IDRC building leaders in research for development: literature review



Building leaders in research for development: literature review

[IDRC, May 2015]

Table of contents

Ac	ronym	1 S	4
Exe	ecutive	e summary	5
1.	Int	troduction	6
	1.1.	Objective of this study	ε
	1.2.	Background to this study	6
	1.3.	Methodology	6
	1.4.	Overview of structure	7
2.	Ov	verview of concepts and context	8
	2.1.	Conceptions of leadership	8
	2.2.	Literature on leaders in R4D	8
	2.3.	Relevance of research	10
3.	Pr	ogrammes and approaches to building leaders	12
	3.1.	Overview	12
	3.2.	Level of programmes	12
	3.3.	Sector of programmes	13
	3.4.	Length of programmes	13
	3.5.	Scale of programmes	13
4.	Stı	rengths and weaknesses of major programmes	15
	4.1.	Strengths of major programmes	15
	4.2.	Weaknesses of major programmes	15
5.	Ро	tential pathways for building leaders	18
	5.1.	Overview	18
	5.2.	Ingredients of leader pathways	19
	5.3.	Theory-based models of leader pathways	20
6.	M	odels for building leaders in R4D	22
	6.1.	Approach to conceptual models	22
	6.2.	Model for building leaders in R4D	2 3
	6.3.	Model of individual or team pathways	24

IDRC building leaders in research for development: literature review

7.	Building female leaders in R4D	25
8.	Concluding comments	28
Bik	bliography	29
	Appendix 1: List of external interviewees	33
	Appendix 2: Summary details of programmes referenced in the review	33
	Appendix 3: Key resources on leadership development programmes	35
	Appendix 4: Noteworthy examples of leadership development programmes	36

Acronyms

ASNC American Society of Nuclear Cardiology

BNCBI The BVGH Nigerian Capacity-Building Initiative

CARTA Consortium for Advanced Research Training in Africa

CIRCLE Climate Impact Research Capacity and Leadership Enhancement in Sub-Saharan Africa

DAAD The German academic exchange service

DFID Department for International Development

ECIU European Consortium of Innovative Universities

FRL Full Range Leadership

HEI Higher Education Institution

IDRC International Development Research Centre

IRD Research Institute for Development

NORHED The Norwegian Programme for Capacity Development in HEI and R4D

ODI Oversees Development Institute

OECD Organisation for Economic Cooperation and Development

PI Principal Investigator
R4D Research for Development

STEM Science, Technology, Engineering, Mathematics

UPCD University Partnerships in Cooperation and Development

WHO World Health Organisation

ZEF German–Pakistani Research Collaboration Programme

Executive summary

This literature review engages with the issue of building leaders within research for development (R4D). An increasing number of organisations are recognising the importance of building leaders within the sector — investing in the individuals and teams that are working to address development challenges through high-quality research. The study draws on literature, a review of 78 relevant programmes, 14 additional organisations operating in R4D leadership, and six interviews with varied expertise in building leaders.

The review begins by exploring the different relevant conceptions of leadership - emphasising the place of individual leader building and team leadership building. The majority of relevant literature regarding leader development in R4D is focused on increasing capacity within developing context research institutions, particularly for global health, economics and governance. The recurring issues in the literature and from programmes are the overall low level of spending, the lack of innovative models, the dominance of a 'north-south' approach to partnership, the importance of emerging 'centres of excellence, and the focus on participatory leadership and sharing.

There are many programmes seeking to build leaders within R4D but limited academic research regarding the nature of effective programmes. Programmes can be usefully categorised in terms of the level of seniority they target, the sector they target, the length of engagement they provide, and the scale at which they operate. There is a lack of consensus regarding what pathways are most effective in building leaders in different contexts. However, a wide variety of methods and tools can be used to help progress individuals along these pathways, in whatever way they are understood. The review identifies two major approaches, the first involving an external organisation or donor organisation investing in a recipient organisation or individual and the second involving an 'internal' model that involves an organisation or group of organisations in a sector running its own programme.

There is significant variation in the variety and sophistication of activities that leader building programmes provide. Good practice methods include mentoring, experiential learning, 360 degree feedback, research grants, and specific skills-based teaching. The review provides two overall models to demonstrate how leader building programmes can operate – providing visual tools to identify the key building blocks, activities and outcomes of different forms of programme. The first model provides an overview of good-practice approaches available for building leaders in R4D. The second model illustrates pathways for individual (senior, mid-level or junior) or team-based building leader programmes.

There is limited literature that engages directly with the issue of developing female leaders within R4D. However, lessons can be learned by reviewing the literature on gender within research institutions more broadly, specifically: the role of targeted programming, the challenges particular to women in obtaining leader positions, and the gender biases in institutions.

The review closes by noting the way in which effective building leader programmes are more likely to be context specific rather than based on supposedly universally applicable approaches: appropriate programmes will vary according to the environment within which they are situated. It also highlights the potential benefits of investing in developing internal capacity within organisations to conduct their own programmes to build leaders.

1. Introduction

1.1. Objective of this study

The objective of this study is to provide a comprehensive review of the literature on building leaders / leadership and evidence on programming effectiveness. The study synthesises learning from this field, in recognition that a growing number of development organizations (including IDRC) are making building leaders an explicit objective. By drawing from good practice externally, the review is intended as a complement to IDRC's own experience and practice. Within this, the study contributes to the following overall questions:

- What are different ways of understanding leader / leadership development and building leaders?
- What approaches and types of programming are being implemented by organizations aiming to build leaders?
- What strategies and approaches are useful for building leaders at different levels, scale, sectors and contexts?
- How can the different forms of support be integrated effectively to provide a cohesive approach?

It should be noted that all IDRC programming has been excluded from the study. IDRC has significant experience and expertise in this field, but the focus here is on that which is external to the organisation.

1.2. Background to this study

Central to IDRC is the understanding that solving complex development challenges requires investing in the people whose creativity, knowledge, skills, and influence bring innovative solutions to life. Many of these people are researchers – individuals who are explicitly in search of new ways and new knowledge to improve development outcomes. As a result, IDRC is committed to supporting leaders within research – both current and emerging - who have the potential to make an impact both now and into the future. In addition, IDRC is committed to working with leaders in all fields to enable them to effectively utilise research to make a positive contribution to societal development.

1.3. Methodology

The methodology for the study was based on a literature review of over 70 relevant journal articles and policy reports, a review of 78 relevant programmes, a review of 14 organisations operating in R4D leadership, interviews with six external experts, and the pre-existing experience of the research team. The literature review adopted a systematic approach covering the following sectors:

- Concepts of leadership, leaders, leader building, and associated frameworks
- Leadership programmes: successes and failures
- Leadership for research
- Capacity building in R4D
- Entrepreneurial leadership
- Female leadership development
- Innovation in leader building

• Scholarships, mentorships, grants in R4D leadership

1.4. Overview of structure

The literature review begins with an overview of the dominant conceptions of leadership, and the literature on leaders specifically within R4D. It then engages in-depth with the different type of programmes and approaches to building leaders. Following this, the study considers the strengths and weaknesses of major programmes. It then focuses on the potential pathways for building leaders and provides two potential models specific to R4D. In closing, the report focuses on the specific detail of building female leaders in R4D before offering concluding comments. Following the literature review is a full bibliography and annex with supporting documents.

2. Overview of concepts and context

2.1. Conceptions of leadership

This section examines current academic literature regarding conceptions of leaders and leadership. There are two primary lenses for conceptualising leaders: first, through the attributes and characteristics of individual leaders, and second, as the tools or networks that enable an individual to operate as a leader. This distinction underscores important definitional concepts. This study utilises the helpful definitions of 'leader' and 'leadership' provided by Kets de Vries and Korotov (2010a). Leader development is understood as the development of an individual; leadership development is understood as the development of an entire team *and* its influences. Leadership is defined, not by the impact of an individual, but by the creation of a collaborative team able to manage connections or networks and able respond to a changing environment (Kets de Vries and Korotov 2010a). For the purposes of this paper the overall understanding is that building leaders does very often include capacity development – but not all capacity development efforts contribute to building leaders. Hubbard (2005) and Enright (2006) both provide useful analysis of the difference and overlap between capacity building and leadership development.

A review of anecdotal evidence from the literature suggests that within international development, much of the understanding and practice of leader development trails behind other sectors. The international development sector does not generally invest heavily in building leaders. It often retains a focus on the 'exceptional individual' and typically focusses on skills training for that individual rather than adopting a team approach. This section therefore focuses on conceptions of leader and leadership development from a range of sectors and explores innovation in leader building from the private sector.

There are many perspectives and contributions regarding what is required to be a leader. The academic literature recognises a plethora of skills, character traits and approaches. The Centre for Creative Leadership provides a list of seven of the most frequently recognised traits: leading employees, strategic planning, inspiring commitment, managing change, resourcefulness, being a quick learner, and 'doing whatever it takes'. It notes that current approaches to leader capacity development frequently fail to prioritise these seven traits, which it views as necessary to meet modern challenges. The leadership gap, it notes, appears notably great in high-priority, high-stake areas (Leslie 2009).

2.2. Literature on leaders in R4D

This section considers the role of leaders in R4D. To understand the role of leaders in the R4D context it is worth briefly considering the research environment. Kearney provides a review of research capacity in developing countries (Kearney 2009). He concludes that research capacity is typically centralised at large higher education institutions (HEIs): these institutions assume the responsibility for fostering a national commitment to research, promoting a culture of academic enquiry, ensuring the availability of research skills, and developing the capacity to understand and use international research results. Kearney's study of research and innovation in higher education, notes that this model is both centralised and low-capacity. It faces three important challenges: diluted availability of research tools, financing and resources; the challenge of rapidly expanding institutions in response to demand; and fragmentation of researchers and research activities.

The research environment depends on strong leaders to steer research and build viable relationships between research teams, policy makers and other stakeholders (Zachariah et al. 2011). The Wellcome Trust identifies four areas necessary to develop excellence and strong leaders in research: scientific quality, research training, scientific citizenship and research management (Wellcome Trust 2014). Yet these roles have often been undermined in low-resource settings through poor remuneration, high teaching loads, limited mentoring of early researchers and poor infrastructure and research tools (Sawyerr 2004). Addressing this requires creation of an enabling environment, in particular: improvements in research management, a better leadership career structure, critical mass, shared infrastructure, information access, and an interface between researchers and research-users (Lansang and Dennis 2004).

The majority of relevant literature regarding leader development in R4D is focused on capacity development in research institutions in developing contexts, particularly for global health, economics and governance. The pertinent themes relating to this are considered below: overall spending is low, there is a lack of innovative models, there is a dominant 'north-south' approach to partnership, there are emerging 'centres of excellence, there is a focus on participatory leadership, and there is a focus on sharing.

First, the overall spending for research capacity building is relatively low (N. Jones, Bailey, and Lyytikäinen 2007). Jones, Bailey and Lyytikainen conducted a study regarding funding for capacity building in R4D in Africa and found that bilateral donors tend to invest in individual training, institutional support to universities and facilitating networking. Multilateral donors tend to invest in independent research organisations, and thematic focussed networks. Private foundations fund sector specific, multi donor research networks and fellowships. The report notes that some organisations define capacity building as technical and resource transfer, while others emphasise identifying and strengthening existing local capacity. Furthermore, the study suggests that donors prioritise health and agriculture, natural and physical sciences and economics. It also notes that donors focus primarily on knowledge generation, with some steps to consider other aspects of research capacity such as research communication and developing good research agendas.

Secondly, there is a notable lack of innovative methods for building leaders and a reliance on traditional, individual researcher focussed approaches. Traditional approaches include scholarship programmes for PhD students, individual skills building and north-south university links. A detailed review of traditional research capacity building approaches in Vietnam between 1976 and 2006 made two useful recommendations: sandwich models work better than traditional scholarship models; and there is a vital need for more post-doctoral positions be financed. Funding of post-doctoral research is an interesting way of encouraging young PhD researchers to continue their work, promotes dissemination of PhD work results, and of enabling new research groups to form.

Thirdly, the prevalence of a 'north-south' model of partnerships. There is support for the idea that creating strong partnerships can have disproportionate impact compared to providing funding for research (Annerstedt and Liyanage 2014). There are also now innovative programmes exploring the value of south-south partnerships.

Fourthly, the last decade has seen the emergence of 'centres of excellence' that focus on developing leading institutions, rather than leading individuals. These are institutions that aim to professionalise research, develop high standards of research, and increase the capacity for innovation, priority setting and systematic academic enquiry. Strengthening universities is critical but long term and time consuming; the centre of excellence model is seen as positive because it has the potential to realise human resource

development, improve organisational capacity and create an institutional and legal framework with positive effects in innovation and economic development. The OECD conducted a study regarding the impact of centres of excellence: it concluded that the model can have impact through creating a critical mass of research in a small number of carefully selected fields (Hellstroem 2013). Where national systems lack critical mass in any one field, centres of excellence can facilitate resource concentration, support interdisciplinary research, and address the challenges presented by fragmentation of research.

Fifthly, there is focus on participatory leadership. Bolden and Kirk published an interesting report that considers contextualised leader development in sub-Saharan Africa (Bolden and Kirk 2009). The empirical research for this paper was conducted on the first cohort of the 'InterAction' programme, a major leadership development initiative that was funded by the British Council and delivered to 300 participants across 19 sub-Saharan countries. The report identified a strong desire amongst the cohort for inclusive and participative leadership founded on humanistic and collectivist principles. It considers the potential for indigenous concepts such as 'ubuntu' in reframing distinctions such as 'individual-collective' to a sense of 'self in community'. The paper asserts that Africa is witnessing a resurgence of interest in leadership rooted in indigenous values. This in turn has implications for a strong trend for policy driven approaches (White 2002) and the push towards demonstrating 'value for money' within the sector (van Ameijde et al. 2009).

Finally, the literature discusses the importance of sharing within leadership development. Hemlin et al., provide a review of academic studies on the 'research climate'. Their study finds that the research leader is key to the research environment: providing clear co-ordinated objectives, vison, good staff selection and group participation (Hemlin, Allwood, and Martin 2004). Successful research groups are found to draw more extensively on larger and more collaborative networks; their work provides a link between disjoined peers and creates multidisciplinary connections (Heinze et al. 2009). This leads to the need for expertise sharing: complex, interdisciplinary research increasingly requires leaders to share expertise. It has been found that scientists who operate at the intersection of multiple research groups have a greater variety of perspectives and are more likely to generate original research. In this context, a successful research leader supports through sharing information, resources and expertise; providing autonomy; and setting clearly defined goals and responsibilities. The model developed at the close of the paper considers the critical external and internal conditions necessary for research leadership.

2.3. Relevance of research

Demonstrating the relevance of research is a universal challenge: strong research does not automatically get read by policymakers or other influencers. Indeed, a recent report by the World Bank showed that 'nearly one-third of their PDF reports had never been downloaded. Another 40 percent of their reports had been downloaded fewer than 100 times. Only 13 percent had seen more than 250 downloads in their lifetimes' (Doemeland and Trevino 2014). Inside academia, the relevance of research is measured by the 'impact factor' of the papers published. However a broader definition is required to measure the more holistic desired societal impact of R4D leadership. A public health researcher in Mali highlighted (in interview) the importance of achieving impact through providing relevant and accessible research. He explained how impact occurred when the recommendations provided in research on health policy were clear and accurately costed. For example, his recommendations from a report on paediatric health were adopted because the report focused on relevant health benefits and gave a model for costing per child for the initiative in Mali. Similarly, Transparency International (in interview) highlighted the importance of investing in training to help research leaders to communicate findings effectively: this requires strategically

IDRC building leaders in research for development: literature review

identifying the research agenda from the outset to ensure research is relevant and accessible. Leader building programmes designed to achieve holistic R4D impact benefit from adopting a broad view of leadership that encompasses researchers, research users and research communicators (such as the media). This requires effective collaboration across sectors, departments and organisations – at a range of levels.

3. Programmes and approaches to building leaders

3.1. Overview

This section provides a review of the main relevant programmes and approaches to supporting the building of leaders (further details of the programmes are provided in the supporting document). It examines the landscape of R4D programmes, exploring the distinctive ways that different organisations are working to build capacity of leaders.

There are many programmes operating in this sector but limited academic research. A significant piece of relevant research is from the ODI, who commissioned a report in 2007 that reviewed donor support for research capacity building, including leader building, in Africa (N. Jones, Bailey, and Lyytikäinen 2007). The study includes a series of databases that outline research capacity building approaches supported by different types of donors, estimated donor spending levels, programme coverage (themes, geographical focus, phase in the knowledge generation and knowledge translation cycle) and evaluation findings. The study identifies the leading bilateral donors for research capacity building: The Netherlands, Sweden, the International Development Research Centre (IDRC) (Canada) and the Research Institute for Development (IRD) (France). The World Health Organization (WHO) appears to be a significant multilateral in this field, and Rockefeller, Ford and more recently Hewlett lead among the group of private foundations.

3.2. Level of programmes

Leaders emerge at all levels of a research organisation or institution: from junior PhD students, to post-doctoral researchers, group leaders and senior experts. Many programmes target those at the outset of their careers, even as young as school-aged, recognising that interventions at the early-career stage can have significant impact.

One way to categorise leader development programmes is by level of seniority. There are a range of programmes that work with senior researchers, post-doctoral level researchers and PhD and Masters' students. Programmes engaging with senior researchers tend to focus on exposing them to ideas, networking and inter-institution collaboration; those working with young researchers tend to focus on training. CIRCLE, for example, aim to develop the skills and research output of early career African researchers in the field of climate change through 300 one-year fellowships. At the other end of the spectrum, the Africa Capacity Building Initiative takes senior African researchers and links them with UK institutions with the intention of supporting them to shape the future of the research and higher education community in their country.

The level of intervention is a particularly pertinent decision for the research industry. A study published in Nature found a huge drop off in the number of PhD students reaching senior level research position. In the US, for example, about 65% of US PhD-holders continue to postdoc level, but only 15–20% of those move into tenure-track academic posts (Powell 2015); In the UK, 3.5% of science doctorates become permanent research staff at universities. Statistics are not available for developing country universities but the research points to the importance of investing in leaders at the post-doc research level and above. A collaborative review of health research capacity-building compiled by organisations including the Bill and

Melinda Gates Foundation and the Wellcome Trust concluded that leader development of post-graduate and post-doctoral fellows is the highest priority in developing effective research enterprise (Pilcher 2012).

3.3. Sector of programmes

R4D requires a broad range of leaders: from purist academics through to practitioners working in the public sector. Moreover, the type of leader relevant to an R4D programme will also vary according to the research sector. Public health research, for example, requires leaders who are entrepreneurs, in pharmaceuticals, policy makers in government, academic scientists as well as strong project managers to administer complex clinical trials. A scan of major programmes demonstrates that overall donors tend to prioritise a small number of sectors: health and agriculture, natural and physical sciences and economics. The majority of significant programmes operating in R4D are non-sector specific or focussed on building leaders in health, economics, governance, engineering and sciences. The value of interdisciplinary research has been demonstrated in numerous western research settings: many leading research institutions depend on interdisciplinary teams where researchers have been exposed to other sectors. However there is limited evidence of this within R4D (beyond the work of IDRC).

3.4. Length of programmes

Most programmes engage with leaders or young leaders a maximum of three years. For example, the Edulink Building Research Capacity in Africa spends three years training 100 academics in research methodologies. Institutional leader building programmes can invest for longer: the INDOX research network links Oxford University to nine universities in India to develop clinical trials capacity and has been running since 2006.

'It is important to recognise that leadership training is not a one off process – it doesn't happen in one week. Once our scholars leave the scholarship programme – what resources can we provide them with to make sure that the skills are nurtured and the mission continues? One way we continue to support them is through our scholars community, and we are also considering a range of other ways that we can provide on-going support after the leadership programme itself has finished.' (Barry Burciul, Mastercard Foundation)

3.5. Scale of programmes

There is significant variety in the scale of programmes. Many organisations do not make their budgets publically available and so it is not possible to provide concrete information on the size of programmes. However, the scale of involvement is a useful indicator. The study identified a number of large programmes, such as University Partnerships in Cooperation and Development (UPCD) that supports 118 university partnership projects in 61 countries. Programmes that provide support to individual researchers tend to be smaller.

Related to both scale and sector is the role of horizontal leadership development. It is used to develop high-level capacity and to build the knowledge of a sector within a country or region. A notable example in the

IDRC building leaders in research for development: literature review

literature is the INDOX programme. Ali and Finlayson provide an indicative analysis of learning from partnerships between the Institute of Cancer Medicine at the University of Oxford and India's top nine comprehensive cancer centres (Ali and Finlayson 2012). The network practical and theoretical training in Phase 1 trials and annual meetings to form networks and bring people together. The authors note that from 2005–2007, all studies were industry sponsored with no Indian PIs (principal investigators) but as the capacity, experience and expertise of the network increased, so the balance has shifted decisively to investigator initiated studies and in 2012, all INDOX studies will be led by Indian PIs, either working with industry or independently. This demonstrates that research networks can be developed and sustained through mutually beneficial academic-industry collaborations.

4. Strengths and weaknesses of major programmes

This section provides an overview of the significant strengths and weaknesses emerging from the spectrum of leader development programmes that are currently implemented in R4D, reviewing the key themes that recur across the programmes.

4.1. Strengths of major programmes

A review of 78 relevant programmes in the sector indicates that significant strengths of leader building programmes are mentoring, partnerships and networking. The majority of leader building programmes rely on techniques with proven relevance to leader building, such as 360° feedback and mentoring approaches (for example, Global Change Leadership Programme). Coaching and mentoring has been shown to provide efficient and cost effective bespoke support for individuals and an opportunity to reflect and learn from experiences (McCall and Hollenbeck 2010). Within R4D the emerging trend for centres of excellence has demonstrated effectiveness in strengthening the research agenda, deepening collaborations and improve multi-disciplinary research outputs (Hellstroem 2013). This in turn has resulted in an increase in the availability of grants, particularly for PhD students.

The sector benefits from strong North-South partnerships. North-South mentoring for R4D has proved especially effective in increasing the access that young researchers have to global expertise, knowledge and ideas (for example, Aktion Africa). There are a small number of programmes promoting South-South partnerships among higher education institutions. The majority of organisations reviewed anticipate, in a range of ways, that societal transformation will be accelerated by leaders being equipped with the thinking and skills to address local and national-level development problems. The MasterCard Foundation African Youth think tank, for example, emphasises societal change in its scholarship programmes which aim to increase access to quality secondary and tertiary education and entrepreneurial training (The MasterCard Foundation 2014). However, while most organisations talk about impact, most rely on anecdotal evidence to demonstrate it (Wilde et al. 2011; Wellcome Trust 2014).

Networking is frequently used as a means of promoting collaboration and relationship building between researchers, leading to increased potential for sustainable impact. Networking has connected researchers across institutions, regions and countries. For example, the Leadership Development Programme by the European Consortium of Innovative Universities (ECIU) allows leaders the opportunity to reflect on experiences and learn from each other. Evaluations of the Rockefeller LEAD programme identified that networks require a management structure with clearly delineated responsibilities between national and international spheres (Hendricks and Finger 1998). An online network space was found to be pivotal to later success, and included a collaborative learning platform, interactive website management by participants, and several thematic mailing lists that enabled effective sharing and creation of knowledge (LEAD 2008) .

4.2. Weaknesses of major programmes

There is a notable lack of leader building R4D programmes that cater specifically for non-English speakers, women or minorities. The AWARD fellowship and TechWomen are notable exceptions. The most effective programmes are those that allow the leader to set his or her own development agenda. While this is unusual practice, positive exceptions are the 'Building research capacity in least developed countries'

programme supported by the Global Development Network and the 'Flexible Leadership Awards' supported by the Haas Jr Fund.

Within the R4D sector, most leader development programmes focus on building research capacity and skill rather than the character of the leader (for example, African University Research Approaches). This is particularly true of programmes focussed at PhD and post-doctoral researchers. Exceptions to this are the Research Leadership Development Programme by the Wellcome Trust and the Research Leadership Programme by the European Foundation for Management.

The review identified relatively few well-established internal leader building programmes operating within the R4D sector. Examples of internal programmes from other sectors are the ASNC, for US cardiologists, and the Primary Care Leadership Programme, for researchers at the University of Oxford. Despite the strength of North-South partnerships, sustainability remains an on-going challenge (interview 3, 4 and 5). In many cases, northern universities set research agendas and dictate terms (interview 3, 4 and 5). Literature regarding the weaknesses of networking emphasises the paradox of power relations between northern and southern institutions as a significant cause of failures (Girgis 2007). It is argued that financial accountability in the traditional north-south partnership model maintains a dependent relationship, keeps projects short-term and stifles the creativity and flexibility necessary for innovative research (Girgis 2007). The literature also discusses whether this model creates 'mini-institutions' that undermine rather than strengthen core infrastructure and institutional growth (Harp 2014). A final weakness relates to the sustainability of scholarships and training which can contribute to brain drain unless a proactive strategy is adopted to avoid it (Harp 2014).

Lessons from closed building leader programmes

Anecdotal accounts with interviewees (interview 1, 2 and 3) suggest that many organisations that have previously supported leadership programmes that no longer do so. However, there was limited official documentation available regarding this process.

'We did previously have programmes focused on developing leaders in Africa. In the end we decided that they were too expensive relative to the results that we were getting back, and ultimately the impact was too hard to measure. Now instead we have leadership integrated as a means rather than as an end in and of itself in our programmes.' (Kevin O'Neil Rockefeller Foundation)

To identify threats to leader development programmes it was instructive to review closed programmes. This was a significant challenge that was made more difficult by an attempt to trace results and identify the rationale for changing funding priorities. The Rockefeller Foundation's review of funding choices over the last 3 decades is a useful exception (Moock 2004). The conspicuous drop of major investment in the LEAD programme and the stated justifications helpfully ties in with wider literature reviews on leader programmes as a strategy for capacity-building. It is instructive that while leader building and individual or group research excellence are seen as relevant they are often overshadowed by competing demands for basic improvements in teaching and research and for better equipped institutions. Rockefeller, for example, has refocused on strengthening organizational culture, asserting that this will have a greater influence on research outcomes and researcher performance than additional training of leaders.

Another reason for the decision to exit is that building leader programmes have often not been implemented effectively. There are local demands on time and resources, and as such are vulnerable to commitment and managerial problems. Most notably researchers in developing contexts face substantial teaching requirements. The time available for leadership development is limited and needs to be flexible to different requirements. Opportunities for placements, career breaks and workshops can lead to increasingly stretched staff in already resource scare universities in developing countries. This challenge is likely to increase as university enrolment rates in development countries continue to increase. Finally, programmes cease because of the challenge of sustainability. It is challenging to ensure sustainability of leadership development due to the ongoing funding requirements of research networks and groups which lead to high turnover and intermittent funding for institution strengthening.

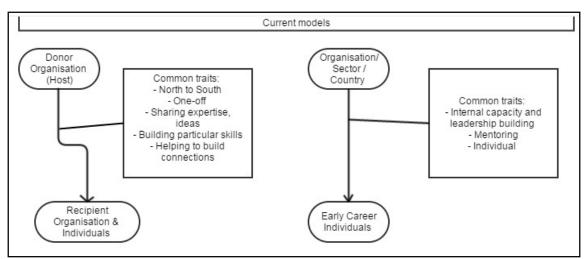
5. Potential pathways for building leaders

5.1. Overview

There is a lack of consensus on what pathways are most effective in building leaders. Pathways are viewed variably as movement up a career ladder, sustained commitment to a field, dedication to a 'calling' or vocation, or the process of increasing mastery. A wide variety of methods and tools can be used to help progress individuals along these pathways (Reinelt, Foster, and Sullivan 2002). The two principal means by which leaders are built are outlined below and summarised in the subsequent diagram. These two pathways have been developed by the research team to summarise two common current approaches on the basis of the review of the literature: they are not established models.

The first pathway involves an external organisation or donor organisation investing in a recipient organisation or individual. Examples of this are pre-packaged, structured programmes for PhD students or early-career researchers. The R4D sector provides a broad range of courses, programmes and packages that include placements, exchanges, courses and mentoring. Notable examples include the Developing Communities Leadership Programme, the Global Change Leaders Programme and the Hubert H. Humphrey Fellowship Programme.

The second pathway is an 'internal' model that involves an organisation or group of organisations in a sector running its own programme. Internal programmes are designed to be cohesive across an entire organisation (McCall and Hollenbeck 2010). They are most prominent in large and innovative companies with high capacity and designated funding. Effective examples of this model are well tailored, focus on passing on specific skill sets to future leaders, and tend to benefit from significant support from senior leaders of the organisation or sector. Buy-in and support from senior leadership has been demonstrated to be fundamental to the success of leader building programmes (McCall and Hollenbeck 2010; McCall 2004a; Kets de Vries and Korotov 2010b; Tichy 2001; Scott and Sanders-McBryde 2012). Internal programmes tend to focus on mentoring, training and workshops. Funders can support internal models through unrestricted grants that support capacity building activities and initiatives (Kramer and Tao 2011).



5.2. Ingredients of leader pathways

There is significant variation in the variety and sophistication of activities that leader building programmes provide. Good practice methods include mentoring, experiential learning, 360 degree feedback, research grants, and specific skills-based teaching. Each of these are expanded below:

- Mentoring (face-to-face or online). For example, the Developing Operational Research Capacity in the Health Sector Programme, provides mentoring support to improve the capacity of front line health practitioners in low income countries across Africa and Asia to carry out operational research. The mentoring is designed to help to improve routine monitoring of health systems and to support policy relevant operational research to ensure lifesaving improvements to care.
- Experiential learning in a real world environment. For example, the BVGH Nigerian Capacity-Building Initiative (BNCBI) aims to build leaders by transferring skills, experience, and knowledge from private industry to Nigerian researchers and universities. Training may include developing advanced biotechnology skills or gaining experience in the drug development process,
- 360 degree feedback. Although not a major theme of R4D programmes, an interesting example is the UN's Women Leadership Development Programme which includes residential programmes with 360-degree feedback to assess strengths, gaps, skills and competencies of senior managers.
- Research grants. For example, the Consortium for Advanced Research Training in Africa (CARTA)
 provides funding for Post-doctoral fellowships along-side courses in supervision, grant-writing, and
 research management.
- Specific skills-based teaching. For example, the Leadership in Global Health programme provides students with 1-year of training at the United Nations University in data analysis and preparation for publications.

Other common activities focussed on building the individual leader researcher are scholarships, conference attendance funding, short term exchange visits, and alumni connections. The AWARD Fellowship, SIDC, and the 'Investing in Leadership and Learning for Development Effectiveness' programme are typical examples.

These ingredients focus primarily on individual leader building. There is a significant emphasis within the literature regarding the need for greater investment in leadership programmes that build teams and promote policy level impact (Bolden and Kirk 2009; James 2011; Petrie 2011; Kramer and Tao 2011). However the emphasis on team leadership is not fully explored in practice in R4D. Early moves towards institutional and team-based leader building and creation of centres of excellence can involve the following additional activities:

- Linking institutions. The majority of these programmes are north—south collaborations to build the
 capacity of southern universities through grants, exchange visits, scholarships, training. Notable
 examples are the INDOX network, the ZEF German—Pakistani Research Collaboration Programme
 and the NORHED programme.
- Training for institutional capacity building. These activities are run by non-university organisations and most often involve training in research skills.
- Team building through group projects. For example, the World Bank Greater than Leadership
 programme gives 12-months of funding and coaching to groups to solve a problem they conceive
 together.

Key ingredients for	r leader pathways (emphasised repeatedly in the literature)
Experiences	Allowing promising leaders to gain experience that is varied, takes them outside their comfort zone (Mc Call 2004) and is suited to individual needs (Caligiuri 2006). Exposing potential leaders to experiences early as leadership development is a long process (McCall 2004).
Relevant training	Used as a reflection on actual experience and embedded within real work and the actual context (McCall 2004b; Gurdjian, Halbeisen, and Lane 2014; Hubbard 2005). Can substitute for experiences that are unavailable because they are either too risky, expensive, or difficult to reproduce (McCall 2004). Tailored to individual needs by conducting an initial assessment of leadership capabilities to see areas for development (Gurdjian, Halbeisen, and Lane 2014; Jones, O'Leonard, and Bersin 2012; Wilkins, Snell and Thomas 2012).
Exposure to other leaders	Leadership to be involved in teaching and mentoring the next generation (Bolden and Kirk 2009, (Kets de Vries and Korotov 2010b; Escandon and Kamungi 2008) and ensure succession planning (Wilkins, Snell and Thomas, 2012). Integrated to ensure on-going learning from peers (Kramer and Tao 2011).

5.3. Theory-based models of leader pathways

In 2002, the Kellogg Foundation observed 'there are still no known well-developed theories of leadership development that are grounded in what is being learned through program evaluation' (Reinelt, Foster, and Sullivan 2002). Significant progress has been made since then. A review of recent, high profile evidence-based models demonstrates a range of models based on 'best practice' ingredients. Hubbard (2005) notes that flexibility is key in order to identify the right model for each context. The four key models are outlined below.

The systems approach: there is wide consensus in the leadership community that leader development can be achieved through a systems approach that exposes the individual to developing experiences, mentorship and formal training (Muslim et al. 2015). The Centre for Creative leadership recommends a mixture of: 70% leadership assignments; 20% relationship development; 10% training (Wilson et al. 2011).

The Baron and Parent model: this model suggests leader building begins with an 'exploration phase' designed to increase self-awareness. Participants must identify their leadership challenges and new behaviours that will address those challenges. Next, they test those behaviours and assess the effect. The 'integration phase' requires participants to reflect on the effect of new behaviours and to adopt them within their work. Training practices to help leaders develop include the safety of trying new behaviours (Baron and Parent 2015).

The Full Range Leadership (FRL) model (Kirkbride 2006): this model proposed that transformative leader styles can be correlated with leader performance. Transformative leadership is taught through a combination of formalised 360 degree feedback (using a questionnaire developed by Kirkbride), structured workshops and one-to-one coaching sessions. The originality of the FRL model lies in its conceptualisation of behaviours demonstrated by all leaders: it emphasises that rather than being prescriptive, leader

building involves changing a participant's balance of behaviours away from transactional behaviours and toward the transformational (Kirkbride 2006).

The looking glass institute model has several stages for organisations looking to develop internal leader building programmes. First, identify challenges and strategies that will affect the organisation's progress in the next five years. Second, develop a core set of leader competencies and behaviours that will be needed to overcome these challenges. Third, identify a pool of individuals with high potential for leadership roles. Fourth, assess these individuals against the competencies through a series of tests and 360 degree feedback tools. Fifth, identify which of the participants are ready to take leader roles and which require 2-4 years further investment. Finally, create a tailored programme for each individual that focusses on building the competencies through leader experiences, measuring progress (Bonner and Obergas 2008).

Independent of the chosen model, a major theme in the literature is the importance of building in evaluation from the start (King and Nesbit 2015; Wilkins, Snell, and Thomas 2012; Hubbard 2005). This involves tracking and measuring leaders' performance over time (Gurdjian, Halbeisen, and Lane 2014). The Logic Development Guide, published by the Kellogg Foundation (2002), defines outcomes and impact of leader building. Outcomes are specific changes in attitudes, behaviours, knowledge, skills, status and worklevel that result from a leader building programme. The guide covers a range of short term impacts (defined as 1-3 years) and long-term impacts (defined as 3-6 years).

Key conditions	of success for leadership programs (emphasised in the literature)
Recipient organisation conditions	 Any new initiative needs to be backed by leadership within the organisation (McCall 2004, Kets de Vries and Korotov 2010, McCall and Hollenbeck 2010, Tichy 2001, Scott and Sanders-McBryde 2012) Importance of helping recipient organisations develop internal capacity to enable future leader development (Kramer and Tao 2011) Need for careful selection of participant organizations (Kramer and Tao 2011)
Program conditions	 Effective evaluation integrated from the outset (King and Nesbit 2015; Wilkins, Snell and Thomas 2012, Hubbard 2005) Constant and consistent leader development rather than responding to a crisis or critical gap (Kramer and Tao 2011) Long term approach to leader development (McCall 2004, Kramer and Tao 2011) which is directed by the individual (Petrie 2011; Wilkins, Snell and Thomas, 2012) Consideration of concepts of collective leadership, training leadership teams (Bolden and Kirk 2009, James 2011, Petrie 2011, Kramer and Tao 2011)

6. Models for building leaders in R4D

6.1. Approach to conceptual models

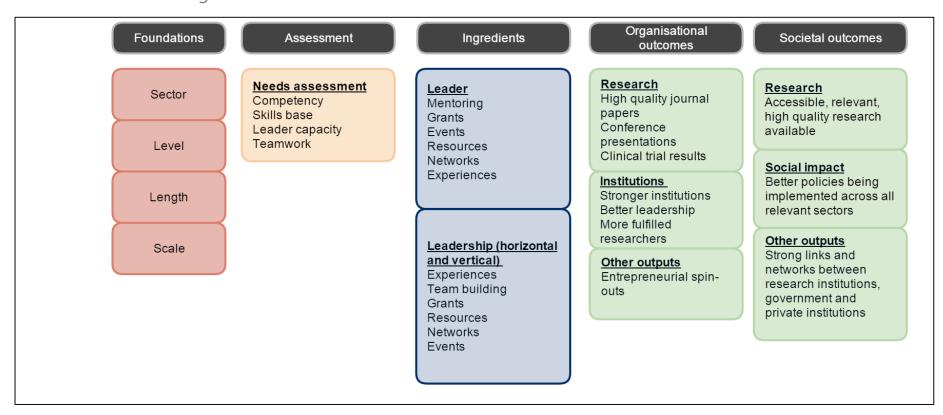
This section proposes two models for understanding the process of building leaders in R4D. The intention is that this provides visual tools to identify the key building blocks, activities and outcomes of different forms of leadership / building leaders programmes. It should be noted that these models have been developed by the research team on the basis of the literature as part of the review: they are not established models.

The first model provides an overview of good-practice approaches available for building leaders in R4D. The first column provides the 'foundations' that it is beneficial to determine at the outset of a new programme: the research sector or sectors, the level of engagement (senior researcher, post-doc researcher, PhD student), the length of the engagement (normally 6 months – 3 years), and the scale of engagement (an individual research leader to multiple institutions). The second and third columns outline the actions integral to the programme: an assessment of the needs of the chosen actors and the activities in which they are engaged. The fourth and fifth columns outline the anticipated short-term and long-term outcomes.

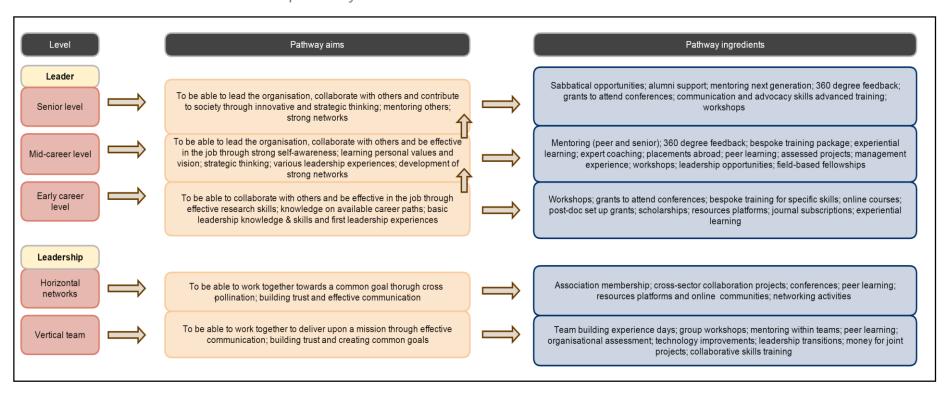
The second model illustrates pathways for individual (senior, mid-level or junior) or team-based building leader programmes. The central boxes show proposed areas of focus based on good-practice analysis from the study. The activities in the final section demonstrate the plethora of mechanisms for implementing the focus areas.

- The term 'horizontal networks' means a slice either across one seniority level within an organisation or within a sector. This may bring different actors together within a sector or within an organisation that may not usually interact on a regular basis.
- The term 'vertical team' means a slice within an organisation that engages with multiple levels (senior executives / PIs and junior members / PhD students etc). Many teams involve different seniority levels within and helping such a team collaborate effectively is the aim in engaging a 'vertical' team.
- The column 'pathway aims' explains the different aims for the stages it presupposes progression through the different levels.
- Within 'pathway ingredients' many are relevant across different levels. They have been categorised into groups most usually applicable.
- Leader building and leadership development are not mutually exclusive and can take place at the same time though the two approaches may need to be integrated, not working against each other but mutually reinforcing each other.

6.2. Model for building leaders in R4D



6.3. Model of individual or team pathways



7. Building female leaders in R4D

The literature notes repeatedly that insufficient work has been done to understand the differing role and styles taken on by female leaders (Escandon *et al.* 2008, Jones et al 2007, O'Neil *et al.* 2015, Oxfam 2014). Female leader programmes identified in this study provide training and mentoring for women and, in some cases, train senior male leaders to be gender-aware (Escandon *et al.* 2008, O'Neil et al 2015). There is sparse literature relating specifically to the development of female leaders within the R4D context. However, there are pertinent lessons from the literature on gender within research institutions more broadly. This section draws on three relevant lessons: the role of targeted programming, the challenges particular to women in obtaining leader positions, and the gender biases in institutions.

Many academic and other research institutions have institutional cultures prone to being patriarchal, hierarchical and competitive. An important initial step in creating equal leader opportunities is in identifying power disparities – such as the ways decisions are made – that can limit women's leader opportunities (Mendelberg *et al.* 2014). The literature on institutional leaders argues that female leader building requires a shift in institutional context. Leader building can be a process that creates alternative institutional cultures based on collaboration, encouragement and distributed power in order to increase women's access to influence (Council of Canadian Academies 2012).

Innovative female leader programmes in developing contexts often take place within a rights-based approach to development. These programmes are influenced by concepts surrounding power dynamics: they seek to identify and address the personal, organisational and institutional barriers that prevent women becoming leaders. A noteworthy example is the Oxfam 'Gender at work' scheme which uses a framework based on power-mapping of institutional structures and relationships to identify context-specific challenges to women in their work environment. Similarly, Oxfam's Transformational Leadership Model is based on the premise that successful leaders challenge structural inequality and adopt collaborative styles that build 'power with' and attribute 'power to' others within a team (Oxfam 2014).

Targeted programming is recognised as a mechanism for attracting and retaining young women in research. A lack of researchers in Korea, for example, has driven government-initiated programmes targeting female inclusion, such as online mentoring of female science and engineering students, work experience placements in engineering laboratories for high-school girls, and the development of universities that target women for engineering research (Lee 2010). Targeted programming is seen as vital for challenging gendered-concepts about leaders: they can increase demand for STEM subjects by female students and researchers, identify and promote the contributions made by women in primarily male research fields, and can promote research fields that are traditionally of more interest to women (Swiss *et al.* 2012).

Mentoring is widely acknowledged to have a positive impact in the process of building female leaders. Mentors can alleviate the effects of 'chilly climates' common in male-dominated research fields (Council of Canadian Academies 2012). For example, senior female academics in Zambia emphasised the role of mentors in changing their own convictions about career advances (Njobvu and Xiu 2014). In research contexts, professional mentoring has been directly linked to an increase in publication rates, tenure and lower attrition of female researchers (NAS 2007; 2010). A 'sponsor' is a senior level professional who, in additional to mentoring, will advocate for the junior researcher, involve them in projects, and raise their visibility within the institution (Ibarra *et al.* 2010). It is notable that – in a developed context - the

proportion of men and women who receive mentoring is similar but significantly fewer women have sponsors (Carta and Silva 2010, Ibarra *et al.* 2010). In summary, three significant challenges identified in the literature in relation to female mentoring for leadership:

- There are insufficient female mentors. Senior women risk being distracted from their own research because of the time burden of mentoring multiple junior academics (Orser *et al.* 2012).
- In developing research contexts, women are frequently expected to play a disproportionately large care-giving role for students and other colleagues (Njobvu and Xiu 2014).
- Males mentoring females can work effectively but there are notable instances where professional boundaries are not respected by male mentors (Leck *et al.* 2009).

The literature also recognises the role that online international networks can play in helping to address these challenges, offering a wider pool of mentors (Njobvu and Xiu 2014; Wilson 2004). Other challenges to senior female researchers relate to funding (Wilson 2004), tenure and teaching. Research suggests that women are often 'offered' many more low-visibility and time-intensive service opportunities (Park 1996) and that they spend more time meeting their additional commitments than men (Misra *et al.* 2011). Outside of the workplace, women face the dilemma of 'synchronizing the biological clock, the career clock (as in timetables for tenure), and a spouse's career clock' (Sonnert and Halton 1996). The literature proposes that innovative schemes try to address the practical limitations for female leaders:

- Research funding and grants often have strict time conditions. New schemes are needed to facilitate maternity leave (Schiebinger et al 2011).
- Building female leaders requires flexible working and support for childcare including outside of term-time (University of Konstanz 2011).
- Female carers face major limitations in career progression when precluded from travel to conferences or research locations (Orser at al 2012).

Some programmes focussed on institutional leader and capacity building now favour a sandwich model where participants spend 6-months in a developed country institution (rather than 4-5 years). This benefits female participants and promotes greater investment in the home institutions infrastructure, facilities and resources (SIDA 2009). Others programmes offer grants that include travel expenses for accompanying children and partners (University of Konstanz 2011).

Alumni networks for building leaders

It is clear that the development of effective alumni networks requires significant support. The German academic exchange service (DAAD) reports on a successful creation of alumni networks in regional groupings (Wilde et al. 2011). The report notes that this is because of the fact that over the years, the DAAD has provided support to alumni to enable them to carry out workshops and seminars themselves (a train the trainer approach) which gave the alumni the methodological and technical tools to be multipliers. They have also funded peer coaching opportunities, regional and international networking and exchange visits to empower each other. DAAD calls this continued support 'recharging' (Wilde et al. 2011)

Research on diaspora networks emphasises that success relies on bringing people together who have strong intrinsic motivation to be involved in the network: much of the development of networks is

organic and success is hard to predict (Kuznetsov 2006, Koc-Menard 2009). It is clear that strongly functioning alumni networks can be a valuable resource of expertise and support which can strengthen an individual's and organisation's capacity. Specifically, online alumni communities are a valuable means by which to maintain networks and partnerships (Bernard and Rensleigh 2008). Harvey and Huber (2002) assert that alumni networks help to sustain and expand a professional learning horizon. They suggest practical strategies on growing and supporting an alumni network, including effective communications strategies and workload models. Nann et al. (2010) argue that strong university networks can produce more successful founders of start-ups. The more links founders have with alumni of their university, the more successful their start-up is likely to be.

8. Concluding comments

The study concludes with two tentative recommendations regarding building leaders in R4D. While the study has identified a wide range of pertinent issues and principles from the literature, the intention has not been to provide definitive conclusions regarding what constitutes 'best-practice'.

Firstly, effective building leader programmes are more likely to be context specific rather than based on supposedly universally applicable approaches. Building leaders will not look the same across all programmes and contexts. There is no ideal model, the value of a model is in helping to understand the range of possible approaches available and the significant pathways between them. The experiences of the Mastercard Foundation highlight the importance of contextualised approaches that are operationalised through local partners as much as possible and based on input from beneficiaries.

Secondly, the literature demonstrates the benefits of investing in developing the internal capacity within an organisation to conduct their own leadership / building leaders program internally. It is worth considering the possibility of donor organisations, rather than always delivering their own programme as an external actor, helping R4D related organisations or groups of organisations (normally within a specific geographical setting) to deliver their own leadership programme with support. As demonstrated, investing in the capacity of a research organisation to build its own leaders can be an effective way of creating long term loyalty within the organisation. This in turn can lead to more deeply embedded long term learning and cultural understanding, and overall potential for contributing to holistic impact.

External interviewees recommendations for increasing impact of research		
Building connections	 Encouraging regional sharing of expertise and research Establishing close working relationships with press and politicians and key teams within government working on similar issues Organising research roundtables ensures that other stakeholders are engaged with the current research and can feed into the process Collaboration with other institutions to ensure research is stronger, more rigorous and with greater reach 	
Increasing accessibility and relevance	 Practical communication skills for researchers to communicate findings in a way that public figures understand (adding clear demands, statistics and costs to research findings) Facilitate access for minority languages – to be able to participate in and shape the global R4D discussions 	

Bibliography

- Ali, Raghib, and Alexander Finlayson. 2012. "Building Capacity for Clinical Research in Developing Countries: The INDOX Cancer Research Network Experience." *Global Health Action* 5 (0). doi:10.3402/gha.v5i0.17288.
- Annerstedt, Jan, and Shantha Liyanage. 2014. Challenges When Shaping Capabilities for Research: Swedish Support to Bilateral Research Cooperation with Sri Lanka and Vietnam, 1976–2006, and a Look Ahead. Department for Research Cooperation. http://www.sida.se/contentassets/34d05ab24fec4134b51a551e88acdca4/200814-challenges-when-shaping-capabilities-for-research_1945.pdf.
- Avolio, Bruce J., Fred O. Walumbwa, and Todd J. Weber. 2009. "Leadership: Current Theories, Research, and Future Directions." *Annual Review of Psychology* 60 (1): 421–49. doi:10.1146/annurev.psych.60.110707.163621.
- Baron, Louis, and Elise Parent. 2015. "Developing Authentic Leadership Within a Training Context: Three Phenomena Supporting the Individual Development Process." *Journal of Leadership & Organizational Studies* 22 (February): 137–53.
- Bernard, Zenia, and Chris Rensleigh. 2008. "Investigating Online Community Portals for Enhanced Alumni Networking." *The Electronic Library* 26 (4): 433–45.
- Bloom, David Elliot, David Canning, and Kevin Chan. 2006. *Higher Education and Economic Development in Africa*. 102. World Bank Washington, DC. http://www.arp.harvard.edu/AfricaHigherEducation/Reports/BloomAndCanning.pdf.
- Bolden, Richard, and Philip Kirk. 2009. "African Leadership: Surfacing New Understandings through Leadership Development." International Journal of Cross Cultural Management 9 (1): 69–86.
- Bonner, Leslie, and Jessica Obergas. 2008. "Nonprofit Leadership Development: A Model for Identifying and Growing Leaders within the Nonprofit Sector." The Looking Glass Institute.
- Buckingham, Burdette R. 1927. "Leadership in Educational Research." The Journal of Educational Research, 239-45.
- Caligiuri, Paula. 2006. "Developing Global Leaders." Human Resource Management Review 16 (2): 219-28.
- Carson, J. B., P. E. Tesluk, and J. A. Marrone. 2007. "Shared Leadership in Teams: An Investigation of Antecedent Conditions and Performance." *Academy of Management Journal* 50 (5): 1217–34. doi:10.2307/20159921.
- Clarke, Paul Knox. 2014. "Between Chaos and Control." http://www.researchgate.net/profile/Paul_Knox_Clarke2/publication/270585939_Between_chaos_and_control_rethinking_operation al_leadership/links/54afacf00cf21670b35a8f61.pdf.
- Cole, D. 2011. "Searching for Evidence on Effectiveness of Health Research Capacity Development Initiatives with Lower and Middle Income Countries (abstract 0292)."
- Conger, Jay Alden, and Beth Benjamin. 1999. *Building Leaders: How Successful Companies Develop the next Generation*. Jossey-Bass San Francisco, CA. http://www.altfeldinc.com/pdfs/building.pdf.
- Cornelius, Marla, Patrick Corvington, Albert Ruesga, Suman Murthy, and Nick Turner. 2006. "Ready to Lead? Next Generation Leaders Speak out." CompassPoint.
- Day, David V., John W. Fleenor, Leanne E. Atwater, Rachel E. Sturm, and Rob A. McKee. 2014. "Advances in Leader and Leadership Development: A Review of 25 Years of Research and Theory." *The Leadership Quarterly*, Leadership Quarterly 25th Anniversary Issue, 25 (1): 63–82. doi:10.1016/j.leaqua.2013.11.004.
- Day, David V., Stephen J. Zaccaro, and Stanley M. Halpin. 2004. *Leader Development for Transforming Organizations: Growing Leaders for Tomorrow*. Applied Psychology Series.
- De Lisle, Jerome. 2009. "An Institution Deeply Rooted in the Status Quo: Insights into Leadership Development and Reform in the Education Sector of Trinidad and Tobago." *Social and Economic Studies*, 69–93.
- Doemeland, Doerte, and James Trevino. 2014. "Which World Bank Reports Are Widely Read?" World Bank Policy Research Working Paper, no. 6851. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2431989.
- Eckert, Regina, Simon Rweyongoza, and Michael Campbell. 2010. "Leadership Development in Africa A Focus on Strengths." http://humancapitalreview.org/Articles/2010/June/CCL_Africa_Whitepaper.pdf.
- Enright, Kathleen P. 2006. "Investing in Leadership Volume 2: Inspiration and Ideas from Philanthropy's Latest Frontier." Grantmakers for Effective Organizations.

- Escandon, Sheila Daunt, and Prisca Mbura Kamungi. 2008. "Women of Africa Leadership Development Program." http://sftp.sfcg.org/programmes/lwi/documents/WomenOfAfrica_Kenya.pdf.
- Gibb, Allan, Gay Haskins, Paul Hannon, and Ian Robertson. 2012. "Leading the Entrepreneurial University: Meeting the Entrepreneurial Development Needs of Higher Education (2009, Updated 2012)." http://eureka.bodleian.ox.ac.uk/4861/.
- Girgis, Mona. 2007a. "The Capacity-Building Paradox: Using Friendship to Build Capacity in the South." *Development in Practice* 17 (3): 353–66. doi:10.1080/09614520701336782.
- 2007b. "The Capacity-Building Paradox: Using Friendship to Build Capacity in the South." *Development in Practice* 17 (3): 353–66. doi:10.1080/09614520701336782.
- Gordge. 2011. "Decisions on Assessing Research Impact." Research Excellence Framework.
- Gurdjian, Pierre, Thomas Halbeisen, and Kevin Lane. 2014a. "Why Leadership-Development Programs Fail." *McKinsey Quarterly*. http://www.accesspointpartners.org/images/McKinsey_Report_Jan_2014_-_WhyLeadershipDevelopmentProgramsFail.pdf.
- Hameed, Abdul, Abida Ibrahim, Nabila Rafiq, Fozia Naheed, and others. 2014. "The Impact of Organizational Culture and Training on Leadership Development." *International Journal of Research in Business and Technology* 4 (2): 465–71.
- Hansson, Finn, and Mette Mønsted. 2008. "Research Leadership as Entrepreneurial Organizing for Research." *Higher Education* 55 (6): 651–70.
- Harp, Angela Marie. 2014. "International Scholarships: A Two-Way Opportunity." ETH Global.
- Harvey, Marina, and Elaine Huber. 2002. "Expanding the Horizons of Professional Learning: A Foundations Alumni Network." *Asian Social Science* 8 (14).
- Heinze, Thomas, Philip Shapira, Juan D. Rogers, and Jacqueline M. Senker. 2009. "Organizational and Institutional Influences on Creativity in Scientific Research." *Research Policy*, Special Issue: Emerging Challenges for Science, Technology and Innovation Policy Research: A Reflexive Overview, 38 (4): 610–23. doi:10.1016/j.respol.2009.01.014.
- Hellstroem, Tomas. 2013. "Centres of Excellence as a Tool for Capacity Building." Innovation, Higher Education and Research for Development (IHERD).
- Hemlin, Sven, Carl Martin Allwood, and Ben R. Martin. 2004. *Creative Knowledge Environments: The Influences on Creativity in Research and Innovation*. Edward Elgar Publishing.
- Hendricks, M, and M Finger. 1998. External Evaluation of the LEAD Program: Executive Summary.
- Herrmann, Keith. 2008. "Developing Entrepreneurial Graduates Putting Entrepreneurship at the Centre of Higher Education." NESTA.
- Hubbard, Betsy. 2005. "Investing in Leadership Volume 1: A Grantmakers' Framework for Understanding Non-profit Leadership Development." Grantmakers for Effective Organizations.
- Ismail, Kamariah, and Wirya Najm Rashid. 2015. "Entrepreneurial Leadership Styles and Academic Commercialization: Investigating the Mediating Role of Entrepreneurial Orientation." Accessed March 11. http://www.wseas.us/e-library/conferences/2014/Florence/DEEE/DEEE-17.pdf.
- Jackson, Terence. 2004. Management and Change in Africa: A Cross-Cultural Perspective. Psychology Press.
- James, Kim Turnbull. 2011. "Leadership in Context: Lessons from New Leadership Theory and Current Leadership Development Practice." Commission on Leadership and Management in the NHS. The King's Fund. http://www.kingsfund.org.uk/sites/files/kf/leadership-in-context-theory-current-leadership-development-practice-kim-turnbull-james-kings-fund-may-2011.pdf.
- Jones, Katherine, Karen O'Leonard, and Josh Bersin. 2012. "Global Leadership: Developing Tomorrow's Leaders around the World." Bersin & Associates Research Report.
- Jones, Nicola, Mark Bailey, and Minna Lyytikäinen. 2007. *Research Capacity Strengthening in Africa: Trends, Gaps and Opportunities*. A scoping study commissioned by DFID on behalf of IFORD. Overseas Development Institute.
- Kearney, M. L. 2009. Higher Education, Research and Innovation: Charting the Course of the Changing Dynamics of the Knowledge Society, in Higher Education, Research and Innovation: Changing Dynamics. Paris: UNESCO.
- Kets de Vries, Manfred, and Konstantin Korotov. 2010. "Developing Leaders and Leadership Development." INSEAD.
- Kharas, Homi. 2007. "Trends and Issues in Development Aid." Wolfensohn Center for Development.
- King, Elizabeth, and Paul Nesbit. 2015. "Collusion with Denial: Leadership Development and Its Evaluation." *Journal of Management Development* 34 (2): 134–52.

- Kirkbride, Paul. 2006. "Developing Transformational Leaders: The Full Range Leadership Model in Action." *Industrial and Commercial Training* 38 (1): 23–32.
- Koc-Menard, Sergio. 2009. "Knowledge Transfer after Retirement: The Role of Corporate Alumni Networks." *Development and Learning in Organizations: An International Journal* 23 (2): 9–11.
- Kramer, Kirk, and Julia Tao. 2011. "What Makes for an Effective Leadership Development Program?" Bridgestar.
- Kubler, Jay, Nicola Sayers, and Leadership Foundation for Higher Education (Great Britain). 2010. *Higher Education Futures: Key Themes and Implications for Leadership and Management*. London: Leadership Foundation for Higher Education.
- Kuznetsov, Yevgeny, ed. 2006. Diaspora Networks and the International Migration of Skills: How Countries Can Draw on Their Talent Abroad. The World Bank. http://elibrary.worldbank.org/doi/book/10.1596/978-0-8213-6647-9.
- Lansang, Mary Ann, and Rodolfo Dennis. 2004. "Building Capacity in Health Research in the Developing World." *Bulletin of the World Health Organization* 82 (10): 764–70. doi:10.1590/S0042-96862004001000012.
- LEAD. 2008. Final Report on Continued Development and Expansion, Mobilisation of the LEAD Fellows Network 2006-2007. LEAD.
- Leslie, Jean B. 2009. "The Leadership Gap." Center for Creative Leadership.
- Linnell, Deborah S, and Tim Wolfred. 2009. "Creative Disruption: Sabbaticals for Capacity Building & Leadership Development in the Nonprofit Sector." CompassPoint.
- McCall, Morgan W. 2004. "Leadership Development through Experience." The Academy of Management Executive 18 (3): 127–30.
- McCall, Morgan W., and George P. Hollenbeck. 2010. "The Not-So-Secret Sauce of the Leadership Development Recipe." USC Marshall.
- Moock, J.L. 2004. Rockefeller Foundation: How We Invest in Capacity Building. World Bank.
- Muslim, Sakinah, Shireen Haron, Rugayah Hashim, and Norraidah Hassan. 2015. *Leadership Development Initiatives to Ensure Succession Planning Effectiveness*. Proceedings of the Colloquium on Administrative Science and Technology,.
- Nann, Stefan, Jonas S. Krauss, Michael Schober, Peter A. Gloor, Kai Fischbach, and Hauke Fuehres. 2010. "The Power of Alumni Networks Success of Startup Companies Correlates with Online Social Network Structure of Its Founders." MIT Sloan Research Paper No. 4766-10.
- O'Neil, Deborah A, Margaret M. Hopkins, and Diana Bilimoria. 22 March 20015. "A Framework for Developing Women Leaders: Applications to Executive Coaching." *Journal of Applied Behavioral Science*
- Oxfam, 2014. Transformative leadership for women's rights https://www.oxfam.org/sites/www.oxfam.org/files/transformative-leadership-womens-rights-oxfam-guide.pdf
- Paul, Samuel. 1981. "Beyond Investment: Some Lessons from Development Programmes." Economic and Political Weekly, M130-40.
- Petrie, Nick. 2014. "Future Trends in Leadership Development." Centre for Creative Leadership.
- Pilcher, H. 2012. "Building Institutions through Equitable Partnerships in Global Health: A Conference Report." London.
- Powell, Kendall. 2015. "The Future of the Postdoc." Nature 520 (7546): 144-47. doi:10.1038/520144a.
- Ratten, Vanessa. 2014. "Collaborative Entrepreneurship and the Fostering of Entrepreneurialism in Developing Countries." *International Journal of Social Entrepreneurship and Innovation* 3 (2): 137–49.
- Reinelt, Claire, Paul Foster, and Siobhan Sullivan. 2002. "Evaluating Outcomes and Impacts: A Scan of 55 Leadership Development Programs." W.K. Kellogg Foundation.
- Rivas, Olivia, and Irma S. Jones. 2015. "Investing in Yourself: One University's Leadership Models." *Research in Higher Education*. http://mobile.www.aabri.com/manuscripts/142061.pdf.
- Roomi, Muhammad Azam, and Pegram Harrison. 2011. "Entrepreneurial Leadership: What Is It and How Should It Be Taught?" *International Review of Entrepreneurship*. http://uobrep.openrepository.com/uobrep/handle/10547/222995.
- Rothman, Margot. 2012. Formative Evaluation of the Coady International Institute's Program 2007 2012. Coady International Institute.
- Sawyerr, Akilagpa. 2004. "African Universities and the Challenge of Research Capacity Development." JHEA/RESA 2 (1): 211-40.
- Scott, K., and T Sanders-McBryde. 2012. "A Technical College Grow-Your-Own Leadership Program." *Community College Journal of Research and Practice* 36: 146–49.
- Southwell, Deborah, Wendy Morgan, and Australian Learning & Teaching Council. 2009. Leadership and the Impact of Academic Staff
 Development and Leadership Development on Student Learning Outcomes in Higher Education: A Review of the Literature: A

- Report for the Australian Learning and Teaching Council (ALTC). [Brisbane, Qld.]: QUT Dept. of Teaching and Learning Support Services.
- Stahl, Rusty Morgen. 2013. "Talent Philanthropy: Investing in Non-profit People to Advance Non-profit Performance." *The Foundation Review* 5 (3): 6.
- The MasterCard Foundation. 2014. Change That Matters: Learning from Our Partnerships. http://www.mastercardfdn.org/what-we-are-learning/publications/learning-and-evaluation.
- Tichy, Noel M. 2001. "No Ordinary Boot Camp." Harvard Business Review 79 (4): 63-70.
- Van Ameijde, Jitse D. J, Patrick C. Nelson, Jon Billsberry, and Nathalie van Meurs. 2009. "Improving Leadership in Higher Education Institutions: A Distributed Perspective." *Higher Education* 58 (6): 763–79.
- Wellcome Trust. 2014. DELTAS Africa Initiative Outline: Developing Excellence in Leadership, Training and Science. http://www.wellcome.ac.uk/stellent/groups/corporatesite/@sf_central_grants_admin/documents/web_document/wtp057118.pdf.
- White, Franklin. 2002. "Capacity-Building for Health Research in Developing Countries: A Manager's Approach." *Revista Panamericana De Salud Pública = Pan American Journal of Public Health* 12 (3): 165–72.
- Wilde, Marc, Felix Wagenfeld, Katja Spross, Marta Schuman, Marijke Wahlers, and Thomas Boehm. 2011. 10 Years of Dialogue on Innovative Higher Education Strategies (DIES). German Academic Exchange Service.
- Wilkins, D, A Snell, and B Thomas. 2012. "Emerging Leaders: Build versus Buy." Oracle / Taleo Cloud Service.
- Wilson, M.S, El. V. Velsor, A. Chandrasekar, and C. Criswell. 2011. "Grooming Top Leaders: Cultural Perspectives from China, India, Singapore and the United States." Center for Creative Leadership.
- Woltring, Carol, Wendy Constantine, and Liz Schwarte. 2003. "Does Leadership Training Make a Difference? The CDC/UC Public Health Leadership Institute: 1991–1999." *Journal of Public Health Management & Practice* 9 (2): 103–22.
- Zachariah, R., T. Reid, S. Srinath, J. Chakaya, K. Legins, U. Karunakara, and A.D. Harries. 2011. "Building Leadership Capacity and Future Leaders in Operational Research in Low-Income Countries: Why and How?" *The International Journal of Tuberculosis and Lung Disease* 15 (11): 1426–36. doi:10.5588/ijtld.11.0316.

Appendices

Appendix 1: List of external interviewees

No.	Interviewee	Role
1	Kevin O'Neil	Rockefeller Foundation Associate Director, Program Team
2	Barry Burciul	Mastercard Foundation, Manager Evaluation and Learning Scholars Team
3	Shona Bezanson	Mastercard Foundation, Program Manager, Scholars Team
4	Alexander Finlayson	Former head of global health research at King's College London
5	Dr Mohamed Sangare	Expert Engineer Healthcare Information Systems, CERTES, Bamako
6	Rachel Davies	Senior Advocacy Manager, Transparency International UK

Appendix 2: Summary details of programmes referenced in the review

This table provides the summary details for all the specific programmes and organisations that are referenced in the review. This is a subset of the full tables of 43 leadership development programmes, 35 R4D leadership programmes and 14 additional organisations operating in R4D leadership.

Name of programme / organisation	Summary
Aktion Africa (Humboldt Foundation)	Sector: Research Link to website: http://www.humboldt-foundation.de/web/dossier-development-cooperation.html
African University Research Approaches (AURA)	Sector: Health, agriculture, environment Link to website: https://www.ids.ac.uk/project/african-universities- research-approaches-aura-capacity-development-programme

Building research capacity in least developed countries (Global Development Network)	Sector: Economics and social sciences Link to website: http://www.gdn.int/html/page11.php?MID=3&SID=24&SSID=79
BVGH Nigerian Capacity-Building Initiative	Sector: Health Link to website: http://www.bvgh.org/Current-Programs/Nigerian-Capacity-Building-Initiative.aspx
Centre for Creative leadership	Sector: Business and Research Link to website: http://www.ccl.org/Leadership/research/awards/index.aspx
Consortium for Advanced Research Training in Africa	Sector: Health Link to website: http://www.cartafrica.org/
Developing Communities Leadership Programme	Sector: Private and non-profit cross sector Link to website: http://www.gleninternational.org/developing_communities_leader ship_program_dclp
Developing Operational Research Capacity in the Health Sector Programme	Sector: Health Link to website: http://www.theunion.org/news- centre/news/body/Technopolis_Final_Report_150112.pdf
Flexible Leadership Awards (The Haas Jr. Fund)	Sector: Non-profit sector Link to website: http://www.haasjr.org/what-were-learning/resource/flexible-leadership-awards
Global Change Leaders Programme	Sector: NGO cross sector Link to website: http://www.coady.stfx.ca/themes/women/gcl/ and http://inspiredindividuals.org/
Hubert H. Humphrey Fellowship Programme	Sector: Governance Link to website: https://www.humphreyfellowship.org/
INDOX network	Sector: Health Research Link to website: www.indox.org.uk
Leadership Development Programme by the European Consortium of Innovative Universities	Sector: Education Link to website: http://eciu.web.ua.pt/page.asp?pg=11
Investing in Leadership and Learning for Development Effectiveness	Sector: Governance Link to website: http://www.acdi- cida.gc.ca/cidaweb%5Ccpo.nsf/projEn/D000114001
Leadership in Global Health programme	Sector: Health Link to website: http://unu.edu/research/leadership-in-global-health.html#outline

NORHED programme (The Norwegian Programme for Capacity Development in Higher Education and Research for Development)	Sector: Education, health, environment, economics, governance, humanities Link to website: http://www.norad.no/en/support/norhed;jsessionid=2518A63AC5C FCDE4768DA1ECEC7791B3
The AWARD Fellowship (African Women in Agricultural Research and Development)	Sector: Agriculture Link to website: http://www.awardfellowships.org/
Greater than Leadership programme (World Bank Institute)	Sector: Cross sector Link to website: http://wbi.worldbank.org/wbi/content/leadership-world-bank-institute%E2%80%99s-leadership-development-program
German–Pakistani Research Collaboration Programme (ZEF)	Sector: Research Link to website: http://www.zef.de/index.php?id=2329

Appendix 3: Key resources on leadership development programmes

This table provides a summary of six resources that are particularly helpful further reading regarding leadership development programmes. They are a subset from the full bibliography of 85 resources reviewed for this exercise (the full tables are available as a separate document).

Resource	Summary
Investing in Leadership v. 1 and v. 2 (Hubbard 2005, Enright 2006)	Volume 1 provides background reading on leadership and delves deeper into collective leadership and proposes a working model. Volume 2 gives pertinent examples of recent leadership development programs that have been innovative and effective
What Makes for an Effective Leadership Development Program? (Kramer and Tao 2011)	This paper examines recent innovative examples of leadership development programs and provides recommendations for funders
Non-profit Leadership Development: A model for identifying and growing leaders within the non-profit sector (Bonner and Obergas 2008)	This paper analyses leadership competencies and developmental activities relevant to the non-profit sector
Future Trends in Leadership Development (Petrie 2011)	This paper provides concise conclusions regarding future trends within the leadership development sector

The Not-So-Secret Sauce of the Leadership Development Recipe (McCall and Hollenbeck 2010)	This paper provides a review of leadership development from respected leadership experts
Creative Disruption (Linnell and Wolfred 2009)	This paper assesses the efficacy of funding sabbaticals to develop leadership

Appendix 4: Noteworthy examples of leadership development programmes

This table provides a summary of five leadership development programmes, as a subset of the full table of the 43 leadership development programmes reviewed for this exercise (the full table is available as a separate document).

Group Business		
Leadership Programme		
(Shell Corporation)		

Shell recognised the need to develop a new leadership program that focused on trust and relationship-building in order to enhance authentic leadership as well as emotional and relationship qualities in its senior managers. The project combines different ingredients considered best practice: coaching, peer learning and undertaking high-stakes supervised business projects.

Flexible Leadership Awards

(The Haas Jr. Fund)

The program provides long-term, custom-tailored leadership support to selected Haas, Jr. Fund grantees. The Flexible Leadership Awards allow the board and staff of non-profit organizations to step back and think expansively about what their organizations want to achieve and the leadership challenges they have to meet to get there. Consultants supported by the Haas, Jr. Fund work with each organization to develop a plan for the use of their grant funds, and to identify and deploy the best resources to help them meet their leadership goals. Grantees have used their award funds to support coaching for staff and board leaders, strategic planning initiatives aimed at sharpening the focus of their organizations, board development and engagement, and succession planning.

Greater than Leadership Program

(World Bank Institute, The Smithsonian Conservation and Biology Institute,

Global Tiger Initiative, George Mason University) Forest rangers and their managers are immersed in a learning experience over 12 months to help them reach their own conservation goals. The training is focused on getting teams to work together more effectively. The program is problem driven, and each delivery of the program is based on a specific change or reform effort. Teams need to agree on the precise nature of the problem they will tackle, they then spend a week or more on intensive leadership skills and then another 11 months in to apply these skills in a practical 'learning-by-doing' process, assisted by a help desk and a set of expert networks for coaching and continuous support.

IDRC building leaders in research for development: matrix of organisations building leadership

Hawaii Asia-Pacific Affairs Leadership Program

(Center for Strategic & International Studies)

This interactive programme informs participants of major political, economic, and security issues in the Asia Pacific and equips them to think critically and strategically regarding Hawaii's role in the region. Participants benefit from a local and international peer network that will serve them in the future. The programme's curriculum spans the Asia-Pacific region, with each month focusing on a different bilateral relationship or sub-region.

Trilogy Induction Program

(Trilogy)

The Trilogy Induction Program is famous due to its high risk, changing, and intensive investment in new staff. The goal of the program is to develop creative people who work well in teams, adapt to swift changes in customer demands and take chances. The CEO of Trilogy attends as well as leads the month-long induction programme. New hires are divided into 80 teams and given three weeks to complete real projects ranging from making an existing Trilogy product run faster to creating new products from scratch which have the potential to be used in the business.