglasses. I walked towards the student and was about to get annoyed for his unresponsiveness when one student suddenly said, 'Sir, he is visually impaired!' I felt bad, very bad. I was ashamed. I tried to joke about the whole incident there and then, and we all laughed, but I still remain drenched in shame.

Similarly, L4 reported that she did not know that she had a student with a hearing impairment in her class but later on someone told her. She then began to use the chalkboard more than usual, knowing that the student could not hear but could read. L1 explained that not being made aware of the needs of students with disabilities means that learning conditions are unfair:

> It is not fair to a large extent, because when we are teaching we face a lot of challenges, and it actually depends on you as a lecturer. If you are actually not conscious that you have special needs students in your lesson, that means they will not be able to follow what you are doing. They will remain behind. But if you are conscious all the time, you will be reminded that I have some students I am supposed to check whether they are following. When you are teaching, like in my case, I used to have a challenge when I was presenting something, if I say, can you see here, and quickly someone would come out to say we do have some students with special needs who are not able to see. Again, if you write the number in a table, you should be able to explain what is contained in that table. Yeah, I also remember there was someone who I thought was ok in terms of sight and then she came back to me to say if you are setting an exam please can you make sure that the font is 14 or 16 because I cannot read anything below that.

Evidence from all the focus groups indicated that some lecturers forget to have exams transcribed into Braille or to bring exam scripts with large print,

and that not enough textbooks are available in Braille. In addition, it was reported that students with visual impairment often receive their copies of class handouts very late in the semester. This is unfair because they write exams at the same time as everyone else. The following comment made at the focus group discussion with female students with disabilities gives an example of what was reported:

> Sometimes during the exams, lecturers tend to forget that in their classes there are certain students who need examination papers transcribed into Braille, and some who need the papers printed in large print. So when the day of writing the exams has come, they say we forgot, can you wait? So it delays us because we have already prepared and been waiting for some minutes. It affects us. Then we start thinking about what the lecturer has done, thinking that doesn't the lecturer consider me or think about me as one of his students in class. So it is a big problem. Sometimes because of this problem, those of us with low vision are asked to read the question even though they are not in Braille; that is hard for those with low vision.

Strategies suggested to address these kinds of problems were for lecturers to be made more aware of students with disabilities, and for lecturers to make sure that they find out about the nature of their students' needs and respond appropriately. If this is implemented, lecturers should be able to better meet the academic needs of all their students.

A third factor is lack of orientation and training for lecturers on how they should respond and support the learning of students with disabilities. For instance, several male students with disabilities indicated that, in their view, the braillist was under qualified and that this negatively affected their academic performance:

> We…need somebody with higher qualifications who can understand the university system, and who can advise the students accordingly, so that we can talk the same language. Even with transcribing, we never know how much we lose. The lecturer will look at transcribed work as my work, not taking into account the problem made by the transcriber. (Focus group)

Another male student with disability elaborated:

> Accessibility of important texts is a problem. You find most of the time that those books are not in Braille and that you have to depend on someone to read for you. Sometimes they [read too] fast, so most of our work may be half-baked. Some of our friends also become busy with their

> assignments and it's difficult for them to help us. Sometimes you have to beg people to assist you. (Focus group)

One strategy to address such unfairness is the procurement of additional Brailled teaching and learning materials, as well as audiotapes and digital files, including special computer software (such as the JAWS screen reading program) that is suitable for various types of disabilities.

Fourth, large classes are problematic. As one male student with disabilities stated, 'one lecturer cannot meet the needs of all, or pay attention to all students with special needs' (Focus group). In 2014 and 2015, the average student-to-lecturer ratio for education-foundation courses was 170–200 : 1. With classes of this size, it is indeed difficult to pay extra attention to the students with disabilities. Worse still, the College has only one specialist, one braillist and one resource room to support all students with disabilities. In 2015, the College had enrolled one female post-graduate student who was being assisted by the specialist during all her lectures and seminars. This meant, however, that during these times no other students were receiving any support.

Fifth, negative attitudes from some lecturers and peers can undermine learning. As the braillist explained:

> Most of the lecturers have a negative attitude towards girls with disabilities because they think that they cannot excel with their education because of their disabilities. (Braillist, interview)

It is interesting that this respondent focused particularly on young women in this observation. Generally in Malawi, females are portrayed as being unlikely to go further with their education because of their circumstances. These circumstances are assumed to include taking responsibility for the care of children and the elderly, as well as doing all the housework and cooking. Girls with disabilities therefore experience double discrimination, both as females and as people with disabilities.

With reference to lecturer attitudes, one female student with visual impairment lamented:

> They consider us as being lazy but that is not true because there are a number of things that can help us to do well in the courses. In class, they choose others, and that is not fair. They humiliate us, saying this one is lazy. They think we were selected to come here because of pity, and if we were not selected, we would have nothing to do. (Focus group)

In terms of other students being obstructive, a female student with disabilities explained:

> We have a right to ask a lecturer to explain something which we did not understand as part of our learning process. So it may happen that sometimes when we ask the lecturer to repeat a point, a number of the class members start booing at us, and say 'you are delaying us' or they say something embarrassing. (Focus group)

Notably, most of the issues raised in interviews and focus groups highlighted the problems faced by students with visual impairment. This was undoubtedly because, as indicated earlier, there are more students with visual impairment than any other disability at the college. However, similar experiences have been noted in studies done elsewhere. Karangwa (2008) observed that the absence of institutional support means that students' peers often offer support. This was certainly the case at CHANCO. Kraska's 2003 study reveals that 82 per cent of the students indicated that faculty members needed to learn more about disabilities. This is important as the lack of this knowledge affects student performance. Other researchers, such as Jacklin and Robinson (2007) have pointed to similar challenges. Indeed, it can be argued that support for students with disabilities has been the subject of much study precisely because it is so often implemented in ways that are haphazard and serendipitous. Clearly, access has to be accompanied by institutional support if students with disabilities are to attain and remain in the sector (Richardson and Wydell 2003).

Conclusions and recommendations

Overall, it seems reasonable to conclude that although the University of Malawi appears to be inclusive by enrolling students with disabilities in some of its programmes at CHANCO, inadequate provision has been made for these students, and more needs to be done to remove crucial constraints to their learning. Furthermore, only one of the university's four colleges is even attempting to practise inclusive education. This requires urgent attention for the university to be able to claim to uphold the principles of fairness and equity. However, this issue extends beyond increasing access and ensuring equity for students with disabilities in the higher education sector. Malawi urgently needs to produce a critical mass of graduates who are able to contribute effectively to the development of the country. This is more likely to be achieved if the Ministry of Education issues clearer policies on inclusive education at tertiary level.

As of 2015, students with disabilities are still unable to register for certain programmes at CHANCO, and often tend to be left behind in the teaching and learning process once they are enrolled. There is therefore a clear need to consider the provision of additional and more specialised support services to

students with disabilities. Attention also needs to be paid to the orientation and training of lecturers so that they are better equipped to deal with issues linked to disability and inclusive education. The reported experience of students with disabilities reveals that they highly appreciate peer support and responsiveness from lecturers towards their learning needs. However, there is a definite need to create a more inclusive culture at the College, so that all students and personnel become more sensitive to issues related to disability and inclusive education.

To respond to the first imperative contained in the Post-2015 Development Agenda, to 'leave no one behind', the University of Malawi will need to consider:

- Budgeting for a restructuring of the physical environment on all its campuses so that all infrastructure is more accessible to all students.
- Establishing a dedicated office to deal with issues relating to students with disabilities, including screening and enrolment, as well as providing specialised support to students and academic staff, and monitoring student success and failure rates.
- Lobbying the education ministry to reassess their funding system so that universities receive adequate funding to enable them to budget for and implement inclusive practices in their institutions.
- Collaborating with organisations established by people with disabilities to obtain specialised advice and support for students and staff, and monitoring the impact of such collaborations on a continual basis.
- Conducting ongoing research, including on how the academic performance of the students with disabilities compares with that of other students.

Notes

1 In this chapter, I define the term 'equity' as fairness, in the sense of treating people equally without favouritism or discrimination. Access is defined as the entry of students with disabilities into the university, and arrangements that ensure that they can equitably participate in its programmes, including access to infrastructure and the physical learning environment.

2 Books and articles that are in high demand, and of which the College has very few copies, are shelved in a 'reserve'. There are strict rules and regulations for the books and articles on reserve. Essentially they are held in a separate room in which students can work with a text for no more than three hours before they have to return them for use by other students. However, because students with disabilities are not able to access the library, they can ask other students to collect the books for them and they are then given an opportunity to take these books out and read them in the resource room set aside for their use. The resource room

is also where a specialist assists students with disabilities with their academic work; all brailling is done in this room, and computers that have been modified for easier use are also housed here.

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L4 (Lecturer 4), interview, 19 November 2013
L5 (Lecturer 5), interview, 19 November 2013
L6 (Lecturer 6), interview, 19 November 2013
Focus group discussion with male students with disabilities, 2 August 2013
Focus group discussion with female students with disabilities, 2 August 2013
Focus group discussion with male and female students without disabilities, 18 August 2013

Chapter 4

Promoting research in resource-challenged environments: The case of Malawi's Mzuzu University

Victor Mgomezulu

Many higher-education institutions in low-income countries have limited financial incentives to offer researchers as a way of encouraging them to increase their research output (Tongai 2013). At the same time, these researchers are often drawn into contract-based or externally funded research to which monetary rewards or other career-advancing benefits are attached (Healy and Nakabugo 2010). Naturally, most researchers like to earn extra income or benefits if they can, resulting in increased numbers of research outputs that are linked to externally funded contract-research projects (Wangenge-Ouma et al. 2015). Meanwhile, purely academic research or the pursuit of knowledge for its own sake seems to be declining (Kotecha 2012).

At Mzuzu University in Malawi, many academics seem to prefer to engage in private consultancy and contract-based research.[1] In 2014, a staff member in the office of the university's research director confirmed that they have limited information on what the institution's academics are researching or publishing. Whether this was because little research is taking place or because researchers are not disclosing all of their research activities seemed unclear.[2] Certainly, the limited number of faculty and departmental seminars advertised on campus creates the impression that very little research is taking place.

While many universities in high and middle-income countries offer financial or career-related incentives to researchers (Tongai 2013), this cannot be said about universities in lower-income countries (Furth 2006). Nevertheless, Altbach (2003) and Yavuz (2004) argue that, despite the financial challenges facing lower-income countries, providing incentives to researchers is an indispensable way of promoting research. My aim in this chapter is to explore whether the availability or non-availability of incentives is a factor in relation to encouraging greater research productivity among

academics in resource-challenged universities generally, and at Mzuzu University in particular. Against this background, I also explore ways in which universities in the lower-income countries can use non-financial incentives to encourage and promote academic research.

Apart from reviewing official university documents (on academic research, and on research and development), and investigating the kinds of incentives that are available to researchers, I based the chapter on my personal experiences and observations of how research-related activities operate at Mzuzu University. In addition, a brief review of media sources related to how the corporate world deals with the issue of incentives provided some useful pointers for the discussion.

Theoretical framework

This paper is guided by Maslow's hierarchy of needs (see Mwamwenda 2004), which is helpful as a theoretical framework in so far as it relates to the underlying factors that drive academics to undertake research. Many scholars are encouraged to undertake research for some form of tangible or intangible reward. For instance, some academics undertake research for monetary rewards to be able to address their basic needs for shelter, food and security. Others might be motivated by a wish to receive honour and recognition, or by sense of altruism and of having a vocation to contribute to a particular field.[3] Such motives address needs related to building a sense of belonging, self-esteem and self-actualisation. The link between basic needs and the need for recognition is that both are critical elements of human life. They are different, however, and ignoring either can undermine the well-being of individuals and, by extension, of societies as well (Mukhtar 2014).

Of course, Maslow's work has been critiqued by scholars who argue that human beings do not necessarily 'seek to satisfy their needs in hierarchical order, starting from the lowest unsatisfied need' (Yavuz 2004: 141). While this may be so, Maslow at least encourages us to consider the whole of human experience – with all of its interrelated physical, psychological and intellectual aspects (Woolfolk 2004). His hierarchy thus provides tools for examining the interplay between the expectation of incentives and research output, and to investigate the types of incentives that could induce academics to focus on increasing their research output.

Altbach (2003) reported that lecturers in the majority of high-income countries earn what Yavuz (2004) called a 'satisfying wage'. One can therefore infer that, in general terms, lecturers in the higher-income countries have little difficulty meeting their physiological and safety needs. Altbach further indicated that lecturers in many lower-income countries receive salaries that

hardly support a reasonable standard of living, and so they are probably far less able to address their physiological and security needs. Malawi is one of the poorest countries in the world, and yet, without comparing Mzuzu to any other university, I can testify that lecturers earn enough to meet their basic needs. As of October 2014, for example, lecturers earned around US$1 450 a month (Mzuzu University 2013), while their counterparts at the University of Zimbabwe and the University of California earned US$1 300 and US$3 844 per month, respectively (*New Zimbabwe* 2014; University of California 2015).[4] While not all academics at Mzuzu University would admit that what they earn is reasonable, many drive cars and live in relatively luxurious homes. Of course, these individuals might have additional sources of income, but the fact that they remain in their posts might indicate that they are reasonably satisfied, at least on a material level. Whether their needs for belonging, self-esteem and self-actualisation are being met might be another matter.

Research incentives

Viewed broadly, both academic and applied research (or R&D) play useful roles in the economic, social and political development of nations (UNESCO 1998). Unfortunately, due to the ever-growing demand for economic growth, most countries seem to be focusing more attention and resources on applied research, to the detriment of academic research.[5] Accordingly, universities and academics are also focusing increasingly on R&D. University–industry partnerships are increasingly common in this context, and tend to offer significant financial benefits for universities, allowing them to finance new projects and offer additional financial or other benefits to staff (Bekkers and Freitas 2009).

Healy and Nakabugo (2010) propose that R&D-related research should be well supported by higher-education institutions because it is critical for enhancing living standards and improving sustainability worldwide. Regrettably, this and similar views seem to be lowering the status of so-called pure research; certainly research in fields such as social science and the humanities seems to be less appreciated by those who want to see quick and tangible benefits, preferably linked to profit-making products and patents. Furthermore, many researchers appear to have lost interest in academic research, partly because this is often miserably funded, or not funded at all, and is therefore far less rewarding in monetary terms (Kotecha 2012; Mzuzu University 2013). The fact that the salaries of researchers in lower-income countries are relatively low when compared to those paid by institutions in middle- to high-income contexts (Altbach 2003) certainly doesn't help.[6] Low remuneration levels might be what drives so many academics at poorer

institutions into consultancy work or into trying to hold down multiple jobs (Kotecha 2012; Villalonga 2006). What is certain, however, is that certain kinds of academic research are being compromised (Sundquist 2011).

The significance of attaching incentives to research was underscored by Stella (2008), who argued that the overall motivation for academics to conduct research is based on perceptions of the attractiveness of associated incentives, and with the probability that their research will produce those incentives.[7] Put differently, if no incentives are attached to research, lecturers are likely to seek out other activities that do bring in such returns. As Altbach (2003) observed, such situations are common in universities in lower-income countries, and this is why, even though funding flows are unlikely to increase significantly in the near future, the issue of incentives needs to be better understood and addressed.

The challenge of finding appropriate incentives

In a study at Eduardo Mondlane University in Mozambique and the University of Nairobi in Kenya, researchers asked (among other things) if incentives offered by their universities made academics engage in more research or not (Wangenge-Ouma et al. 2015). The findings were inconclusive, but did indicate that many academics responded to 'multiple principals' who rewarded different kinds of output. For example, a university might reward researchers for certain types of research, while the corporate world might reward researchers for other types of research. Either way, it was clear that incentives played a role.

What appears to be at issue, therefore, is not whether incentives are essential, but what types of incentives are effective and why. If we accept that most people are motivated by earning rewards that address as yet unmet needs, it seems important to consider what kinds of incentives would best address the higher-level needs of academics at Mzuzu University as a means of motivating them to increase research output. And, if we also accept that academics at Mzuzu University earn salaries that are adequate in relation to their basic needs, and acknowledge that neither the university nor the state are likely to be able to fund much higher salaries anytime soon (however much as they might wish to), the question that becomes relevant is whether any other kinds of incentives might be effective in inducing greater research productivity.

Justifying monetary incentives for academic research

Professor Catriona Macleod from Rhodes University in South Africa has expressed the fear that financial-incentive systems might make academics compete for personal glory and lead to reduced collaboration, particularly in team-based research work. Macleod also noted that, to push up their

publishing rates, too many researchers are tempted to publish in low-ranked journals for which acceptance rates are high, even though their level of scholarship is rather weak (quoted in Tongai 2013).

Notwithstanding these reservations, incentives can play a useful role in promoting research. Well-motivated researchers tend to have high research output levels and are therefore able to build good reputations for themselves, their universities and their nations (Zhang and Davies 2011). To encourage academic staff to increase performance, governments, the corporate world and universities in developed countries attach incentives to research (Altbach 2003; Kotecha 2012; Tongai 2013). Several universities in China, South Africa, the United States of America and Europe provide monetary incentives to individuals for each completed and published piece of research. Meanwhile individuals that satisfy a certain measure of research productivity are sometimes given research budgets that they can use for any research-based activity or resource. To illustrate the point: in 2011, the academic staff at South Africa's University of Stellenbosch who had made the biggest contribution to peer-reviewed and accredited publications received bonuses equal to US$5 000. Similar reward systems operate at the University of Cape Town and the University of the North West (also in South Africa) (Tongai 2013).

The high value that most societies place on money might be why monetary rewards seem to be appreciated more than other kinds of incentives (Bekkers and Freitas 2009; Yavuz 2004). Financial incentives symbolise a degree of recognition for work done, and increased income means that researchers have fewer anxieties about being able to meet their personal needs (Hendriks and de Sousa 2008). Thus, monetary incentives can be said to address both lower and higher needs on Maslow's hierarchy.

Reporting on a study involving public servants in Turkey, Yavuz (2004) highlighted the relationship between monetary incentives and wages. He noted that employees were only motivated by monetary rewards if they already earned a fair wage. In other words, institutions must ensure that employees are being given a fair wage before they can expect additional income to motivate employees to work harder. Yavuz's study suggests that researchers value monetary incentives more highly than non-monetary incentives, which might imply that researchers are mostly concerned with the needs that money can address. However, it is also true that monetary incentives can enhance a sense of belonging to a class of successful people and increase one's self esteem.

The limitations of monetary incentives at Mzuzu University

Even if we take it that lecturers at Mzuzu University receive decent wages, the fact that no financial incentives are attached to research does little to help

their motivation. However, neither state nor donor income is easily available in countries like Malawi where governments face a range of competing demands. Limited resources are a major obstacle to academic research if it has to rely on financial incentives.

In many ways, Malawi exemplifies resource-challenged countries (IFAD 2009). Low-income countries also tend to have less vibrant private sectors, which are, in turn, less likely to fund or participate in the research activities of public universities. Public universities in Malawi, like Mzuzu University, are particularly poorly funded since almost all funding comes from the government and from student fees. The fact that the government prevents the public universities from charging fees at commercial rates exacerbates their financial hardship.

In the case of Mzuzu University, a quick calculation shows that the government provides more money to students in the form of allowances than it collects from them in fees (Mtenje 2013). In short, Mzuzu University is offering free education at a time when 'cost-sharing' would be more financially sustainable.[8] The net effect is that Mzuzu University has limited resources with which to function as a teaching institution, and funding for research activities is often lacking. For example, in the university's 2013/14 budget allocation, approximately US$12 195 (5 million Malawi kwacha) was set aside for research and publications (Mzuzu University 2013).[9] This amount had to cover research funding as well as research and publication incentives for about 170 staff members. Simple arithmetic shows that, on average, each member of staff would be entitled to about US$72 per annum – an amount that is in no way adequate to support any meaningful research activities or monetary incentive scheme.

Malawi's financial challenges seem likely to persist for the foreseeable future. In 2014, massive state corruption was uncovered (National Audit Office Malawi 2014), and remains symptomatic of a dysfunctional system. Individuals abuse public resources for personal gain, and prevent important research programmes from receiving funding. Rather than give up on research at the university, it seems sensible to begin to search for non-monetary incentives that might offer an effective alternative.

Non-monetary incentives

In a study of retail-sector employees, Harunavamwe and Kanengoni (2013) found that non-monetary incentives were indispensable and played a role that monetary incentives did not. In fact, non-monetary incentives can even outperform monetary incentives in certain circumstances. For example, the Zambian government in collaboration with the United States Agency for

International Development (USAID) conducted a pilot study to measure the motivation levels of health-care workers at health centres in Luwangwa and Chongwe (see Furth 2006). Employees at Luwangwa were offered trophies while those at Chongwe were offered monetary rewards if they satisfied certain criteria. Staff performance was measured five times over a period of six months. The study revealed that the non-monetary reward system was as motivating, if not more so, than the monetary rewards.

Work done by Jeffrey (2003) supported the findings of the Zambian study, and suggested that it is possible for non-monetary rewards to be comparable to financial rewards when the reward offered is something special, and that is difficult to buy or obtain by other means. In addition, Jeffrey found that non-monetary awards enjoyed a special status in that many people felt more comfortable bragging about these than they did about cash awards – in many cultures it is easier to show off a trophy than a cash prize. To enhance the value of non-monetary incentives, Jeffrey advised that efforts be made to ensure that the awards are truly 'priceless' in the sense of being particularly special in ways that are highly valued by recipients.

In the next section, therefore, I propose five types of non-monetary incentives that might encourage academic staff at Mzuzu University to increase their research output. Note that these *exclude* verbal expressions of appreciation, which should ideally be integral to the university's organisational and management culture.

Trophies, medals, shields and certificates

Symbols of appreciation given to health-care workers at Luwangwa fit into the category of 'priceless' rewards (Jeffrey 2003). In Malawi, the state president recognises certain citizens who make outstanding contributions to the nation. Trophies are awarded at an annual public event that is also broadcast on radio and television. The value of this kind of trophy is that it remains a permanent and visible reminder that one has made a valuable contribution to humanity and it cannot be purchased. Arguably, therefore, the value of a trophy can outlive financial rewards, and is enhanced by the fact that the winners might receive admiration and praise for many years after receiving the award (Jeffrey 2003; Yavuz 2004).

Given these benefits, winners would probably feel happy and proud and experience increasing self-esteem since there is a close association between feelings of self-esteem and experiences of success (Young and Hoffmann n.d.). Receiving a rare and valued award might happen only once a lifetime, and might be one of the greatest events in a recipient's life, therefore engendering a sense of self-actualisation.

Public recognition

Many businesses select 'employees of the month' and display their photographs where customers and other staff can see them, thus publically declaring their appreciation for staff members' contributions. Jeffrey (2003) and Furth (2006) have found that staff value such symbols immensely. Borrowing this practice, universities could nominate 'researchers of the month' (or any period deemed appropriate) and display their photographs appropriately on campus, in a university magazine, and on institutional websites, adding a note of appreciation about the work done by these researchers. Such accolades have the potential to encourage recipients to work harder and to motivate others (Furth 2006). Once such awards are institutionalised, their value often increases, making them highly sought after.

Reduced workloads

Experiences in Argentina indicate that academic staff are very often overloaded with teaching duties (Villalonga 2006). In Kotecha's (2012) opinion, academics with proven research abilities should be given lighter teaching loads so that they can commit more of their time to research. Better still, they should be allocated to the teaching of postgraduate classes that are usually smaller. The expectation is that reduced teaching loads would free up time for academics to undertake more research, thus benefitting the individuals, their universities (via improved ratings), and their countries. It is also hoped that this enviable status enjoyed by senior researchers would not only act as an acknowledgment of the researcher's prowess, giving rise to a range of positive feelings and leading to increased self-esteem and self-actualisation, but also give junior lecturers something to aspire to.

Cultural validation

Private citizens could be approached to make their resources available to support and promote research. For example, in 2012, Chief Kanyesha of Zambia expressed his appreciation for national football hero and goalkeeper, Kennedy Mweene, and especially for his contribution to Zambia's winning the Africa Cup of Nations, by giving Mweene two cows and 250 hectares of land (Zanis Sport 2012). The chief did not offer Mweene money, but instead provided a reward that was both available and culturally valuable. Similar individuals might find ways to support academic research if the importance of doing so were to be explained to them.

What is critical is that such cultural values be shared by both recipient and donor, so that appropriate items and acts are awarded. If universities were to

institutionalise such awards, appreciation among the researchers would likely grow, and receiving such an award could help to address researchers' needs for psychological and emotional fulfilment.

Sponsorship

The corporate world can be very useful to higher education institutions, as demonstrated by the co-operation between universities and the private sector in China (Zhang and Davies 2011). In southern Africa, this is seldom the case. An academic at the University of Dar es Salaam in Tanzania has queried why the corporate world so seldom supports research activities yet can so often afford to sponsor sports teams (quoted in Bailey et al. 2011). Kotecha (2012) makes a similar observation that evidence of private sector support for higher education (including research) in the southern African region is very limited. Currently, two Malawian cell phone companies (AIRTEL and TNM) support sports teams to the tune of millions of kwachas every year. It is unclear why universities do not approach such companies for support.

If businesses cannot afford to fund research directly, they could be encouraged to make their products or services available to researchers as incentives. For instance, an airline could provide an air ticket to an international conference, or a hotel could offer to accommodate researchers doing a local study (Jeffrey 2003; Yavuz 2004). Similarly, the possibility of a free holiday to some interesting place is something that many researchers might strive for. It can be argued that the value of such awards can even go beyond monetary value.

Conclusion

I have argued that where resource challenges make it inappropriate, if not impossible, for academic institutions to award monetary incentives to researchers, non-monetary incentives could play a critical role. Alternative rewards that focus on recognition and acknowledgement can address the 'higher needs' outlined in Maslow's hierarchy, making researchers feel valued and appreciated, and thus engendering feelings of self-esteem and a sense of self-actualisation. Further, non-monetary rewards could motivate researchers to engage not only in contract-based R&D, but also in academic research that may attract fewer resources but may be even more useful socially and developmentally, striving to improve the quality of life, and to promote gender equality, peace, and environmental awareness.

Notes

1 That academics are increasingly engaging in contract research is understandable in the light of expectancy theory, which suggests that effort exerted in pursuit of an incentive correlates to the value of the incentive offered (Incentive Research Foundation n.d.).
2 Personal communication.
3 One can argue that providing incentives to researchers may make them engage in research for the sake of incentives, or skew their questions or findings in ways that might serve a funder's agenda. Although this might be true in some cases, most research institutions have regulations and ethics committees that ensure the rigour and quality of research projects. The incentives I am referring to are those that aim to entice more academics to engage in more research because this is where the discoveries and innovations that can advance the quality of human life lie (Healy and Nakabugo 2010).
4 Due to technical constraints I have not been able to compute purchasing power parity (PPP). These amounts should be taken at face value.
5 In my experience, academic researchers concern themselves exclusively with adding to the pool of knowledge, and tend to have a high level of intrinsic motivation linked to a love of research for its own sake (Zhang and Davies 2011). Passion, curiosity and interest form the driving forces behind much academic research (McRobbie 2007). Those involved in R&D are often more interested in dealing with specific issues, identified by financiers, that have a direct bearing on improving the well-being of humanity. The aim of R&D is to improve the economic and social well-being of people.
6 It should be noted that easy access to information encourages people in lower-income countries to compare their lifestyles with those of their counterparts in high-income countries even though their circumstances might be different.
7 The tendency to engage in activities that benefit one most also seems to validate Rational Choice Theory, which advances the idea that patterns of behaviour in society reflect the choices individuals make as they try to maximise their benefits and advantages while minimising their losses or disadvantages (Hodgson 2012).
8 While it is true that various Nordic countries started offering free tertiary education in the nineteenth century, when they might have been considered among the world's poorer countries (Alestalo et al. 2009), it might not be prudent to transplant this model to southern African countries without first unpacking the notion of poverty, to check if it means the same thing in these two culturally and economically different regions. Unfortunately, such a comparison is beyond the scope of this chapter.
9 Conversion rate is as of 5 November 2013 when 410MK = US$1.

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Chapter 5

'The path of the mother is trodden by the daughter': Stepping stones for entry into the middle class in South Africa

Dan Darkey and Hilde Ibsen

> 'I really missed you, Don,' she says breathlessly, and then breaks away excitedly. 'Guess what I brought you?' she says. She rummages through one of the suitcases and brings out an orange jersey.
> 'A jersey?'
> 'It's a Zara Man, baby. You can't get it in South Africa. You're going to look like a real Black Diamond in that.' (Mda 2009: 174)

In his novel, *Black Diamond*, Zakes Mda captures the life of Tumi, a former model and now a business executive, who drives a Jaguar and aspires to live the life of the rich and famous. Tumi represents a popular view of urban middle-class black women in the new South Africa who have climbed the social ladder. Born disadvantaged in Soweto, Tumi now lives in a small apartment in one of Johannesburg's formerly white suburbs. She is portrayed as someone who loves stylish clothes and expensive cars, eats at fashionable restaurants and drinks expensive wine, while at the same time remaining deeply attached to her cultural roots. She loves to visit Soweto on weekends and join her relatives there for Sunday lunch.

While the popular media have done much to create and reinforce this stereotype, academic research reflects the fact that the roles of black middle-class women has changed in tandem with their increasing economic power and newly won freedoms (Posel 2010). 'It's onwards and upwards for SA's Black Diamond women', stated one research study, noting that these women are independent, financially secure and ambitious. 'South Africa's 1.5 million Black Diamond women are increasingly calling the shots when it comes to making decisions about purchases' (UUISM 2008: 1).

Research on South Africa's new black middle class has primarily been directed towards their income levels, occupational categories and lifestyles (Alexander et al. 2006; Rivero et al. 2003; Schlemmer 2005; Southall 2004).

Yet, while Cock and Bernstein (2002: 168) have argued that the fact that black women in South Africa have access to the middle class is 'one of the most dramatic changes' in South Africa, the gender aspects of this change have not yet been explored in any depth.

Our aims in this chapter are twofold. The first is to contextualise the emergence of black middle-class women from their marginalisation under apartheid and from the strong patriarchal norms in traditional African culture. The second is to interrogate aspects of how upward social mobility has become possible for women who grow up in poor and humble conditions. Our research questions were: what aspects of their backgrounds and upbringing supported the advance of previously disadvantaged women, and how do they experience their roles in the new democratic state?

Narratives and micro-storia

To contextualise black women's entry to South Africa's middle classes, the first section of the chapter provides brief background information on their historical and political circumstances. This is based on material collected from academic literature, the media and government policy. The second section analyses the findings of a pilot study of urban black middle-class women, in which we collected women's stories about their childhood, upbringing and current concerns.

Central to our study was the view that it is impossible to treat any group of women as a single cohort, and that defining them or their experiences on the basis of their education, income, social status or other statistical analysis, tells only part of the story. We agree with Van Loggerenberg and Herbst (2010: 120, 115) who argue that 'culture is the inner script and lens through which (people) view the world' and that storytelling is an inherent part of culture. Thus, to capture the experiences of black middle-class women, and the culture into which they are bound, a narrative approach, as used in this chapter, allows respondents to construct their own self-images and to systematise the way they comprehend and interpret the world (Cortazzi 1993/2002).

Since we sought to capture the mindset of each participant, we decided to use the 'micro-storia' approach which involves elucidating 'historical causations on the level of small groups where most of real life takes place and open history to peoples who would be left out by other methods' (Boje 2002: 47). This approach is relevant since we seek to make visible women who are otherwise hidden. Our perspective is informed by African feminists such as Gasa (2007), McFadden (2000), Nnaemeka (2005) and Salo (2009) who argue for both a feminist and women-centred approach. In our view, African feminism is a strong part of women's collective past. African women have

long resisted being seen as problems to be solved, but have instead 'defined and carried out their own struggles' (Mama quoted in Salo 2001), set their own priorities, and acted in strong and innovative ways, often in exceptionally difficult circumstances (Nnaemeka 2005).

Primary data was collected through a mixed questionnaire; closed questions related to general demographic issues, income and level of education, and open questions related to family background, childhood experiences, aspirations, socio-economic progress and experiences of upward social mobility. There were 24 participants, the majority of whom were between 18 and 40 years old. They all came from previously disadvantaged families, and grew up in rural areas. Their experiences as children and teenagers were embedded in apartheid or its legacy, which they associated with their own experiences of deprivation, suppression, violence, hunger, ill health and general misery in rural homelands. A common element was that they had all obtained a tertiary education and regarded themselves as middle class. They did not, however, identify with the Black Diamond stereotype.

At the time of the study, all the women were living in the province of Gauteng but were originally from, and sometimes return home to Limpopo province. Gauteng is the economic engine of South Africa, highly urbanised and strongly attractive to Black Diamonds for its academic, corporate, business and social opportunities. Limpopo, on the other hand, is one of the poorest and most rural provinces. Nevertheless, despite relatively limited opportunities for incubating Black Diamonds, Limpopo has produced many outstanding female politicians, academics and business executives, and continues to do so.

Theory and conceptual frameworks

To analyse how participants escaped poverty and stepped into the middle classes, we draw on path-dependence theory and both a bottom-to-top and top-to-bottom framework. Within this theory and these frameworks, past events affect current politics, institutions, culture, beliefs, worldviews, connectedness and behaviour (Bednar and Page 2006; North 1990; Page 2006). Bednar and Page, in particular, point to the fact that micro-level processes can reveal the often subtle but salient historical patterning in the interplay between the cultural forces and institutional choices that create cultural and institutional path dependencies. We argue that culturally mediated institutional systems of domination (in this case, patriarchy and apartheid) emerged together with an emancipatory culture linked to women and the ANC. This conjuncture between domination and emancipation created a path of struggle and democratic ideals. Along this path, we identify

how the interplay between culture and institutional choices resulting from historical processes served as stepping stones for entry into the middle class.

Two further conceptual frameworks relevant to this chapter are Appadurai's notion about the capacity for aspiration (2004) and the definition of a democratic developmental state (Edigheji 2010) – both of which capture something of what we see as helping to explain people-driven processes and institutional choices, as well as the link between behaviours and beliefs as reflected in responses to our pilot study. In his article, 'The capacity to aspire: Culture and the terms of recognition', Arjun Appadurai explains that aspirations 'have to do with wants, preferences, choices and calculations', and argues that the capacity to aspire (which he also describes as a 'navigational capacity') is decisive for poor people if they are to alter their living conditions or to create alternative futures (2004: 10). For Appadurai, aspirations, or a lack thereof, can also be rooted in the core cultural values that surround the poor. Thus poor people tend to either be loyal to their cultural regime or to try to escape from it. To escape, the poor have to be able to develop a capacity to aspire, and when this capacity is present, the chances of success increase.

To explain how our respondents' advancement into the middle class depended on institutional and political choices made by black South Africans in the past, it is necessary for us to briefly outline the relevant aspects of South African history.[1] When the ANC was formed in 1912, the overall goal was equality for all South Africans. Initially it was intended that this should be achieved through political, social and economic engagement and activism. A year later, the 1913 Land Act was introduced, which excluded Africans from ownership of 87 per cent of South Africa's land. Employment opportunities for black workers were also extremely limited and poverty increased rapidly. The ANC was divided over how to react. In the 1920s, the ANC became a relatively conservative organisation, and an attempt to revitalise it, led by JT Gumede in 1927, failed. In the 1940s, a new energy took hold, and the ANC remodelled itself as a mass movement. Together with the South African Congress of Trade Unions and the South African Communist Party, the ANC formed the Congress Alliance, and set out to organise the Congress of the People. On 26 June 1955, the Freedom Charter was adopted in Kliptown, Soweto.

The Freedom Charter essentially called for a national democratic revolution based on mass participation. The role of the state, as envisaged by the Charter, would be to guarantee basic freedoms, including democracy and equal rights for all citizens: 'only a democratic state, based on the will of all the people, can secure to all their birthright without distinction of colour, race, sex or belief' (South African Congress Alliance 1955). The Charter became a platform for the ANC and served as a source of inspiration even after the

organisation was banned and forced underground in the 1960s. In 1992, as the ANC prepared to assume the reins of power, the principles for freedom and democracy stated in the Freedom Charter were revisited in the document *Ready to Govern,* which stated that the ANC's two basic objectives were:

> To develop a sustainable economy and state infrastructure that will progressively improve the quality of life of all South Africans; and, To encourage the flourishing of the feeling that South Africa belongs to all who live in it, to promote a common loyalty to and pride in the country and to create a universal sense of freedom and security with in its borders. (ANC 1992)

Equitable economic development and increased social inclusion were seen as working hand in hand. The ANC was very specific about its vision of creating an inclusive democracy, balancing institutional reforms with people-driven processes, and, at the same time, addressing the legacy of apartheid. Those expected to benefit most from these policies were the marginalised and poor, who had had previously been denied access to acceptable nutrition, health, education, as well as safe and secure living conditions.

Since 2003, the ANC has specifically stated that it intends to make South Africa a developmental state, and, since 2007, this has been rephrased as 'a democratic developmental state' (ANC 2007). In 2011, when Jacob Zuma addressed the nation at the opening of parliament, he stated: 'Our goal is clear. We want to have a country…where the quality of life is high' (Zuma 2011).

The challenges involved in making South Africa a democratic developmental state, in which citizens experience a high quality of life, are extensive. If democracy is to mean more than 'one person, one vote', then reducing inequality, incorporating people into the workforce, and facilitating the participation of citizens at all levels of state and society are of central importance. Democracy is about 'achieving a quality of life that is sustainable and allowing the expression of the full range of creativity and humanity' (Maathai 2010: 56). Thus, citizens must have opportunities to contribute and to 'make democracy' work (Edigheji 2005: 3, 2010).

Why the middle class matters: historical lessons and future prospects

Historically, the middle classes in Europe and beyond have been agents of transformation, representing values such as respectability, political stability, equality of opportunity, inclusive economic growth, a high regard for education and for fair and proper conduct (López and Weinstein 2012; Perkin 1989). They have also been key drivers of economic growth through consumption. The middle classes tended to win their status more by merit than by birth, and

their expansion in Europe during the 1800s apparently accelerated poverty reduction in that region (Perkin 1989).

State policies and reforms promoted middle-class virtues and values, while individual narratives of success often focused on the importance of education. With education and hard work leading to the development of professional skills, it was suggested that even the destitute could escape poverty. An involvement in charity and other forms of civic improvement was a key aspect of upward social mobility and a stepping-stone for entry to the middle class.

Thus, even now, when agencies and states pursue agendas that aim to eradicate global poverty, the building of civil society, investing in human capital, and ensuring equality of opportunity are often still seen as key. The argument is that growth of the middle class can help to reduce poverty in the long term (AfDB 2011: 15). Various multilateral organisations endorse this view. For example, the Monrovia Communiqué from the UN's High-Level Panel states: 'Our vision and our responsibility are to end extreme poverty in all its forms in the context of sustainable development and to have in place the building blocks of sustained prosperity for all' (UN 2013). This encapsulates the essence of the development agenda for 2015 and beyond. Global visions of poverty reduction and sustainable development have been discussed and documented for decades in reports, visions and goals. However, in practice, implementation of this vision has fallen short. In the Post-2015 Development Agenda, focus is directed at five major transformative shifts, and civil society is envisaged as playing a strong role as agents of change – a role long advocated by international organisations and states (Dicken 2007; OECD 2008).

The young, urban, middle-class segment of the world's population is expanding massively and rapidly. In 2009, this group was estimated at 1.8 billion people and was expected to rise to 4.9 billion by 2030 (Pezzini 2012). In Africa, strong economic growth over the past two decades has helped to reduce poverty and expand the size of the middle classes, and even if the African middle classes are less robust than they are in places such as Asia or Latin America, the middle class is acknowledged by some to be the hope of Africa (AfBD 2011). This is also true in South Africa, which, together with Nigeria and Ethiopia, is expected to contribute strongly to the growth of the middle class in Africa.

Coping with patriarchy and apartheid: woman power in historical context

A dominant view of the position of black women in South Africa is that they are at the back of the queue when it comes to social development. Exploited and

oppressed by African men, as well as by the apartheid system, they remained minors under the law, and were kept under the control of husbands, in-laws and chiefs, with few rights to own land or property. Women in rural areas were particularly heavily burdened by South Africa's patriarchal culture, while shouldering much of the responsibility for securing their own livelihoods and that of their children. And despite the fact women were largely responsible for providing for and caring for their children, fathers held legal custody.

Nevertheless women found ways to cope *and* to challenge the authoritarian structure of society (McFadden 2000). Thousands of South African women participated powerfully in mobilising their communities against apartheid despite being subjected to patriarchal practices (Gasa 2007). Furthermore, urban and educated women were, to a certain extent, able 'escape the worst aspects of male control' (Meintjes 1996: 53). Two clear pathways can be traced in this regard: emancipation through becoming modern and educated, and emancipation through civic and union activism.

During the 1920s and 1930s, awareness of gender practices and ideologies emerged in many parts of the globe. In the US and Europe, but also in African countries, suffragettes fought for women's rights. In this process, a new and modern image of women entered the social spotlight: the flappers. Flappers were young women of the roaring 1920s – a period of economic prosperity, conspicuous consumption, and rapid social change. The flappers represented a new feminism fighting for social equality. Their emancipation project was associated with a carefree outlook and a redefinition of what behaviour could be considered acceptable.

Flapper feminism was not an American or European phenomenon alone. South Africa, too, experienced tumult and social transformation related to gender, particularly during the economic depression of the 1930s and in the war years of the 1940s. Rural South African women suffered as the their brothers, fathers and husbands were recruited into the migrant labour market (Thomas 2006). Gradually however, women were drawn to the cities, and a strong urban black culture developed. A sense that tribal culture was holding people back grew at this time too. 'Fashion, ideas, language usage and entertainment changed accordingly. Often the acceptance of the new meant a rejection of the old, or in some cases an amalgamation of the two' (SA History Online n.d.).

Essentially, a new woman was born, and her story was told by magazines that were targeted at black women and published at that time (Laden 2003; Thomas 2006). A sibling of the Western flapper, this new woman was dubbed 'the modern girl' by *Drum* and other magazines that instructed their readers about modern consumer behaviour, and offered tips on how to create an urban

lifestyle (Thomas 2006: 461). One leading agent of change was Bertram Paver, an ex-farmer who founded the magazine *Bantu World* in 1932. Distributed nationally on a weekly basis, the magazine aimed to reach mission-educated Africans, and those who aspired to be middle class. Through the magazine, Paver advocated a 'progressive yet moderate' political ideology, and stressed the importance of the role of educated black South Africans in shaping the future (Thomas 2006: 466).

Bantu World focused on news, but also on 'women's issues', which seem to have been understood as consisting primarily of an interest in fashion, beauty and hygiene products. The magazine ran a beauty competition in its first year, and throughout the 1930s, debates raged about the qualities that epitomised the 'modern African woman'. She appears to have been supportive of urbanisation and politically progressive, but using cosmetics, for instance, was 'interpreted as anything from disreputable to respectable' (Thomas 2006: 464).

However, by being educated and cultivating a cosmopolitan appearance, modern urban African women challenged traditional views of what it meant to be a 'decent African woman' (Thomas 2006: 464). Urban women began to symbolise racial pride and upliftment. Laden has argued that Paver 'provided the historical conditions for creating…a modern, urban infrastructure for social transformation through consumption patterns and consumer-oriented activities' (Laden 2003: 206). In addition, Laden emphasised, Paver launched a new 'social tableaux', showing how it might be possible to acquire new goods, and thus, shaping aspirations to new kinds of social statuses and 'modern' lifestyles.

Despite the rise of the apartheid regime after 1948, the modern middle-class African woman never totally disappeared. In spite of massive restrictions and discrimination, and despite being deprived of consumptive power and other attributes associated with the middle class, the black middle class struggled on during the 1960s and 1970s (Posel 2010). Then, in the 1980s, the creative and reckless American 'yuppie' culture spread to South Africa, and young black upwardly mobile professionals became known as 'buppies'. One might ask if the 'modern woman' and the female 'buppie' now coincide as urban professionals in the new South Africa , even if a 'patchwork quilt of patriarchies' still support a framework that presupposes that 'women have and know their place' as Meintjes asserts (2011: 114).

African women's political struggles and emancipation has been elaborated on by several feminist scholars including Davies (2014) and Gasa (2007). Such scholars have traced the political experiences of African women through female-centric narratives. According to Davies, women were active in the start of pan-Africanism around 1900. In South Africa, from pre-colonial times

through the formation of the Union of South Africa and into the apartheid era, African women from all social strata struggled for emancipation. Women were made chiefs; they led militant protest marches' they have been active in the trade unions, fought in the ANC underground, and struggled for better living conditions and peace in civil society organisations. During the fight against apartheid in the 1980s and early 1990s, mothers, daughters, sisters and wives took part in a variety of organisations and actions. They built barricades and played leading roles in establishing street and area committees. They built women's organisations and arranged protest marches, including naked protests, but also initiated hunger strikes and bus boycotts, throwing stones and petrol bombs to prevent buses from entering the townships. 'And we used to hit people who were using buses that time, hit them with sjamboks' (Cherry 2007: 297).

Many women also took on the struggle for gender equity while acting against state repression. While they fought for better living conditions and more say in civic life, they were also often constrained by the patriarchal ideology and macho culture of the *amabutho* – the groups of militant young men who organised violent protests that often got out of hand (Cherry 2007; Hassim 2002). Even if the activism of black women during the last days of apartheid was not often overtly feminist, their actions can be said to have enhanced genuine empowerment at a grassroots level (Cherry 2007), and this perhaps helps to explain why gender equality was integral to discussions about transformation in South Africa after 1990 (Hassim 2002).

Towards transformation: politics and gender equality

According to Waylen (1994) and Jacquette and Wolchik (1998), democratisation processes in various countries since the late 1990s have enhanced women's power and widened the political space that women occupy. These authors claim that transition periods often are characterised by crisis and intense politicisation, bringing new ideas and institutions into political life, and providing 'a rare window on how social structures underlie political structures and practices' (Jacquette and Wolchik 1998: 3). Of course, democratisation does not necessarily support the emancipation of women, nor improve women's participation in civic life, but in South Africa, the political transition after 1994 saw 'the insertion of gender equality concerns into the heart of democratic debates' (Hassim 2002). However, while South African women rapidly entered the public realm, they did not emerge from a void.

The idea of a national women's movement that embraced both ANC and non-ANC members, and women of all races, was discussed at the Malibongwe conference in 1990, which was held under the banner, 'Women united for

a unitary, non-racial, democratic South Africa'. The conference passed resolutions that should have paved the way for the deeper emancipation of women in South Africa, with a particular focus on black women who were acknowledged as having carried the heaviest burden of 'oppression and exploitation' (ANC 1990). Within the ANC, the top leadership structure, the National Executive Committee, released a statement entitled, 'On the emancipation of women in South Africa' (ANC NEC 1990).

In April 1992, the Women's National Coalition was formed to continue discussions of women's roles and need for support. Around seventy women's organisations came together with the aim of creating a Women's Charter, which they planned to present to parliament. The Women's Charter for Effective Equality was duly adopted by the Coalition in February 1994, and presented to parliament in August the same year. The Charter lays claim to equality for women in all spheres of life, affirms women's right to education and lobbies for effective affirmative action programmes to secure space for women in the economy (WNC 1994).

Obviously the year 1994 represented a step forward for all black South Africans who had been excluded from political decision making until then. The new government introduced a quota system for women (30 per cent) both in parliament and in the ruling party's own executive council, and began to develop policies that would ensure affirmative action in the workplace. As one observer put it, 'Merely being female became sufficient to motivate election into leadership, regardless [of] the experience a likely candidate had. Being female gave [women] a competitive edge' (Skenjana 2012: n.p.).

At the opening of South Africa's first democratic parliament, Nelson Mandela strongly emphasised women's emancipation: 'It is vitally important that all structures of government, including the president himself, should understand this fully: that freedom cannot be achieved unless women have been emancipated from all forms of oppression' (quoted in Cock and Bernstein 2002: 162).

Consequently, gender equality was formally discussed in government, and after the government signed the UN's Beijing Plan of Action in 1995, the notion of gender mainstreaming gradually infiltrated government policy and research programmes. In 1996, the new South African Constitution was enacted, and asserted that the new South Africa was founded on 'values of human dignity, achievement of equality and advancement of human rights and freedom, non-racism and non-sexism'. In 1997, the government set up a Commission for Gender Equality, and established an Office on the Status of Women within the presidency. Both structures formed part of the so-called national gender machinery that aimed to promote gender equality

in government and in civil society more generally. According to Cock and Bernstein (2002: 164), the mechanisms for gender equality introduced in the new South Africa were among 'the most comprehensive in the world', covering an all-inclusive framework to secure rights for women.

However, legal rights and entry into the halls of government were but limited mechanisms implemented to fulfil the government's ambitious gender-equity policies. Access to jobs in the private sector and the progress of women in the economy were also crucial to counter the previously inequitable distribution of socio-economic benefits. The black economic empowerment (BEE) strategy, set out by then-president Thabo Mbeki in 2003, was intended to support those previously excluded from economic activity, but this has since been heavily criticised for creating a culture of entitlement. 'The flaunting of ill-gotten gains by BEE beneficiaries adds salt to the wounds of those left marginalised. Expensive cars, ostentatious houses and partying out of all proportion to the previous lifestyles of the nouveaux riches have become commonplace' wrote Mamphela Ramphele (2008: 261).

As black people rapidly gained access opportunities that were denied them under apartheid, a significant number became millionaires (Dowden 2009: 407). To an extent, however, it can be argued that women benefitted last from BEE; the top echelons of South Africa's private sector remain heavily male dominated, and sexism is entrenched in South African culture, both public and private (Ramphele 2008). Thus, although gender equality was institutionalised, some have argued that the empowerment of women in South Africa has turned into a form of 'elite-pacting' (see, for example, Meinjtes 2011: 112). Admittedly, more women have been brought into decision-making positions, in both the public and the private sectors, and more women have become owners of capital, but achieving gender equality is far more complex than mainstreaming the issue in the phrasing of policy documents and legislation. Grassroots participation and the emancipation of women from traditional gender roles and stereotypes will require substantial changes to South African culture and norms (Meintjes 2011). This reality makes it all the more important that we investigate how women from poor and humble backgrounds have managed to escape poverty and step into the middle class. We therefore turn to the findings of our study, and try to elaborate on what aspects of our respondents' lives have been empowering, and to sketch the kinds of civic issues that preoccupy them.

Mothers and empowerment

The saying *basus'iimbokodo, bawel'imilambo* (they remove boulders, they cross rivers) has long been used to describe South African women's experiences

of struggle. As noted earlier, South African women have, for generations, trodden difficult paths in their quest for freedom and power (Gasa 2007). One thread that runs very clearly through the micro-stories we collected is that entry to middle class was nurtured within the families our respondents grew up in, and particularly by their mothers: 'I am the woman I am today because of her, said one respondent. 'Yes, I am a strong, educated woman because of her, said another. Mothers were perceived to have mentally stood by their daughters' sides and taught them to remove the boulders from their paths. They encouraged their daughters in ways that helped them to develop an integrated sense of self, giving them tools and life skills that encouraged high aspirations and empowerment.

Respect and responsibility

One important set of values transferred from mother to daughter relates to respect and responsibility. One respondent wrote, 'The role played by my mother is so essential. She shaped me to be a responsible person, taught me to respect everyone irrespective of age or profession'. Another wrote that she had become a responsible and hard-working young woman with 'morals, integrity, humble and not selfish', treating people with respect and 'trusting God', because her mother had been 'too strict'. The respondent went on to explain that this firmness had been necessary because her mother had carried sole responsibility for her three children. A third respondent stated:

> My mother played a bigger role in values as she grew up in the rural village that respects the values and cultures of the people…She is the one who instilled values which I still live by, that is respect and love, and taught me how to conduct myself as a young woman.

Spirituality was another strong part of values transfer. As one respondent commented, her mother told 'stories about religion and about righteousness and encouraged [me] to think and do good to other people'.

Fighting spirit

Inheriting a fighting spirit was mentioned as crucial in their obtaining an education and in building their self-esteem. Several women stressed how their mothers and grandmothers had implanted a fighting spirit within them. One of the women explained how this had affected her, saying 'She indirectly made me a fighter for whatever I aspire to do, to be able to achieve anything I put my mind into'.

Another reported that her mother had been very 'negative' and a person who chose the 'easy way out', but this had turned out positively as her

daughter, our respondent, had decided to be someone who refuses to give up when things are difficult.

> I forced my way into tertiary education with no money, my mother was not supporting the idea but I forged ahead anyway. In a way she has influenced some of my decisions, especially where she had a negative opinion I would want to go out of my way to prove that I can do it.

This respondent also mentioned that she had inherited some values from her very strong and hard-working grandmother.

Paradoxically, however, patriarchal values remain extremely entrenched in South Africa. In this context, being a strong woman is not easy. It is possible that the notion of women being strong and empowered threatens the patriarchal value system, and that this is linked in some way to the country's chronically high levels of domestic violence and abuse of women and children.

Education

The most concrete expression of mothers' roles as empowering agents was their support for education. Most of the mothers of our respondents had some education, and repeatedly told their daughters to value education if they wanted to escape the poverty trap. Mothers affirmed that, through education, their daughters would be able to 'live better than they did' as they had not had the same opportunities. One of the respondents recalled how tough her schoolgoing experiences had been:

> We didn't have electricity, so one needed to make fire, boil water and warm leftover food. Thereafter, we would walk more than an hour and twenty minutes to school. We used to be late at school because the path we used to travel was not a straight path but it consisted of hills and valleys… The community didn't believe in sending a girl to school, and indirectly influenced my dad who didn't care whether we had school uniforms or books. We attended the whole of primary school barefoot, not out of choice. My mom was so determined that she would send her five girls to school irrespective of the community beliefs. She didn't want us to be like her: illiterate.

Statements by other respondents echo the importance of education. 'Education is the weapon to fight poverty' wrote one, adding that her mother had stressed this 'repeatedly'. One woman stressed that even though her mother was not educated, she was 'very strict with going to school', and had made beer at home to finance her daughter's education. Education was regarded as the key to success and a 'well-deserved lifestyle'.

> My mother always made sure that everything needed for our academic advancement was provided even if it meant her working long hours to ensure that school fees were paid well in time and we had the necessary study material. She aspired well for her children, always made us remember that her not having the desirable educational qualifications should not impede us from having greater things in life. She even set a curfew for 5pm.

From upbringings that many would consider humble, the women who took part in our study managed to get away from poverty-sticken rural areas, and create successful lives for themselves in the urban areas of Gauteng. Encouraged and supported by their mothers, they used education as a tool. They then climbed the social ladder and stepped into occupations typically occupied by the upper- and lower-middle class. Having achieved economic independence, their expenditure patterns reflect the centrality of fashionable cars and good housing as status symbols in contemporary South Africa, but then these are symbols of middle-class lifestyles in many parts of the world (Ibsen forthcoming).

Based on responses to our questionnaire, the households that these women are part of spend most of their income on housing, transport and on educating their children, followed by food, clothing/jewellery, electrical equipment/entertainment and beauty products (in this order). To a large extent, therefore, their spending is more family-related than individualist; typically, the women who participated in our study spoil themselves very occasionally, and when they do they spend their time and money on celebrating birthdays, taking holidays, eating out or visiting spas. They seem to live in ways that contrast with the life led by Tumi in Zakes Mda's novel, and also with the stereotype of middle-class women as conspicuous consumers. Shopping was no big issue for our respondents, but they did highlight several societal and political concerns.

Social and political preoccupations

The new South Africa was seen as an intricate state that citizens have to navigate. The dilemmas of transformation and reconciliation were very present in respondents' lives, and many of the challenges facing the country have roots deep in the past. Ramphele (2008) has dubbed these challenges 'stubborn ghosts', and includes racism, ethnic chauvinism, sexism and authoritarianism as the four main ones. Respondents expressed concerns about all of these issues, stressing South Africa's high rates of criminal and domestic violence, the high incidence of rape and teenage pregancy, the lack of decent and affordable health care, discrimination against women, and the quality of the public education system. Another enormous problem they pointed to was inequality and corruption:

> We have high levels of poverty among our people and I do not think that it is because we do not have money to uplift our communities. Money is wasted on corruption and there is no accountability. It breaks my heart as a taxpayer to see money being misused when there is so much needed for social issues.

Their discomfort at living in one of the most unequal societies in the world, and being surrounded by the stubborn ghosts of the past, seems to be driving women to raise their voices about the need for change. Participants in our study seem to see themselves as fighting patriarchy and 'male dependence', and find strong transformative potential in gender awareness and education – both civic and academic. Typical expressions of this vision included:

> Women must engage in gender struggle and fight patriarchal structures.

> All women must understand and correctly speak to the female gender struggle and collectively work towards abolishing consequences of a patriarchal state without being apologetic.

Another common sentiment was that women should stand up for themselves:

> Women must not feel they are second to men. We can do even better than most of them. We only need to believe in ourselves.

> Defining ourselves in terms of men is not right. We can get good, fulfilling jobs and raise families. We are strong and wise.

The notion of self-respect was also strongly expressed:

> Women are equally competent and, irrespective of policies like BEE, women can still make it regardless of the inherent family responsibilities.

Several women highlighted the fact that they have gained their independence, and are strong, but that women have to work hard to remain empowered and must to strive to reach the goals they set for themselves. As one woman wrote:

> Women must work hard and be smart about their choices in life. Those who believe that the political/legal provisions for affirmative action will solve their problems must think twice. We are who we make ourselves. Those with genuine concerns may rely on the political solutions but they must be aware of what they are asking and be prepared to sweat for it.

Of great importance to these women was their right to resist suppression and dependence. Comments expressing what respondents saw as important in this regard included:

> Saying no to violence of any sort; more so sexual and domestic ones.
>
> It is ok to walk out of a dysfunctional relationship or marriage before you get hurt.
>
> The ability to say no to sex; more so, to sex without protection.

Of concern was that many women still see married women as somehow more respectable. For example, one respondent noted:

> Some women still think you must be married to be complete, even if you are married to an idiot as a husband…Men are masters and we are servants in their mansions.

Another problem respondents identified was lack of economic consciousness. They felt that few women understand their rights in relation to BEE, and 'still require approval from the male partner'. Respondents also argued that since few women see value in obtaining an education, they will remain dependent on men or the government. Comments on this theme included:

> Relying on government grants will never be satisfying.
>
> Women must be educated and remain decisive.
>
> Women must get educated, generally wise, enlightened and become militant in speaking on societal ills.
>
> Get more women quality education; not just academics but also general whole-life orientation, including skills for self-awareness and survival, ultimately for making it to reach their aspirations.
>
> The prospects for females like myself are very good in our country. We are given opportunities to play a meaningful role in society and I believe we can do more.

Conclusion

The focus of this chapter has been to explore how black women who grew up in poor and humble conditions entered the urban middle classes, and how they experience their role as citizens in the democratic developmental state that South Africa aspires to be. We hope our study has shown how history matters, and that path dependence related to apartheid and poverty, patriarchy and authoritarianism opened up a strong emancipatory culture among South African women generally, and within the ANC in particular.

Historically, South African women have been powerful and decisive through long periods of institutionalised oppression. They breathed life

into a culture of emancipation through becoming modern and educated, and through their participation in civic organisations and activism. A clear tradition connects the modernism of the 1930s and 1940s to the contemporary Black Diamonds and black middle-class women. These women did not pop up from nowhere. They are the heirs of the culture created and celebrated by vibrant modern urban women who were part of the black petite bourgeoisie in the 1930s, and whose example never faded, even during the decades of the mature apartheid state.

Thus, to better understand how previously marginalised women entered the growing middle classes in South Africa so rapidly, we affirm feminism as a theoretical paradigm as well as its usefulness in enhancing women's emancipation in an authoritarian world. The capacity to aspire personally, however, does not give us the whole story. Policy choices made by the ANC have been of core importance. A key stepping stone for the women in our study was the emancipatory culture inherent in the ANC, as expressed in the fight for liberation and democracy. Since 1994, the ANC-led government has produced a flurry of documents and strategies related to equality, social justice, and economic empowerment. Gender issues have been highlighted, at least rhetorically, and the ANC has repeatedly stressed the importance of the role of the middle class in forging real democracy and development.

Unfortunately, the institutionalisation of participatory democracy through public involvement in development remains a largely unfulfilled objective. Even if black women constitute a large portion of the middle class, and have become more aware and responsible citizens due to their dedication to education and hard work, South African society as a whole has a long way to go. To move beyond policy and platitudes, in ways that are in line with the aims of the UN's Post-2015 Development Agenda, South Africans, like many other nations, will have to begin to understand and transform the ways in which patriarchy undermines the well-being, prosperity and productivity of all citizens.

Notes

* The quote used in the title of this chapter is taken from Gasa (2007: xvi).

1 For readers who wish to know more, the ANC has a homepage with a brief history of their organisation. Other recommended popluar histories of South Africa include Allister Sparks, *The Mind of South Africa: The Story and the Rise and Fall of Apartheid*, Arrow Books, 1997, and Herman Giliomee and Bernard Mbenga, *New History of South Africa*, Tafelberg, 2010.

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Chapter 6

Using solar energy to enhance access to ICTs in Malawi

Luke Mwale

Socio-economic development in low- to middle-income countries is said to have a new ingredient to aid its realisation. According to Paul Romer's 'New Growth Theory', socio-economic growth is driven by the accumulation of knowledge (Cortright 2001). Furthermore, the accumulation of knowledge is understood to be preceded by *access* to information or, indeed, knowledge. We can therefore assume that access to information is a prerequisite for the accumulation of knowledge and the development of a learned society. A society can be considered learned if it is well-informed and well-endowed with myriad kinds of information and knowledge that its members can easily access and use to enhance and expand their socio-economic, sociopolitical and cultural lives (Banisar 2010).

The United Nations' High-Level Panel on the Post-2015 Development Agenda (UN 2013) has proposed putting 'sustainable development at the core' of all new development agendas. In my view, the first step towards sustainable development involves acknowledging that access to knowledge, and its successful application in real life, at individual, community or societal level, is both a freedom and a right in any society that calls itself democratic (see Mathiesen 2008).

In this chapter, I attempt to outline the importance of ICTs in enhancing access to information and knowledge, and as a means through which rural communities in Malawi can empower themselves and deepen democracy. I describe some of the obstacles that face communities as they attempt to join the so-called 'information age' and suggest how a simple information centre could be established using available ICT and solar energy technology equipment.

Much of the data about conditions in rural communities used in writing this chapter was collected through two surveys I conducted. The first survey was done in 2012 in the rural areas of Northern Malawi, and focused on the attitudes of 700 adults and 700 youth and children to learning about and using

ICTs. The second survey was done during 2014 in five randomly selected rural growth points in Malawi (see Mwale 2014):[1] The areas I worked in were Chisitu in the Mulanje District and Goliati in the Thyolo District (both districts are in Southern Malawi), Kabudula in the Lilongwe District and Njombwa in the Kasungu District (both in Central Malawi), and Enukweni in the Mzimba District (in Northern Malawi). Respondents were randomly interviewed and several focus-group discussions were held. Key informants were purposively selected to assist in the discussions and with interpretation whenever words in local dialects became a problem.

In reflecting on my aims in writing this chapter, I began to question what benefits inhere in giving people access to information, and I realised that two key assumptions underpin my approach. The first is that any country, regardless of socio-economic standing, has to consider the provision of education (beyond basic education) to its citizens. One of the five transformative shifts suggested by the UN High-Level Panel is, 'to build peace and effective, open and accountable institutions for all'. For me, this highlights the importance of transparency and accountability in development and democracy. If citizens are accorded due transparency and accountability, information will be available to them; and if they have access to information, they can obtain knowledge about where and how taxes, aid, and revenues from extractive industries are being spent, for example (Mathiesen 2008). Even (and perhaps especially) if the majority of people are illiterate or semi-literate, access to such information is vital in encouraging people to learn and to participate as active citizens both locally and nationally (Poudel 2010).

My second assumption is that a key prerequisite for enhancing access to information is the provision of facilities that enable people to access the information they require. These may take the form of national electricity grids and fibre-optic cables in some contexts or public libraries and community centres in others. However, it seems that few low-income countries are making any real progress with the provision of such facilities. Whether this is because of economic instability, a lack of political will, or sheer greed and negligence by those in power is unclear (Aina 2004). While the provision of ICT infrastructure can never be transformative in itself, its productive deployment can assist and benefit people as they transform their lives. To give just one example: with ICTs, cross-regional collaborations and collective efforts can occur via various forms of teleconferencing, making expensive and often polluting forms of travel unnecessary (Aina et al. 2008).

To return to Romer's New Growth Theory for a moment, Cortright (2001) observed that technological platforms can not only serve as tools of knowledge acquisition, but also provide a basis for socio-economic growth.

In this context, knowledge is of even greater importance. Certainly, this supports the notion that free access to information 'forms' an informed society. As Harris et al. (2003) observed, efforts to enhance knowledge acquisition through ICT centres in rural Nepal led to a decrease in poverty in the area (by about 8 per cent), an improvement in health and literacy levels, enhanced status for women, and a stronger social fabric. Harris et al. acknowledged that, despite these achievements, major challenges remained in reaching rural communities with information. Nevertheless, the transformations that were achieved would be desirable in *any* society, and seem to provide a clear indication that access to information and knowledge can lead to beneficial forms of growth and development. Based on these assumptions, I hope to show that socio-economic and political development in countries that do not have extensive electricity transmission and distribution grids requires:

- The establishment of technologically well-equipped rural information centres that can provide access to ICTs, including access to the world of digital information and services.
- An acknowledgement that the energy challenges we all face means that such centres have to be run using renewable and sustainable energy.
- People's own will to transform information into knowledge and skills (including technological) to empower themselves and prevent them from being 'left behind'.

Malawi's national psyche: a commitment to sharing and an enthusiasm to participate

Malawi is indeed a young democracy; it only came to be called democratic in 1994, after being under one-party rule for thirty years. According to the World Bank (2014) and the UN Food and Agriculture Organisation (FAO 2014), 85 per cent of Malawians live in rural areas. The gap between the tiny minority of rich people and the poor majority is huge (FAO 2014). And although Malawians have a general awareness of human rights, we have much to learn about the practical application of the concept. Nevertheless, Malawi is widely perceived to be a communal society (ICEIDA 2012). For example, funerals are communal regardless of whether one knows the deceased or not; weddings are often communal too, even if one is not close friends or family of the bride or groom. This suggests that sharing is fundamental to the Malawian way of life, and if encouraged to do so, people might well share information about socio-economic development strategies, including effective soil improvement and crop-cultivation techniques, ways of installing small-scale irrigation systems or improved grain preservation methods, etc.

In addition, if well informed about what is entailed in a particular project, and about its expected benefits, Malawians are generally enthusiastic and willing to participate. My experience is that when Malawians share ideas, they are open to new understandings about issues such as agricultural extension, the relationship between water and sanitation, democratic principles versus developmentally compromising socio-cultural beliefs; as well as workable policy and legal frameworks (Chirwa 2014). In my view, when Malawians are well informed, they choose to live democratically, value openness, and are willing to influence change or defend the status quo as necessary.[2]

This vision of Malawians making collective decisions on the basis of shared information, and working together towards common goals and understandings, seems to provide the only likely platform from which a sense of national development in Malawi could be launched. Indeed, responses to the small research study I conducted (Mwale 2014) indicated that many Malawians believe that one of the major causes of the country's failure to develop is that information sharing is among the lowest priorities on the country's national agenda, if indeed a truly national agenda can be said to exist at all. This line of thinking is supported by the fact that neither access to information nor information sharing is mentioned in the government's *Growth and Development Strategy, 2006–2011* or its subsequent *Growth and Development Strategy II, 2011–2016,* in which the state outlined its national development agenda. As Booth et al. (2006) have argued, if citizens remain uninformed, they have no way of taking ownership of and responsibility for their community's and country's affairs; that is, they begin to avoid acting collectively in community as well as national development.

A major problem in tackling the lack of access to information is that ICT infrastructure at national level is generally poor. Public libraries and information centres are sparse, and scarcely any primary or secondary schools have well-equipped libraries. In fact the problems lie deeper still: the country does not generate sufficient power to meet its existing needs, and although 90 per cent of the population live in rural areas, the transmission and distribution grid mainly serves businesses and industry in the urban areas.

Electricity generation and distribution in Malawi

Malawi relies primarily on hydro-electric power for electricity generation. This means that electricity generation depends on the amount of water in the catchment areas that feed the turbines. In the drought that affected much of southern Africa in 1992, water levels became so low that electricity generation was drastically reduced. In more recent years, flooding as a result of torrential rains has meant that aquatic weeds, vegetation and other debris

often clog the water channels used to generate the power. Malawi's rainy season lasts for six to seven months of the year (ESCOM 2014). In addition, the seven power plants run by the Electricity Supply Corporation of Malawi, (the parastatal that is currently the country's sole legitimate power generator and distributor) are very old and barely able to meet the country's current energy requirements. As of 2014, the parastatal had the capacity to generate 348.5 megawatts of electricity and estimated that the average demand is approximately 350 megawatts (ESCOM 2014).

In terms of usage and consumption, only 11 per cent of the population has access to the national grid and is able to use electricity generated by ESCOM in their homes (ESCOM 2014). If the rural population make up 90 per cent of the country's total population, this means that only 1 per cent of rural households have access to the national grid. On the other hand, ESCOM has reported that only 30 per cent of urban households have access to electricity. This highlights not only an imbalance between urban and rural electricity provision, but also that there is a large deficit in the provision of electricity for domestic use. The power generated by Malawi's lone electricity supply company is not nearly sufficient to meet the country's existing needs, never mind the power needed to facilitate sustainable growth in demand into the future.

Obviously, the electricity crisis has placed stringent limits on the national roll-out of ICT infrastructure in Malawi, and frequent power outages further reduce connectivity. In the public sector, the Departments of Road Traffic and Immigration are particularly badly affected. On average, not a day passes without connectivity outages disrupting public services immensely. Such outages appear to be even worse in the private sector, and even in the commercial banking sector, connectivity is persistently erratic (Mwale 2014). If Malawi were to develop an adequate solar power generation infrastructure, power generation and distribution would be much less of a problem.

Simply put, Malawi urgently needs to develop alternative sources of energy, and must prioritise the strengthening of its ICT infrastructure to enhance the use of ICTs, particularly in the rural areas where the majority of citizens dwell. This would at least make it possible for people to access and share information, as well as to empower themselves and one another, socially and economically.

General attitudes to ICTs

In 2012, I conducted a survey on attitudes to learning about and using ICTs. The respondents were 700 adults over 18 years and 700 youth and children between the ages of 7 and 17 years who were living in the rural areas around Mzuzu City in Malawi's Northern Region. Before the survey was conducted,

I assumed that children and youth were more likely to have positive attitudes towards learning about and using ICTs, because younger people tend to be more adventurous in and receptive to trying out new things. Indeed, the results revealed that 52 per cent of the adults and 71 per cent of the children and youth would be glad to learn about and use various ICTs (Mwale 2012).

Although there was a big difference in the responses from the two groups, both categories of respondents showed that many people place value on learning about and using ICTs, seeing this as a special skill that would make their lives easier. The main obstacle for many was access to ICTs. Few Malawians have regular access to computers or to the internet, and very few schools have ICTs for learners to use. While most respondents aspired to own computers and printers as well as modems or routers, many noted that the cost of basic computer equipment was way beyond what they could afford, and that the charges levied by internet service providers were prohibitive.[3]

Not surprisingly, ICT literacy levels are low in a considerable percentage of the total population (World Bank 2014). Although Malawi's general literacy levels appear to be rising,[4] many people in the rural areas have little exposure to ICTs, and the digital divide between people in urban and rural areas is clear (albeit undocumented as far as I am aware). One may question the rationale behind improving access to ICTs in communities that have relatively low levels of ICT literacy. Nevertheless, when asked what they would like to use the internet for, many adult respondents expressed an interest in accessing information about community-based agribusiness and the running of co-operatives so as to broaden their knowledge and enhance their skills. Many of the younger respondents indicated that they had heard a lot about computer games and digital books which they would like to play and read if they could have access to computers.

The development of a national ICT infrastructure and ICT education initiatives

In 2013, Malawi's Department of e-Government and the Malawi Communications Regulatory Authority (MACRA) embarked on a countrywide donor-funded project to establish a telecentre in each of the country's 386 wards. By December 2013, 51 telecentres had been established (DOEG 2013). The plan was to install good ICT infrastructure and internet connectivity in all telecentres, giving local communities wider access to information and knowledge. It is hoped that by connecting citizens to government e-services, the telecentres will contribute to improving their communities' welfare and livelihoods through sustainable personal or communal projects linked to agriculture, environmental management, water

and sanitation, health, education and small to medium enterprises, to mention but a few.

The telecentres have the potential to be a huge asset to the rural people of Malawi, and could contribute significantly to enhancing sustainable socio-economic development. The challenge, however, is that a lack of funding has delayed the project so much that it is already lagging behind rapidly changing technological innovation.[5]

Solar energy and rural development

Of course, ICTs rely heavily on electric power and, as explained, while this is a challenge in Malawi's urban areas, for most rural dwellers, access to electricity is little more than a dream. The shortfall in energy generation capacity as well as the country's ageing and mainly urban electricity infrastructure, means that powering the rural telecentres is a major challenge. However, Salima and Chavula (2012) have noted that Malawi experiences an average of 6.6 hours of sunshine per day all year round. Perhaps one solution, therefore, is to exploit this relatively constant source of energy, and use solar energy systems to power the telecentres.

Installing large-scale solar power plants capable of meeting national power demands in Malawi might be a long-term solution, and would require substantial amounts of financial, technical and highly skilled human resources. In the short term, however, rural communities could set up their own information centres using small-scale solar power systems with solar panels, batteries, inverters, and off-the-shelf ICT equipment including computers, printers/scanners/photocopiers, internet routers, switches and other allied gadgetry (see the Appendix to this chapter for the power and energy requirements of a typical installation).

Obstacles to exploiting solar energy in Malawi

Although, as mentioned, Malawi has adequate sunshine for most of the year, the first major obstacle is the price of photovoltaic panels and batteries. The Malawian government tried to reduce the costs by lowering import duty on all solar installation equipment but (with import tax at between 23 and 28 per cent, and VAT still to be paid) the prices are still way beyond the reach of the average citizen (Mwale 2014).

The second obstacle is that the costs of maintenance and services are also high. Although not all solar infrastructure should need frequent servicing, it is extremely costly to replace if anything goes wrong. Indeed, the average lifespans of photovoltaic panels (20 years) and batteries (10 years) are relatively short given what they cost. In addition, photovoltaic panels are

imported, high-tech equipment that few locals have the skills to repair. If there are technicians, they tend to be based in the urban areas, and the costs of their services increase substantially if they have to travel any distance to the worksite (Mwale 2014).

The third obstacle, and this applies to the existing electricity grid too, is vandalism and theft. The high cost of solar-power equipment, particularly of photovoltaic panels that have to remain outdoors and exposed to the sun, attracts thieves. This problem is exacerbated by the fact that police patrols and a general police presence are extremely limited in the rural areas. Neighbourhood-watch groups, who could take turns patrolling the area around the community information centres, could provide an effective deterrent but would require strong buy-in and commitment from communities.

The fourth obstacle relates to a lack of proper controls on the importation of goods. Fake solar equipment with very low efficiency levels and even shorter than usual lifespans, at costs equivalent to the genuine products, have flooded the market in Malawi. Frequent replacement costs on already expensive equipment is obviously not cost effective (Mwale 2014).

If these obstacles can be managed or overcome, solar energy offers Malawi a highly viable way of supplementing the existing hydro-electric power provision, not only for community projects like the one advocated here but also for domestic use in areas that are off-grid. The state would benefit enormously if it were to put its political will behind efforts to extend and enhance solar energy generation in Malawi.

The installation of ICT infrastructure and solar energy generation should be made a major priority for national development, and should form part of the country's much-needed national agenda. The *Malawi Growth and Development Strategy II* was formulated in relation to the Millennium Development Goals, and it is of utmost importance that this is revised to reflect the Sustainable Development Goals listed in the Post-2015 Development Agenda (UN 2015). Access to information, electricity and ICTs are core areas that need to be looked into and included in the revised framework. In addition, the delivery of e-services by the state, mainly via rural information centres, run using renewable energy, should become a priority area linked to the existing prioritisation of rural energy provision and electrification.

Conclusion

In this era of larger-than-life technological advancements, ICTs are a vital tool for access to information and could deliver huge benefits to the rural communities that are regarded as the most marginalised, even by international economic organisations like the International Monetary Fund

(IMF 2014). Community information centres offer one way of providing collective access to information and ICTs. However, sustaining rural information centres is likely to be a strenuous endeavour that will need substantial resources as well as excellent collaboration between government, the donor community and local communities. For community centres to work, the government will need to consider reducing import duties and VAT on all ICT and solar installation equipment to increase affordability for entrepreneurs and end users. In fact, I would suggest that some of the taxes simply be removed altogether.

Perhaps Malawi's most valuable asset in pursuit of this goal is that Malawians are willing to embrace any development that offers them opportunities to access information and new paths to technological advancement. Indeed, what Malawians may need, for example, is to be able to find out more about other societies around the world and to learn from their ways of life. With ICTs in place, other parts of the world could also potentially learn about areas in which Malawi has succeeded or failed; for example, in running free primary education programmes (Kadzamira and Rose 2001; Ngozo 2010).

What remains uncertain is whether a proliferation of rural and urban information centres has the potential to reduce the cleavages between the poor and the rich, and between the politicians and the people. According to The Centre for Social Concern (CfSC 2014), this uncertainty derives from the fact that so many other factors (including corruption and the lack of political will to address it) influence the growing gap between rich and poor. However, in my view, once people are informed, they can choose to fight corruption, and reduced corruption might, in turn, increase levels of transparency and thereby contribute to closing the rifts between poor and rich, and between politicians and citizens. If this happens, and if people can develop some sense of contributing to and having an equitable share of the national cake, productivity levels might increase, and sustainable social and economic development might ensue.

Malawians need to not only cultivate and nurture their young democracy but also to harvest and enjoy its fruits. One way to achieve this is to ensure that information flows to all corners of the country to empower citizens with access to information about the issues affecting their lives and livelihoods.

Appendix

The power and energy specifications for a simple but viable solar power installation suitable for a small rural community information centre are set out in Tables A1 and A2. The estimates assume that such a centre would have:

Table A1 Power demand

Qty	Item	Estimated power (W)	Maximum usage (hours)	Daily energy demand (Wh)
20	Desktop computers	400	8	64 000
1	Heavy-duty printer (output in full colour and black only at around 50 pages per minute)	870	6	5 220
1	Server	600	24	14 400
1	LAN switch	150	24	3 600
3	54-inch television sets	150	6	2 700
3	DVD players	10	8	240
1	Flatbed scanner	350	8	2 800
1	Battery charging station	100	8	800
4	Security lights (12v DC using low-energy bulbs)	15	12	720
10	Interior lighting (low-energy-bulbs)	15	8	1 200
	Total energy demand			95 680
	Estimated energy loss @ 10%			9 568
	Energy demand incl. losses			105 248
	Daily consumption based on a diversity factor of 0.6			105 248 × 0.6 = 63 878wh

Notes: W = watt; Wh = watt hours.

- Twenty desktop computers with internet access, a catalogue of local resources, and software to service the administration of the centre.
- A server that can be accessed by users on demand. All digital resources, as well as user records and other technical records may also be stored here.
- A switch that serves as the local area network plug-in point for the twenty computers.
- Three 54-inch plasma television sets and three DVD players that can be used to show videos of interest to local community groups and organisations.

Table A2 Energy requirements

System requirements[a]	Calculation	Specification
Number of solar panels required	65 882Wh / (5.5h x 250W)	48 solar panels
Number of batteries		40 x 200Ah batteries[b]
Inverter		20kVA single phase[c]

Notes: a. The requirements assume 5.5 sunshine hours per day and 250W per solar panel; autonomy days for Malawi is 3; b. This number is a best-guess estimate and requires verification; the batteries will have to be arranged 4 in-series and 10 in-parallel; c. kva = kilo-volt amps.

- A photocopier/printer that may be used for various purposes, particularly if the centre is used for adult education and by school students.
- One flatbed scanner for scanning documents that need to be disseminated to community members.
- A battery charging station large enough to charge at least 10 cell phone batteries. Besides being useful to users, a minimal charge to users could help to generate some income to help sustain the centre.
- Six security lights to provide lighting around the building during night hours.
- Ten interior lights for night-time use; the centres should be built to capture as much natural light as possible, using for example, durable white or transparent roofing sheets and windows should be large enough and positioned to allow in the maximum amount of light.

Notes

1 In Malawi, a rural growth point is a centre for community and socio-economic development. There seem to be no clear criteria for how a town or settlement achieves this status, but they tend to be designated as such by the government and to offer sales or storage facilities to large-scale farming enterprises. These then encourage or lure other small, medium or large businesses into the area.

2 Like Chirwa (2014), I believe that if people are well informed and knowledgeable they can develop a common understanding on development issues that surpasses or surplants older belief systems that they can see are hindering community development. For example, the Lomwe and Yao people of Malawi traditionally believe in female circumcision, which is globally acknowledged to be an extreme form of cruelty that negatively affects women's sexual and reproductive health and well-being. Unpublished sources indicate that these people are slowly accepting the government's call to stop this cultural practice.

3 From my observations, the most common ICT equipment in the rural areas is the cell phone, and the likelihood is that most adults in rural communities will never have regular access to any other ICT device. At the time of writing in 2015, even the cheapest smart phone sold in Malawi cost about 450 per cent more than the national minimum wage, and a very tiny minority of Malawians have access to these devices. Ordinary cell phones are far cheaper and thus arguably more affordable.

4 Indications are that the general literacy level reached 74.8 per cent in 2015 (Findthedata 2015) as compared to 61.3 per cent in 2010 (Knoema World Data Atlas 2010).

5 Despite the delays, various related initiatives are forging ahead. For example, FAIR-Denmark (a Danish NGO geared towards improving ICT use in low- to middle-income countries) and the Department of ICT at Mzuzu University, in the capital of Malawi's Northern Region, are working together to set up ICT facilities in selected secondary schools in all the districts of the Northern Region. FAIR-Denmark donates used computers (desktops and laptops), printers, projectors and various other kinds of computer equipment, while the Department of ICT at Mzuzu University has assembled a technical team from among its staff who manage the distribution and installation of the equipment in the schools. Meanwhile, a staff development project is being run by Malawi's Ministry of Education (MoE). Through this project, the MOE sponsors teachers to complete a degree programme in ICT developed jointly by the Department of ICT and the Faculty of Education at Mzuzu University. The degree programme aims to enhance teaching effectiveness in ICT studies in the secondary school curriculum.

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Chapter 7

Software engineering in low- to middle-income countries

Miroslaw Staron

In contemporary society, software features in the manufacturing of almost every product, and software engineering has become a recognised engineering discipline. Software engineers are responsible for a wide range of activities, from planning and writing new software to maintaining or upgrading software that is already in use. This means that software engineers need a solid and broad education with options that allow them to specialise in areas such as software architecture, product testing or project management. What I hope to show in this chapter is that the software engineering profession can assist in the realisation of the Sustainable Development Goals (SDGs) (UN 2015) in a number of ways.

For entrepreneurs in low-income economies, investing in software development might seem an unlikely option, especially if their real aim is to help reduce poverty and inequality. However, compared with the development costs involved in establishing mechanical or other kinds of engineering projects, the costs involved in shipping software assets and products are small. This allows small businesses to quickly build confidence and skills platforms, and low shipping costs make it feasible for them to contribute to projects anywhere on the globe. In addition, lower labour costs, and the ability to ship software without long and complex supply chains, also give low-income countries some competitive advantages.

Software engineers[1] in Asia, Africa and South America have the potential to become drivers for growth in their economies by utilising the increasing importance of software in many aspects of our daily lives (Boehm 1981). However, software engineers in lower-income countries face a number of challenges. For example, they need to be highly flexible as they have to constantly balance developing their own products at low cost and in-sourcing software from global companies. To attract business partners, software engineers have to be able to offer high levels of competence at low cost. As

indicated by Khan et al. (2011), after cost-savings, skilled human resources are the second most important factor when large companies consider using an outsourcing partner. Hence, for software engineers to be successful on the outsourcing market, thereby attracting new capital into their economies, software companies have to focus on enhancing the competence, skills and knowledge of their staff.

The central question I address in this chapter is: *how can software engineers in low-income countries develop software products in ways that maximise learning and build long-term client-supplier relationships when in-sourcing new projects?* Although the scope of the question is wide, I address it by focusing on how software engineers can build competence *while* they develop or in-source new products. This focus on learning is crucial for the sustainable development agenda; giving everyone a chance to learn and develop addresses the first transformative shift in the UN's Post-2015 Development Agenda (UN High-Level Panel 2013).

In tackling this question, I review existing research on software development in lower-income countries, and identify challenges related to adopting the most modern software development technologies. I present an alternative model that focuses on rapid release-and-learn software development. This allows developers to continually release new software increments and to learn from each release, thus minimising the risk of running into contractual problems with business partners. The model is based on the Build-Measure-Learn Cycle (Ries 2011) designed for software start-ups.

The chapter is structured as follows – first I provide a brief overview of the role of information and communication technologies (ICT) in sustainable development. I then focus on the software engineering field, and outline the challenges for software development start-ups, which I argue are similar all over the globe. I then outline a recommended software development process and finally propose an education programme that any country can adopt or adapt to support the development of competence in this field.

The role of ICT in achieving the SDGs

When considering the role of ICTs in sustainable development, Goals 4, 8 and 17 in the UN's (2015) list of SDGs are particularly relevant. I have listed them below, but in the order that makes most sense in this context:

- *Goal 17*. Strengthen the means of implementation and revitalize the global partnership for sustainable development.
  - Goal 17.6. Enhance North–South, South–South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on

mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism.

- *Goal 8*. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
  - Goal 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training.
  - Goal 8.7 Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries.
- *Goal 4*. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
  - Goal 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

Although all of these goals are relevant for the development of society as a whole, and deserve support, they also raise a number of questions. For example, how can we support the efficient diffusion of competence between North and South without encouraging a flow of skilled workers into the high-income countries? And, how can lower-income countries enhance the speed of technology uptake without jeopardising the development of long-term competencies?

In the following section, I further problematise these issues in relation to the three key goals listed above; in the remainder of the chapter, I propose a technology model and supporting education programme that I believe can address these issues.

Strengthening the means of implementation

In striving to achieve Goal 17, the need for partnerships between the lower- to middle-income countries (or regions) and the high-income ones is clear. Too often in the past, the movement of knowledge (via technology and knowledge transfer) from North to South led to the phenomenon (often described using the negatively loaded term 'brain drain') whereby skilled people from the South move northwards in search of higher income and other rewards for their work. This phenomenon is present when economic rewards for potentially equally skilled workers are imbalanced. The development of North–South business partnerships can address this challenge and establish relations in which competence development in the low-income countries

helps to strengthen local social and welfare systems. The ICT field is a perfect example of a domain in which this kind of 'paired development' is feasible, because the costs of establishing software 'production' infrastructure is significantly lower than the costs of establishing other types of industrial production and manufacturing processes. To start developing software, the basic infrastructure required is electricity, plus computers and internet access. Where these are available, the main barrier is a lack of skilled individuals. This brings us to Goal 8.

Promoting sustained, inclusive and sustainable growth

Goal 8 is about the need for sustainability in growth. This implies business development based on long-term relationships and trust. To attain sustained growth, countries and individuals need to focus on *lifelong learning*. In our rapidly changing world, it is no longer possible to remain relevant in the job market unless we constantly invest time and resources in renewing our own education and upgrading our skill sets. Many of the technical skills taught at universities remain relevant for a limited period; as the sciences, arts and medicine move forward, individuals must too.

For the lower-income countries, the capacity for rapid reskilling is even more important. When these economies grow, they tend to do so faster than the high-income countries, but their starting point in relation to technological development is lower. This means that an individual might start working with technology that can be categorised as relatively 'simple', but, within a period of only a few years, the same person might be expected to work with 'advanced' technologies. Modern ICT affords the lower-income countries access to new technologies and knowledge. In Rwanda, for example, the ability to build mobile-phone networks made it unnecessary for communications companies to build the infrastructure required for the installation of landlines countrywide. However, to be able to maintain, develop, and extend this kind of ICT infrastructure and its related functions, local, skilled workforces are essential. This brings us to Goal 4 – education.

Ensuring inclusive education

A major challenge linked to Goal 4 lies in making education sustainable and inclusive. Unlike the short-term projects in which skilled teachers visit low-income countries to provide courses and quickly leave again, sustainable solutions are needed that develop local competence, and train new generations of teachers in the South.

Another challenge is the need to combine the skills needed for short-term development (the ability to handle and use the newest technologies) with the

skills that sustain innovation over the longer term (such as problem-solving and mathematics skills). If educational programmes do not combine these two sets of skills, there is a danger that graduates will be unable to support longer-term economic growth, and that future generations will have even fewer opportunities as job markets dwindle.

In the rest of the chapter, I explore the potential for software engineers to significantly shift the ICT sectors in lower-income countries, thereby potentially helping to reduce global inequality.

Continuous software engineering

The SDGs advocate sustainable growth, which includes a focus on product lifecycles, and the ability to evolve products over time. One discipline in which this concept of continuity is prevalent is software engineering.

Software engineering is about processes for developing software that ensure their repeatability, predictability and ultimately their success (Jalote 2000; Team 2002). In this section, I focus on how the continual development and delivery of software allows developers to learn while constructing new software (Duvall et al. 2007; Humble and Farley 2010). Known as 'agile and lean software development' (Oppenheim 2004; Staron and Meding 2011; Tomaszewski et al. 2007), this approach is discussed in a little more detail below as it provides the foundation for the build-measure-learn cycles that I outline later in the chapter.

Lean and agile software development

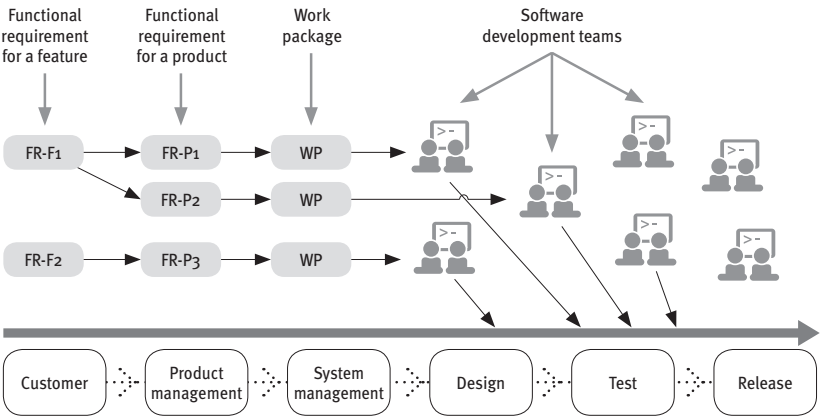
In addition to the benefits offered by continual product development, the lean and agile approach to software development supports the establishment of long-term partnerships, built on trust and mutual sharing, because communication and dialogue play a central role in the process.

Agile software development is an umbrella term for a number of programming processes including scrum (Rising and Janoff 2000) or XP (extreme programming) (Beck 1999). As described by Cockburn and Highsmith (2001) the agile approach emphasises short development cycles, as well as collaboration and contact with customers over more complex or longer-term software development projects.

In contrast to older software development models (such as the rational unified process) the more modern agile model recognises that:

- Users do not always know exactly what they want upfront.
- Software development teams seldom fully understand what users communicate upfront.
- Continual change is a natural part of the software development process.

Figure 7.1 Lean and agile software development processes in which multiple teams work in parallel



Accordingly, agile processes involve short development loops (or 'sprints') which aim to deliver working software or an increment in the process towards working software so as to:

- Provide proof of progress to clients or users.
- Discuss, specify and refine understandings of user requirements.
- Implement changes that might be required if misunderstandings occurred during the previous sprint.

These short development cycles minimise the risk of developing inappropriate software, and emphasise the delivery of working software at each iteration (as opposed to documentation about what will be delivered).

Lean software development requires close collaboration between developers and customers to ensure the delivery of products that correspond to customer requirements and demands (Poppendieck 2007). Following the manufacturing model developed by the Toyota Corporation, the focus of lean software development allows for (and aims to optimise) flows within manufacturing systems while focusing on the need for close collaboration with customers and the variability of their requirements (Oza et al. 2012).

This implies short release cycles, quantitative monitoring of software development, agility within development teams, and lean software development techniques (Poppendieck and Poppendieck 2003). Figure 7.1 depicts a typical lean and agile software development set-up, in which the managers plan which features or functional requirements are to be developed

(FR-F1, FR-F2) and development teams take responsibility for designing, creating and testing each feature.

Figure 7.1 also shows that functional requirements are separated into work packages, and that different features can be developed by different teams. Each team delivers their coding into the main program, and can thus deliver code to any component of the product. The requirements derive from customers, and these are prioritised and packaged into features by product managers who communicate with system managers about the technical aspects of how the features will affect the product architecture. The system managers also communicate with the development teams who design, implement and test the functionality of all features. All coding is tested thoroughly by dedicated testing units before products are released (Staron and Meding 2011).

Combining a lean management approach with agile development processes allows software companies to rapidly change features without needing to rework project plans, which can be costly and time-consuming.

Naturally there are several alternatives to the lean and agile model. One of the most prominent is V-model development (Mellegård and Staron 2010). V-model processes focus on the integration of functionality, and are used by automotive software suppliers worldwide, including in India and China.

Proprietary versus open-source development

Software engineering is evolving in two directions. On the one hand, are the advanced and specialised software development tools used in application domains such as automotive software; examples include UML and Simulink modelling (Pretschner et al. 2007). On the other hand, open-source tools are used to develop software for non-critical systems; an example here is the Eclipse Platform (DesRivières and Wiegand 2004; Geer 2005).

Development and business models for proprietary and open-source software also differ significantly (Camara and Fonseca 2007). Proprietary software developers derive most of their income is from selling software to customers, and a secondary source of income related to the selling of product support. For most open-source software developers, the major income opportunities are related to the delivery of training and support.[2]

Challenges for low- to middle-income countries

Software development in low- and middle-income countries has been investigated from a number of angles. Various researchers have documented the development of competencies and technologies in countries such as India, China, Pakistan and Vietnam. The challenges for many of these countries seem to be primarily *financial* (in terms of access to funding; this is related to

SDG Goal 17), *technical* (linked to infrastructure and tooling; this is related to SDG Goal 8) and *social* (in that education systems tend to be weak; this is related to SDG Goal 4).

Heeks (2002) conducted a meta-study looking at published evidence of failed and successful information-system projects in what he called 'developing economies'. He concluded that one of the main problems facing entrepreneurs was a lack of business knowledge. In an earlier article, Heeks (1999) identified a number of other major barriers to the success of software developers, one of which he called the infrastructure roadblock, that is, the need for reliable, high-capacity infrastructure for exports to succeed. A second major barrier was the lack of trust in business relationships. In a similar vein, Correa (1996) identified barriers for lower-income countries related to factors such as:

- Limited internal markets – market size can limit the development of software products above a certain threshold of complexity and cost.
- Firm sizes – a lack of sustainable mechanisms for venture-capital funding often limits the size of software development companies.
- Quality standards – start-ups in lower-income countries are often unaccustomed to stringently self-monitoring quality standards.
- Shortcomings in qualifications and methodologies – the focus of many start-ups is the need to raise capital, and this can mean that stringent software development methodologies are compromised.
- Limited infrastructure – lack of access to infrastructure and new technologies can be hindrances for competitive start-ups that want to work at the cutting edge of technology development. (I focus more on this issue in the next section.)

These factors constitute significant obstacles for software engineers in economies where innovation is often desperately needed but where establishing software enterprises can be difficult. However, possible remedies – such as lightweight development methodologies (to initiate and build relationships with clients) or crowdfunding (to raise capital) do exist, and are described in more detail below.

Accessing technologies and funding

Entering the market is difficult when starting from scratch (Schware 1992). However, the lean start-up approach advocated by Ries (2011) involves developing the minimum number of viable products using a build-measure-learn cycle as discussed below. However, lack of access to the internet and its technologies would be a major challenge, especially as modern software distribution channels are now so different from the traditional ones. For example:

- Mobile applications tend to be distributed via dedicated online stores – in the mobile phone segment, all applications are certified and distributed via established distribution channels – App Store for iOS (Apple), Google Play for Android (Samsung, HTC, Sony) or Windows Marketplace (Microsoft, Samsung, HTC, Nokia).
- Desktop applications have built-in mechanisms for software updates – almost all modern desktop applications are installed once only and are automatically updated via the internet from time to time. And when application updates are sold, this is often done via vendors' online stores (Windows Marketplace, Apple's App store, etc).
- Modern customers almost expect their products to grow over time, to be continually updated with new functionalities without them needing to buy new hardware for each update. Such updates are often realised via continuous deployment, and without user interaction.

Thus, access to the internet, deployment frameworks and dedicated servers is essential; and access to these technologies can be problematic for countries on the periphery. However, the popularisation of mobile technology is increasing access to the internet globally, and opening up possibilities for the development of new products and new processes (Arora and Gambardella 2004).

In terms of access to financing, some start-ups in smaller economies have used crowdfunding. As described by Schwienbacher and Larralde (2010) and by Belleflamme et al. (2013), crowdfunding is a simple scheme whereby start-ups seek investors by announcing their goals on various websites, and asking individuals to make small investments. In contrast to traditional venture-capital financing, this approach offers developers and investors more flexibility, and is less dependent on geographical proximity. However, to be successful, start-ups need to show quick results, and regularly deliver new functionalities. Without these abilities, they risk losing investors (Mollick 2013).

Kickstarter.com provides the following examples of successful crowdfunding projects in China and Vietnam:

- mDrawBot – for designing 3D drawing robots (China).
- Filamento – for the next generation of 3D printers (China).
- Freedom Wheels – for designing lightweight and robust wheelchairs (Vietnam).

From these examples, it can be argued that crowdfunding projects have the potential to stimulate and support democratic movements globally. By providing citizens with opportunities to decide which projects to fund, citizens can help drive social change linked to the success of those projects,

especially when the projects themselves directly address the needs of citizens (like the wheelchairs in Vietnam, for example), rather than pursuing purely commercial gains. Successful citizen-oriented projects can also help to ensure that companies see democratic ways of operating as more beneficial for themselves and society.

Correa (1996) stressed that software product development and export can be a major driving factor for economies as it minimises the risks of the client-supplier relationship. As I show later in the chapter, these risks can also be minimised by the use of highly iterative and responsive development processes that require little upfront investment.

Trust between clients and suppliers

One of the barriers identified by Heeks (1999) was the issue of trust between clients in high-income countries and suppliers in low-income countries. The importance of this issue is also stressed in Goal 17 of the SDGs – building partnerships. Software developers are especially at risk in this regard as software is relatively easy to reproduce (copy) without permission from the copyright owner. This can lead to fears on both sides related to loss of control of intellectual property.

However, partitioning the development process (by modularising the design, service-orientation, etc.) allows companies to build trust incrementally over time. Thus, software development companies can start with small modules that require frameworks and other parts to function (and that are sourced elsewhere), and therefore cannot easily be resold or reproduced in another context.

I return to the issue of trust building in the software development process described below.

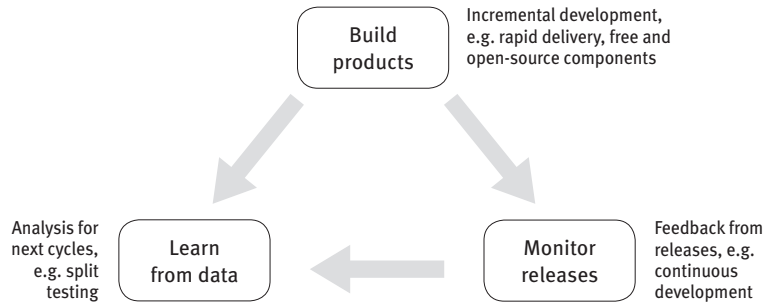
An agile software development model for low-income countries

In this section, I outline a development process that is aligned with the agile approach mentioned above. This kind of process is ideal for the development of:

- Web applications for which new software can be delivered continually.
- Mobile applications for which distribution channels (such as Google Play) already exist.
- Desktop products that can access continuous deployment mechanisms.

Each of these scenarios is popular in situations where in-sourcing companies work closely with their customers. For web applications, the learning element is often based on so called A–B testing. For the other two product types, learning is based on customer acceptance testing.

Figure 7.2 Build-measure-learn principle



Source: Adapted from Ries (2011)

The process is iterative and focuses on delivering a new working version of the software with each iteration. Iterations take between two and five weeks, thus ensuring that discussions with customers happen often, and that learning cycles are kept short. As shown in Figure 7.2, the development process consists of three major stages: building products (including analysis, design, implementation and unit/module/system testing), monitoring releases (effectiveness of deployment and assessment of quality by users) and learning from feedback (evaluation and planning for the next iteration).

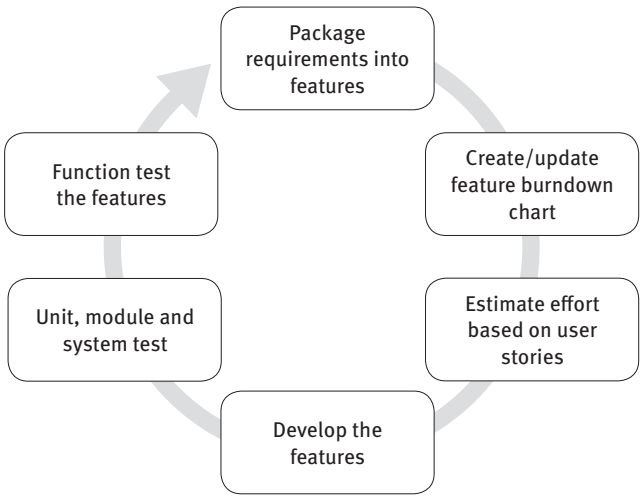
For optimal effectiveness, software development teams should make use of mechanisms for the continual deployment of software. For example, updating channels for mobile applications or dedicated menu items as these are developed. This allows clients to monitor the progress of product development, and lowers the chances of companies failing to deliver, especially in new client-supplier relationships (Giardino et al. 2014).

Incremental development processes also minimise the risk of inappropriate functionalities being developed. Frequent interaction between designers and customers increases the developers' understanding of customers' requirements, and ensures the development of more sustainable products. This model also allows companies to plan for ongoing development without the need for costly reworking of highly developed software.

Activities and deliverables

The goal of each build stage is to deliver an increment of new functionality that can be used by the customer. This increment can be a new product or a new feature that functions correctly, but is not complete (new features will be added in the new increment).

Figure 7.3 Activities in the build phase



At the first iteration, this is known as a *minimum viable product* (Blank 2013; Ries 2011). In practice, this means that the build stage includes the activities shown in Figure 7.3. These activities can be done in one or in several iterations. However, the number of iterations should be kept to as few as is necessary to deliver a usable new increment.

In Table 7.1, I briefly describe each activity in the build phase, and recommend sources for more detailed descriptions of possible techniques for these activities.

Table 7.1 Description of activities in the build phase

Activity	Detailed description	Recommended reading
Package requirements into features	Requirements from the customer are grouped into features and described using user stories.	Cohn 2004
Create feature burn-down charts	To monitor progress and communicate the status of the project (both within the company and with customers) graphs are created to monitor each feature of the project.	Barton et al. 2007, Staron et al. 2010

Activity	Detailed description	Recommended reading
Estimate feature development effort based on user stories	Using user stories, the team can easily estimate the development effort and adjust the speed at which each iteration needs to be completed. This allows for agile responses to changing environmental and customer needs.	Cohn 2005
Develop the features	New features are created using the program code. Its comments feature is used to keep documentation costs down.	Subramaniam and Hunt 2006
Unit, module and system test	New features and new codes have to be thoroughly tested using, for example, automated unit testing and module testing.	Crispin and Gregory 2009
Function test the features	The final stage of the build cycle is acceptance testing.	

The transition between the building and the monitoring phases is done via the deployment of the newly developed software. Measuring the effectiveness of the new increment (that is, the monitoring phase) begins when the customer first uses the new product (see Figure 7.4). Typical activities involved in this phase are described in Table 7.2.

Figure 7.4 Activities in the monitoring phase

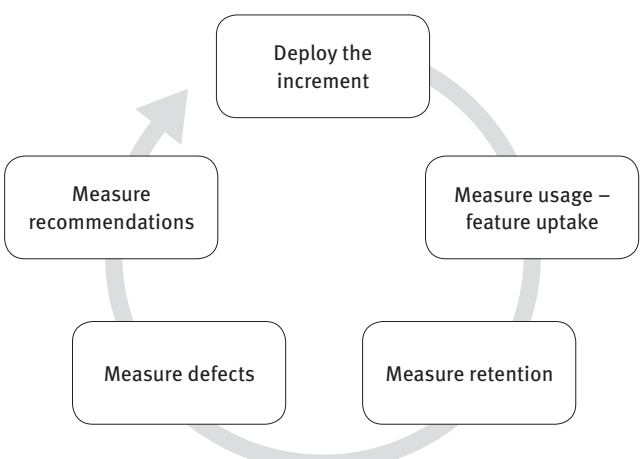


Table 7.2 A description of activities in the monitoring phase

Activity	Detailed description	Recommended reading
Deploy the increment	Releasing the software is only a first step. More important is ensuring customer uptake. Continuous deployment is one technique used for this.	Humble and Farley 2010, Ries 2011
Measuring usage/ feature uptake	The first thing to measure is the number of customers who use the newly developed feature – feature uptake.	Ries 2011
Measure retention	The next important piece of data is the number of customers who repeatedly use the new feature. This approximates customer satisfaction indexes usually collected through surveys.	Ries 2011
Measure defects	Another important aspect to measure is the number of defects identified by customers. This helps to quantify the quality of the product.	Mellegård et al. 2013, Staron et al. 2010, Ries 2011
Measure client satisfaction	One key way to measure client satisfaction is the number of recommendations the feature or the developer receives from customers.	Lassar et al. 1995, Ries 2011

The goal of the next phase – the learning phase – is to understand customer needs better. This is achieved by monitoring which features are well received by the market (by analysing customer retention and recommendations) and which features were used often (analysing uptake). Activities related to the learning phase are presented in Figure 7.5, and a short description of what is involved in this phase is provided in Table 7.3.

The focus of this process is on maintaining good relations between customers and software development companies. In my view, the skills related to working in this way should be included in courses on software engineering for small businesses.

Figure 7.5 Activities in the learning phase

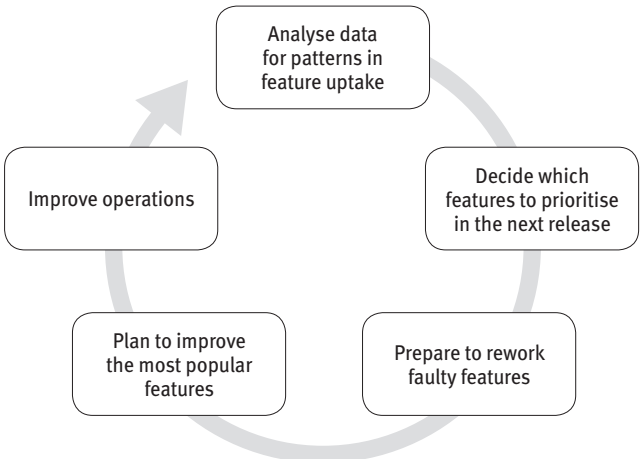


Table 7.3 A description of activities in the learning phase

Activity	Description	Recommended reading
Analyse data for patterns in feature uptake	Understanding which features are more popular than others is an important step for companies who need to optimise their operations – e.g. when building client-supplier relationships.	
Decide which features should be prioritised in the next release	Prioritising the next cycle opens up discussion about future optimisations – the so called rapid feedback loop.	Cockburn and Williams 2003
Note features that do not work correctly (pivot)	Features that are unused or faulty need to be noted for fixing during the next iteration.	
Plan for further development (persevere)	The most popular features need to be analysed to further enhance the product.	
Improve operations	Based on this analysis the software development team also consider how they can improve their operations – including how to develop better quality software or optimise the efficiency of their development processes.	

A recommended skills training programme

In this section I outline an educational programme that any university offering software engineering courses could adopt or adapt to:

- Provide the combination of technical and managerial skills that allow individuals to act flexibly in client–supplier relationships.
- Introduce students to open-source technologies that minimise the costs of software development.
- Capture the major trends in software development and enable students to identify new business opportunities.

The programme is based on a curriculum developed by the Association for Computing Machinery (ACM) for computer science and software engineering (see http://sites.computer.org/ccse/SE2004Volume.pdf), which, is in turn, based on surveys of the best software engineering courses worldwide (Werth 1987), and is constantly updated. A similar programme is used by the University of Gothenburg in Sweden for their International Program in Software Engineering and Management, and has been evaluated from various perspectives.[3]

The skills included in the curriculum make graduates attractive in the job market worldwide. According to *CNN Money* (2015), for example, twenty per cent of the top fifty jobs in the United States are in the area of software engineering, and software architects were at the very top of the list in 2015. The programme's strong skills focus should, therefore, reduce the risk of unemployment among graduates.

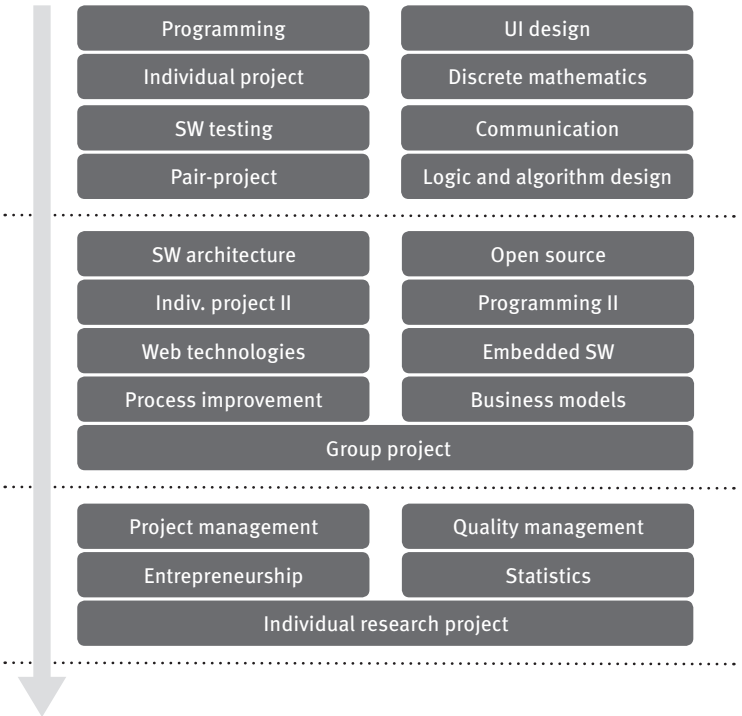
Goals of the programme

The education programme is intended to be a three-year course starting from the university entrance level and aims to provide all the necessary skills to turn students into competent software engineers. The skills set offered combines technical skills (such as programming and software architecture) with managerial skills (metrics, software quality and project management) and leadership skills (entrepreneurship and contract management). The programme includes project work that constitutes at least 30 per cent of the learning time; this is to simulate the real-world environment and teach students the basic skills of teamwork.

Typical course modules in the programme

The educational programme should comprise a number of modules as shown in Figure 7.6.

Figure 7.6 Suggested modules for a model educational programme



The aim of the first year is to introduce students to computer programming (using either Java or C#), enhance their communication skills, and provide the basis for project-based teamwork and discrete mathematics. Table 7.4 provides an outline of the first year of the course.

In the first year the students need to learn the technical skills to start working as software developers, but they also need to work on the so-called 'soft skills' such as communication, trust building and teamwork. The issue of developing trustworthy collaborations is introduced in the communication course and practised in practical projects throughout the programme.

The aim in the second year is to further train students in teamwork and in advanced software engineering concepts; this includes software architectures and advanced programming. Table 7.5 outlines the content of the second-year course.

Table 7.4 Description of courses in year 1

Course	Topics covered
Programming	Object-oriented programming using one of the modern languages – e.g. Java, C#, Python.
UI design	Design of user interfaces for desktop applications and for smart phones/tablets.
Individual project	The assignment should include programming of a small app for either a desktop or a mobile phone (such as a notes app).
Discrete mathematics	Sums, progression.
Software testing	Developing test cases, test suites and test strategies. Build on the programming course and allow the students to understand the difference between a test code and a product code.
Communication	Giving slide presentations, writing technical documentation and writing academic reports. This course should prepare students to give short 'pitch' talks about their work. Introduction to teamwork and co-operation; this should relate to building trust in client-supplier relationships.
Pair project	Integration of the programming and software testing courses and group work. This project should include an oral presentation.
Logic and algorithm design	Design of advanced algorithms using single- and double-linked lists, trees, dictionaries and hash tables. This course should also explain how garbage collection works in modern programming language.

The third year of the programme aims to prepare the students to work as software engineers: entrepreneurship, innovation and research are the main themes for the year (see Table 7.6).

After the third year, students are equipped to start work as software engineers and as independent entrepreneurs in software start-ups. They have the basic skills to start their own projects and to continue with postgraduate studies if they wish to do so.

Widening access to the programme

The modularisation of the programme supports learning in environments where university infrastructure is lacking. This means that the programme can be delivered via distance education, using modern e-learning platforms, and complemented with modules from open online courses offered via Coursera.

Table 7.5 Description of courses in year 2

Course	Description
Software architecture	Definition of software architecture, architectural styles, performance evaluation, architecture patterns and architecture evaluation (e.g. ATAM).
Open source	Open-source movement, licensing schemes and their implications, crowdsourcing and crowdfunding, and open source community building.
Individual project II	Conducting a small research project with the goal of advancing technology (not process improvement) and contributing to a chosen open-source project.
Programming II	Programming using a different paradigm – e.g. functional programming.
Web technologies	Programming of web applications using JavaScript, AJAX or similar technologies; use of web-based frameworks for smart phones (e.g. Titanium).
Embedded SW	Programming of embedded devices (e.g. Raspberry Pi or Arduino board) to familiarise students with the limitations of hardware programming.
Group project	Integration of a complete application including testing and deployment. The students should learn how to work in a group of 3 to 5 students, how to plan their work and how to distribute their work to peers.

Conclusion

In this chapter, I argued that a systematic approach to simultaneously developing new businesses and skills could contribute to the achievement of at least three of the SDGs. In particular, I focused on the value of training skilled ICT professionals to develop ICT products within strong cross-regional partnerships. I discussed the role of educational programmes in advancing quality standards in software product development and client-supplier relationships, as well as the need to ensure that the necessary business and entrepreneurial skills are an integral part of the education process. I then provided an outline for the design of an educational programme that aims to teach ICT students about the need for trust–building, communication and other relevant skills, while developing the necessary technical expertise.

I indicated how a focus on software engineering might help the world's smaller economies to grow and thus support the achievement of the SDGs.

Table 7.6 Description of courses in year 3

Course	Description
Process improvement	Models for software process improvements – e.g. SPICE; frameworks for assessment of process maturity – e.g. CMMI.
Business models	Modern business models for small and medium enterprises with a focus on start-ups and service- and outsourcing-oriented businesses.
Project management	Managing software development and software maintenance projects. This should include modern, agile-oriented methodologies and focus on the human aspects of project management.
Quality management	Learning about quality management models such as Six-Sigma and TQM (Total Quality Management), including information on standards and quality measurement.
Entrepreneurship	Development of a business plan, including customer acquisition and customer-relations management. The course should stress different business models including the lean start-up model.
Statistics	Introduction to statistical analyses of market surveys and product-performance data. Should include elements of designing research experiments to prepare students for research work linked to their own projects.
Individual research project	Thesis project where students should show how they can integrate the knowledge from different courses in individual work.

After reviewing the barriers and challenges facing this sector, including the need for reliable, high-capacity infrastructure for exports to succeed, I described how strategies such as crowdfunding and lean start-up principles might help small businesses to gradually increase their export volumes, while building long-term relationships with clients.

Two important aspects are not covered here but are worthy of further consideration. The first is the need to encourage changes in secondary school curricula worldwide to give interested school pupils opportunities to start exploring software programming before they reach university. The second is the expansion of software development initiatives that encourage financing schemes (such as Kickstarter) to invest more in enterprise development in the low- to middle-income countries.

Notes

1 In the past, we tended to speak of computer science, and it was possible to become a computer programmer with no background in engineering, but as the profession has evolved, the skills required are more typical of the engineering field. The work involved in software architecture (designing large software systems with multiple abstraction levels), software management (planning releases onto the market and continuous monitoring of changes in the market), and software quality control (combining multiple quality assurance activities to achieve high quality of the developed software) is often more akin to engineering than science.

2 My primary focus in this chapter is on product development, although I acknowledge that software companies have to manage both product development and service delivery (Choudhary 2007; Easingwood 1986).

3 I have also evaluated this course from various perspectives. See, for example, Staron (2005; 2007a; 2007b) on whether exposing students to real-life situations promotes their learning, and (Staron et al. 2005) on students' abilities to solve real-world problems related to quality, as well as Kuzniarz and Staron (2002) on students' contributions to learning in the computer modelling community.

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Chapter 8

Climate-change awareness and online media in Zimbabwe: Opportunities lost?

Henri-Count Evans

Climate change has become a serious global threat; mitigation and adaptation are urgently needed to minimise its impact. The increases in global average temperatures, rising sea levels and shifting rainfall patterns, combined with extreme droughts, flooding and heat waves, are already impacting negatively on the sustainability of human, plant and animal life, particularly in lower-income countries. Climate change poses a major threat to global food and water security, as well as to health and environmental systems, and its impacts are undermining the activities directed towards achieving the Millennium Development Goals (MDGs) and the Post-2015 Development Agenda. Zimbabwe is no exception; the intensity of the effects of climate change, especially recurring droughts and shifting rainfall patterns, threaten the country's food security. The need for climate-change responses to be mainstreamed is urgent so that communities can begin to enhance their resilience in the face of climate shocks. This is especially true of rural communities that rely on rain-fed agriculture, and tend to have weaker adaptive capacities.

The severity of climate change: a Zimbabwean perspective

According to Zimbabwe's National Climate Change Response Strategy (GoZ 2013), climate change is already affecting the country in many ways. In terms of water resources alone, the document says that climate change has affected Zimbabwe hydrologically and socio-economically, and this is affecting hydraulic management. Zimbabwe's National Climate Change Response Strategy is based on the report of the United Nations Intergovernmental Panel on Climate Change (IPCC 2007), which predicted a 15 per cent reduction in precipitation in southern Africa, coupled with a 3.1°C temperature increase in the course of the twenty-first century. The IPCC also predicted that, in

general, the dry seasons will be hotter and winters will be colder, while the traditional onset and cessation of the rainfall season will shift. The fear is that rainfall seasons will be shorter and more erratic (IPCC 2007).

The reduction in precipitation means that the region will receive less water, while projected rising temperatures will increase evaporation levels, resulting in reduced quantities of available water (GoZ 2013). It is predicted that, by 2050, temperature rises will increase evaporation levels by between 5 and 15 per cent, and less water will be available for domestic use, crop irrigation, river flow and to recharge the groundwater (GoZ 2013). Zimbabwe's dependency on agriculture and tourism adds complexity to the country's capacity to adapt to lower rainfall levels, but obviously, any negative impacts on water resources will have serious consequences for every aspect of life in Zimbabwe and the region.

Extreme weather and climate events are also predicted to increase in southern Africa (GoZ 2013). Mare (2011) noted that Zimbabwe has experienced a spate of climate-related natural disasters, including Cyclone Eline (in 2000) and Cyclone Japhet (2003) which both resulted in severe flooding in the Muzarabani and Lower Zambezi areas. He argues that these disasters, like the drought of 1991 and 1992 (which was then described as the country's worst in living memory), are evidence of climate change in Zimbabwe.

Given the likely severity of the ongoing impact of climate change in Zimbabwe, it seems only natural to expect the media, the government and civil society and ordinary citizens to play a vital role in disseminating and interpreting information, raising awareness and helping to build adaptive capacity and resilience in both urban and rural communities. This kind of communication, with the intention of promoting climate change awareness, adaptation and mitigation, can lead to behaviour changes, resulting in improved livelihoods and more sustainable lifestyles. In this context, it can be argued that new media[1] is an excellent platform through which to promote climate change adaptation, disseminate information, build resilience capacity and enhance public comprehension.

In this chapter, I first describe climate-change coverage by Zimbabwe's mainstream media, and then analyse the quality and quantity of information being produced and disseminated by key non-media actors (including environmental and civil society activists and the government) using new media. I also investigate whether and how often the general public in one urban and peri-urban area access online information on climate change. I end the chapter with some reflections on how new media could play a key role in climate monitoring and early warning systems mitigation and adaptation.

Climate-change coverage in Zimbabwe's mainstream media

Chagutah (2006) argues that the media is duty bound to provide relevant and timely information about the environment so as to educate citizens about the importance of environmental conservation. Even though the environment represents such an important reservoir of resources for the people of Zimbabwe, Chagutah stresses that the environment is nonetheless being overexploited, and suggests that

> The press is obliged to educate society on good environmental stewardship and promote sustainable practices. It should provide a bridge between environmental experts, the public and policy makers in efforts to preserve the environment. To do this however, coverage of the environment has to increase in quantity and improve in quality. (2006: 28)

Carvalho and Burgess (2005) have argued that the media play a central role in the social construction of risk. As the main source of public information, the media shape climate-change awareness (Carvalho 2010). Similarly, Giltin (1978) noted that the media provide an authoritative version of everyday reality for many people, and specialise in orchestrating consciousness. However, studies carried out in Zimbabwe by Chagutah (2006), Evans (2011) and Mare (2011) have shown that the mainstream media are failing to effectively cover climate change.

Despite evidence of the negative impacts of climate change, coverage of climate change in Zimbabwe has been kept backstage in news and current affairs programming by both the mainstream media, be it online or traditional, private or state-owned. In general, the subject of climate change seems to attract the attention of journalists when there is a major disaster or climate change event happening elsewhere in the world. In addition, much climate-change related coverage has been inaccurate. For example, due to sheer lack of knowledge, reporters often misinterpret scientific information and fail to explain the distinction between global warming and climate change. It is fair to say therefore that climate-change discourse in Zimbabwe has been marred by various kinds of journalistic inaccuracies and confusion. Firstly, Zimbabwe's mainstream traditional press has tended to treat climate change as a phenomenon that is happening elsewhere and not as a local problem. Secondly, the media has treated climate change as something inevitable, and hence as not really newsworthy. Stories on climate change seldom make it to the front pages of the newspapers or make the headlines in broadcast media, but tend to be buried on the inside pages or in special-interest programmes as they are perceived to be of less importance.

Climate change, the media and neo-liberalism

Unfortunately, much of the climate-change discourse worldwide is trapped in the ideological warfare between the 'West and the rest' (see Hall 2006). This has contributed greatly towards poor and imbalanced coverage of climate change both globally and in Zimbabwe. The scarcity of local journalists who are sufficiently interested and informed about climate change means that local media companies rely heavily on global news agencies for news on this issue (Evans 2011). However, such agencies often under- or misrepresent matters, placing particular bias on aspects that affect Western economic interests (Takahashi and Meisner 2012).

Through the planetary vulgate of globalisation (as conceptualised by Fairclough 2003),[2] the international media has also played a role in attempting to promote 'green' industries based in the North, while encouraging lower-income countries to invest in weather forecasting and other kinds of technology transfer. As Timmons Roberts and Parks (2006) have argued, global climate politics is highly imbalanced in terms of economic and political decision making. Similarly, the politics of climate change is deeply entrenched in global inequalities and in representations of the issue by the Western media, and the 'global' news agencies they run. Indeed, reporting generally mirrors these inequities because the media largely represent and champion Western ideological and economic interests.

These global inequalities are also evident in new media. Fuchs (2010) has suggested that the new technologies have become new agents of imperialism, not replacing the mainstream global offline media, but complementing them and ensuring global dominance by the capitalist world. As early as 1991, Sussman and Lent argued that the new technologies had redefined the 'centre' to mean transnational corporations that have made client nations dependent not only on their technology, but for other economic needs as well. Multinational companies emerged after the Second World War and initially were forced to operate within, or be excluded by, restrictive neo-communist economic policies pursued by many of the world's lower-income countries. Since the 1980s, the multinational corporations have benefitted from the delocalisation, deregulation and privatisation of these economies as many poorer countries adopted structural adjustment programmes designed by the World Bank and the IMF. Effectively, the multinational corporations have been strengthened by capitalist ideology that favours privatisation and the deregulation of markets. As Amin (1997a) argued, the worldwide expansion of capital takes place in a world that is still controlled by political system of inter-state relationships.

Through the global rhetoric about technology transfer and green funds, Western nations are attempting to shape actions taken by lower-income

countries to mitigate the effects of climate change and reduce further emissions. While acknowledging the need for global collective action on climate issues, Amin (1997a) pointed out that given uneven levels of control over world resources, approaches to response mechanisms should not be expected to be linear or uniform. Nevertheless, approaches that favour the political and economic interests of the North are implemented

> because the 'market' is a set of mechanisms operating on a short-term basis (maximum 15 years), whereas the environmental effects of the development of productive forces are situated on a much longer-term time-scale. As a result, it is absolutely impossible to avoid catastrophe without first accepting the principle of rational planning which goes against the 'market'. (Amin 1997b: 18).

Climate-change coverage by government and civil society in Zimbabwe

Environmental and civil society organisations and the government have developed their own ability to produce and disseminate information on climate change through new media. As Boumashoul (2009) has argued, massive online interconnectedness has made it possible for organisations to create alternative spaces of interaction on the internet. Through using new media, NGOs in many parts of the world have found a platform through which they can make their voices heard outside the nation-state, and this has been complemented by audiences' capacities to access sources of information that give them a different view of the society they live in, and opportunities to interact with others (Boumashoul 2009).

As a medium, the internet is difficult to control, providing, a relatively liberal communicative platform for both producers and audiences of new media in the sense that both producers and consumers have the ability to produce, disseminate and consume online content with fewer restrictions than the traditional offline media. As Skare-Orgeret and Rønning (2009) noted, digital technologies have made it easier to provide alternatives to the monopolistic state-controlled broadcasting companies. Accordingly, the topic of climate change is covered online via websites, networks and blogs, as well as on social networks such as Facebook and Twitter.

Research methods

I used various qualitative and quantitative methods to investigate how the government and environmental NGOs in Zimbabwe are using new media to raise awareness about climate change, and the need for adaptation and mitigation strategies. I also sought to examine how audiences use, benefit

from and are challenged by their consumption of climate change information. Having noted that rural communities in Zimbabwe are worst affected by climate change, but that very few rural areas have access to the internet, I decided to conduct my research in an urban and peri-urban setting. In terms of audience, I therefore began with a wide sample drawn from residents of urban and peri-urban areas of Bulawayo. Zimbabwe's second largest city, Bulawayo is located in hydro-ecological zone 5, which is the hottest zone in the country and receives the least rainfall. It is arguably therefore more vulnerable to the impact of climate change. Participants in the study all owned either a computer or a smart phone, and had regular access to the internet.[3] Questionnaires were then used to collect data from the study population. A total of 200 questionnaires were distributed, of which 168 were returned. The questionnaire consisted of five sections. The first consisted of closed-ended questions on respondents' familiarity with climate change. The second set of questions sought to gather data on their access to online media. The third set of questions was on if and how respondents use new media to access information about climate change and/or participate in online forums in which climate change is discussed. The fourth set of questions focused on respondents' use of social media in the production and dissemination of climate change information, and the last set of questions sought to gather data on access to and use of internet radio stations that focus on climate change awareness. Open-ended interviews were conducted then with twenty respondents to complement data collected through the questionnaires.

My research also focused on how five key institutions in environmental and climate-change awareness in Zimbabwe were using new media to disseminate information on climate change with the aim of enabling civic participation and fostering sustainable development. The five institutions were:

- The Environmental Management Agency, a statutory entity created through the Environmental Management Act of 2003.
- The Ministry of Environment, Water and Climate, the government department tasked with the overall sustainable management of Zimbabwe's natural and environmental resources and to ensure their sustainable use.[4]
- ZERO Regional, an NGO whose mission is to work with rural and urban communities fostering balanced, healthy growth and self-reliance within a rapidly changing world. This organisation is also the lead agency in Zimbabwe for the implementation of the Millennium Development Goals (MDGs) and functions as the regional secretariat for the Community Organisations Regional Network, which is a network within the Southern African Development Community.

- The Development Reality Institute, an NGO established in 2009 with the mandate of promoting sustainable development, and especially the sustainable use of resources and adaptation to climate change. The organisation's main objective is to mitigate and build society's adaptive capacity to the effects of climate change.[5]
- Environment Africa, an NGO whose mission is to raise awareness, advocate for a better environment and uplift standards of living with all sectors of society. It focuses on sustainable livelihoods, climate change, environmental governance and biodiversity.

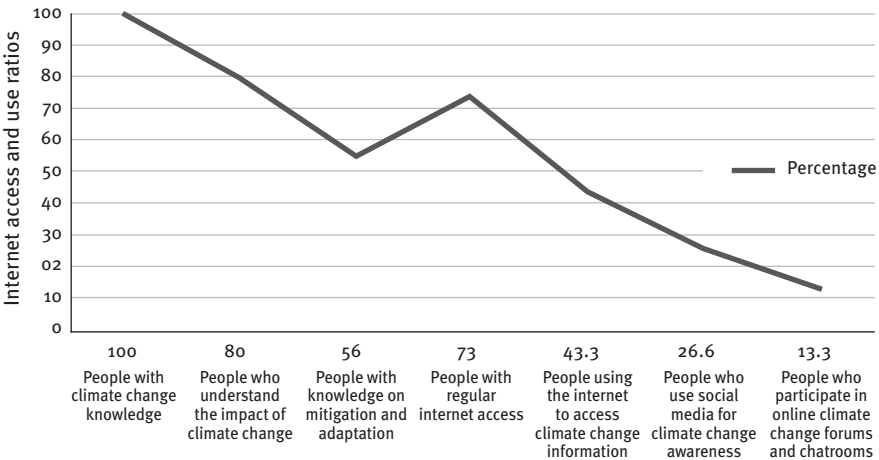
The selected institutions were chosen because they have all stated that their mission is to protect the environment, promote the sustainable use of natural and environmental resources, and mainstream responses to climate change in their activities.

To assess the level and extent to which these institutions use new media to produce and disseminate climate change information, I used qualitative content analysis to examine the content on the organisations' websites, Facebook pages, Twitter feeds and YouTube listings.[6] My analysis focused on content describing the causes and impact of climate change, and advocating strategies linked to adaptation, mitigation and enhancing resilience. The study was conducted from January 2012 to May 2014. Thematic analysis and pattern matching were used to identify convergences and similarities in the results. Themes were also analysed for convergence with data obtained from the survey and the interviews.

Community access to new media

As shown in Figure 8.1, 73 per cent of respondents to the survey had regular access to the internet (primarily through their workplaces and their smart phones). Those that had access to the internet also confirmed that they had joined Facebook, but only one participant had a Twitter account. However, 46.4 per cent of participants with regular internet access indicated that they were not using the internet to participate in climate change discussions or to find information about climate change. A total of 26.6 per cent of respondents revealed that they use social media to promote climate change awareness, and 13.3 per cent participated in online climate change forums. It has to be noted, however, that the use of social media for climate change awareness and participation in online climate change forums is done inconsistently and on a limited scale, and to little effect. Those who had Facebook accounts noted that they use the social platform primarily to connect with their friends and relatives and had no connections with either environmental or climate change

Figure 8.1 Participant knowledge of climate change and internet use in Zimbabwe



pages, individuals or organisations via this platform. Responses and actions in relation to climate change seem to be determined by individuals' perceptions of its impact in their local areas. Most participants in my study perceived climate change as happening elsewhere and hence as 'not their problem'. An 'us' versus 'them' dichotomy seems to be operating in terms of both risk perception and response.

New media use by environmental institutions

Twitter feeds

As of May 2014, Environment Africa had 1 207 Twitter followers. Environment Africa–Zimbabwe had no independent page, but used Environment Africa's home page as a mother board. Environment Africa–Zimbabwe's Twitter feed was not being updated regularly, with the most recent tweet having gone out on 29 November 2012. This was just before Zimbabwe's annual tree-planting day. No tweets were sent out in 2013 or 2014. Analysis showed that the organisation has mainly been active on Twitter prior to an event or international celebration. However, none of these posts had anything to do with the causes of, impacts of or solutions to climate change. Some tweets focused on policy dialogues, but provided no additional links or background to the problem, making it very difficult for the general public to acquire any meaningful information on climate change.

Similarly, during the research period, the Development Reality Institute's Twitter feed was seldom updated. The organisation had 42 followers on Twitter, and their last update was on 17 April 2014. None of the tweets sent out during 2013 were on climate change awareness or adaptation, and many were simply re-tweets from other organisations. Highlighting the inactivity of the Institute's Twitter page, Twitter's own data displayed that the page had been 'last updated more than a year ago', which suggests that the organisation's twitter activity tends to be poor and inconsistent.

ZERO Regional, the Environmental Management Agency and Zimbabwe's Ministry of Environment, Water and Climate had no presence on Twitter.

Website analysis

Environment Africa had a functional website with an integrated news portal. Information posted on the website was primarily event-based; that is, key global and regional environmental events were covered. However, no news stories were found that related specifically to climate change, adaptation or mitigation. By the end of the research period, the most recent news article published was on 23 November 2012. Events covered included: Zimbabwe's National Tree Planting Day, the International Union for the Conservation of Nature's World Conservation Day, International Biodiversity Day, Earth Day and World Wetlands Day.

The Development Reality Institute's website featured an integrated Virtual School that delivers an online course on the basics of climate change; a Knowledge Hub that provides information on climate change and functions as a mini e-library that includes films and documentaries; and a forum called Cool-Clubs which attempts to involve schools around the country in climate change awareness campaigns. The website's own news feed had last been updated in November 2011 during the UN Climate Change Conference held in Durban, South Africa.

As of 28 May 2014, the Knowledge Hub had links to 28 articles on topics such as clean energy technologies; the impacts of climate change in West Africa; climate change vulnerability, impacts and adaptation; climate change and urban development in Africa; and climate change adaptations in northern Burkina Faso. No research papers on Zimbabwe were found, and little reference was made to climate change in Zimbabwe in any of the articles. The portal thus focuses on Africa and the rest of the world, and fails to provide specific information on the impact of climate change in Zimbabwe. Implicit in this is the notion that climate change is not really an urgent problem, and that it is occurring elsewhere, not in Zimbabwe. This fosters false perceptions

of social dichotomies; that is, climate change is seen as 'their' problem and not 'our' problem because it is not happening here.

The Environmental Management Agency's website had basic information on the organisation's mission and contact details. The news portal contained no news articles, and the website had no information about climate change.

The websites of ZERO Regional and that of the Ministry of Environment, Water and Climate were dysfunctional for the duration of the research period.

Facebook use

Environment Africa–Zimbabwe had no independent Facebook page, so content on their head office page was analysed instead. The organisation's Facebook page was similar to their Twitter feed, with content mainly related to the announcement of events. No content was found on climate change adaptation and mitigation in general or with regard to Zimbabwe.

The Development Reality Institute's Facebook page had been last updated on 28 March 2014. Most posts were just announcements of upcoming events. The page had no information on climate change awareness, adaptation and mitigation.

ZERO Regional and the Ministry of Environment, Water and Climate were not on Facebook.

Discussion

Audience use of new media

As noted earlier, this study selected participants from an urban area only. In previous studies (Evans 2011, 2013) I have noted that the distribution of internet accessibility in Zimbabwe remains scalar, from the rich to poor, urban to rural and literate to illiterate. I have argued that these structural divisions influence the consumption of climate change information, so that although the poor are the worst affected and the most vulnerable, they have the least access to information. The present study made it clear that access to information does not necessarily translate into an interest in climate change, or a willingness to take action in relation to it. Where people have internet access and literacy, they often show no interest in reading about or participating in discussions related to the environment and climate change. Of course, access to information is no guarantee that people will develop an interest in that information. The major indication from the survey was that access to the technologies did not determine consumption. In terms of the urban population studied no direct causal links are evident between having access to the technologies and using them to get climate change information.

Through interviews with survey participants, I attempted to understand what determines consumption of climate change content online and what

problems users have found in relation to this consumption. Participants noted that when they consume or look for information, they often follow leads from an offline source. They noted their need for an offline referral point, such as a natural disaster, or events like floods, storms and veld fires that are covered by the mainstream media. As Cohen (1963: 13) observed, the media may not be successful in telling people what to think, 'but it is stunningly successful in telling its readers what to think about'.

Decisions about how respondents use new media and its content was also influenced by factors that are unrelated to the technology. Facebook and Twitter for example, are mainly relevant for users when fresh content is uploaded. The poor rate of internet and social media use by respondents to access climate change information corresponds with the poor coverage of the topic by the environmental NGOs, the government and other online media. Non-existent or tiny coverage of the topic on social media platforms by environmental organisations translates directly into poor hit rates and low interest from the audiences.

It can be argued that the non-use and lack of interest in accessing online information about climate change in Zimbabwe is intrinsically linked to the absence of coverage on climate change in the offline mainstream media (Chagutah 2006; Evans 2013). The absence of offline reference points makes it difficult for people to learn about or develop an interest in following environmental or climate-change issues online. If the offline mainstream media were to cover climate change in more depth, it is likely that people would seek additional information, research and in-depth analysis online.

This finding concurs with those of Barabási (2004) who dispelled the notion that the internet, with its instantaneous availability and virtually non-existent content censorship, embodies a democratic and egalitarian forum in which everyone has the same opportunities to be heard and noticed. Instead Barabási's research revealed that simply making information available does not guarantee that it will be viewed by anybody, and that that the topology of the World Wide Web determines that only a small fraction of the billions of documents available online end up generating significant traffic to actually reach a sizeable audience.

New media and climate change mainstreaming in Zimbabwe: a lost opportunity

Whereas proponents of the 'information society' theory argue that that the new technologies have liberated the means of communication, making these available and accessible to all at much lower cost than the traditional media, the Zimbabwean experience paints a different picture. The use of the new

media is still in its early stage. NGOs, the media and government are not yet using online media in effective ways to promote climate change awareness and mainstreaming.

In my view, the opportunity to mainstream climate change information using online media (alternative public sphere) has been lost, regardless of all the advantages this form of media can have. There is a lack of climate change information from those with the mandate to educate and inform communities on climate change. Neither the media (both mainstream and alternative) nor other institutions such as the government and civil society organisations have produced substantive information on the subject.

From a technologically determinist perspective, the new media, with its interactive capacity that allows anyone to easily create and publish content, should be a platform through which climate change information is effectively discussed and disseminated. The establishment of NGOs that purported to focus on climate change raised expectations that these organisations would use new media to steer the climate change debate in Zimbabwe and the region, raising awareness and helping to co-ordinate effective responses. It was hoped that these organisations would use online platforms to disseminate accurate scientific information at minimum cost.

In so doing, several of these organisations had an opportunity to create an alternative public sphere where debates and discussions on all the issues relevant to climate change (causes, impacts, adaptation and mitigation) could take place, without the barriers exerted by the mainstream media, which frame, prime, and subject their content selection within certain preferred readings. The NGOs could have used the new media to communicate directly with audiences through online radio, Facebook and Twitter, with the objective of mainstreaming climate change.

Dead information sources

The media, and journalists, in particular, rely on news sources (government officials, civil society organisations, business people, etc.) for timely news and current affairs stories. The almost total lack of climate change information from both environmental NGOs and the state has a bearing on the poor profile of climate change coverage by the media, and this has a net effect on the public as well. Thus, while the online presence (in websites, Twitter and Facebook) of all the organisations studied is primarily focused on notices about world environmental days and events, this trend is also evident in the mainstream media (which also tends to write about mere announcements as if they were news stories) resulting in almost total ignorance about climate change among the public (Chagutah 2006; Evans 2011; Mare 2011).

Why are the traditional mainstream media so crucial in this technology-climate change matrix? Many authors argue that the traditional media, because of their established tradition and credibility as generators of news, are in the best position to dominate the internet news game by establishing their online versions as the most trusted nodes of news traffic in the web. Newspaper analyst Donna Logan (quoted in Boswell 2009) describes newspapers as 'the foundation of the entire media game', leading the news agenda and paving the way for other sources. She points out that the internet is very dependent on specialised newspaper staff, databases, and large newsrooms for news and information. These 'continue to establish the parameters for what gets covered and how', and that digital media have not 'developed the reporting infrastructure or the level of credibility that newspapers enjoy' (Nichols, 2007: 177).

New media for monitoring and co-ordinating mitigation

New media have the potential to be useful in mitigating climate change in a number of ways. On a physical level, they can assist in the reduction of carbon emissions through what Young (2007) referred to as de-carbonising and de-materialising. This refers to the replacement of physical media with online dissemination (see Ospina and Heeks 2010a; Zanamwe and Okunoye 2013). For example, the move away from print newspapers to online editions reduces the need for paper and printing inks, as well as the transport infrastructure involved in newspaper distribution. Such shifts have the potential to reduce carbon emissions and deforestation levels.

The use of e-government and e-commerce along with the promotion of e-learning systems in schools, e-scheming, e-planning and e-recording could reduce deforestation by minimising the use of paper. Similarly, the use of emails, blogs, video-, tele- and web-conferencing have the potential to reduce the use of fuel on transportation as well as the related carbon emissions.

Perhaps more importantly, using data obtained from a case study on the use of ICTs in municipalities in Mozambique, the International Bank for Reconstruction and Development (World Bank 2012) recommended that governments worldwide adopt four types of ICT tools to help their cities adapt to the effects of climate change. The four tools are geographic information systems (GIS), e-governance, early-warning systems (including telemetry) and wireless communications. They advocate GIS and e-governance for use in disaster prevention and recovery, and argue that wireless communications and early-warning systems have the potential to facilitate efficient disaster warnings and emergency responses.

Similarly, Zanamwe and Okunoye (2013) have noted that ICTs are being used for weather forecasting, climate monitoring, predicting, detecting

and mitigating the effects of natural disasters. They cite the International Telecommunications Union description of technologies that allow remote monitoring and data collection using ICT-equipped sensors (telemetry). In addition aerial photography, satellite imagery, grid technology and the use of global positioning by satellite (GPS) have proven useful for tracking slow, long-term environmental changes, such as that of glaciers or ice flows (ITU 2008). Satellites and weather radar are used to monitor the progress of hurricanes, typhoons, tornadoes and storms, and supercomputers are used by meteorological services to produce complex general circulation models of climate. Various kinds of radio-communication systems (satellite and terrestrial) are also used for dissemination of information about natural and human disasters (ITU 2008).

The International Telecommunications Union (ITU n.d) has also noted that other uses of ICTs include the Global Observing System which uses remote sensors attached to satellites, aircraft and radios to record and transmit data to environmental and meteorological centres. Another crucial tool is the Global Data Processing System which consists of thousands of micro and super computers processing volumes of meteorological data and generating warnings and forecasts (ITU n.d).

The wide availability of all this meteorological data could enable policy makers and communities to craft adaptation mechanisms to predicted weather and climate events. Nelson et al. (quoted in Ospina and Heeks, 2010a) have defined climate change adaptation as deliberate change made in anticipation of or in reaction to external stimuli and stress. Ospina and Heeks (2010a) note that given its potential to address external shocks and trends, adaptation is critical for the achievement of developmental outcomes, which include but are not limited to increased income, well-being, improvements in food security and sustainable use of natural resources.

In addition, Ospina and Heeks (2010b) note that the experiences of vulnerable communities in Asia, Africa, Latin America and the Caribbean point to the use of applications such as mobile phones, the internet and community radio as part of climate change responses. They note that, among other things, these forms of media have been used to strengthen natural resource management and training, provide access to relevant information and networking opportunities, and raise awareness.

Conclusion

Despite all the threats implicit in climate change in relation to global food security, health systems and environmental sustainability, and how much its impacts are likely to undermine the goals of eradicating global poverty, the

level of climate change awareness in Zimbabwe remains alarmingly low.

The traditional mainstream offline media have failed to effectively provide coverage on climate change, and the hope that the new media of communication would salvage the situation has proven false as those institutions that have a mandate to mainstream debate and action in relation to climate change have produced very little online content. Notwithstanding the poor profile of climate change communication and appropriation online, a tiny minority of Zimbabweans are taking the initiative to use the new media to improve climate change awareness and to participate in online climate change forums. But even the tiniest minorities can grow.

Notes

1 I define new media as communication that is distributed via the internet and is potentially interactive; it includes platforms such as Twitter, Facebook, blogs and online news.
2 Fairclough argued that while it is often asserted that the world is a global village (which implies equal relations of existence) the reality is that the globe is highly polarised between the rich, capitalist nations of the global North and the poor, dependent countries of the global South.
3 From 2009, broadband internet access in Zimbabwe improved when service providers, such as Telone and Africom, provided Asymmetrical Digital Subscriber Lines (ADSL). This was further augmented when Econet Wireless laid fibre-optic lines across major urban areas.
4 For more information about the ministry see http://www.environment.gov.zw/index.php/about-us.
5 More information about the Institute is available on their website at http://www.driafrica.org/About%20Us.html.
6 I also checked organisations' podcasts and RSS (Real Simple Syndication) feeds, but found nothing noteworthy.

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PART 2: COLLABORATIONS

Chapter 9

Culture meets culture at a distance

Berith Nyqvist Cech and Lars Bergström

In 2008, the social work department at Karlstad University in Sweden was asked to give a distance-learning course in social gerontology for students at the University of Namibia. The request was accepted, and the course was planned and offered in early 2009 to eleven interested students. We titled this chapter 'Culture meets culture at a distance' to highlight the fact that our experience of working with Namibian students included a strong aspect of mutual cultural exchange. The chapter outlines some of what we, as two of the lecturers involved, learned in the process of designing and delivering the course.

By way of background, it is perhaps useful to explain that the first author of this chapter has extensive experience of managing nursing homes for the elderly in different parts of Sweden. After many years of practical work, she returned to the academy to educate future elderly-care workers, and to conduct research with elderly people. The second author, while employed by Karlstadt University, has also been a visiting lecturer at the University of Namibia since 2006. During this time he has researched the lives and rights of the elderly in Namibia, as well as Namibian organisations that care for the elderly, including the Namibia Social Workers Association. In addition, 12 students in the social work programme at Karlstad University have completed their practical placements and collected data for their Bachelor's theses in Namibia in recent years. This meant that we had access to basic information about elderly people in Namibia, even though the subject of social gerontology is generally rather neglected in the country.

Course preparation

Based on our experience in teaching social and care work, our idea was to encourage the students to try to produce knowledge from their own socio-cultural platform by comparing their own experience with that of other professionals expressed through course literature. The crucial step in this

process is for students to present the results of their comparisons and not simply reproduce what they have read and heard.

Having discovered that there is a shortage of literature on social gerontology from an African perspective, we suspected that we and our students would benefit if we were to establish a shared knowledge base that was neither Swedish nor Namibian. We therefore decided to look at using literature on social gerontology that has been published in English as our primary text for the course. Among the available literature, a book written in the United States seemed to fit our purpose in that it specifically addressed elderly care from a culture-dependent perspective. The book, *Social Gerontology: A Multidisciplinary Perspective* by Hooyman and Kiyak (2011), contained information that we found generally useful and valid.

Apart from this core text, we developed a written study plan. Such study plans are often applied in Swedish social work/social care programmes, and are routinely used by our department. The study plan provided an outline of the course and was intended to work as a course guide for students. It included additional readings as well as the schedule of assignments, and encouraged e-mail contact between lecturers and students. The study plan was based on the idea that students would need time to reflect on the theories they were being exposed to, and on whether those theories offered any useful tools and practical skills that could be applied to elderly care in Namibia.

Course preparation therefore focused a great deal on trying to translate the theories applied to elderly care in the USA into the Namibian context based on our practical knowledge of Swedish culture and elderly care. Part of our aim was to test how the American text and the Swedish study plan would translate into the Namibian context. Perhaps inevitably, our preparations ended in our accepting that both the teachers and the students on the course would have to start from what we know, and aim to create a shared understanding of one another's culture. We then had to work out an effective way of achieving this.

As the course began, we soon discovered that there was a further knowledge process to grasp; namely, that the Namibian students knew best what was in the interests of the elderly living in Namibia. We therefore relied on the students' ability to translate the theories and work processes they were learning about into their own contexts; they had to learn to shift between cultures to assess what aspects could best be applied to elderly care in Namibia. Students were therefore asked to look out for differences in perceptions and perspectives in each aspect of the course, as well as to describe these differences, and explain the positive and negative effects of the respective perspectives on the elderly and their ageing process. The work of Grenier and Hanley (2007) was particularly useful in this regard.

Some background on Namibia

Namibia is a young nation that gained independence from colonial occupation in 1990. The country has a modern, democratic constitution; its protection of freedom of expression and freedom of the press is among the strongest in the world, and it has a hint of a welfare policy. Namibia is classified as an upper-middle-income country (World Bank 2015), but also ranks among the world's most economically unequal countries with a high ratio of absolute poverty. The country is large in area but sparsely populated. The population is estimated at 2.15 million people, approximately 85 per cent of whom are black and affiliated to 13 different African ethnic groups. Of the remaining population, about half (7 per cent) are of mixed origin and half are white Europeans or their descendants. This means that the country has a great mix of cultures, lifestyles and family patterns.

The majority of the population is very young, but population growth has levelled off and the birth rate is declining. In 2012, about 137 000 (6 per cent) of the total population (2.15 million) was over 60 years, which is the official retirement age and the age at which citizens are defined as elderly. The estimated total population for 2030 is 2.26 million, of which 190 500 (8.4 per cent) are expected to be elderly (60+), and for 2050, the projected total population is 2.15 million, with 300 300 (14 per cent) over 60 years (US Census Bureau 2015).

Namibia is one of the few countries in Africa in which a general social pension is paid to all citizens over sixty years. The amount is small but very significant for most pensioners. Public health care is free for the elderly, but apart from pensions and health care, there are no other public services for the elderly. Some municipalities do offer discounts to pensioners for electricity and water, but are under no legal obligation to do so. Some municipalities also have privately run retirement homes and other institutions for the elderly, but these are, for cultural and economic reasons, mainly requested by and available to a small number of people mainly from the mixed and white communities. For the large majority of Namibians, the day-to-day care of the elderly is seen as a family responsibility. However, family patterns and living arrangements have changed rapidly in recent decades, in response to urbanisation and the associated modernisation of the labour market and social life. Many elderly people suffer intractable problems as a result.

The aim and structure of the course

The course was designed to provide knowledge about theories of social gerontology relevant to social workers, nurses, and other professionals who have contact with, and provide services to, the elderly in Namibia. The

minimum academic entry level required for the course was a Bachelor of Arts degree or equivalent. All of the students who registered with us also had some direct contact with ageing and elderly-care issues in their professional work. The aim of the course was make students working in various occupations related to elderly care come together and discover new ways of thinking about their field of work.

As mentioned, we had realised that that, being from Sweden, our knowledge of social gerontology, at the levels of both theory and practice, was primarily relevant to our own contexts. By using a book from the USA we hoped to establish a platform from which both the lecturers and students could learn about the practice of social gerontology in the United States and compare this with their own contexts and experiences. Our assumption was that the students would bring their existing knowledge of their own culture with them, and that they would encounter new ideas through the course literature, as well as through the experience, knowledge and perspectives of their Swedish teachers.

The course was designed to include three assignments and three meetings at which the whole student group could discuss the assignment topics. Before the meetings, the first author received the students' work via email, entered into some discussion and reflection with each student and with the second author, and then emailed comments back to the students. The second author then met with all the students, one of whom had been asked to present their assignment for discussion by the group. The second author facilitated a discussion about the assignment, giving the group an opportunity to reflect on their own work. On the basis of the written feedback they received, as well as what they learned from the meetings, students were given an opportunity to revise their assignments and resubmit them for final assessment.

This course was delivered over 15 weeks at a relatively slow pace. Students were expected to work individually and in groups or pairs on different tasks. We strongly recommended that all groups or pairs arranged face-to-face meetings when working on assignments together. Successful students were awarded a diploma from Karlstad University.

The process was not without difficulties. Besides teaching the material, the lecturers had to make time to be taught by the students about their society and culture so that together we could find ways to integrate the theory with the conditions students faced in practice. However, knowledge and knowing are always culture and context dependent; this is especially true in social work and related fields, and so many of the challenges we faced were not unique to this course. Those in the caring professions often see themselves at the intersection of scholarly knowledge (that is based on research) and praxis-oriented and

tacit knowledge (that is based on professional experience); indeed, researchers involved in 'social care work' often have this double knowledge. However, cultural clashes and even conflict in a research–praxis–teaching context are common, and practitioners have to learn how to manage these.

In our approach, we were inspired by a social anthropological research model that is well known in Scandinavia and known as, 'Dig where you stand'. Inspired by Sven Lindqvist's (1978) handbook of the same name, which was written for industrial workers who wanted to research the history of their work and workplaces, the model is based on the idea that it is possible to find truth close to home.

The course begins

When we offered the course, eleven students enrolled. We had e-mail contact with the group as a whole, and also gave feedback to each individual via e-mail. All students were expected to work on their own to prepare for group meetings and to reflect on the recommended readings. Where a student's need for specific information became clear, lecturers sometimes recommended additional reading material. Throughout the course, students were required to reflect on whether and how the content of the course material transferred to their own cultures and social environments, and to the legislation and regulations pertaining to the care of the elderly in Namibia.

In an effort to prevent uncertainty or confusion from affecting student motivation or performance, all students were also encouraged to contact the course conveners for information or instructions. We expected students to demonstrate a genuine interest in their own work as well as in the work and participation of fellow students, since the course content generally focused on the students' chosen careers. For this reason, we often used group-oriented work methods as a pedagogical tool; here we were inspired by the work of Paolo Freire (1970/1996) who advocated consciousness-raising, and encouraged a reflective approach to knowledge, as well as peer-to-peer learning.

We wanted the students to meet at least three times to complete the different course components, and we allowed enough time enough for each student to deal with the individual or group assignments that were due between these meetings. Thus students were required to read course material and actively contribute to the student group, and to seek additional information related to other current research on ageing. The students were also asked to look for articles in the field of elderly care that captured their interest and related to current knowledge of aspects of ageing and being a senior in society. Readings that we often recommended to students included Heaphy (2007) and Russell (2007).

Throughout the course, the students were asked to keep two key perspectives in mind: i) the need to contribute to general knowledge production internationally; and ii) that national/cultural/local knowledge provides the basis for effective praxis. We pointed out that these perspectives were equally important. Following Shenk et al. (2001), our view was that the course conveners of an international course are responsible for providing basic information about the former, and for encouraging and equipping students to take responsibility for actively developing the latter, and to search for articles on both.

We expected each student to decide on an area of specialisation related to aspects of ageing and of relevance to their own professional development of the field as a whole. The learning outcomes were related to the three components described in the following sections. We also told the students that they all should remember that they were not alone in the learning process, but supported by instructors, literature, fellow students and the study guide.

Outcomes

Early in the course design process, we discussed what kind of 'results' we wanted, and how we would evaluate the course. We decided to use an outcomes-based approach, as this allowed us to include and assess aspects of learning such as self-reflection, attitudinal change and capacity building. We used this term in all planning and course-related documentation.[1] In this section, we outline the six intended learning outcomes and describe what students were required to do to achieve each one. At several points in the course process, we asked the students to describe how they understood the learning outcomes in relation to the tasks and assignments they were asked to complete.

We defined *learning outcomes 1 and 2* as, an ability to give an account of the social, socio-cultural, psychological and biological processes of ageing, and to demonstrate an understanding of how stereotypes, attitudes and discrimination based on age contribute to subjective experiences of old age.

The first meeting covered issues related to a basic knowledge of gerontology, social gerontology and its applications. Students had to study the first three chapters of Hooyman and Kiyak (2011) and list the issues that were most relevant to their own needs in relation to geriatric care. The students were also asked to reflect on ageing and its many multifaceted processes, including how stereotypes, attitudes and age-related discrimination affect elderly people and their self-image. The students then had to write a report on what they would like to know more about in the field of study covered by the next component of the course, and to prepare for a conversation they were required to have with an elderly person. The next step for the students was to prepare for a

face-to-face meeting with the rest of the study group at which their first assignment was discussed.

Learning outcomes 3 and 4 were defined as: an ability to communicate with the elderly based on the pedagogy of ageing, and an ability to reflect on how the conditions of ageing are created in meetings, routines and processes, as well as on the roles played by professionals in this process. In accordance with the study plan, we asked each student to read Chapters 5 to 8 in Hooyman and Kiyak (2011).

As a background to the second assignment, the students were asked to reflect on the demographics of development and change in the care of the elderly in their own vicinities and contexts and to compare this with the information provided in the prescribed literature.

In addition, each student had to carry out a field study, and interview an old person who was involved in an activity offered to the elderly in their own community or town. The aim here was to give students an opportunity to reflect on how the social care system works, and some insight into the ways in which the conditions of ageing are created via meetings, routines and processes that elderly people are involved in. In addition, students were expected to gain some skills related to conversation as a professional tool in the social care of the elderly.

Student experiences related to this task were then presented both orally and in writing. The written report was sent to the instructor. At the next group meeting, each student was given an opportunity to discuss their observations and their experiences of interviewing elderly people with their fellow-students and the instructor.

At the next course meeting the students were asked to do a role-play in pairs or groups, using students' prior experiences, talks with the elderly and to the theories presented in the course literature. The purpose of the role-play was to enact an experience of ageing, so as to provide an understanding of the ageing person's situation. Each student was also expected to refer to course material, the library and to the internet to seek current research.

Each group was asked to write a report on their role-play project, describing how their collaboration had informed the content of the role-play. The students were then asked to prepare a presentation on what they had learned for the next group seminar.

Learning outcomes 5 and 6 were defined as the ability to use current research on the elderly and on the ageing process to identify effective interventions at the individual, group and society level, and to relate a knowledge of demographic change to community planning.

The students' final assignment concerned identifying appropriate and current research material on a chosen theme.[2] Within this, students were also

expected to be able to relate their knowledge of demography and its effects on local planning, to caring for the elderly. Our aim was to ensure that, as future professionals, students would develop an awareness that their chosen field of work is informed by an ever-changing body of knowledge that is developing worldwide, and of the need to be willing to constantly update and critique their existing knowledge.

Examinations and course completion

On completing the third assignment, the students were invited to take a final examination. This took the form of an individual oral exam if practicable, and if not, a written exam. In both cases, the students were asked to document their reflections on the whole the course and draw up a presentation on one of the following topics:

- Information for a group of people considering working as 'paid care givers' to old people.
- Information for a group of politicians or government officials interested in old people, and wishing to create an 'elderly policy' for local or national implementation.

Here the assessment was designed to help the students reveal the knowledge they had acquired about theories of social gerontology and the application of these theories in the kinds of contexts they might face in their future careers. Our aim was also to help students develop their skills in addressing their peers and other important stakeholders.

Here, too, the students engaged strongly with the task at hand and coped well. Some proposed making slightly different presentations based on this course assignment, which they then used in their workplaces. One student told us after she had repeated her oral presentation at her place of work, some changes had been made and elderly care had improved. She was very proud.

Theory meets practice

The title of this chapter sums up our aim: it involves applying theory in a practical situation. As mentioned, the course was designed to help students understand how theory can be applied in practice. We reflected on this idea with students using James Dewey's thoughts on learning by doing (Dewey 1985/1997), as well as Paulo Freire's pedagogical idea about the need to make time for reflection and to develop an awareness of everyone's value and knowledge (Freire 1970/1996).

The students wrote interesting papers on different themes. Some of them carried out quite thorough research on the quality of life experienced by

elderly people from the perspective of Namibian culture. Others conducted interesting research on ageing in relation to the usual retirement age of sixty years in the context of the fact that many older Namibians are forced to continue working because any loss of income would make it impossible for them to survive. Others worked on the issue of violence perpetrated against elderly people by their next-of-kin and how difficult it is for elderly people to get help in such situations – cross-generational relations seem to be problematic for many elderly Namibians. As course convenors, we found it interesting to compare this reality to that in Sweden, where, historically, the elderly often had to endure problematic relations with their children, and reported feeling vulnerable and worthless when they had to stand back and allow their children to take over from them as managers of family-owned land or businesses.

Student feedback

Students were asked what they thought of the course. One of them responded as follows:

> I experienced the Scandinavian teaching and learning philosophy very different to get used to. It really is very different from the way we are tested in Africa, but I am impressed and appreciate it, because it is so much more positive and encouraging.
>
> I really had to work hard, but the information was interesting and even for me who had 17 years of experience in the field, learned a lot. It was definitely a great course!
>
> The assignments were not always clear and easy to understand, but challenged my knowledge and in the end I felt great about my own effort.
>
> I found the last assignment's article very valuable and used it many times since the course. I did a presentation at the Alzheimer and Dementia Support Group, as part of a group supervision [session] for social workers and a few other times with the care givers at the old age home [where I work]. I also used the information from the second assignment about the community for the management planning committee of the old age home where I also work. I think that the second assignment has all the potential to end in a Master's degree, with information on the whole country.
>
> It was essential and I needed to discuss the tasks with the group or individual group members. Although it also became a negative network of complaints for some of the members. It was also difficult to get everyone together for the meetings and sometimes we had to continue without members.

I am also passionate about gerontology for all the elderly people in the country; because the focus in Namibia is on the pre-modernised, ethnic elderly, ignoring the needs of the modernised older people and the gap between the groups is growing. In the group discussions we had the opportunity to talk and learn from one another. Gerontologists in Namibia still work in segregation with only the one or the other group. It is only me who works in both communities and is trying to build bridges.

The group support was also important and helped me to pace myself to follow through.

I am so curious about Sweden that my family is planning a holiday in December in Stockholm!

This was written by one of the most eager students on this course. She was very active and did a tremendous job in all assignments. Four other students were also very pleased with the course, a couple of whom plan to continue with doctoral studies in social gerontology.

As course convenors, we found ourselves very engaged in our students' learning. We learned a lot from them and found ourselves reflecting in new ways and on new themes related to ageing and social gerontology in both the Swedish and Namibian contexts. Running the course, and interacting with the students has given us new knowledge about elderly care, which we appreciate very much. We also obtained some good insights about how to design distance courses, and when one of the students asked why the course was not part of a master's programme, we were inspired to consider how to work together with students to further their studies.

Conclusion

The aim of our project was to see how a well-established concept in Swedish education (written study plans), in combination with theories of social gerontology developed for an American context, would translate into a Namibian context with students working in elderly care in Namibia. Our interest was in how different cultures can interact and contribute to a wider understanding of elderly people and their life situations, using social gerontology theory as a basis for discussion. The idea of learning through juxtaposing three cultures (Swedish teachers, Namibian students and American theories) seems to have worked well. The differences provoked thinking, and forced both teachers and students to examine their own assumptions and understandings of their own cultures and the situation of elderly people, in relation to other cultures. Judging from this experience, cross-cultural teaching and learning widens horizons and promotes learning for all those involved.

Because of the second author's experience of lecturing in Namibia, we were aware that, in our work at Karlstad University (in both face-to-face and distance courses), we have less formal relationships with students than most Namibian students are used to, as well as a different pedagogic base and assessment model. But, as we were giving the course on behalf of Karlstad University, and not in direct collaboration with the department at the University of Namibia, we decided to follow the pedagogic model that we thought best. We could see the risk in this, but thought that, by presenting the pedagogic method and the material well, we could make it work. Of course, there were moments of confusion for the students at the beginning, and some students chose to drop out, but by the end, the course had received a lot of positive feedback. In the process we, as teachers, learned much about course presentation, both via distance and face-to-face-methods. We also learned that it is important to stress issues of 'how' students are expected to learn and demonstrate their learning so as to avoid a potential clash in pedagogical systems for students who participate in international distance courses.

As lecturers, we will go on developing our teaching practice, as we have done for many years. But we learned a lot from our collaboration with each other and with the Namibian students. We hope to be part of interesting future collaborations and that this model might inspire the development of other courses through which different cultures meet one another. The sociology department at our university is already basing another collaboration with the University of Namibia on this example, so the course seems to have laid a basis for sustainable and mutually beneficial collaboration between our two institutions.

Notes

1 The technical method for evaluating these outcomes was a semi-structured questionnaire responded to by students after the formal examination, plus contact that one of the co-authors had with students when he visited Namibia for other reasons.

2 The themes were proposed by the course convenors and included: life quality and ageing; love, sexuality and ageing; death in old age; next-of-kin perspectives; violence between close relations; ageing and cross-generational relations; ageing and work.

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Chapter 10

The Consortium of New Southern African Medical Schools: A new South–South–North network

Quentin Eichbaum, Marius Hedimbi, Kasonde Bowa, Celso Belo, Keikantse Matlhagela, Ludo Badlanga, Peter Nyarango and Olli Vainio

Africa bears 24 per cent of the world's burden of disease but harbours only 3 per cent of its health workers. The shortfall of health workers extends beyond Africa however, and the World Health Organisation (WHO) estimates the global shortage to be 4.3 million (quoted in Crisp 2010). It has been suggested that even the United States will experience a physician shortage within the next 10 to 15 years.[1] In Africa, the HIV and AIDS pandemics and the 'brain drain' have further aggravated the problem. How to increase the size of the health-care workforce is therefore an ongoing conundrum preoccupying governments and health agencies across continents.

At the 2011 conference of the Association of American Medical Colleges, Jim Yong Kim, president of the World Bank Group and co-founder of Partners in Health, gave two reasons why he believed that medical schools should provide the innovative momentum in global health. First, he argued that medical schools provide the locations, infrastructure and resources for the training of physicians and health workers, so interventions at this level are most likely to affect medical practice 'downstream'. Second, medical schools are located in universities, and are thus in a position to co-opt a wide range of additional disciplines to ensure a more comprehensive delivery of health care.

A new consortium emerges

The (US) President's Emergency Plan for AIDS Relief (PEPFAR) seems to have staked its bets on the African continent's medical schools. Since the establishment of the Medical Education Partnership Initiative (MEPI) in 2010, PEPFAR has focused on medical education and training as a path to capacitating and retaining health workers in Africa. However, the US$133 million that MEPI disbursed in 2010 to 13 African medical

schools attracted some criticism. Although modest by American standards, the award was sizeable in the African context, and several medical schools felt excluded from the initiative. This was particularly the case among the newer schools, several of which were floundering with inadequate funding, scarce resources and uncertainty regarding their sustainability. Eichbaum et al. (2012) suggested that dividing the funding cake more equitably, and giving smaller awards to more schools might have been more effective in enhancing the capacities of a wider range of schools.

Since its inception, however, MEPI has instructed its member schools to create 'networks, alliances and consortia' with other medical schools and health agencies. This approach to strengthening alliances within the health sector was also advocated in Frenk et al.'s landmark article on global health education, published in *The Lancet* in 2010. In accordance with this, MEPI subsequently created partnerships with the University of Zambia, Ibadan University in Nigeria, Addis Ababa University in Ethiopia, and with a consortium of five medical schools in Uganda known as MESAU (Medical Education for Equitable Services to All Ugandans).

Nonetheless, medical schools outside of this MEPI network still felt impelled to establish their own collaborative networks. With facilitating Northern partners in the US and Finland, the Consortium of New Southern African Medical Schools (CONSAMS), emerged, with the aim of supporting one another through South–South and North–South collaborations, as well as by sharing resources and innovations (Eichbaum et al. 2015). The founding members of CONSAMS were the University of Namibia, Copperbelt University (in Zambia), the University of Botswana, Lurio University (in Mozambique), the Medical School of Lesotho, Oulu University (in Finland) and Vanderbilt University (in the USA). Two additional medical schools subsequently joined: Masinde Muliro University in Kenya and the Catholic University in Mozambique. CONSAMS's educational niche comprises medical schools that are less than five years old at the time of joining (Eichbaum et al. 2014, 2015).

The Northern partners provide guidance in the form of:

- Staff training (including via academic exchanges).
- Access to better-developed research infrastructure through collaborative research projects.
- Links to other international organisations and resources.
- Raised visibility through joint publications and presentations at research conferences.
- Training for research staff and administrators.
- Assistance with research-grant applications (Eichbaum et al. 2014).

One way in which Northern partners stand to benefit is through 'reverse innovation', whereby innovations developed in low-resource settings are efficiently adopted in the high-resource settings of the global North, as Crisp eloquently describes in his book *Turning the World Upside Down* (2010). All partners stand to benefit through joint grant applications and research projects.

In these ways, the network is envisioned as cultivating equal bi-directional relationships in which all partners benefit mutually, rather than 'neo-colonialist' relations in which the Northern (high-income) countries 'help' or exploit the Southern (low/middle-income) states.

CONSAMS plans to expand to include most of the new medical schools within the southern African region, and ultimately, to include new medical schools across the entire African continent, via the Consortium of New African Medical Schools (CONAMS) (Eichbaum et al. 2015). However, this expansion is being hampered by the lack of funding necessary to support and sustain a larger number of members.

The educational context

Frenk et al. (2010) have suggested that medical education is experiencing 'a slow burning crisis' and is in urgent need of innovation. They ascribe this to the explosive growth in medical knowledge, rapid globalisation, and shifting patterns of migration and disease, which have left the older medical schools with their standardised curricula struggling to keep up. They went on to propose critical reforms in global health education that are significant for the new schools – such as those in CONSAMS – presenting a strong argument for the establishment and promotion of new medical schools. New schools, they argue, have the potential to be more agile in adapting to 'rapidly changing local conditions drawing on global resources' than established schools, which may be 'encumbered by curricular rigidities, professional silos, static pedagogy [and] insufficient adaptation to local contexts' (Frenk et al. 2010: 8).

As Bleakley et al. (2011) cautioned, medical educational strategies should not be cooked up in Western universities and then exported, without taking into account needs of local populations and environmental contexts. They recommended that curricula and education strategies be context specific, fit for purpose, and formulated 'in the heat of practice' (Bleakley et al. 2011: 179).

Educational strategies

Community-based education at the University of Namibia School of Medicine

CONSAMS's approach has been to work towards formulating medical competencies for African medical schools from within this 'heat of practice'. An example of this approach is being piloted at the University of Namibia School of Medicine (UNAMSOM). Students translocate for some months to semi-urban areas or to rural areas in the north of the country, where they live among local families and learn about people's lifestyles, diets and medical issues. The students also work day shifts at local clinics. This form of training is referred to as community-based education and service, and is compulsory for all medical students from first to the fourth year of their studies. During these community placements, students are exposed to families at household level to facilitate their understanding of the socio-economic and cultural determinants of health.

In particular, students are expected to gain insight into health-seeking behaviours, levels of access to, and demand for, health services, as well as the cultural determinants relating to income disposal and the proportion of income allocated to health. After initially living with families for several weeks, students then continue to visit the families weekly over a period of 24 months to discuss and observe health-seeking behaviours. The health of pregnant women, and of children, is monitored and discussed, as are chronic diseases among the elderly. The role of family members in assessing and analysing their own health problems is emphasised, and attention is paid to how they allocate resources to health. Getting to know families so well gives students opportunities to observe some of the root causes of health problems and to suggest interventions to improve the health of the family. Working in this way, students are able to gain an understanding of the country's health-care challenges, and the kinds of competencies required to work in rural contexts. Community-based education and service encourages transformative learning and aims to produce the kinds of enlightened change agents that are essential for health-care advocacy and for strengthening the health sector (Crisp 2010). The application of this programme has the potential to transform individual students, but also families and communities, making them all better informed, more self-reliant and more empowered.

Transporting students to their community-based placements is expensive and places enormous strain on the limited resources of an emerging school of medicine such as UNAMSOM. To alleviate this, the university teamed up with the University of Oulu, Finland, resulting in UNAMSOM receiving two 13-seater buses and a sedan to facilitate the transportation of students during their community placements.

Transformative learning and transprofessional education at Lurio University

Frenk et al. (2010: 11) argued that the goals of strengthening health-care and capacity building in resource-limited settings should be guided by two outcomes, namely: 'interdependence' and 'transformative learning'. Instead of struggling in isolation, medical schools should strive for 'interdependence' with one another, and work together collaboratively in 'networks, alliances and consortia' (such as those created by MEPI, MESAU and CONSAMS). They also advocated 'transformative learning' that would be able to produce the 'enlightened change agents' necessary to strengthen the health-care sector (Frenk et al. 2010: 6).

One example of transformative learning is the 'One-Student-One-Family' programme created by CONSAMS partner, Universidade de Lurio (UniLurio), in Mozambique. Students in this programme are each paired with a particular family in a rural community for the duration of their medical degree. As in Namibia, students initially live with families for several weeks and then continue to visit the families every few weeks to discuss their health issues. This allows the students to serve as a family's health advocate and gain a deeper understanding of the issues affecting their health. The main aims of the initiative are to:

- Give students the opportunity to learn how to build a 'case study' as a practice in the teaching and learning process.
- Encourage lecturers to design innovative curricula that can address the problems that contribute to underdevelopment.
- Allow lecturers and students to pursue relevant research for community development.

This offers students opportunities to learn how to work with communities and alongside ancillary health workers within the health-care system. The mutual learning and relationship of deep trust that develops between students and families is transformative, and strengthens the delivery of health care. Throughout the process, students are encouraged to conduct research that contributes to improving the well-being of families, and to enhancing community development.

This programme also includes community health workers and represents an example of 'transprofessional education'. That is, workers outside the health professions, such as community workers, traditional healers, volunteers, and possibly even lawyers and entrepreneurs, are also encouraged to contribute to the delivery of health services where appropriate (Frenk et al. 2010). The inclusion of these other sectors and professions is aimed at strengthening health care, and is particularly effective in settings where resources are limited.

Distance learning and virtual microscopy

With the help of MEPI funding, the medicine faculty at the University of Botswana developed a simulation laboratory for training and service provision. Another MEPI-supported project is the mobile-learning project through which academic staff and students are provided with android tablets to access teaching, learning and clinical resources, especially when at off-campus teaching sites. Each device comes pre-configured and loaded with a robust collection of medical applications (for example, Epocrates, Medscape, uCentral, and PubMed mobile), research databases (including EBSCOhost), as well as various health-care guidelines and protocols specific to Botswana.

Linked to this, a CONSAMS project was established that involves the Universities of Botswana and Namibia and Copperbelt University acquiring virtual microscopy software from the University of Alabama (UAB). UAB and Vanderbilt University, both in the US, also provided a trainer who trained African academics and students to use the software. Virtual microscopy substantially reduces infrastructure costs and faculty time, thereby freeing these resources for other projects. The software is used extensively by pathology and anatomy students. Since all students now evaluate the same digital histological images, slide-to-slide variability is eliminated, thus enhancing and ensuring standardised learning. The incorporation of digital slides in medical training also enhances interaction between faculty and students and facilitates classroom discussions. This project highlights the benefits of the South–South and North–South relationships forged by CONSAMS. It also demonstrates the kinds of roles that established Northern universities can play in the teaching and delivery of health care in new Southern medical schools (Eichbaum et al. 2014, 2015).

Innovative admissions policies

The global shortage of health workers raises questions about medical school admissions policies. Are current policies equitable? Are they aligned to increasing the number of health professionals? Do they lead to physician retention or do they aggravate 'brain drain'? Traditional admissions policies in medical schools are based mostly on 'merit'. This often places applicants from rural areas, who tend to have less access to education, at a competitive disadvantage. Ultimately, these policies have also resulted in rural areas suffering a deficiency of health workers since students from urban areas are less likely to choose to practise in rural settings. Conversely, students from rural areas are known to have a greater tendency return to practise in those areas (see Strasser and Lanphear 2008; Wilson et al. 2009). Evidence from a number of countries demonstrates that medical students from rural areas tend

to subsequently practise in rural areas (De Vries and Reid 2003; Laven and Wilkinson 2003; Playford et al. 2006; Rabinowitz 1993).

UNAMSOM has attempted to solve this problem by introducing an innovative quota system, whereby each region of Namibia is allocated a quota of student admission slots. This admissions policy seems to be enhancing physician retention in rural areas. However, effective medical practice in rural settings does not necessarily require fully qualified medical specialists (who may require over a decade of training). Horrocks et al. (2002) have argued that nurses working in primary care can provide care virtually equivalent to that provided by doctors, and can be trained in half the time and at half the cost. In fact, they state that, in countries such as Namibia and Mozambique, nurses and 'medical officers' (who receive a similar level of training as physician assistants in the United States), provide appropriate (and often excellent) care to patients at a level virtually equivalent to physicians (Horrocks et al. 2002).

A thorny issue linked to this has been how wide to open the doors of the medical schools. Eichbaum et al. (2010) describe a potential model (in the United States) in which candidates are initially admitted as 'pluripotential' students. These students initially engage in self-paced learning through various online modalities before 'differentiating', through competency-based apprenticeships, into more specific career paths – choosing to become physicians, nurses/nurse practitioners, physician assistants, case managers or health administrators, etc.

Aspects of this model may be feasible for new African medical schools as well. The prodigious availability of online and distance learning – via massive open online courses for example (especially those that have self-assessment tools, such as the Kahn Academy, NextGenU and Coursera) – means that the teaching of medicine can extend beyond the classroom to allow also for self-directed learning. This has the potential to free up some lecturing staff and allows students to engage in a wider range of courses or to seek ancillary learning. The availability of such open-access and distance-learning modalities may also serve to attenuate regional 'brain drain'. In this regard, Jamison et al. (2013) have drawn attention to the role of open-access learning resources for professional development, and to the power of information technology for worldwide learning, including distance learning. The CONSAMS schools are therefore exploring broadband internet connectivity and, in some schools, iPads are being used to facilitate online learning.

The conundrum of 'standards' and 'standardisation'

Discussions about admitting larger numbers of students to medical schools inevitably lead to concerns about 'standards'. Many question whether it is

possible to ensure that health-care workers that are educated via distance learning will be adequately trained as well as motivated and mature enough to treat patients. Experience from Namibia's 'quota-based' system of admissions and their effective use of both medical officers and nurses in rural settings suggests that such innovations are feasible and can strengthen health systems.

The standardisation of accreditation is another major debate in global medical education. The accreditation standards developed over decades in the US and Europe might not be feasible, or even appropriate, in African and other contexts, given varying epidemiological patterns, education systems and socioeconomic profiles. As Bleakley et al. (2011: 181) stated, 'At its extreme, this emphasis on standardizing risks echoing the homogenizing process of Western-inspired "McDonaldisation". In this case, however, what is being traded in the global marketplace is knowledge rather than hamburgers.'

We believe that African medical schools should largely develop their own context-appropriate standards of accreditation. Bleakley et al. (2011) draw attention to the nervousness about not being seen to conform to Western educational imperatives that permeates medical institutes in some low-to-middle income countries and drives them to seek US and European standards of accreditation. However, while the exporting of US medical education and accreditation systems to Middle Eastern and South Asian countries (such as Qatar, Oman, Malaysia and Singapore) has become a source of revenue for some American universities, this is not a model that CONSAMS favours. Instead, CONSAMS has established a network of 'external examiners' who form part of a regional committee that is tasked with developing accreditation standards appropriate to the region.

Standardisation also has implications for health worker retention, which is a major issue for many African countries. In other words, by making it easier for African health workers to practise in other countries, standardisation has the potential to aggravate the 'brain drain'. According to De Vries and Reid (2003), one of the reasons health workers give for leaving Africa is that their medical training is often disconnected from the realities they face in practice. Other reasons include the isolation they experience (especially in rural settings), and the lack of essential medical services and specialised support. The collaboration and sharing of resources, combined with the promotion of inter- (and trans-) professional programmes in CONSAMS, alleviates some of these problems. For example, the University of Oulu in Finland has developed several capacity-building and inter-professional education programmes (I-STEP, NEXT-STEP, MEDUNAM I and MEDUNAM II) with UNAMSOM, UniLurio and Copperbelt University. These programmes involve innovative pedagogies aimed at students in medicine, nursing,

pharmacy, public health and optometry, the ultimate goal of which is to improve the quality and accessibility of health care within communities. Judging from our experience, CONSAMS's collaborative networks reportedly help health workers to feel better connected with their peers and colleagues, and so might ultimately also contribute to retention.

Developing research infrastructure

The need for context-specific education also extends to the training of scientific and medical researchers. Currently, very little of the world's biomedical research is conducted in regions that bear the highest burden of disease. Resnick (2004) described this as a '90/10 divide', noting that less than 10 per cent of the world's biomedical research funds are dedicated to addressing problems that are responsible for 90 per cent of the world's burden of disease. Physicians and researchers in African countries might well experience a greater sense of connectedness and commitment to their work if solutions to health-related challenges that they face daily were to be addressed through relevant research conducted in their own contexts.

In alignment with MEPI's aim to develop 'regionally relevant research' (Mullan et al. 2012), one of CONSAMS's major goals is to enhance the research capacity of its partners. All the CONSAMS schools have stressed the importance of conducting relevant research, including on the major infectious diseases (namely, HIV, TB, and malaria), for which grant funding and American or European collaborators are available. However, research on emerging non-communicable diseases, as well as on diseases affecting local livestock and wildlife, are also relevant and deserve attention.

While some of the newer medical schools have state-of-the-art research facilities (UNAMSOM being one example), others lack the basic research infrastructure. This applies not only to a lack of laboratory space and equipment but also to administrative capacities, such as research review committees and research-grant offices that could help to manage the complexities of grants funding. Even more critical, is the inability to access research funding. This is often linked to a lack of expertise in writing grant applications and securing the necessary research partners. The Northern partners within CONSAMS are playing an important role here, assisting with the writing of grant applications and facilitating research collaborations.

A further challenge in situations where resources are sparse is that academics are often overburdened with administrative and teaching duties, and have little time for research. The shortage of postgraduate research programmes in some African universities is also not conducive to the expansion of research capacity, and means that few students even consider

pursuing a career in research. Some of the older medical schools such as those in South Africa, and at Makerere University in Uganda, have relatively strong research capacities, but the newer medical schools struggle to attract researchers and postgraduate students. This is even the case at UNAMSOM, which does have appealing research facilities. CONSAMS's clear focus on enhancing research capacity will need to remain in place for as long as these kinds of challenges persist.

Conclusion

New medical schools in Africa enjoy some unique opportunities, but they face many daunting challenges. Working with others in networks, alliances and consortia such as CONSAMS offers newer medical schools an effective path towards strengthening health-care provision by enhancing staff training, facilitating relevant and locally based research, as well as encouraging professionals to remain in, and be committed to, the development of health-care infrastructure in their own areas.

Note

1 This point was made by a keynote speaker at the 2011 conference of the Association of American Medical Colleges.

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Chapter 11

International collaboration for pedagogical innovation: Understanding multiracial interaction through a time-geographic appraisal

P Assmo and R Fox

We live in an increasingly global world. Technical innovations and improved infrastructure enable people to interact and work on a wider scale than ever before. Key changes relevant to the academic landscape are the increasing internationalisation of both students and academic staff, as well as the spread of web-based learning. These changes demand the development of pedagogical research and practices that provide high-quality learning and impart the analytical understandings and skills now needed by students.

In an effort to develop such practices, Linköping University in Sweden and Rhodes University in South Africa are participating in a Linnaeus–Palme student/staff-exchange programme. The programme's overall goal is to establish self-sustaining educational collaborations between the two universities that enhance understanding, knowledge and openness between and within our different cultures and regions. Research collaborations between the two institutions are integral to this process. The study described in this chapter is an outcome of one such collaboration.[1] Although this chapter focuses on work done in South Africa, a parallel study is ongoing at Högskolan Väst in Sweden, and our intention is to produce comparative empirical material that can be used to encourage similar international collaborative initiatives elsewhere. It is our hope that students in international higher education environments will build on the approach outlined in this chapter to help them identify various patterns relevant to cultural diversity, and analyse their implications to gain a better understanding of a range of issues, including the impact of globalisation.

In this chapter, we describe how students at Rhodes University were taught to use internet resources and a time-geography approach to deepen their understanding and ability to analyse their own activities in the city of

Grahamstown, where the university is located. Time geography or time-space geography originated in Sweden, and has rarely been used in Africa. A multidisciplinary approach, time geography enables researchers to analyse interactions in time and space.

In the contemporary world, a particular point of interest and concern is the degree of separation within and between urban and rural areas, as well as within and between countries. In South Africa, the spatial polarisation of people along cultural and racial lines was particularly stark under apartheid, and it remains highly visible despite attempts to redress the injustices of the past. However, post-apartheid spaces and structures are gradually starting to exhibit new patterns that reflect the changing constraints and opportunities that South Africans now experience. Given Grahamstown's diverse blend of students, many of whom were born just after apartheid was abolished, this small city was seen as an interesting starting point from which to begin a time-geography study of post-apartheid society. Our central question was what a time-geography perspective could reveal about multiracialism and segregation in Grahamstown twenty years after the end of apartheid.

Another issue that is relevant for Grahamstown, and globally, is studentification. Work done in the United Kingdom for example, shows how the urban structure of university towns has become increasingly studentified as the numbers of students in higher education institutions have expanded in this neo-liberalist era (Hubbard 2008; Smith 2002; Smith and Hubbard 2014).

To begin to explore these questions within a time-geography framework, we worked with students in the geography department at Rhodes University, where we both teach from time to time. Second-year students majoring in geography at the university take a semester-long course called 'Space and Place in Southern Africa'. The aim of the course is for students to gain an understanding of rural and urban landscapes in southern Africa through selected human and physical geographical perspectives. With this understanding of geography as a basic scaffold, students are then introduced to problems of environmental change and human development. For the 2014 course, we used time geography as the perspective through which we would develop the students' analytical understandings of space and place. As will be explained in this chapter, our aim was to introduce and use a time-geographic appraisal to enable the students to describe and analyse how and why people's daily lives are influenced by authority and coupling constraints, through the creation of pockets of local order. We developed and applied a web-based tool that allowed students to monitor and analyse their own patterns of activity and movement within the city. We then analysed this data, alongside data from South Africa's 2011 population census, and the

students' own perceptions of the city, to reveal patterns of multiracialism and studentification in Grahamstown.

The time-geography framework

Before presenting further details of the study, we offer a brief introduction to time geography.

Most of us can agree that developing a deep understanding and analysis of people's activities requires studies that begin at the local level. However, local studies often take a rather narrow and conventional approach, focusing on specific environmental, social or economic phenomena to the exclusion of others. Several studies of post-apartheid South African cities follow this trend (see for example, Barchiesi 2004; Freund 2010; Tomlinson et al. 2003).

Torsten Hägerstrand (1970, 1974, 1985), the founder of time geography, was critical of this approach. He argued that it simply divides complex realities into smaller entities, creating a hierarchic view of the world that is based on scale, and offers little more than a set of context-less categorisations that largely ignore why people think and act as they do in the everyday world. Hägerstrand's concept of time geography advocates a local focus on individual people's daily livelihoods, with all their constraints and opportunities, and offers an important alternative starting point for analysis. Inspired by Hägerstrand's approach, we opted to focus on our students, and on their specific time and spatial contexts.

Hägerstrand also stressed the importance of a contextual 'all-embracing' perspective, however, arguing that the world can be viewed in terms of pockets that contain assortments of beings and processes that share a common existence in space and in time. Time geography therefore attempts to provide a platform from which it is possible to observe and describe certain elements of reality, without losing touch with the total context (Krantz 2006; Lenntorp 1999; Thrift 2005).

The basic notion in time geography is the co-existence of time and space. The literal meaning of the phrase 'taking place' points to the power of processes that are occurring in a physical space for a specific period of time (Hägerstrand 1974, 1991; Lenntorp 1999). From this perspective, human utilisation of the physical world (which includes the socio-cultural and mental dimensions of this usage) is the primary focus. The meaning of space is thus seen as primarily physical, even if it extends from the meaning of place. That is, all individuals are perceived as having goals and projects, which they enact using physical and cultural resources available to them in a specific time and spatial context. These resources are then analysed as constraints that have the potential to determine human actions and experiences.

Somewhat simplistically, the human time-space context can be described as consisting of three worlds from which people are not seen in isolation or as separate, but are rather understood as an integral part (Hägerstrand 1974, 1993). Hägerstrand's idea of these three mutually connected and interdependent worlds can be conceptualised as a drama in which we all take part; the drama includes *actors or people*, the *role/s* we play, and the *scene* or places in which we act (Lenntorp 1999, 2004). Within this framework:

- *People* are seen as actors who perform activities in space and time. However, the reasons why people do certain activities in particular ways cannot be directly observed since their thoughts, expectations, aims and experiences are not transparent.
- How and why people act in certain ways is understood as deriving primarily from the *role/s* they play. To some extent, one can say that the way people play their role/s is connected to culture, values, rules, institutional frameworks, and power relations, which are related to a particular time-space pocket.
- *Scenes* are understood as including all the actors and all physical objects in a space. Apart from the natural environment (such as land, soil, lakes, rivers, groundwater, mountains and minerals) the scene incorporates all the physical features that people make (such as buildings, roads, machines, tools).

In the analytical process, the basic aim is to integrate these three worlds or dimensions, or at least try to separate them as little as possible, since they are, in practice, highly interdependent and largely inseparable (Hägerstrand 1985; Krantz 2006; Lenntorp 1999). Hence, a classical time-geographical perspective is not really subject specific in the conventional academic sense, but rather a way of connecting and relating different complex integrated elements that describe reality. In this way, a time-geographical perspective provides an alternative structure for development thinking, and attempts to consolidate the spatial and temporal perspectives of different academic disciplines into a more concrete analytical platform in which all elements play a role (Åquist 1992; Ellegård and Wihlborg 2001; Krantz 2006; Lenntorp 1999).

Depending on interest and focus, the time-space platform enables researchers to focus on certain components without losing touch with the overall complexity of reality. In later sections of the chapter, we show how we traced the patterns that our students produced in space and time, and used questionnaires to help us understand their constraints and their connectedness to the scenes in which they play their roles. We portray the scene later in the chapter, using maps that reveal some of the backdrop to their activities.

Pockets of local order

Hägerstrand's classical time-geography concept has been criticised for being more descriptive than analytical (Giddens 1984, 1989). However, it can be argued that Hägerstrand's concept of 'pockets of local order' facilitates a structured analysis of human action (in time) and in a certain environment (place) in relation to various forms of constraints and power relations (Hägerstrand 1985). A pocket of local order can be defined as a distinct time-space in which actors form or produce a specific order to conduct specific projects. Activities conducted within a pocket of local order often define and reproduce that order. Thus, the concept aims to capture the interplay between actors and scenes so as to enhance analyses of local practices (Assmo and Wihlborg 2010, 2012; Ellegård and Vilhelmson 2004; Hägerstrand 1993). In other words, a pocket of local order, as an analytical concept, focuses on social order, but is based on, and formed in relation to, physical preconditions and the relevant actors' mental interpretations.

The concept also encompasses the notion that the aims and ambitions of local actors cannot be realised without resources, and that the arrangement and management of locally available resources are often experienced as constraints that lay the basis for specific kinds of order within a given time-space pocket. Analysing a pocket of local order therefore embraces the interplay of both the natural resources, as well as all the technical, social and mental arrangements of those resources, and the constraints that surround them, thus facilitating a more comprehensive investigation.

Our students examined their own time-geographies in relation to Grahamstown's apartheid and post-apartheid urban structure. Their work showed that they inhabit, produce, and reproduce particular pockets of local order in the town. The university campus, neighbouring suburbs and the central business district all include pockets of local order that are structured through various forms of constraints.

Constraints

A central concept related to resource management in pockets of local order is that of *constraints*. Hägerstrand identified three main forms of constraint that affect people's possibilities for action in a given time-space context, namely: capacity constraints, coupling constraints, and authority constraints. Capacity constraints focus on individual capacities; coupling restrictions refer to everything that limits individuals' relations with other people and with physical artefacts. Both capacity and coupling constraints tend to be biological, mental, intellectual, and spatial in character. Authority constraints include everything that has the power to steer an actor's actions and thereby

limit their space to act. Although primarily expressed through laws and regulations (as enacted by formal institutions), authority constraints also operate informally through discourses, norms and cultural attitudes and values systems (Ellegård and Nordell 1997; Hägerstrand 1985, 1993).

In short, how people respond to constraints and opportunities depends on the physical resources, economic structures, social institutions and cultural values of a particular society (Assmo and Wihlborg 2007). Thus, a time-geography analysis, focusing on constraints in a pocket of local order, seemed an ideal approach for exploring multiracialism and segregation among students in Grahamstown twenty years after the end of apartheid.

The Grahamstown case study

As noted, our overall aim was to develop the students' analytical understanding of space and place. Adopting a time-geography approach allowed us to test the model's applicability and usefulness in analysing inter-racial interactions among students in a post-apartheid city.

At the start of the study, we asked students to complete a questionnaire that was designed to help us reveal some of the basic constraints on their activities. We asked questions about their ethnic and gender identities, their parents' incomes, their modes of transport, etc. A review of their responses revealed that of the 53 students who participated in the study, approximately 29 per cent self-identify as black African or coloured, 68 per cent were white, and 3 per cent were Indian.[2] The gender ratio was about 60 per cent female and 40 per cent male, with a similar distribution across the different ethnic groups. These patterns are typical for the institution's student body. Not surprisingly, the majority of students (47 in all) were South African citizens: four were from adjacent southern African countries and two were from countries outside Africa.

In response to questions about transport, 38 students listed walking as their dominant transport method when at university. Significantly, all of the African students walked. Six students indicated that they walk and use a private car, while a further six said they use private cars only. Of those who used cars exclusively, four were white and two were coloured. In addition, two students cycled and one used a motorbike; all three of these students were white males.

A follow-up question asked participants what methods of transport they had access to. In response, 24 said that they either owned or had access to a private car. Of these students, 18 were white, two were coloured and two were Indian. Four had access to motorbikes and one to a bicycle: all were white students. It is significant that none of the African students had access to private cars: this triangulates with responses to the previous question.

Most participants noted that their parents' incomes were above the South African average.[3] Thirty-one said their parents' income was higher or much higher than average, and only eight said that their parents' income was lower or much lower than average; 40 indicated that both of their parents were employed, predominantly in professional, managerial and commercial occupations. Just 11 students had one employed parent and two had no parents.

Roughly a quarter of the students lived in private rented accommodation: of these, 12 were white, one was black and one was Indian. Three lived in their parents' or guardians' homes in Grahamstown, and all of the other students lived in university residences on the campus.

Mapping activities in space and time

Students participated in a set of practical exercises in which they used Google Drive to collect and map their own activities with reference to the spaces and places they occupy in Grahamstown. At the end of this process they completed questionnaires in which they reflected on the identity of Grahamstown, and on their own knowledge of the city. They then wrote brief summaries of their own experience of Grahamstown and connectedness to its various places.

Racial mosaic

The race spaces of Grahamstown were mapped using the segregated group areas as defined during the apartheid era. This was overlaid with detailed information available from the 2011 national census in which data about the population of Grahamstown was collected using South Africa's standard race categories. The census data shows where middle- and upper-class multiracial areas are located and where lower class single-race areas persist.

We extracted the data at the smallest geographical resolution: the small area layer. This gave us 115 small areas with approximately 500 persons in each. These data were then saved as spreadsheets and combined, by the students, with the small area census tracts for Grahamstown that we also extracted from the census databases. Next we traced the daily activities of a multiracial group of students as they navigated through the racial mosaic revealed by the data.

Time-space diaries

We dispensed with the diary often used in studies that adopt the time-geography approach. Instead, we asked students to photograph each place (station) they visited over a 24-hour period. They then geo-referenced each place so that their movements could be mapped using Fusion Tables in Google Drive. The students then edited their Fusion Tables to indicate the types of places they visited and modes of transport used.

Sense of place questionnaire

Students completed a second questionnaire at the end of the course, once they were familiar with their own spatial activity patterns and the city's racial mosaic as revealed by census data. In responding to this questionnaire students were encouraged to use their own words to indicate what it was that attracted them to or repelled them from different parts of the city. That is, they were asked which areas or suburbs they liked or felt a good connection with and which they disliked or felt a negative connection with. In addition, students were asked whether they see Grahamstown as having a strong identity and to identify factors that they perceived as affecting this identity.

Student feedback

Four weeks after the students had completed their work, they were given feedback showing what their data revealed about their activities in Grahamstown's race space. The information was presented in a sequence of slides, giving an overview of the practical activities followed by maps and word clouds representing the results. The students were then asked to write a short summary of what they had learned from the study.

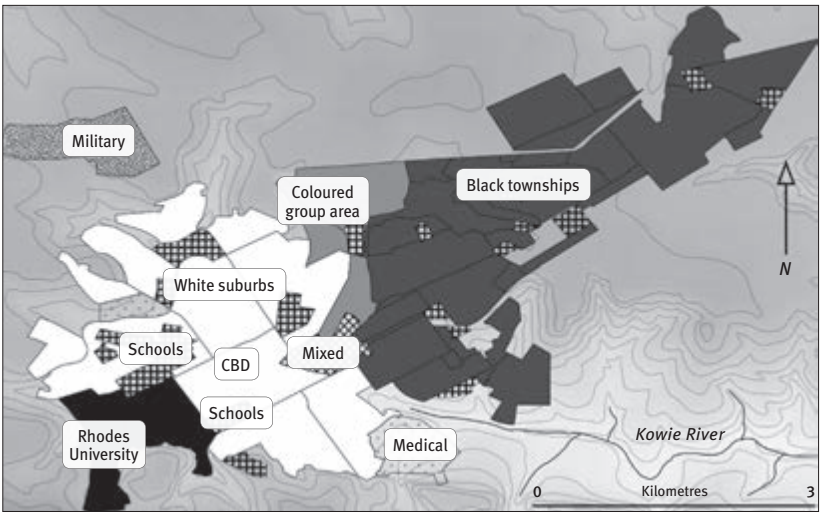
Results

A map of Grahamstown, showing the layout of land classes, clearly shows the physical segregation between different groups and land uses (Figure 11.1).

Grahamstown lies at the head of the Kowie River Valley. The university is at the extreme south-western limit of the city and near the headwaters of the river system. To the south and west of the campus lie steep hills that have acted as a barrier to development and expansion. To the north and east of the university lie the city's middle-class suburbs and central business district, both of which were zoned as white during apartheid. This area also embraces five large schools and two medical institutions. The eastern side of the city includes the areas formerly designated as black and coloured group areas. These areas were physically separated from the more affluent white suburbs by buffer zones comprising the railway line and the associated industrial area as well as the river valley. Since the mid 1990s, the so-called coloured and black communities have spread eastwards away from the city centre and the university campus.

It is important to note that Hägerstand's concept of pockets of local order can be applied to the segregated nature of the city under apartheid. Imagine the city as composed of separate pieces of a jigsaw puzzle, each containing a different function and/or race group, and each a distinct pocket of local order. The university campus, for example, was where the overwhelming majority of

Figure 11.1 Relief and layout of land classes, Grahamstown



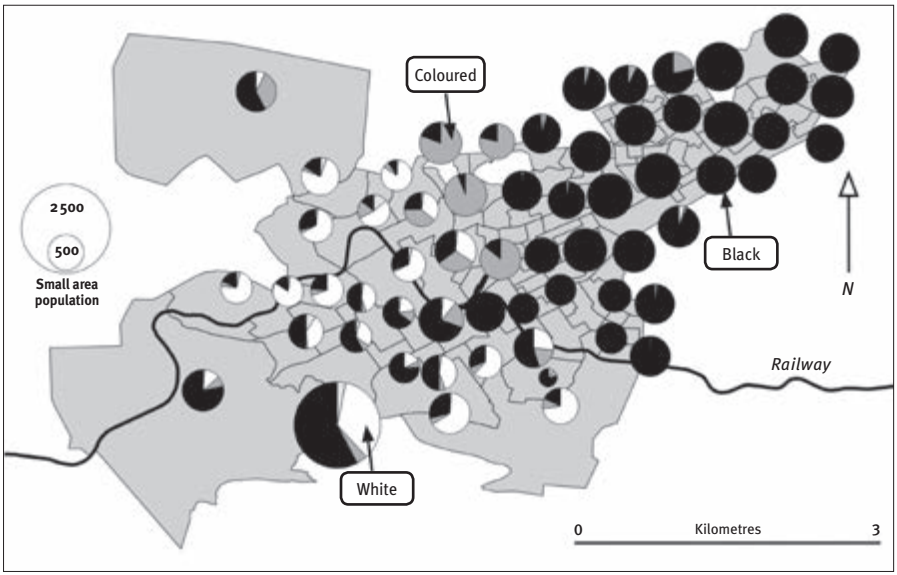
the students lived and studied up to 1994: coupling and authority constraints kept them there. Later we show how this area had changed by 2014 as the constraints changed and as the global drive to increase access to higher education has swollen student numbers.

Figure 11.2 reveals the racial distribution of Grahamstown according to the 2011 national census (Stats SA 2012). There is a very marked gradient from south-west to north-east. The south-western areas of the city are now racially mixed, and stretch from the university campus north-eastwards through the suburbs and central business district. Beyond the railway line, and on the far side of the river valley, the areas become noticeably segregated, and are dominated by either coloured or African people.

When students monitored their movements and activities in time and space for a 24-hour period, starting in the morning, their typical daily pattern included the following:

- Digs/res/home
- Bar/cafe/restaurant
- Lecture/practical/office
- Bar/cafe/restaurant
- Sport/Recreation
- Other (often a nightclub or visiting other students in their digs for a party)
- Digs/res/home.

Figure 11.2 Grahamstown's racial mosaic, 2011



Data source: Stats SA (2012)

Modes of transport used were overwhelmingly dominated by walking; private cars were the second most used. Not surprisingly, the focus of activities was the campus, where the majority of the students also live. Their digs/res/home stations were located both on campus, in the central area of the city and in the northern suburbs. The location of accommodation among the students can largely be related to their parents' income.

Some groups of students had therefore studentified the central business district and some of the adjacent suburbs. The university's main sports facilities are on the northern side of the campus. Eating and socialising at cafes and pubs took place either on campus in the residences, or in the central part of the city immediately adjacent to the campus, where several well-known student pubs and nightclubs are located. However, data obtained from responses to the questionnaires revealed that many students choose to visit other pubs or nightclubs in this area, and that certain venues were more popular among certain race groups.

Figure 11.3 Distribution of student activities, by racial identity

Figure 11.3a Blocks show location of activities of white students

Figure 11.3b Blocks show location of activities of black students

Figure 11.3c Blocks show location of activities of coloured students

Figure 11.3d Blocks show location of activities of Indian students

In short, mapping and comparing students' activities according to race clearly indicated that the spatial distribution of white student activities is different to those of the black students (see Figure 11.3 A–D). As indicated in Figure 11.1, various physical constraints continue to influence students' activity patterns. Authoritative constraints might also have an impact. Rooms in the various residences on campus are, for example, allocated by the university, and the cost of this kind of accommodation is often lower than private digs located off campus.

Similarly, differences in movements and activities in time and space along racial lines also seemed to be related to a combination of coupling and authoritative constraints. White students (with their greater access to private cars and higher prevalence in private rented accommodation) tend to move further away from the campus. They have, therefore, begun to constitute a new pocket of local order that is centred on the campus and spreads out into the central and northern suburbs. In other words they have spread beyond one piece of the apartheid era jigsaw on to two adjacent pieces. The activities and places visited by black students were more focused on the campus itself and along the city's main street (High Street) in the centre of the city. However, many students also mentioned that they actively seek accommodation with roommates of the same race (and gender) as this provides them with a sense of security and attachment.

Our analysis of students' comments about their sense of connectedness (or liking) with Grahamstown's urban areas, and their impressions of the city's identity, is summarised in Figure 11.4. The map shows which areas the students 'liked' and 'disliked'. The largest number of positive connections was made in relation to the campus itself and the adjacent multiracial areas of the city. Interestingly, a number of students had negative associations with these areas too. Three typically positive responses about the campus were:

> I feel safe and secure, and it's basically where my life rotates when I'm in Grahamstown.

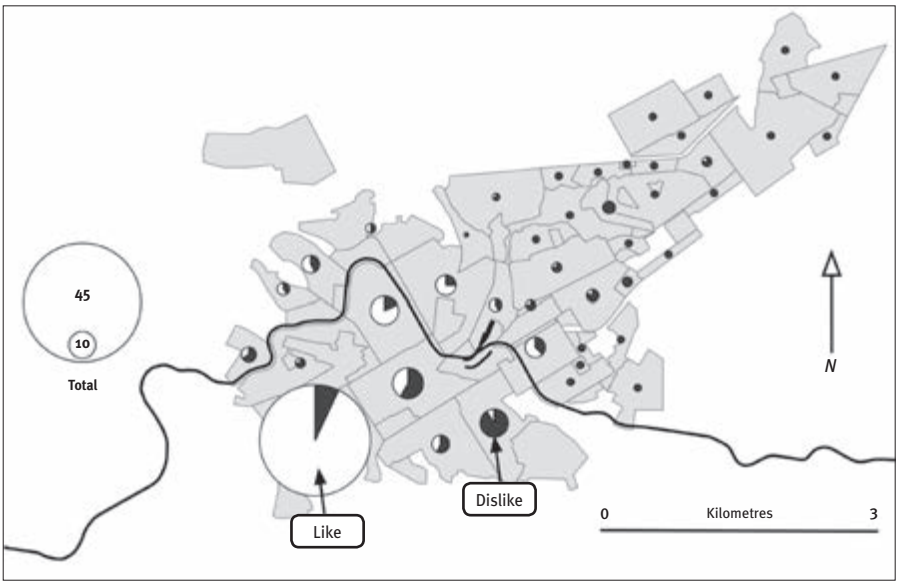
> Rhodes University Campus evidently is where I study so this is pretty much my home in this town and all my activities happen here.

> There is a diversity of people from different cultures and this is where I spend most of my time.

Negative comments for the campus area and surrounding suburbs included:

> The fact that one may get stuck within the realm of campus and not venture beyond what is close and known. The fact that the environment is concentrated by the same people and same atmosphere of work.

Figure 11.4 Positive and negative associations with place



> Danger to walk alone, anywhere really. I have been mugged in the centre of the town. It's really bad to live in fear of some idiot that will stab or rob you.

The distance to other areas was emphasised as a constraint by many respondents. Crime and security are common themes and represented another major constraining factor. Students go to areas where they feel safest, and reasonably secure from mugging and theft. However, a minority felt that the campus area was too insular.

Most respondents didn't have much to say either positively or negatively about the townships or the former coloured area as they knew so little about them. 'I have never been to any of the places so I wouldn't know if I like them' was a typical response. Positive associations with the township areas were few but included:

> I go for community engagement and I have been able to build relationships with the people and it is always a joy to work with them.

> I have relatives and friends living around the area so it's convenient for making unplanned visitations or should I say a surprise visit.

Figure 11.5 Word cloud on Grahamstown's identity derived from participants' own words

On the other hand, there were some negative associations such as:

> I never visit these areas and thus cannot make a judgement on them. By saying this you can assume I am uncomfortable with this as it is not an area I want to visit.

> It's very rough, people always fighting and it's far.

In some senses, the authority constraints of apartheid have been replaced, and distance and security have become dominant constraining factors. Coupling constraints feature, by inference, in that female students will not walk alone at night. Given that all the respondents were students, it is hardly surprising that they strongly associated Grahamstown's identity with the university. The beauty of the campus was frequently mentioned, as were the historical buildings and architecture of the university and the central area of the city. Social aspects of the city's identity that were mentioned included the rich diversity of cultures, the young people who attend the schools and the university, and the National Arts Festival that is hosted in the city every year. Here are two typical quotations:

> I think that it is a very diverse town, there are many cultures and you can see and experience all of them. Rhodes University and the students play a large role in Grahamstown as well as the Arts Festival.

> The town has an interesting history and lots of old buildings that still stand and there is a specific architectural style in Grahamstown.

Figure 11.5 summarises the students' responses about the city's identity. The texts of all of the student responses are included, with common English words

such as if, and, but etc. removed. The software used to generate the word clouds gives greater prominence to words that appear more frequently in the source texts. The interconnectedness of the town, its people and the university comes across clearly, along with the unique nature of the place and its cultural history and diversity. This is important as it indicates that apartheid's pockets of local order have broken down, at least partially and for these university students, in the post-apartheid era.

Student learning from the time-geography activities

As noted earlier, after seeing the results of their study including the maps and word cloud shown here, the students were given about ten minutes to consider and write down what they had learned from the time-geography course. A total of 46 responses were collected and subsequently transcribed for simple text analysis using a similar process to that used to generate Figure 11.5. In other words, Voyant Tools software was used to analyse the responses (Sinclair 2009). The text was input to a web portal and common English words were excluded. Word counts were then extracted from Voyant and reformatted to produce a Wordle or word cloud (Feinberg 2010). Key words in context (KWICs) were also considered for the following words and their synonyms: space, place, race, segregation and time (see Figure 11.6). The maximum number of lines of text any student wrote was seven (one student). Six responses had six lines and eight responses had five lines. The modal class was four lines with 13 responses; there were eleven responses with three lines and, finally, seven responses with two lines. The sentences were short, so four lines of text was usually either three or four sentences.

The majority of students gave integrative and/or reflective types of responses. In all, 37 students gave over 60 integrative and/or reflective comments, which indicates that their understanding was highly organised and typical of relational or extended abstract levels of understanding (Biggs and Tang 2007). The second largest category of comments was technical and skills oriented; there were 23 of these. These responses are typical of students with multi-structural levels of understanding. Lastly, 11 students gave responses that can be considered affective-positive; they said that the course had been 'interesting', 'amazing', 'cool', 'good', 'easy', 'new' or 'useful'. No negative responses were given.

The word cloud generated (see Figure 11.6) is clearly dominated by the media they used (Google) and the learning they acquired. The key words indicate that the time-geography practical exercises enhanced their knowledge and awareness of key geographical principles in relation to their own activities

Figure 11.6 Word cloud of student responses to the question: what did you learn from the time-geography practicals?

in Grahamstown's race space, and allowed them to enhance their technical skills in relation to the use of internet-based tools.

Examples of typical responses showing integrative/reflective and technical/practical learning are provided in Table 11.1.

Table 11.1 Examples of students' comments on what they learned from the time-space geography course

Key word	Examples of technical/practical learning	Examples of integrative/reflective learning
Place	How to identify place, where I had been, from a photo and how to map it.	I also learned that the spaces/places we chose to live and travel to are influenced by our backgrounds, race and how we feel about those places.
Space	Well, we learned how to construct a map using Google maps [and] to fuse all the racial patterns, activities and space occupied by them.	That we interact with certain spaces based on our lifestyle choices.
Segregation	–	Learned Grahamstown still faces issues of segregation.

Key word	Examples of technical/ practical learning	Examples of integrative/reflective learning
Race	–	Time and movements can help to study the adjacent race spaces in the area one lives in. Grahamstown still is racially, commercially and spatially segregated at different levels. The university has brought about the mixing of races and we can see the diversification on campus.
Time	I learned how to Georeference photographs in order to get a sense of where I had been over a certain period of time.	…. lectures on space, place, injustice and various geographical social relationships also help clarify and contextualise things. I can now see how time-geography, social, spatial, economic, and historical features are tied together.

Concluding comments

The application of time geography as a pedagogical tool, and the innovative use of smart phone technology, as well as Google Maps, Google Drive and Fusion Tables, enhanced students' awareness and understanding of time-space concepts. The analysis of their empirical data enabled students to reflect on their daily activity patterns against the backdrop of race spaces in Grahamstown.

The time-geographic concept therefore has the potential to deepen our understanding of multiracial interaction and segregation in post-apartheid cities. An analysis of the distinct pockets of local order that were evident revealed how various constraints influence students' movements and activities in time and space. It can be argued, therefore, that the time-geographic framework provides a useful analytical tool for analysing and enhancing awareness of issues related to multicultural interaction and segregation in specific time-spatial settings. Furthermore, new pockets of local order were shown to be emerging in the city, and seemed to indicate the studentification of sections of the urban structure. Although there is not the space here to compare this finding with studies elsewhere in the world, this would be a fruitful avenue for further research. However, the development of time geography as a pedagogical tool for multidisciplinary analysis has been illustrated, as has the potential for international academic collaboration to help deepen understandings of such global issues through a local lens.

Notes

1 The two authors of this chapter have collaborated for almost 15 years in the fields of web-based learning and the internationalisation of higher education (see Fox and Assmo; 2004). Associate Professor Assmo is based at Linköping University, Sweden and is a visiting professor at Rhodes University in South Africa; Professor Fox is based at Rhodes University in South Africa and is a guest professor at Högskolan Väst in Sweden.

2 The percentages for black and white participants were roughly the inverse of those for the university as a whole. This is probably related to the inequalities that persist in South Africa, including in the schooling system, which mean that the teaching of science subjects, including geography, at schools in low-income areas is often weak.

3 Tertiary education in South Africa is only partially state subsidised, so all students pay fees, and many are supported by their parents while they study.

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Chapter 12

Rethinking access to higher education in Malawi: Lessons from the Malawi Institute of Management's collaborations with universities in the United Kingdom

Rebecca Ward and Ida Mbendera

The Malawi Institute of Management (MIM) has successfully developed a number of partnerships with universities in the UK to deliver higher education in Malawi. This chapter describes the collaborative approach adopted between MIM and the University of Bolton to widen access to higher education, maximise capacity development and contribute to the economic development of Malawi. The model is both financially sustainable and founded on a robust blended learning pedagogy – a combination that rewards collaborating institutions and students alike.

By adopting an approach designed to share good practice and develop local capacity in Malawi's higher education sector, the model contributes to the eighth Millennium Development Goal (MDG), namely to develop a global partnership for development.[1] Beyond this, contributions to the MDGs are indirect, but significant. The partnership provides an additional pathway to higher education, enhancing the management and IT skills of professionals in Malawi, and better equipping them to make their own contributions towards the achievement of the MDGs. This aligns well with the Paris Declaration and the Accra Agenda, which established the importance of country ownership in the design and implementation of development initiatives (OECD 2008). The approach is also in line with Malawi's *National Education Sector Plan 2008–2017*, which seeks to increase access to higher education (Ministry of Education Science and Technology 2008).

In this chapter, we introduce the partners and the delivery model before discussing the benefits that have arisen from the collaborative approach, namely: the provision of a pedagogically robust learning experience for students, the use of local resources and the development of local capacities, as well as the reduced costs of access to international education. Some of the challenges that faced the

programme and have been overcome are discussed. Finally some conclusions are drawn about possible avenues for further research.

Background

The expansion of Malawi's higher education sector forms part of the country's strategic plan, *Vision 2020* (Government of Malawi 2003). Accordingly, the government has maintained per student funding of higher education in a way that sets Malawi apart from its neighbouring countries. The portion of public resources allocated to higher education has broadly kept pace with the growth in student numbers, and the sector absorbs more than 25 per cent of the country's recurrent expenditure on education which in the 2007/2008 fiscal year totalled MK22.3 billion (US$48.6 million), a 16 per cent increase from 2001/2002 (World Bank 2010a). Government expenditure per tertiary student grew from US$4 069 in 2000 to US$6 306 in 2011 (UNESCO 2015). This compares favourably with the general trend in the poorest African nations, where the number of university students quadrupled between 1991 and 2006, yet the provision of public resources to higher education increased by a maximum of 75 per cent, effectively leading to significant reductions in per student spend (World Bank 2010a).

While the maintenance of per student spend in Malawi is admirable, it makes higher education in the country comparatively costly, and the sector has been under scrutiny due to perceived inefficiencies. In 2006, Malawi had a student to staff ratio of 11:1 compared to the average of 20:1 in OECD countries (World Bank 2010b). Given Malawi's finances, if the sector is to grow, efficiencies will need to be improved. In 2010, the World Bank estimated a US$16 million funding gap if the growth trend in student enrolment rates continued into 2015 (World Bank 2010a).

There is also a serious undersupply of higher education in Malawi. Only 1 per cent of the population enrols in tertiary education, compared to 61 per cent in the United Kingdom, a global average of 30 per cent, and a low-income-country average of 9 per cent (World Bank 2014). Projections done in 2013 suggest that Malawi will be one of only three countries in the Southern African Development Community to still have a tertiary education enrolment rate of less than 10 per cent by 2050 (SARUA 2012a). In 2008, 38 per cent of school pupils who successfully completed the Malawi Schools Certificate of Education enrolled in public higher education institutions (SARUA 2012b), but university places are heavily oversubscribed. For example, Mzuzu University received 6 000 applicants for 800 available places in 2007 (World Bank, 2010b). Access to postgraduate degrees is even more limited; at the University of Malawi, which is the

largest university in the country and has four constituent colleges, only 332 students successfully completed postgraduate study between 2000 and 2008 (World Bank 2010b).

Malawi's public universities also suffer from frequent closures resulting from disputes between the authorities, staff and students (*Malawi Voice* 2013; *Malawi Nation* 2012). In 2011, two of the University of Malawi's campuses, Chancellor College and The Malawi Polytechnic, were closed for nearly nine months for this reason. Six months later, another conflict between the authorities and students erupted over student allowances. The campuses were again closed and students were sent home for nearly two months.

In stark contrast, MIM is productive and financially stable: between 2000 and 2014, the institution helped over 700 master's students to graduate, many of whom were self-sponsored and completed their studies within the expected timeframe. These results have been achieved by using a collaborative approach to the delivery of education which is commercially viable for all partners, and maintains academic standards through a robust blended-learning pedagogy.

The collaborating partners

MIM was established through an Act of parliament in 1989, with a remit to provide training programmes and consulting services for private companies, government agencies, parastatals and civil-society organisations.[2] The institution therefore has a strong in-service focus. The institute was initially supported by World Bank funding, but this came to an end in 2000, necessitating new and more sustainable business strategies. The move into higher education formed part of this strategic shift with the first higher-education programme delivered in collaboration with the UK's University of Derby in 2000. Partnerships were subsequently developed with the University of Bolton and Leeds Metropolitan University, which are also UK universities. In line with its mandate, MIM initially focused on delivering postgraduate qualifications in management development, but undergraduate qualifications have since been added to its portfolio.

The University of Bolton[3] is a higher education institution in the UK that was granted university status in 2004. In 2014, the university had approximately 13 000 registered students across a wide range of academic disciplines who were studying from foundation to doctorate level. The Off-Campus Division was established in October 2011 to consolidate significant and expanding off-campus activity both in the UK and overseas.[4] The division has a dedicated team who, at the time of writing, delivered or managed University of Bolton programmes in Vietnam, Singapore, Hong Kong, Germany, Malaysia, Sri Lanka, Zambia, Malawi and Botswana. The university management has

endorsed a strong emphasis on widening participation, with off-campus activities driving this effort.

The university's partnership with MIM was established in 2007, with the development of an MSc in Supply Chain Management. In 2014, this programme enrolled its eighth student cohort. A PhD programme in the same field commenced in 2010, and a Master of Public Administration and an MSc in Project Management were introduced in 2012.

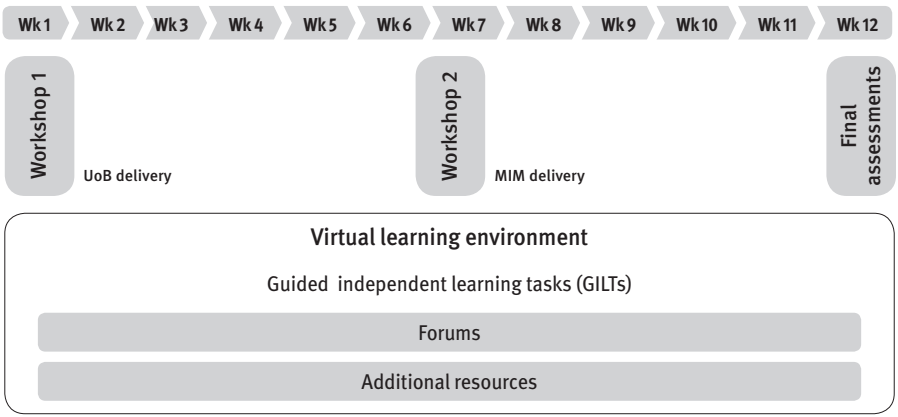
The delivery model

The University of Bolton's Off-Campus Division has primarily delivered overseas programmes with a shared-delivery 'flying faculty' model that combines face-to-face teaching by academics from Bolton (who fly to Malawi for short periods) with additional teaching and support from local tutors. This is supplemented by a virtual learning environment, which uses a Moodle-based platform to provide resources and a digital forum, via which student activities and assignments can be guided and submitted. The combination of these three course-design pillars enables the two institutions to deliver a programme that, as shown below, is both financially sustainable and pedagogically robust.

Typical delivery of a single 12-week module within a degree programme includes a two-day block of teaching from the University of Bolton tutor at the beginning of the module, and another two-day teaching block mid-way through the 12-week period by a local tutor. For the remainder of the time, students are directed to the online platform, and instructed to complete a series of scheduled guided but independent learning tasks that are designed to help them navigate through the material, develop their academic skills, and prepare them for summative assessments. Many of the tasks have interactive elements that require students to collaborate and provide peer-review-type feedback to their fellow students via the Moodle forum. Remote support is also available from both tutors during the weeks in which no face-to-face delivery is provided. Students and staff all have access to the University of Bolton's e-resources which include a substantial body of e-books and e-journals. All study programmes are subject to the university's standard quality assurance and enhancement processes which are, in turn, stipulated by the UK's Quality Assurance Agency for Higher Education.

The partnership between MIM and the University of Bolton has been developed on a commercial basis with sustainable financial rewards for both partners derived from the student fees. No direct public funding is used to support the partnership, although the public sector in Malawi sponsors a significant number of their own employees who register as students. The share of the student tuition fee allocated to each of the partners reflects the

Figure 12.1 Outline of a typical off-campus education programme delivered jointly by the University of Bolton and MIM



relative contribution they each make to the partnership, and this may change over time. Roles and responsibilities are clearly outlined in a contractually binding partnership agreement and an accompanying operational manual. The agreements are reviewed annually, and there is scope to negotiate and adjust the financial allocation as contributions shift. The delivery model is therefore designed to be financially sustainable.

The benefits of collaboration

The delivery model described above has delivered benefits both to students and the collaborating institutions. For MIM, 13 years of working with UK partners has unlocked capacity, provided access to resources and delivered efficiency gains that would probably not have been achievable otherwise. For students, the model has provided the benefits of an international education without removing them from Malawi or the context in which they work and need to apply the management skills they learn about. We have identified three key benefits of collaboration: the provision of a pedagogically robust learning experience for students, the use of local resources and development of local capacity, and access to an international education institution at a reduced cost. Each of these points is explained in a little more detail below.

Pedagogically robust learning experiences for students

The use of a block-release delivery model, where the face-to-face element of teaching is concentrated into two workshops for each module, was initially

driven by the logistical challenges of delivering off-campus. It is simply not possible for a UK-based institution to deliver a 'traditional' programme with weekly face-to-face teaching sessions in Malawi. More recently, however, the model has also been shaped by best practices identified in pedagogical literature on blended learning (see, for example, Garrison and Vaughn 2008). Using innovative technologies, face-to-face delivery is now combined with extensive use of virtual learning. That is, both education institutions have sought to organically integrate the 'thoughtfully selected and complementary face-to-face and online approaches and technologies', that characterise the best blended-learning designs (Garrison and Vaughn 2008: 148). In 2012, informed by the extensive literature on blended learning, some of which is discussed below, the programme significantly increased and formalised the role played by Moodle in course design and delivery.

This approach is in tune with global trends. Many universities have reported an increase in delivery of programmes with online elements, driven by strong evidence of improved learner outcomes (Vaughn and Garrison, 2010). A cross-disciplinary analysis conducted by the US Department of Education found statistically stronger learning outcomes from blended approaches than either face-to-face or online delivery alone (US Department of Education 2009). Online course elements afford students flexibility in terms of time, as well as improved student-teacher and peer-to-peer interaction. Online delivery can also allow for continuous improvement of course materials, constantly widening access to educational resources, and reduced operating costs (Vaughn 2007). The blended-learning approach thus solves many of the logistical problems related to learning at a geographic distance, and helps to improve the quality of the education being delivered.

The blended-learning approach also provides an ideal platform for learning in the social constructivist tradition, which contends that knowledge is constructed by engaging students in real-life, problem-solving situations (Bransford et al. 1990) and that learners actively construct new ideas through collaborative activities and dialogue (Dewey 1959; Vygotsky cited in Chew et al. 2008). Blended-learning approaches, which mix periodic face-to-face contact with constant online interaction, thus aim to create 'environments…that bring students to discover and construct knowledge for themselves' (Barr and Tagg 1995: 5). In practical terms, this means providing:

- Interactive environments for knowledge building.
- Activities that encourage collaboration and shared expression of ideas.
- Support for reflection, peer review and evaluation (Jisc 2004).

All of these elements are built into the curriculum and delivery mode used by the University of Bolton and MIM. While facilitating geographic flexibility for students, the use of Moodle also enables the programme team to develop a 'community of enquiry' as conceived by Garrison et al. (2000). Built into this notion is an acknowledgement that learning is not an individual pursuit, and that individual cognition is usually more effective when complemented with social interaction. An effective learning environment therefore should include the following three elements:

- A social presence, in which students can identify with their learning community, communicate within a trustworthy environment, and develop interpersonal relationships that support learning.
- A cognitive presence, in which students are able to construct and confirm meaning through sustained reflection and discourse.
- A teaching presence in which teachers design, facilitate and direct various cognitive and social processes (Garrison et al. 2000).

All three elements begin in the classroom but are then extended to the online environment through the use of carefully designed interactive tasks. Students are required to use the Moodle forums extensively to share work, provide and receive feedback, and engage in dialogue with their tutors and peers. Tasks are scheduled so that students can draw upon what they have learned though reviewing and being reviewed when preparing their final summative assessments. In one 12-week module delivered in 2013 and 2014,[5] a class of 22 students created 632 student posts, and 7 255 views were recorded. In addition to the official forums created by the tutors for specific course activities, 23 additional threads were created by students to ask questions, arrange study-group meetings, or to share resources and ideas.

This delivery model also accommodates work-based learners. This is obviously important from the perspective of widening access to education, but it also has a strong influence on the teaching and learning approaches adopted by the programme teams. It facilitates a highly reflective, applied and personalised approach to learning, where concepts discussed in class can immediately be practised and considered in the student's work context. The emphasis is on self-direction and learning from experience, as per the Open University's hugely successful approach (Harvey and Norman 2005). With core concepts introduced face-to-face, the use of online forums means that dialogue related to students' own personal learning can continue outside the classroom. With personalisation and work-integration at its heart, this approach has proven to result in positive learning outcomes (Powell et al. 2008).

The extensive use of an interactive virtual learning environment, and reliance on electronic resources (e-books, e-journals and open source materials), also means that graduates of these programmes develop the confidence and skills in using interactive information technology that are essential in today's increasingly globalised workplaces.

Using local resources and developing financially sustainable capacity

At the heart of this institutional collaboration are two keystone principles, namely: that both parties add value to the partnership, and that local teaching staff will be included. Indeed, shared delivery arrangements that require UK-based staff to travel internationally are costly, and the long-term sustainability of the partnership depends on teaching and programme management being run increasingly by MIM.

With this goal in mind, the University of Bolton has provided continuous professional development to MIM tutors. The aim has been to strengthen and update their professional skills, familiarise them with established practices in relation to quality assurance and enhancement, and give them the skills to use Moodle effectively. Initially MIM tutors often work alongside a UK-based tutor to co-develop and deliver modules, thus learning about materials development, as well as about the course-delivery, assessment and moderation processes required by the UK system. As a result, all MIM tutors working on the programmes develop hands-on experience of teaching and learning within a highly regulated system, and master up-to-date technologies and teaching practices. Since 2015, MIM tutors have been given the opportunity to register for an online Postgraduate Certificate in Teaching and Learning in Higher Education to further enhance their professional skills and status. This is a first in Malawi, since, as far as we have been able to ascertain, none of the other universities run professional training programmes for their tutors.

In addition to offering opportunities for enhanced staff training and development, the University of Bolton was also able to provide efficient processes and systems for managing student data, as well as programme administration, quality, and enhancement. MIM has been able to adapt and transfer these processes and structures to the delivery and management of its own growing portfolio. Similarly, MIM tutors who teach on the Bolton programmes have been able to apply the skills they have acquired to other activities, such as short-term training programmes and consulting activities. MIM's human resource and organisational capacities have therefore increased significantly since its partnerships with UK universities began in 2000.

To deal with its expanding partnerships, MIM has increased the size of its faculty considerably: in 2000 MIM had 10 staff qualified to master's level

and one with a PhD; in 2015, it had 18 staff with master's degrees and 6 with PhDs. As a result, MIM is taking increasing control of the University of Bolton programme portfolio as a franchisee and, with the three existing master's programmes to be delivered on a part-franchise basis and three new programmes validated to be run as full franchises from 2015, MIM staff will be delivering 8 postgraduate and 18 undergraduate modules, with no teaching input from Bolton at all.

MIM's management and delivery of UK-regulated programmes has also prepared MIM for the emerging regulatory regime for higher education in Malawi. In 2011 Malawi's parliament passed legislation enabling establishment of the National Council of Higher Education (NCHE). This means that to be an accredited tuition offering body, MIM's quality systems now have to be internally audited. MIM is also applying to the National Council for degree-awarding powers. The experience MIM has gained through its partnership with the University of Bolton in relation to programme approval, validation and day-to-day quality assurance, as shaped by the UK's Quality Assurance Agency, means that MIM is well placed to meet these requirements. Experience obtained through international collaboration has also provided a solid foundation from which MIM can develop its own portfolio of courses. This outcome of the partnership is nicely aligned to MDG 8: developing global partnerships for development.

Access to international education at reduced cost

Sherry et al. (2010) identify financial problems as one of the main challenges facing international students. The delivery model also facilitates a reduced-cost route to gaining an international postgraduate qualification. The University of Bolton master's programmes delivered in Malawi cost US$ 9 000 in total (18 months of study). By comparison, students wishing to travel to the UK to study identical postgraduate programmes would be subject to tuition fees of £9 900 (US$ 15 430) plus estimated annual living costs of approximately £7 200 (US$ 11 220), excluding the costs of a visa and flights to and from the UK. In contrast, this shared-delivery model offers students the opportunity to gain the same qualification at just over half the price, and to avoid the difficulties of relocating. While the Bolton-accredited courses seem expensive when compared to the cost of Malawian qualifications, the collaborative model offers students an international qualification, while enabling them to remain in full-time employment and to stay with their families throughout. This is significant considering that Malawi's universities offer limited postgraduate courses, thus forcing many individuals to travel internationally to pursue an education beyond their undergraduate degree.

The logistical benefits are matched by the academic value of the multicultural approach adopted by the two institutions. Student learning is facilitated by both UK and Malawian tutors, resulting in a truly international curriculum that equips students for employment in Malawi and beyond. Internationalisation is widely acknowledged to enhance student experience at higher education level, enabling students to develop 'global perspectives and cross-cultural capability in order to be able to perform, professionally and socially, in a multicultural environment' (Clifford and Joseph 2005; see also Leask and Carroll 2011; Sweeney 2012). Ordinarily, Malawians would need to leave the country to reap these benefits. However, it is also acknowledged that students travelling away from their home country to study face significant challenges. Rienties et al. (2012) identify challenges arising from both academic and social adjustment, whilst Gu et al. (2010) argue that personal, pedagogical, psychological, organisational and socio-cultural factors can also provide challenges to international students. The model described here enables students to access an international curriculum without exposure to these challenges.

Overcoming challenges linked to virtual learning environments

The model clearly provides benefits for students as well as both delivery partners. However, successfully delivering programmes with such a heavy reliance on online resources was not achieved without first addressing a number of challenges. In particular, a central question was how best to secure quality student and staff engagement.

Providing a technological platform does not automatically lead to student engagement. Precel et al. (2009) note that even when students recognise the value of collaborative online activities, they often regard the activities as too challenging and are reluctant to get involved. In addition, research by Capdeferro and Romero (2012) shows that students involved in online collaborative learning often report frustration, mostly about perceived unevenness in effort. More relevant to the Malawian context, Porcaro and Al-Musawi (2011) found that students engaged in limited ways because they were unaccustomed to using the internet, found online discussions cumbersome and had slow internet connections. If online collaborative approaches are to be embedded, these barriers must be overcome.

Several steps had to be taken to ensure student engagement with the virtual learning environment, which, for many students, was quite alien. Observations from student induction programmes provided several indicators of this lack of familiarity, highlighting, for example, that not all students intuitively scroll down a screen to view a whole webpage; some students tried to type web

addresses into search engines; some students were unfamiliar with the 'back' button; others were unfamiliar with case sensitivity of passwords; and several students were fearful of making irreversible errors.

To ensure that students are able to engage with the Moodle platform, and to emphasise to students that online work is a core part of the delivery model, Moodle is introduced during a comprehensive two-day student induction programme, which includes interactive sessions where students log on and interact with the online environment. Significant 'instructional' information and signposting is also provided on the course website. Extrinsic motivation is also important and the integration of online interactive and collaborative activity into summative assessment has been identified as an effective way of securing student engagement (Jisc 2004; MacDonald 2006). This also helps to integrate the online work into the course and ensures that students do not perceive online learning as an optional extra (Race 2006). Reflecting these factors, the programme team integrated the following features into programme design and delivery:

- Students create their own Moodle profile (including a photograph and an introductory post) as part of the scheduled induction process. This helps to ensure that the virtual learning environment is integrated with classroom activities and that all student interaction that occurs via Moodle has a human face.
- To overcome resistance to collaborative work, students self-select the study groups they wish to join. Study groups have both a physical and online presence to create familiarity and position online collaboration as a value-adding and non-optional activity.
- Resource sharing and peer-review processes are built into a series of scheduled formative online activities that are linked to the students' summative assessments. The pace and structure of online activities is fully integrated into the course design, with logical progression of activities before, during and after face-to-face delivery and a small portion (10 per cent) of the final summative assessment mark allocated to participation in and contributions to online activities.[6]
- A generic 'Moodle template' has been developed that uses standard formats and icons. This helps to ensure that students' interactions with the online environment quickly feel consistent and familiar.

The results have been impressive, with the majority of students engaging with the online elements, and giving very positive feedback on the value of the collaborative activities. In a Student–Staff Liaison Committee meeting, the student representative reported that, although students continue to experience

periodic challenges when using Moodle, the online forums have proven to be one of the most useful elements of the programme; they are used for resource sharing, arranging study group meetings and asking questions.

Tutor engagement with the online element of the course has been another challenge. The virtual learning environment is effectively an additional 'resource' that needs to be created and maintained, and this has been a challenge for already busy programme staff. At Student– Staff Liaison Committee meetings in 2013 and 2014, student representatives raised two concerns relating to tutors' use of Moodle: the first was a lack of engagement from MIM tutors, and the second was that dates and/or information provided on Moodle occasionally conflicted with dates on the published timetable and module guide. Continuous training of both MIM and Bolton tutors is therefore essential to the sustainability of the delivery model. The ability of MIM tutors to interact with Moodle is relatively limited and they have been given intensive support from Bolton. Two individuals at MIM have been identified as proficient in (and enthusiastic about) Moodle, and have therefore been given extended course-creation rights. Over time, it is anticipated that these individuals will become the main source of support to their other colleagues at MIM.

Finally, reliance on an online platform is challenging in an environment where internet connectivity is unreliable and slow (broadband download speed in Malawi averages 1.70 Mbps compared to 29.2 Mbps in the UK), limited coverage (only 5.4 per cent of Malawi's population have internet access) (Net Index 2014). These problems have been mitigated by providing all module materials on a CD so that they can be viewed off-line. In addition, students without reliable internet access at home or at work are given access to MIM's campus-wide Wi-Fi. In class, internet connectivity challenges have been dealt with by making sure that alternative connection devices are available on standby.

Conclusion

This chapter has provided an initial exploration of collaborative higher education provision in Malawi by presenting the delivery model successfully adopted by MIM and the University of Bolton in the UK. Importantly, this model is financially sustainable and run on a commercial basis; no public funding is required.

The approach has widened access, and developed local capacity to deliver higher education in Malawi, as evidenced by MIM's application for degree-awarding powers and its increasing responsibility for programme delivery and management. This is most recently shown by the validation of three

programmes on a full franchise basis. MIM's various partnerships with UK and international universities have played a major role in developing the institution's own capacity, and assisted the organisation in contributing to MDG 8.

The use of two-day face-to-face teaching blocks supported by online learning and activities has widened access to working individuals who do not have to take time out from work to study. The online component also seems to show clear pedagogical benefits, but further research is required to investigate the positive learning outcomes of this blended approach for students.

Research is also required to establish if this delivery model could be scaled to further widen access to higher education in Malawi with the collaboration of other international universities. Perhaps more significantly, the model could also be applied nationally so that established Malawian institutions, such as MIM, partner with newer or smaller institutions inside the country. This shared-delivery approach has been shown to develop capacity in the partnering institution and, with a clear framework for shadowing and transfer of responsibilities, it has the potential to be used to extend provision and spread good practice across the sector.

Notes

1 More information on the MDGs is available at: http://www.un.org/millenniumgoals/.
2 www.mim.co.mw
3 www.bolton.ac.uk
4 http://www.bolton.ac.uk/OffCampus/Home.aspx
5 The course was Public Policy and Administration (EBU4023) and was taught by one of the co-authors of this chapter.
6 This is not without its challenges. During a pilot run, feedback from both the student representative and the programme's external examiner indicated that too many online activities had been included in the module and the overall workload was too high. In subsequent course delivery, the number of activities has been reduced.

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