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Social Ecosystem for Skills Research: Inclusivity, Relationality and Informality

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Introduction

Eighty per cent of Africans work in the informal economy. In this chapter, we consider the highly informal, unregulated and often marginalized contexts that form the majority experience of living, working and learning. Situating the praxis of horizontal learning within these very normal contexts of informality demands renewed analysis into the questions of *how* horizontal learning is facilitated, by whom, with what resources, and why.

Following on from Chapter 4, we develop our approach to social ecosystems further through two empirical case studies offering distinct lenses on to the informal sector. In Gulu, we consider the current dynamics of learning and inclusion among informal traders at a local market and in a set of food and clothing initiatives; in Alice, we reflect on an intentional effort on behalf of established, formal institutions to explore new approaches to teaching and learning through support of expansive informal learning in the context of food growing. While our focus across the book is on the range of labour markets and livelihood opportunities, it is appropriate to start our empirical chapters by focusing on the labour market of the majority.

General context and background

As we noted in Chapter 2, the 'discovery' of the informal sector 50 years ago prompted a flowering of research and programme interventions on how to enhance skills for those already in or likely to enter informal work (King, 2020). The informal economy is the normal economy in much of the

world, including across most of Africa (Jütting and de Laiglesia, 2009) where it accounts for around 80 per cent of all livelihoods (Nguimkeu and Okou, 2020). With roughly 800 million youth forecast to enter their working lives over the coming 40 years (Kaneene et al, 2015; Losch, 2016), the informal economy is likely to remain central to how the overwhelming majority of Africans live, work and learn.

However, how we understand the informal sector, its potential development and the role of education and training in supporting it remains a matter of considerable controversy. A good example of the current policy orthodoxy is found in a recent International Labour Organization (ILO) literature review on lifelong learning in the informal economy (Palmer, 2020). This portrays the informal sector largely as a site of poverty and poor productivity, occupied by those with the lowest levels of educational achievement. Yet, apparently these major disadvantages can be easily overcome as the ILO also argues that relatively short interventions can bring significant employment and income benefits to informal sector actors.

From the World Bank, there tends to be a parallel argument about the need to stimulate entrepreneurship, and how easy this is. For education agencies, this then leads to calls for entrepreneurship education (see De Jaeghere, 2017 for a critical review). This is also increasingly being promoted in African vocational education and training (VET) systems based on an assumption that VET can relatively easily flip from a formal employment to an entrepreneurship focus (Allais et al, 2022). Again, there is a sense that there are no structural barriers affecting individual opportunities, and that entrepreneurial success is possible for all, here coupled with a naive faith in current public VET institutions' ability to switch focus.

A third policy trend is towards formalization of the informal sector and its learning systems, on the assumption that this will allow easy access to the formal sector. This includes attempts to bring the informal sector into national qualification frameworks through recognition of prior learning. We are resistant to all these easy policy responses. All have poor track records, similar to many of the VET reforms discussed in Chapter 2. Indeed, they appear to serve more to blame the poor for their alleged culpability than to engage seriously with the obstacles to sustainable livelihoods. Instead, in this chapter, we try to highlight both the structural realities of informal working and learning and the agentic possibilities.

In situating this work on informality, we conceptualize notions of informality and formality as interrelated elements. They are not the binary notions beloved of policy actors. Lives do not operate only in one of the two categories. It is from this perspective that we explore relationships between formality and informality. We also draw on the work of Edwards (2011) and De Jaeghere (2020) and their conceptualizations of relational agency and relational capabilities to underpin our analysis of the dynamics

we observed in the Ugandan and South African cases. Collectively, this situates networked ecosystems of actors within the informal economy as the invisible mainstay of the current vocational system across much of the continent and a potentially catalytic driver of inclusive innovation.

Informality, learning and the potential for innovation

The literature on lifelong learning offers richer insights than the VET literature regarding the challenge of vocational learning in African-majority economies. UNESCO codifies lifelong learning as learning to know, learning to learn, learning to be, and learning to live together (International Commission on Education for the Twenty-First Century, 1996). Our attention for the moment is largely on informal learning. Such learning happens in many ways (Hall, 2012). This is characteristically incidental, unplanned and guided by the needs of the learner (Taylor, 2010). It takes place in sites that are collaborative, dynamic and experiential (Monk, 2013). As communities come together to overcome personal and social challenges, they seek out and test diverse and creative solutions together. To that end, informal learning can provide dynamic spaces for (re)negotiation of power and a force for transformative change in communities. McGrath (2020b) suggests that in the context of the human right to education, particularly in countries with low levels of school completion, these spaces of lifelong learning need further attention, something hinted at, but not developed fully, in the 2021 report from the International Commission on the Futures of Education (2021). From a rights perspective, it is important to remember that the colonial model of education has failed to include the majority of youth, resulting in high levels of drop out. This is also due to the political economies of education under structural adjustment, which forced governments to invest in primary education and neglect secondary, tertiary and vocational education (Chapter 2). This has pushed students out of school and made informal learning a necessity, as Openjuru (2010) demonstrates in Uganda (see also Chapter 2).

As we will show later, our research demonstrates disparate spaces of informality that require a great deal of negotiation, coordination and rethinking of assumptions about youth, their life goals and pathways to achieve these. As noted in the previous chapter, skills ecosystems require nurturing processes to come into existence and thrive. Our argument here is that this equally applies to informal learning and work.

From a social ecosystem perspective, informal learning can be seen as a space of potentially remarkable learning and innovation within networks. Learners are not simply individuals but are learning from and with parents, friends, neighbours, YouTube, Facebook and through personal experimentation. Unlike most formal VET institutions, which are criticized for often being

overly bureaucratic and slow to change (for instance, Tukundane et al, 2015; Metelerkamp et al, 2020; Jjuuko et al, 2021; and see Chapters 2 and 6), informal vocational learning can shift quickly to meet the immediate needs of individuals, communities and sectors. Informal economy actors can come up with sophisticated methods of getting the knowledge they need and, in the process, necessity drives them to come up with innovative tools to overcome the challenges they face (Metelerkamp, 2018). Many of the youth we speak to call this 'hustling', where they do what they can to survive (Thieme, 2013; Jordt Jørgensen, 2018; Cooper et al, 2021).

Informal learning is not simply a survival strategy for those excluded from formal education and should be appreciated as an important form of vocational learning in its own right. Indeed, data from a 2019 informal economy skills survey in South Africa indicate that most microentrepreneurs actually prefer learning on the job to formal classroom contexts (Metelerkamp and van der Breda, 2019).

However, our intention is not to elevate informal learning to the centre of an account of vocational learning. Rather, it is to insist on its place within wider vocation learning ecosystems that bring together formal, nonformal and informal learning in complex combinations that change over time and according to contexts. The positive view of informal learning for informal work we present here should be read in part as talking back to, or generating a dialectical movement between and with, the formal frame of VET and skills ecosystem research thus far. Through this, we seek to enlarge and enrich the social ecosystem concept.

In our research, we see this dynamism happening in markets, at tailoring businesses, in new enterprises recycling plastic and on (increasingly organic) farms. It takes the form of informal apprenticeship, casual exchanges, observation, practical demonstrations, the sharing of educational content, and short trainings, most typically nonformal in nature. Google and YouTube play important roles in learning, encouraging diversity and innovation through exposure to new ideas and contexts. Likewise, Facebook and WhatsApp connect communities of practice both locally and around the globe. Vocational learning is manifested in both purposive and (seemingly) haphazard ways. For example, a tailor in the market may see another tailor doing something different and observe the methods, an elder may share knowledge of fish farming or blacksmithing with the community, or a mother may teach her child how to 'read' a potential customer. We see young entrepreneurs in Gulu connecting with similar-minded entrepreneurs nationally and internationally. For example, one mushroom farmer worked closely, through Facebook, with mushroom farmers in Ghana and Indonesia to develop his ideas including building a solar dryer. The same entrepreneur then connected with two other youth in Uganda via WhatsApp to buy mycelium (required to start mushrooms) in bulk to reduce the cost. However,

learning also takes place where an organization, university or business offers short training programmes, as we will show particularly from the Alice case.

What we observe is that these are all interlinked, and that many people are adept at seeking out the various learnings that they need, whether it is skill related, counselling and guidance, or entrepreneurial. We see that the hustle of everyday life cannot be separated from learning.

The more informal elements of skills ecosystems are not only potential spaces for personal development and life projects but can be important sites of collaboration and transformation that can generate innovation in a way that is often not possible within formal VET institutions. As local people respond and adjust to the world they want, they engage to meet their basic needs for survival and generate new ideas for the future.

However, access into and across even informal learning networks is not always straightforward, and micro networks can be exclusionary. This lack of diversity and cross pollination can lead them to become self-referential, running the risk of entrenching systemic lock-in rather than driving innovation (Spielman et al, 2009). That some are skilled at hustling does not mean that others should be ignored who need more support. Nor is hustling simply agentic, always being shaped also by structural effects.

The two cases explored in this chapter offer insights into learning modalities within the informal economy and the implications of this for how we imagine the institutional boundaries of learning, pedagogy, colearning and participatory methodologies in VET. We direct particular attention towards understanding this system's horizontal components, by which we mean the relational mechanisms and experiences of interpersonal and experiential learning. This implies the need for an interrogation into the many generative aspects of the informal VET systems we observed within our cases, as well as a critical engagement with issues of power, privilege and exclusion that endure across the spectrum of VET in our case study regions.

Case studies: two lenses on informality and inclusion

Our research approach has attempted to shift away from the old productivist model of research in VET (Anderson, 2009; McGrath, 2012; Tikly, 2013). This has led us here to focus on the functionings, voice, relational agency, capabilities and perceived opportunities of the actors in the field as a point of departure. De Jaeghere's (2020) suggestion of considering the ontological and epistemological functional relations of power as individual capabilities to participate in society serves as an important point of departure for capturing the stories of the people we worked with who are pursuing decent livelihoods. This relational capability is central to understanding the power dynamics in this social ecosystem of learning and living. We see youth negotiating informal learning spaces to get the skills they need that

are often not available in the formal structures still following productivist models of training. With no clear roadmap towards skills for just transitions within the formal system, these processes of less formalized response are likely to become even more crucial.

The formal VET discourse is also situated within a wider one in which vocational education is of low status and VET learners are typically stigmatized. We see the stories brought out in this research contesting this narrative, despite the formal educational and economic vertical structures that impede their life movements. Rather than linear pathways and simple informal to formal transitions, we see rhizomatic and emergent spaces of learning and learning networks that push and pull and navigate systems and social conditions, crossing formal and informal learning spaces to find the learning they need to progress their lives, even if their modes of work are not radically transformed (see the debate on transitioning in Chapter 7). Thus, we position the relational capabilities and functionings of these spaces within the mediating space of organic learning. This research process has immersed itself in this chaotic and dynamic learning ecosystem that forms the hustle of Gulu City and the rolling rural landscapes surrounding Alice.

Gulu

As we described in Chapter 1, Gulu, the major city in northern Uganda, is in a space of transformation and recovery following 30 years of civil war that ravaged the north until 2006. The north is largely an agricultural area, so the regional focus and many of the urban businesses in Gulu are agriculture related. However, the conflict increased the environmental challenges faced by the region, in part through concentrating land ownership in few hands. This made it harder for the majority to farm sustainably. Furthermore, the shortage of fuel for domestic cooking has stimulated a (largely illegal) market in charcoal, in turn encouraging deforestation and further accelerating land degradation. The response of the Government of Uganda and several donors has been to encourage large-scale agroindustry, with little apparent concern for environmental issues, mirroring patterns we discussed in Chapter 3.

However, the traditional authority, the Ker Kwaro Acholi, has been advancing a cooperative model of development, focusing on the household and broadening to clans and communities. They have a long-term plan to return to the traditional Acholi cooperative model of living, which existed in closer harmony with the surrounding world, and see skills development as crucial to this endeavour (see Chapter 2).

As indicated in Chapter 2, the Ugandan public schooling system is inadequately resourced, and education is increasingly privatized as parents attempt to fill the gaps. It is the same in the formal VET sector. The government launched a new technical and vocational education and training

(TVET) policy and implementation guidelines in 2020. This mandates experiential learning, but it is uncertain if the government will be able to implement the scheme given the allocated resources and a history of limited policy implementation. Gulu University, founded in 2003, is an important centre for community transformation and leads a number of initiatives in the region. In Chapter 8, we come back in more detail to the role of the university in skills ecosystems. There are also a few larger formal VET institutions in the region, both public and private, the latter typically religious. Complementing these is a vast array of nonformal training programmes and a large informal sector with young people learning through apprenticeships at small businesses, in NGO programmes, on YouTube, and from each other.

Compounded exclusion: war, gender and disability

We have stressed human agency and community wellbeing, but it is vital also to note the compounded social exclusion faced by women and people with disabilities. Monk et al (2021a) have documented significant gendered oppression of girls and women in life and education in northern Uganda from a capabilities perspective, claiming that the oppression is systemic and severely undermines girls' and women's ability to participate in society. They explain how women are excluded by the undervaluing of work done in the home, and through fewer quality opportunities in education and paid work. A multitude of studies on conflict in northern Uganda (such as Branch, 2013; Winkler et al, 2015; Meinert and White, 2017; Denov et al, 2018) contextualize the traumatic war experiences of displacement, abductions and (sexual) violence, which have caused enormous trauma that impact on multiple generations. These researchers document that the reintegration process is especially precarious for women, particularly for the estimated 10,000 abducted women and girls who gave birth while in captivity. Furthermore, a report by the Ministry of Gender, Labour and Social Development (2020) details particular difficulties and social exclusion faced by people with disabilities, including access to work, and higher levels of abuse, again with particular reference to the compounded violence faced by women and girls with disability. Monk et al (2021a) depict the liminality and informality of Gulu and the accentuated power dynamics of social structures and norms that exclude many people from participation even in less formalized activities of living, working and learning. As noted earlier, access to land and natural resources is also highly unequal.

Nonetheless, we suggest that informality, especially for the most vulnerable and excluded, can offer significant potential for transgression and development. In the following section, we share some stories of people

transgressing informality to develop a shared reality of decent living in a deep entanglement of life and learning worlds.

Youth learning networks

We foregrounded youth and youth voices as a core component of the Gulu research, not only seeing young people as respondents but also as codesigners of the research. Building on existing relationships through the UNESCO Chair in Lifelong Learning, Youth and Work at Gulu University (see also Chapter 8), we asked youth partners to host a series of dialogues about youth livelihoods and VET. Due to COVID-19, they used local radio programmes to host the series. Stories emerged of individual and collective vocational innovation, from mechanics reverse engineering engines to build their own; to artists using recycled materials in their artwork; musicians with music studios; small-scale farmers; and fashion design schools (see also Chapter 7). The stories highlighted potential life pathways available outside of the formal stream of education. Awareness of these pathways is fundamental to strengthening and supporting livelihood opportunities and learning programmes that can keep up to date with the fast-changing needs of youth.

The radio programmes clearly demonstrated the ontological and epistemological functions of social agency at work. They demand that we think how to further develop the rich learning here. People calling in were searching for ways to develop their personal livelihoods, which they saw caught up in the wellbeing of their community. They had ideas and projects, dreams and life aspirations. Even in this short series of radio programmes, we were able to see rich life and learning connections being made, as people started thinking 'I can do that' and signing up to some of the further learning opportunities presented in the shows.

This demonstrates the potential for key actors in the education system to engage in thinking about how to extend such networks, pathways and opportunities. However, this would need to be done carefully, so as not to overcome or control the informality and chaos.

Backyard farming

One good representation of the rich learning networks in Gulu centred on a young urban farmer who started to grow his own food organically during the initial COVID-19 lockdown period to support himself and his family. He used several experimental approaches to gardening in a small space in his backyard. He learned initially from YouTube videos and then sought out broader networks of learning online as he encountered problems with pests. He started a Facebook page to reach out to other youth, who he thought might be doing the same thing, and very quickly it exploded

with more than 1,000 followers. He explained that the garden became an important space for learning, "where people could share knowledge, and the various things that they're doing, because most of the things that were being planted are not things that are traditionally grown locally here. So, the need for knowledge is really huge."

He explained how he learned to differentiate between sources of information to find what was authentic and contextually relevant. He moved through stages of learning: first understanding what to grow, then slowly finding which sources were relevant, then growing the confidence and reputation to become a source of information as well. He captured the richness of the learning in the network as participants experiment and learn together. They take accountability for their own learning and responsibility for the learning of the community:

> 'Initially, it was to know what I want to grow, and then go online, especially on social media. Facebook, more specifically, and just search for any group, any page out there which has people who have similar interests. For example, tomatoes, you'll find a lot of Facebook groups of people who are doing tomatoes, while reading other literature to understand the local context of the application of that knowledge. Because easily when you go online you will find literature, more of different climates, or different zones so you find literature from someone, say, from the Netherlands, but the application of that knowledge into the local context and climate becomes different … It is quite interactive, and people will always share their experiences and knowledge.'

Here we see the entanglement of international networks online with the local context. He was able to find a broad base of learning about the specific plants he was seeking, and he then synthesized this into his own practice and connected it to his local practice network. Another important point that emerges is around trust and reliability. He explained how he was able to connect very quickly with those who are more knowledgeable. This he saw as being measured through their experience, an important distinction in Gulu due to the longstanding faith in formal certificates. Yet, here in the informal learning spaces, people are more interested in practice. We see this coming through in a lot of networks, especially in agriculture where farmers time and again prefer to learn from people they trust and who they see to have proven experience. Indeed, this is often instead of extension officers, who have much higher formal qualifications:

> 'There are people, platforms, pages that I found over time, more reliable … There's this gentleman from Zimbabwe who is commonly known as Mr Tomato. He has been dealing in tomatoes for about ten years.

> Over time you are able to tell that this person has the knowledge … not necessarily because they are trained in that field, but from the virtue of the experience they have.'

He also explained how these online networks are far ahead of the formal training programmes. He was unable to find any information on their websites, which lag behind informal knowledge sharing. Even reaching out electronically to formal structures did not get him the knowledge he wanted:

> '[T]hey have not yet got to the level of serious engagement online. I emailed Operation Wealth Creation [government programme], I emailed one of the research institutes set up by the ministry. Then there is also a specific institute which is doing research in bananas, then I think I reached out to two agriculture extension agents also. I wrote them all emails. I think it's been over a year now. None have ever responded. So, where feedback is not in time, it becomes difficult to rely on them.'

This story of backyard farming is representative of many examples we have of youth learning in similar fashion. Another example is of a young woman who has taken up coffee farming, along with some local crops. She is part of a vibrant international women's network across Africa that is more formalized than the Facebook groups to which she also belongs. They participate in regular online meetings with guest speakers providing workshops about various skills. They seek out markets together, as well as opportunities for trade among each other. She is simultaneously providing outreach services to her local community in a cooperative style while providing quality products to reach the international networks. Then there is the mushroom farmer mentioned earlier who has established dynamic learning networks through Facebook where he has taught himself everything from how to build structures for growing, storing and drying mushrooms to designing a website.

Bringing an environmental perspective to bear, we can see that several local youth entrepreneurs are starting to make money from recycling and reusing goods. For example, one collects plastic and converts it into building tiles and, during the pandemic, plastic visors (in a global context where there is twice as much plastic as living biomass – Elhachan et al, 2020: 442). Others are making crafts, artwork and household items (such as sponges and mats) out of recycled goods. These innovators are part of an emerging sustainable skills learning network that sits within the youth network anchored by the university (McGrath and Russon, 2022) and points in the direction of skills for just transitions as outlined in Chapters 3 and 4. All these youth are committed learners and knowledge sharers. They have developed

significant networks of practice around them in the informal sector both locally and internationally.

We have presented some examples of very different informal learning that show people coming together to learn from each other, often developing friendships as they do. Inevitably, some are more successful than others. Many are far more constrained by their life circumstances. However, all are struggling to find their way and are seeking out learning from their networks to advance themselves. Their life experiences are deeply entangled in their own and in each other's learning. The examples of success and leadership draw people in.

A major differentiating characteristic of this successful learning is finding something that individuals enjoy doing or think they are good at, where they have a 'vocation'. We see people starting with an idea that resonates with themselves, who find and receive mentorship in business, and who have strong networks to ask for support and mentorship. In all the learning spaces, we see people trying to find the skills they need to be successful in markets, which are not simply constrained by poverty but that also see increasing demand for quality, innovation and differentiation. We also see expanded and expanding notions of work as young people explore what work means for them and how to advance relational and societal goals, as well as individual and economic. As noted earlier, we also see emerging practices pointing towards a more ecological understanding of work and skills.

Alice

In Chapters 1 and 3, we noted how the history of colonialism and apartheid, the development of supermarketization in the democratic era and a worsening climate emergency have all negatively shaped livelihood opportunities in the area surrounding Alice.

A protracted water crisis triggered and sustained the momentum for collective action. In 2015, the South African Water Research Commission (WRC) partnered with Rhodes University. This was to better understand why the curriculum materials that the WRC had developed to support smallholder farmers with rainwater harvesting and conservation were not being applied in practice. Substantial investments had been made into the development of these materials, but they were not getting to farmers and/or not being made use of in practice.

Addressing this knowledge-flow issue began with a process of developing and nurturing an ecosystem around the smallholder farmers' water challenges, using the farmers' challenges and existing WRC learning materials as a starting point. Following establishment of a learning network, which in the first meeting was named 'Imvothu Bubomi' (the Imvothu Bubomi learning

network [IBLN]), meaning 'Water is Life' (reflecting the core concern of the network), a series of training-of-trainers' (ToT) courses based on the WRC materials were developed and run by the team at Rhodes University in partnership with the Fort Cox Agriculture and Forestry Training Institute, the Local Economic Development office, and NGOs, a story we also revisit in Chapter 8 (see also Pesanayi, 2019a; Lotz-Sisitka et al, 2021). The project team presupposed that systemic learning across the activity system could assist in embedding these rainwater harvesting practices into the fabric of the predominantly informal, agrarian system. Two mechanisms were initially used to achieve this.

The first was to include the creation of productive demonstration sites into the assessment criteria of the ToT curriculum. This was a practical groupwork task through which course participants had to select a rainwater harvesting practice and apply it in a useful way to their own contexts. This involved interdisciplinary teamwork and resulted in three functional demonstration sites selected for implementation in three sites in the network in the first iteration. These became a key feature of the IBLN's practice going forward, as the sites had both practical value to farmers, and colearning value for teaching others in future. The inclusion of practical, interdisciplinary groupwork into the curriculum also instilled an important culture of horizontal learning and institutional boundary crossing into the foundations of the learning community. In the absence of formal workplaces in which to embed learners, these groups provided an alternative form of collegial support and mentorship as well as a space in which to translate theory into practice.

The second mechanism was to invite a diverse range of actors within the local agricultural system to join these ToT courses. Instead of targeting college faculty to familiarize them with the WRC's teaching material, or extension workers to encourage them to disseminate the information, or farmers to use the material, a broad spectrum of these actors were jointly enrolled in a five-module course that was officially certified by Rhodes University. Concerns surrounding the drought combined with the perceived status of this large academic institution lent gravitas to the process, creating a high level of buy-in and cohesion within the mixed group, allowing an emphasis to be placed on the notions of learning with, from and for each other, irrespective of assumptions and perceived hierarchies.

Formal certificates were awarded at a ceremonial ToT graduation. However, these were noncreditbearing certificates that were not targeted at a fixed outcome level in the national qualifications framework. The use of noncreditbearing certification assisted in making the course inclusive of members with low literacy, without putting it 'below' the level of the more formally qualified college faculty and extension officers. As with the

interdisciplinary group work projects, this method of certification fostered a collaborative, horizontal learning culture in which it was understood that the utility of the qualification was in its direct application to the crisis at hand, rather than as a means of access to or progression through formal learning or employment pathways.

This culture of learning for the sake of practical problem solving remained at the heart of the IBLN as it evolved, and the personal relationships formed in the training process supported ongoing multi-institutional collaboration as the network evolved.

Mapping learning networks

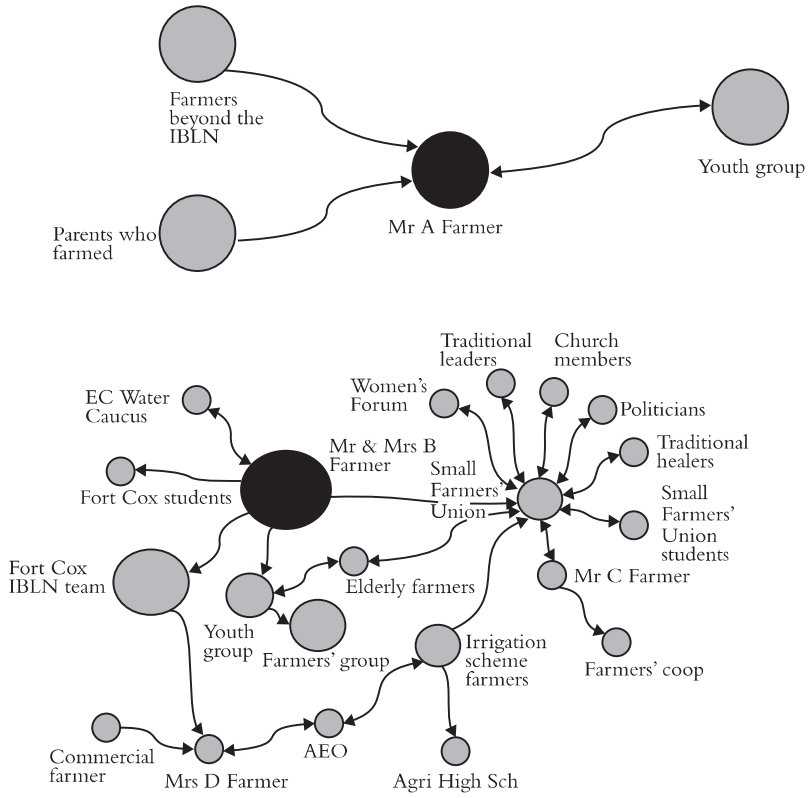
In 2020, five years into the IBLN's evolution, a network mapping exercise was undertaken with a mixed sample of actors from across the learning network. This mapped out the networks of knowledge exchange that different actors within the learning network had, and the relative importance they attributed to individual actors within their knowledge networks. These nine network maps made no distinction between formal or informal learning and sought simply to understand where actors were drawing information and knowledge from in relation to their work in agriculture. Figure 5.1 provides an example of the difference between a farmer who had only recently joined the network via a connection they had to a local youth group and the knowledge network of another who was deeply embedded at the centre of the network. This mapping offers a stark comparison of the knowledge resources different farmers have to draw from as they conduct their livelihoods and clearly illustrates the process of relational agency development.

Phases of network evolution

During the first phase of the network, the initial flow of information into and within the network followed several distinct information pathways around central anchor institutions. Information about rainwater harvesting and conservation that flowed from the WRC, via Rhodes University, to the participants in the ToT course was reflected in six of the nine maps drawn and is the clearest example of this first phase of these knowledge pathways being developed.

Building on this, it was observed that the relationships established around these knowledge pathways opened up a fertile environment for broader exchanges between previously unconnected individuals and organizations to begin taking place. Beyond the initial pathways established around rainwater harvesting and conservation, three more loosely defined phases of this broader exchange warrant mention.

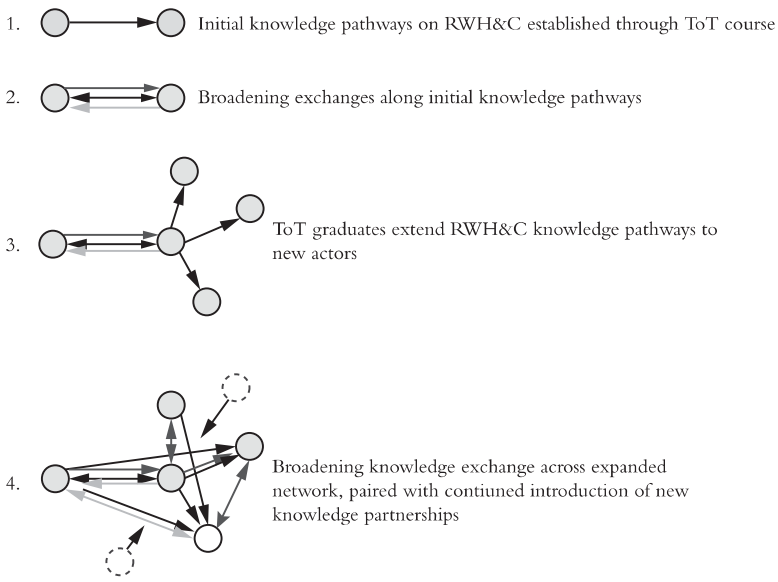
Figure 5.1: Two farmers' knowledge acquisition pathways



Phase 2 saw an emerging exchange of information between the original network members on a range of topics not related to the initial training they engaged in. Topics ranged from seed and tool exchanges to soil fertility management practices.

Phase 3 (emerging in an overlap with the second phase) then saw a more diffuse engagement around the fringes of the network beginning to emerge as founding members began to share their knowledge with widening circles of secondary actors. For example, based on the WRC's rainwater harvesting and conservation material, FCAFTI staff took advantage of a scheduled curriculum review process to update the institute's curriculum on rainwater harvesting and conservation. Similarly, in a nearby village, an active local youth group that took part in the ToT programme began independently running rainwater harvesting and conservation training for their extended communities.

Figure 5.2: Four phases of learning network evolution



At the time of writing in 2022, a well-organized system of exchange activities is in place. This includes quarterly network meetings, community radio slots, *ilimas* (collective workdays) and an active WhatsApp group. These are helping to develop a fourth phase of network evolution in which existing pathways of exchange are widened to include a growing list of topics. At the same time, this is providing a new space for IBLN members to invite valuable pre-existing relationships and information into the learning network.

These four phases, summarized in Figure 5.2, provide a conceptual framework for understanding the evolution of this course-activated learning network over time.

The forms of relational social infrastructure that Figures 5.1 and 5.2 represent support many of the learning needs of the loose ecosystem of actors who surround smallholder farmers in the Eastern Cape.

However, despite the growing network of relationships, Rhodes and Fort Cox accounted for 48 per cent of the total weighted contribution to the network. This weighted institutional 'anchoring' by established, better-resourced players is a common feature of skills ecosystems elsewhere (Kilelu et al, 2011; Hodgson and Spours, 2018). We also explore this issue in Chapters 6 and 8 and the extent to which this should be seen as a successful feature of responsive public providers, rather than them crowding out other knowledge actors.

Discussion

Relational capability, relational agency and distributed expertise

In reflecting on these two lenses on informality and inclusion, the notion of relational agency (Edwards, 2005, 2010) is key. Relational agency involves a capacity for working with others to strengthen purposeful responses to complex problems. It arises in a two-stage process within a constant dynamic consisting of:

1. working with others to expand the scope of the task being worked on by recognizing the motives and the resources that others bring to bear as they, too, interpret it; and
2. aligning one's own responses to the newly enhanced interpretations with the responses being made by the other professionals while acting on the expanded scope (Edwards, 2011: 34).

Mkwananzi and Cin (2020: 5) pick up on this notion of relationality from within the capabilities approach when discussing collective agency in primary- and secondary-level education of refugees in South Africa, noting that social structures such as 'self-help initiatives, or organised collectivities … grassroot groups, village councils or churches, work as fundamental spaces that encourage people to formulate shared values and pursue them to achieve what they have reason to value'. This mirrors our experiences in Uganda and South Africa. Mkwananzi and Cin further demonstrate that there are powerful forms of collective action that coalesce within these spaces and become capable of delivering very high-quality education 'despite limited resources such as books, computers, a functional library, and science laboratories, all of which may be seen as necessary for successful teaching and learning' (Mkwananzi and Cin, 2020: 9).

They argue in turn that 'collective agency leads to access to resources (in this case, education), leading to the advancement of other capabilities and resulting in public good aspirations' (Mkwananzi and Cin, 2020: 9) and assert that while every human being is responsible, sharing this responsibility with others results in a collective agency that naturally forges socially good aspirations.

In Alice, the learning network's social structure acted as an enabling precondition for the emergence of trust, shared values and collective responsibility for an aspirational vision of a vibrant agricultural sector. We also witnessed the emergence of an implicit ethical and environmental compact within the learning community that mirrors Mkwananzi and Cin's observations of public good aspirations. In Gulu, the learning networks we see forming are also grounded in a shared experience of hardship and a goal of improving community wellbeing. Rather than competing with each

other, there is a sense of moving forward and working together for everyone's benefit. Another example is a woman who has developed a learning network in her community to improve markets, but also because "when I see those women, I see my mother and I know the hardship she went through".

In both cases, we observed that where forms of basic but structured social institutions were established, be these in the form of a learning network or youth café , these acted as an enabler for the pooling and sharing of local assets (physical and intellectual) in support of quality VET in a resource-constrained context.

Gardening for change: facilitator skills for supporting richer horizontalities in the informal economy

This kind of rhizomatic working across boundaries between actors and organizations requires emergent and highly contextualized forms of cooperation, pathfinding and trust building, among myriad other things. Because efforts to implement horizontal boundary crossing in top-down ways so often fail (Metelerkamp, 2018), Christensen and Laegreid (2007) liken the role and competencies of a successful network facilitator to more of a gardener than an engineer or an architect. This seems congruent with Edwards' approach:

> Working across practice boundaries in this way makes demands on practitioners. Responsive collaboration calls for an additional form of expertise which makes it possible to work with others to expand understandings of the work problem as, in activity theory terms, an 'object of activity'. It also involves the ability to attune one's responses to the enhanced interpretation with those being made by other professionals [read also as actors/stakeholders]. Relational expertise is therefore based on confident engagement with the knowledge that underpins one's own specialist practice, as well as a capacity to recognise and respond to what others might offer in local systems of distributed expertise. (Edwards, 2011: 33)

However, the examples that Edwards and others draw on emanate almost exclusively from formalized, institutional and highly regulated contexts such as child welfare in the UK (Edwards, 2011), public administration in Australia (Christensen and Laegreid, 2007) and industrial organization in the United States (Santos and Eisenhardt, 2005).

We have already noted that 80 per cent of Africans work in the informal economy. So, what of these highly informal, unregulated and often marginalized contexts that form the majority experience of living, working and learning? Situating the praxis of horizontal learning within

these very normal contexts of informality demands renewed analysis of questions of *how* horizontal learning is facilitated, by whom, with what resources, and why.

While it was beyond the scope of our case methodologies, it could be that approaching such horizontalities from the perspective of an anthropology of friendship (the culture of *ilima* or collective helping out, which exists in most African cultures, see Pesanayi, 2019a) would yield rich insights that enable a meaningful southern grounding to the northern skills ecosystems literature. Pesanayi's (2019a) research pointed to the significance of collective empowerment and empathy in horizontal relationships. That said, both the Alice and Gulu cases suggest that designing learning processes in ways that proactively open up spaces for the formation of meaningful interpersonal connection, while increasing the likelihood of friendships developing, are important methodological considerations for anchor organizations seeking to foster collaborative learning networks in informal rural contexts. This is demonstrated in the successful ventures that are community development oriented and that emerge in a form of learning cooperatively. Such intentional friendships emerge in the ontological context of *Ubuntu* and an urgent pulling towards developing peaceful relationships in chronically distorted and piercingly severed historical contexts of colonization, war, class, corruption, racial discrimination and social upheaval. Within this space, youth are seeking to heal themselves, and they see this process as emerging together rather than in competition with each other. This focus on healing themselves is beginning to expand out to an awareness of the importance of healing the planet too.

Unpacking horizontalities

The Alice netmaps and Gulu interviews clearly indicated how relational isolation can limit farmers' ability to respond, develop and adapt. Despite their real possibilities, described in this chapter, local communities of practice can also be insular and often self-referential. In such instances, actors have little access to new ideas and information, and limited economic, technological and social capabilities to engage in knowledge acquisition either horizontally via peer groups or more vertically through formal training.

The typical VET response to this challenge has been to invest in more top-down knowledge provision in the forms of agricultural extension services and training institutions. What our cases illustrate is both that a far wider spectrum of realities exists, and that through investing into, and building on to these realities, more inclusive and adaptive models of lifelong (and vocational) learning can be developed. Importantly, the models provided by the Alice and Gulu examples are not posed as an alternative, or in opposition, to more traditional, institutionalized VET responses. Instead, they offer a

more expansive approach that places the formal VET institution into a richer set of relationships with a range of approaches to learning and working.

As was noted from the Gulu case, where windows of opportunity for horizontal learning and collaboration emerge, tremendous energy exists to drive these forward, with, or without, the support of enabling verticalities such as labour law or formal institutional curricula. There is a rich opportunity for governments to connect to these learning networks, without overtaking them.

Thus, while there is no denying the structural limitations faced by so many across the continent when it comes to vocational learning, both the Alice and Gulu cases provide examples of the kinds of rich relational networks centred on actors within the informal economy and the power of such networks to act as an integrative force, softening and stretching traditionally rigid boundaries between everything that has typically constituted the formal systems of education, and the vast landscape of learning that exists beyond it.

Facilitating mechanisms in horizontal learning in the informal economy

The examples of the use of social media by farmers in Uganda provides a potent account of young people in the informal economy building relational agency networks. The ability to freely search and join subject-specific Facebook groups provides an unprecedented opportunity for tech-savvy youth to plug into communities of practice that span local and international knowledge resources, as well as private sector and familial ties, in sophisticated ways. This experience of the enabling role of technology is mirrored in the Alice case, where WhatsApp has played a vital role in the life and evolution of the learning network. Vital features of these enabling digital technologies are that they use existing communication channels through which people can request and offer support at no cost within a caring community of practice. This is not to deny the presence of a digital divide, but to stress that connectivity can exist in otherwise marginalized spaces.

Facilitating mechanisms were not only digital, and digital mechanisms on their own appear (in our experience) to lack the life and energy required to catalyse and sustain network engagement. This horizontality in our cases drove fairer access to learning opportunities. However, this sense of justice came at a price. It demanded that participants assume a far greater shared responsibility for the education of their peers.

Hence, we argue that the role of specific technological and methodological tools employed in the two cases was threefold. First and foremost, it was to foster spaces of greater epistemic equality in which it becomes possible to balance an individual's right to education with an equal responsibility for supporting the learning of others. Second, these mechanisms served to expand the knowledge horizons of individuals and networks, bringing

new knowledge to bear on localized challenges (and in turn offering their knowledge to others) and developing a deeper understanding of the interplay of local and global in these challenges. Third, it was to support new knowledge creation through place-based processes of experimentation and reflection. We will return to these issues from a teaching perspective in the next chapter.

Boundary crossing: why is it important and how does it happen?

Edwards defines boundaries within learning communities as spaces where 'practices intersect and common knowledge can be built' (Edwards, 2011: 34). While contextually quite different, the two cases both offer new insights into the ways in which boundaries are understood, engaged with and transgressed.

Seen from a generative perspective, boundaries are the spaces in which

> resources from different practices are brought together to expand interpretations of multifaceted tasks, and not as barriers between the knowledge and motives that characterise specialist practices. Importantly, the learning that occurs in these spaces is not a matter of learning how to do the work of others, but involves gaining sufficient insight into purposes and practices of others to enable collaboration. (Edwards, 2011: 34)

However, within contexts of radical socioeconomic inequality in which informal livelihoods and exclusion from formal vocational education is the norm, there is a need to critically engage with Edwards' notion of boundaries. For those within the informal economy and rural contexts, where people's learning networks have traditionally been quite insular, boundary crossing involves not only learning how to work with others, but also learning to seek out, access and contextually validate the knowledge and expertise of others.

Reflecting on the two cases, we witnessed boundary crossing taking place when knowledge was understood not as a commodity, but as a public good. However, as was demonstrated in the Alice case, the world does not lack open-source resources, and the existence of publicly available knowledge alone is insufficient. For meaningful boundary crossing to take place, new pathways for knowledge flow need to be established and nurtured with empathy as shown in Pesanayi's (2019a) study on boundary crossing in the Alice case. Examples of such pathways from our cases included:

1. Opportunities for collective participation in generative practical work, in which people come together to create work of tangible value, through

this also reclaiming an African culture of agricultural practice that was being eroded (*ilima*).
2. Personal friendships and connections with others associated with the activity system that span existing social, geographical and institutional boundaries.
3. Individuals or networks were able to gain access to digital technologies that enabled the discovery of, and communication with, others associated with their field of practice while also radically reducing the cost of communication with these people. Facebook and WhatsApp are examples of this.

Much has been written on the importance of knowledge brokers who can serve as guides and pollinators, helping to bridge gaps, provoke alternative perspectives and signpost unknown unknowns (Klerkx et al, 2009; Kilelu et al, 2011). Our experience corroborated the importance of these pollinators in boundary crossing, and they emerged from all sectors of the networks we studied. For those emerging from within existing institutions, it was important that sufficient institutional wriggle room existed to allow them to bend their roles and institutional mandates enough to allow engagement with actors historically considered beyond their institutional mandate.

Ultimately, however, people across the network need to have dignity and feel their efforts and insights have a meaningful contribution to make to society (De Jaeghere, 2020). That said, boundary crossing is not a passive act. It requires all stakeholders to lean into the process and exercise courage in seeking out and laying claim to the knowledge of others, while equally reciprocating in kind when others seek out their knowledge in pursuit of the common good.

Conclusion

Tracing the evolution of the knowledge pathways in Alice alongside more recent, formative mobilization work within Gulu supported existing observations by Spours (and others) of the important role that individual knowledge brokers, anchor institutions and social media platforms can play in setting the initial pathways of exchange within learning networks. However, equally, our observations within these predominantly informal ecosystems go on to tell another set of stories.

In expansive informal economy contexts, the actor landscapes were highly fragmented, consisting of many thousands of continually shifting individuals, microenterprises and familial ties. In such contexts, the anchor institutions and other formal partners are spread very thinly on the ground, and their spheres of influence are exceptionally limited. While existing skills ecosystems work makes an important step forward in uniting a diversity of actors into an

integrated theory of living, working and learning, the profound differences in the structural nature of the labour economy are inadequately explained using the current skills ecosystems models. In such situations, the notion of an anchor institution may be necessary but not sufficient. Network catalysts, providing frameworks for fractal processes of deepening relationality, in which the formal institutions play a marginal day-to-day role, might be a more accurate conceptualization of the ways in which formal institutions can and should engage.

These more informal elements of skills ecosystems are not only spaces for personal development and life projects, but are important sites of collaboration and transformation, generating innovation in a way that is not possible within formal VET institutions. On a continent where 80 per cent of people find work in the informal sector and 90 per cent of the population is excluded from postschool qualification, informal components of skills ecosystems offer spaces of inclusion and participation often better suited to accompanying young people into the world of work.

As this overwhelming majority of people respond and adjust to the world they want, they engage to meet their basic needs for survival and generate new ideas for the future, which increasingly include concerns about the environment in which they live, learn and work. The solutions this generation requires are not known by the generation that preceded them. Never before have tailors in Gulu had to keep pace with rapidly changing fashions while competing with exports from massive Asian factories. Nor have young farmers in Alice had to contend with the complex set of ecological and economic challenges they face today. Philosophically speaking, we can say with certainty that solutions are not yet known, cannot yet be taught, and therefore need to be developed based on what we have at hand in open systems of potential emergence. This does not place the burden of solving the world's problems on to the shoulders of this generation, or on those of some academic or technocratic elite, but instead pedagogically frames the learning process as a democratic and interrelational dance between visioning and problem solving.

Therefore, it was unsurprising that in both case studies we observed that the nature and structure of relationship superseded the specific nature of content. Yes, access to useful information was an important driver, but relationships were ultimately the starting point for the value created for participants across the different types of networks in both countries. Given young people's need to remain highly adaptable, opportunistic and resilient in the face of unexpected shocks, it was relationships that allowed people to assemble, repurpose and reconfigure knowledge into dynamic responses.

6

Vocational Teachers as Mediators in Complex Ecosystems

Jo-Anna Russon and Volker Wedekind

Vocational teachers in complex skills ecosystems

At the heart of much of vocational education and training (VET) is an educational process that includes teaching, learning, a curriculum, the learner–teacher relationship and daily decisions taken by vocational teachers in response to contextual factors that affect learning in local settings. This educational process in VET is incredibly complex and often poorly understood. More significantly, VET systems are both criticized and reformed at institutional and curriculum policy levels, but the implications for vocational teachers remain under-researched. Vocational teachers differ from schoolteachers in both status and location within the skills ecosystem. They often exist as both teachers *and* members of a particular occupation and sector. They work in various public and private locations in general or specialist vocational training institutes, training organizations, work-based training programmes or as mentors or coaches in master–apprenticeship relationships (both formal and informal).

The cases within the VET Africa 4.0 project typify contexts where vocational teaching has often been ineffective or behind the curve in terms of knowledge and teaching practice. While our interactions with vocational teachers in South Africa and Uganda reinforced some of these findings, many were frustrated or disillusioned, and confronted daily challenges of limited, outdated or nonexistent resources and equipment, inappropriate curricula, lack of professional development and inadequately prepared or unmotivated students. These concerns were mirrored to a degree by employers and students, reflecting the nonfacilitating verticalities outlined in earlier chapters.