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Navigating the Uncertain Path of Research Partnerships: The Role of ICT

John Kwame Boateng* & Raymond Asare Tutu**

Abstract

In this article, we share experiences of the nature of an infant collaboration and how information and communication technology (ICT) is at its heart. We situate our discussion in the broader discourse surrounding educational research collaboration. The main issues we address are: (i) the peculiar nature of our collaboration; (ii) the main collaboration stimuli; (iii) the anticipated benefits and costs of the collaboration; and (iv) the role of ICT. We show that while ICT is invaluable to our collaborative work and its future prospects, it requires a great deal of commitment to nurture, grow and maintain. Although the initial objective of our research network is to examine how technology mediates student–instructor interaction, through ICT we are moving the frontiers of this collaboration to other areas of expertise, interest and strength. Through the log of our communication via Skype, WhatsApp, phone calls and other channels, we demonstrate how beneficial ICT is to our collaboration. We conclude with other possible forms that this network could take and emerge into, given the composition of the research network.

Keywords: African diaspora, ICT, collaboration, research networks, Skype, WhatsApp

Résumé

Dans cet article, nous partageons les expériences de la nature d'une collaboration naissante et de la façon dont les technologies de l'information et de la communication (TIC) en sont le centre. Nous situons notre étude dans le cadre du discours élargi concernant la collaboration dans la recherche pédagogique. Les questions principales que nous traitons sont : (i) la nature spécifique de notre collaboration ; (ii) les principales raisons qui incitent à la collaboration ; (iii) les avantages et le coût de la

* University of Ghana, Akra, Ghana. Email: jboat2009@gmail.com

** Delaware State University, Dover, DE, USA. Email: rtutu@desu.edu

collaboration ; et (iv) le rôle joué par les TIC. Nous montrons que si les TIC sont indispensables pour notre travail de collaboration et ses perspectives d'avenir, il faut un engagement important pour soutenir, faire croître et maintenir cette collaboration. Bien que l'objectif initial de notre réseau de recherche soit d'examiner comment la technologie intervient dans l'interaction entre l'étudiant et le formateur, nous utilisons les TIC pour repousser les limites de cette collaboration et inclure d'autres domaines d'expertise, d'intérêt et de force. Le registre de nos communications via Skype, WhatsApp, des appels téléphoniques et autres canaux, montre à quel point les TIC sont bénéfiques pour notre collaboration. Nous concluons cette analyse en présentant les autres formes possibles que ce réseau pourrait prendre et devenir, étant donné la composition du réseau de recherche.

Mots-clés : diaspora africaine, TIC, collaboration, réseaux de recherche, Skype, Whatsapp

Introduction

This research network responded to a call by the Council for the Development of Social Science Research in Africa (CODESRIA) for a joint proposal for research collaboration in the humanities and social sciences dubbed African Diaspora Support to African Universities. The activities in our proposal were meant to address three main missions of the call:

i) to strengthen the linkages between African diaspora scholars and African universities;

ii) to strategise through introducing new technologies for teaching, and organising workshops and summer schools for advanced doctoral candidates; and

iii) to conduct activities such as co-mentoring and co-supervision.

Comprehending the peculiarities and nature of our collaboration is essential, not only for achieving our goals but also for a clear picture of the process by which those goals were satisfied while simultaneously remaining cognisant of the complexities that exist within the different methods of collaboration used. At the heart of this research network's activities, from the conception of the proposed ideas in our proposal to now, is information and communication technology (ICT). In this article, we describe the peculiarities in the nature of our collaboration, the main motivators of our collaboration, the anticipated benefits and costs of the collaboration, and the role of ICT.

What Is Collaboration and What Are the Peculiarities of Our Collaboration?

Studies analysing research over a number of decades have shown that the best scientific knowledge is produced through international research collaboration (Adams 2013). While academic specialisation through specific disciplinary studies enables a deeper understanding of specialised approaches to tackling particular problems, 'specialization may lead to professional isolation in knowledge "cottages" or "silos"' (Bindler, Richardson, Daratha and Wordell 2012:95). Avoiding such 'silos' in a complex world with complex social problems calls for collaboration, which is advantageous in the areas of dissemination, acknowledgement, prominence and high productivity (Beaver 2001), especially when there is high collaboration intensity and collaborators are very committed (Liao 2011). The idea of collaboration is variegated. The seminal work of Katz and Martin (1997) clearly underscores the need to not assume a generalised understanding of collaboration of any kind, be it university–industry collaboration (D'Este, Guy and Iammarino 2012), collaboration between research groups in an academic department or college, between different academic departments in a university, between different academic institutions in the same region, or between academic institutions in different geographic regions.

Collaboration is complex and takes many forms, and collaborators' perceptions of what constitutes collaboration differ. For example, working together on a project that has resulted from an institutionalised relationship in the form of a signed memorandum of understanding is more recognised as collaboration than a relationship that is not formalised (Hick et al. 1996). While earlier attempts to define research collaboration used multi-authorship or co-authorship (bibliometric studies) of scientific papers as a proxy for collaboration (Gazni and Didegah 2011; Mattsson, Laget, Nilsson and Sundberg 2008; Smith 1958), some argue that such a measure is insufficient and a misrepresentation because co-authorship is only one possible outcome of a collaboration (Bozeman, Fay and Slade 2013). Furthermore, it does not give details on the amount of effort put in by each author (Subramanyam 1983), and bibliometric studies do not show the processes of collaborative work. Thus, with the concept of collaboration not being sacrosanct, research collaboration first needs to be defined before engaging it or attempting to operationalise it in a study.

Research collaboration has been defined as 'the working together of researchers to achieve the common goal of producing new scientific knowledge' (Katz and Martin 1997:7). Bozeman et al. (2013) build on this definition and zero in on the human capital aspect of collaboration to conclude that research collaborations are 'social processes whereby human beings pool their human capital for the objective of producing knowledge' (Bozeman et al. 2013:3). With a common goal in mind, each collaborator offers his or her expertise and consequently collective knowledge is brought to the defined problem, although there is no guarantee of knowledge production at the end of a project (Bozeman et al. 2013). Cognisant of the possible unequal amount of work, both directly and indirectly, that may be inherent in research collaboration (Gordon 1980), coupled with the possibility of losing some collaborators through attrition, Katz and Martin (1997:7) suggest the following as major characteristics that should differentiate actual collaborators from other researchers:

- Those who work together on the research project throughout its duration or for a large part of it, or who make frequent or substantial contributions;
- Those whose names or posts appear in the original research proposal;
- Those responsible for one or more of the main elements of the research (e.g. the experimental design, construction of research equipment, execution of the experiment, analysis and interpretation of the data, writing up the results in a paper);
- Those responsible for a key step (e.g. the original idea or hypothesis, the theoretical interpretation); and
- The original project proposer and/or fundraiser, even if her or his main contribution subsequently is to the management of the research rather than research per se.

We understand the difficulty in delineating the beginning and end points of collaboration between two individual social scientists, especially in the context of research networks that transcend national borders and involve multiple people from varied academic institutions.

Our research network is heterogeneous. It consists of *intra-* and *inter-*national members from different disciplines and departments. We have a colleague and a research assistant from the Department of Sociology at the University of Cape Coast, Ghana; a network member from the School of Business at the University of Ghana; a consultant, a network member and a research assistant from the School of Continuing and Distance Learning,

University of Ghana; and a member from Delaware State University, Dover, in the United States. This network is interdisciplinary, including social science and humanities disciplines such as demography, geography, sociology and adult education. However, as noted, the collaboration is both intra (individual) and international. In other words, for operational and organisational purposes, we distinguish between *network members* and *collaborators*. While the network members comprise all of the people described above, there are two collaborators: the project manager and the diaspora partner. Specifically, the collaboration is an *individual-level researcher collaboration* (Bozeman et al. 2013), albeit with the distant blessing of our respective institutions.

We draw on the participatory collaboration principle as a guide to our organisational structure, where both collaborators have parallel standings and a high degree of independence. That is, the structure of our collaboration is egalitarian in nature with a conscious effort to hold egos in check and respect each other's ideas (Chompalov, Genuth and Shrum 2002). We believe that such a structure is pertinent in achieving our objectives. Our ultimate goal in the context of the African Diaspora Support to African Universities programme is clear and can be summed up as *increments to knowledge* – to be measured by the scientific and technical papers produced and the impacts those papers have over time (Bozeman et al. 2013).

Research Collaboration Stimuli

Research collaboration requires a number of stimuli and these motivators are arguably responsible for the growth of various forms of collaboration. Researchers at different scales (institutional, regional or international) require varying degrees of equipment, which demands increased funding. With limited and dwindling funding opportunities, collaboration allows researchers to pool their available resources and access multiple funding sources to accomplish the research objective.

Additionally, major bilateral partnerships have increased the number of international research collaborations, a phenomenon Adams (2013) calls 'the fourth age of research'. Also, improvements in global transportation systems by road, air and rail have facilitated more efficient movement across vast geographic spaces. While today's plane fares are not cheap, they are relatively inexpensive compared to three or four decades ago, consequently enhancing the interconnectedness of researchers across continents. Additionally, improvements in global communication systems, especially with the development of the internet – from the emergence of

electronic mail to the creation of smartphones with various communication applications – have made communication easier, relatively cheaper (Katz and Martin 1997), and reduced the cost of collaboration (Adams, Black, Clemmons and Stephan 2005).

Furthermore, it is often recognised that major scientific advances and discoveries are functions of research collaborations as well as interdisciplinary work. Remarkable scientific findings and significant contributions to knowledge have been as a result of interdisciplinary collaborations (Bindler et al. 2012; Kodama 1992; Kuhn 1970); improved output of scientific knowledge is also attributed to research collaboration (Huang and Lin 2010). The main stimuli of our network and collaboration are:

- Our desired expectations that this network and collaboration will not only contribute to knowledge in the area of our research goals but will also have remarkable output and impact;
- Seed funding received from CODESRIA; ICT (discussed in detail below); and
- Perceptive and astute network partners and collaborators.

Anticipated Benefits and Costs of the Collaboration

Different forms of research collaboration suggest that costs and benefits will depend on the kind of collaboration pursued, although there might be a number of similarities across the spectrum. We begin with a discussion of the benefits of collaboration. First, the higher an institution's level of collaboration, the more likely it is for the research output of the institution to be published in an outlet with a high-impact factor. For example, Adams (2013) found that in the United Kingdom, institutions with more than 50 per cent international collaboration, measured as co-authorship on published papers, had a mean citation impact of more than 1.6, while the citation impact was less for institutions with less international collaboration.

Adams (2013) further observes that internationally co-authored papers are more highly cited because the authors are more likely to be doing excellent research. An important benefit of research collaboration is the diverse knowledge, skills and competencies that are brought to bear on the research goal. Apart from the fact that no individual is a repository of all knowledge, various disciplinary skills and approaches converging into interdisciplinary arenas illuminate the problem under consideration and, consequently, offer multidimensional approaches to dealing with

complex issues. As Bindler et al. (2012:96) put it, 'the major strength of collaborative work is that multiple perspectives provide a richness of theoretical approaches, a number of potential interventions, and an increased ability to understand complex issues'. Therefore, the sharing of knowledge and competencies is a major benefit of research collaboration.

Associated with knowledge-sharing is the potential for creativity to arise from conflicting ideas. The momentum from conflicting ideas may propel the creation of a new viewpoint on the problem at stake, which might not otherwise have been recognised (Hoch 1987). Furthermore, research collaboration is a source of scholarly camaraderie. The desire to make a meaningful contribution by attempting to identify gaps in the body of knowledge is an arduous task and the hallmark of scholarship. While the art and process of thinking may be accomplished by an individual, bouncing thoughts back and forth with colleagues enables a refinement of ideas. Additionally, the potential loneliness associated with working alone on complex social issues can be buffered by the feedback and challenges received from colleagues.

Research collaboration enables the widening of one's research network and connections. Through bridging, bonding and linking social networks that result from the initial collaboration network, members of the collaboration are able to access and widen their network. This has the potential of starting new research goals. The new contacts may become additional intellectual resources in terms of co-advising and co-supervising.

Although research collaboration has many benefits, it also has costs, an important one being time. Time is spent in talking about the possibility of research collaboration, planning proposals, putting together a proposal, applying for funds from multiple agencies, attending various meetings in person and online, executing the research objectives, collecting data, travelling, analysing and disseminating. While all these issues require time, the day-to-day running of the network's activities also requires an enormous amount of time. For example, time is needed to keep every member of the network informed about daily activities; collaborators must be well informed about every aspect of their project and able to report in real time. In other words, management of the research project requires a tremendous amount of time for every facet of the project, including detailed administrative procedures (Bindler et al. 2012). The proper administration of projects becomes more complicated as scale increases, given the different management styles, requirements and procedures between departments and institutions from national to international level.

Another cost to research collaboration is consensus-building, a difficult venture in collaborative work. Scholars from different disciplines who have been trained in specific theoretical and methodological approaches may not be familiar with some of the perspectives and epistemologies the collaboration relies on. Thus, sufficient time is necessary to negotiate consensus among the varying and divergent interdisciplinary frameworks and methodologies (Grey and Connolly 2008). This requires negotiation and interpersonal skills in order to avoid the collapse of the research collaboration and network. In the context of our participatory collaboration, consensus is the key to our successes, despite requiring us to expend a tremendous amount of time.

Role of ICT in Our Collaboration

The success of research collaboration is the dream of collaborators and network partners. However, the reality is that a multitude of collaborations collapse for a plethora of reasons. The success rates of different forms of collaboration are mixed. For example, while interdisciplinary and within-discipline collaborations in the same institution for the most part report success, collaborations across universities often have negative results. The latter are more likely to succeed when collaborators interact face to face (Cummings and Kiesler 2005).

With our collaboration being interdisciplinary and across universities, communication among collaborators is key. However, being on different continents makes face-to-face contact infrequent. The following questions are therefore pertinent: Can ICT provide the means to meet face to face in the virtual world, help the planning and coordination of research activities and thereby improve research productivity? Can ICT be the tool we need to manage and track research tasks, ensure ongoing and spontaneous conversations, support consensus-building and decision-making, and schedule and hold meetings across huge geographic expanses (Cummings and Kiesler 2005)? Since geographic proximity promotes collaboration (Abramo, D'Angelo, Di Costa and Solazzi 2011), we need tools that will enable us to navigate problems that arise and sometimes worsen due to a lack of or inadequate communication.

ICT has been shown to be successfully used in research, instruction, learning and assessment and is considered a powerful tool in educational change and reform (Kent and Facer 2004). In fact, in instances where ICT is used appropriately, it can raise the quality of education and connect learning to real-life situations (Lowther, Inan, Daniel Strahl and Ross

2008; Weert and Tatnall 2005). ICT has also challenged how organisations are structured and how networks, including research networks, function, bringing about enormous changes to the world. ICT is not static but continually evolving, breaking new barriers, defining new horizons and bringing new dimensions to research networks and partners.

Learning and teaching environments can be transformed into learner-centred ones when affected role-players have access to the resources and knowledge that can be acquired on the internet, for example through video clips, audio files and visual presentations (Castro Sanchez and Aleman 2011). Additionally, Shan Fu (2013) shows that through ICT, learning can occur anywhere and at any time given the twenty-four hour, seven days a week accessibility of online courses and research materials. Furthermore, teleconferencing classrooms allow learners and teachers to interact simultaneously with ease and convenience. These merits of ICT are not only applicable in educational contexts but in other sectors as well.

However, due to a range of external and internal factors, the adoption, success and operation of ICT is uneven across space (Liu and Qianli 2015). External factors that influence the effectiveness of technology integration in research include technology availability, accessibility of ICT equipment, time to plan for instruction or research activities, technical and administrative support, the curriculum, institutional climate and culture, faculty teaching load, and management routines (Al-Ruz and Khasawneh 2011; Lin, Wang and Lin 2012; Tezci 2011). Internal factors include a user's understanding of ICT; beliefs, which may conflict with the application of ICT; attitudes toward technology integration; perceptions, including intentions or motivations, in respect of using ICT; self-confidence and knowledge; technology skills; readiness to use ICT and technology self-efficacy (Al-Ruz and Khasawneh 2011; Chen 2008; Lin et al. 2012; Sang, Valcke, Van Braak, Tondeur and Zhu 2011; Tezci 2011).

Of importance to us and this collaboration is the role ICT can play in ensuring our success. Research and development (R&D) experts around the world consider the use of ICT to be one solution to the problems arising out of widening international research networks. Howells (1995), however, observes that although communication within R&D has been visualised as crucial to research and innovation performance, most of the emphasis on the use of ICT in research has until recently focused predominantly on improvements to productivity. To deviate from this norm, Howells explored some of the ways that organisations are using computer-mediated

communication systems as a way to improve communication and information flows among researchers in distant and isolated locations who are engaged in emerging types of work and research.

Obioha (2016) examined awareness, use, exposure to ICT and improvements in ICT tools among research officers in research institutions in Nigeria. She found that ICT plays an important role in information sourcing, generation, processing, storage and retrieval, and dissemination of research findings. This justifies calling for librarians and information science professionals to take the lead in efforts to inform the user community of the utility of ICT features – for example, exploring the process of activating the email alert system for online databases to aid researchers, customising a home page, selecting favourite journals, reviewing search history, and searching alerts for journal issues and citations. These skills are crucial to enhance research output (Munnolli 2005).

Given the preceding discussion, how has ICT aided our research network and collaboration? How has it facilitated our activities? We also looked at the future prospects and the challenges of using ICT in support of the network's research.

ICT-Use Experiences for Research Collaboration

We illustrate the extent to which ICT facilitated our activities using four main milestones:

- Planning, revising and submitting research proposal to CODESRIA;
- Preparing for a methodology workshop organised by CODESRIA in Nairobi, Kenya, and incorporating suggested revisions prior to the workshop;
- Post-Nairobi methodology workshop before the network project launch in Accra, Ghana; and
- Recent events after project kick-off.

Table 1 shows results for the number of times participants in the research network used different ICT tools to accomplish tasks related to planning, revising and submitting the final copy of the research proposal to CODESRIA.

Table 1: Role of ICT in revising and submitting final network proposal to CODESRIA

ICT type	Number of attempted interactions	Number of successful interactions	Number of unsuccessful interactions	% success
Email	80	80	0	100
Skype	16	12	4	75
WhatsApp	150	125	25	83
SMS	45	45	0	100
Google Hangouts	3	3	0	100
Phone call	45	30	15	66
Total	**339**	**295**	**44**	**87**

Note: Computer and Microsoft Office use (Word, Excel, PowerPoint) were ubiquitous.

Eighty email messages were successfully exchanged among network partners. Of the 16 Skype calls placed, only 12 resulted in successful engagement of network partners. In the same period, 125 of the 150 WhatsApp interactions were successfully received and feedback provided. Additionally, 45 SMS messages were successfully exchanged among network partners, as were 3 Google Hangout interactions and 30 phone calls out of a total of 45 calls placed among network partners. Altogether, network partners were 87 per cent successful in their engagements.

Table 2 shows results for the number of times research network participants used different ICT tools to accomplish tasks related to the preparations for attending a methodology workshop in Nairobi, Kenya, from 12 to 15 October 2015.

Table 2: Role of ICT in preparing for the methodology workshop in Nairobi

ICT type	Number of attempted interactions	Number of successful interactions	Number of unsuccessful interactions	% success
Email	30	30	0	100.0
Skype	8	5	3	62.5
WhatsApp	85	80	5	94.0
SMS	15	15	0	100.0
Google Hangouts	1	0	1	100.0
Phone call	13	8	5	61.5
Total	**152**	**138**	**14**	**86.0**

Note: Computer and Microsoft Office use (Word, Excel, PowerPoint) were ubiquitous.

Thirty email messages were successfully exchanged among network partners. Of the 8 Skype calls placed, only 5 resulted in the successful engagement of network partners. In the same period, 80 of the 85 WhatsApp interactions were successfully received and feedback provided. Additionally, 15 SMS messages were successfully exchanged among network partners; the only Google Hangout call placed was not successful. Of the 13 phone calls placed, only 8 were successful. Overall, network partners were 91 per cent successful in their interactions. Table 3 summarises ICT use to facilitate preparation for the network research project launch.

Ninety-five email messages were successfully exchanged among network partners. Of the 15 Skype calls placed, only 10 resulted in successful engagement of network partners. In the same period, 145 of the 155 WhatsApp interactions were successfully received and feedback provided. Additionally, 10 out of 12 SMS messages were successfully exchanged among network partners. Of the 2 Google Hangout calls placed, 1 was successful, and 14 of the 17 phone calls placed were successful. Overall, network partners were 93 per cent successful in their interactions.

Table 3: Role of ICT in the network research project launch in Accra

ICT type	Number of attempted interactions	Number of successful interactions	Number of unsuccessful interactions	% success
Email	95	95	0	100
Skype	15	10	5	67
WhatsApp	155	145	10	94
SMS	12	10	2	83
Google Hangouts	2	1	1	50
Phone call	17	14	3	82
Total	**296**	**275**	**21**	**79**

Note: Computer and Microsoft Office use (Word, Excel, PowerPoint) were ubiquitous.

Table 4: How ICT was used to facilitate network research project kick-off

ICT type	Number of attempted interactions	Number of successful interactions	Number of unsuccessful interactions	% success
Email	35	35	0	100
Skype	10	7	3	70
WhatsApp	25	23	2	92
SMS	12	3	0	100
Google Hangouts	0	0	0	–
Phone call	5	3	2	60
Total	**78**	**71**	**7**	**84**

Note: Computer and Microsoft Office use (Word, Excel, PowerPoint) were ubiquitous.

Thirty-five email messages were successfully exchanged among network partners. Of the 10 Skype calls placed, only 7 resulted in successful engagement of network partners. Twenty-three of the 25 WhatsApp interactions were successfully received and feedback provided. Additionally, 3 SMS messages were successfully exchanged among network partners out of 12 SMS messages sent. There were no Google Hangout interactions, and of the 5 phone calls placed only 3 were successful. Overall, network partners were 91 per cent successful in their interactions.

A successful interaction is defined as one that happened between the interacting parties without any hindrance. For example, calls went through the first time and parties engaged, could hear each other clearly and the conversation proceeded successfully to the end of the interaction. Unsuccessful calls, on the other hand, were unanswered, did not go through or, if they did, conversations could not be sustained because speakers could not hear each other clearly and the calls were terminated midstream.

Discussion

As the four tables indicate, various technologies were used by the research network partners to communicate successfully: word processing; email; social media (WhatsApp); Skype; computer communication network (Google Hangouts); phone calls; and SMS messages. Word processing, WhatsApp, email and telephone communication were by far the most commonly used tools; Skype, SMS text messages and Google Hangouts were also used but not to the same extent.

In the experience of the network research partnership, electronic storage and retrieval of information was found to be extremely beneficial and helpful as it facilitated information storage at reasonable costs. It also facilitated the quick and easy transfer and retrieval of information. Between September 2015 and January 2016, 240 email messages were successfully exchanged (100 per cent success rate) among the three network research partners in Ghana and the United States. During the same period there were 49 Skype calls, 415 WhatsApp interactions, 84 SMS messages, 6 Google Hangout calls and 80 telephone calls. With Skype engagement, 34 calls were successful (69 per cent success rate); 373 WhatsApp interactions were successful (90 per cent success rate); 73 SMS interactions were successful (97 per cent success rate); 4 Google Hangout calls were successful (66 per cent success rate); and 55 phone calls were successful (71 per cent success rate). On average, 82 per cent success rate was achieved for all forms of interaction or engagement employed.

A great deal of time was spent nurturing, growing and maintaining the network and collaboration. ICT was invaluable to our enterprise at every step. This study does not, however, account for time spent contemplating major ideas and reconsidering them, or reviewing and editing the content of proposals. The amount of time spent in meetings and communicating using ICT is a testament to the amount of time needed, especially in the context of our collaboration's egalitarian structure. Moreover, the time difference between Ghana and the east coast of the United States presented its own challenges.

Meetings were scheduled outside of usual working hours and the collaborators and research network partners agreed that ICT helped us to work more efficiently. The use of virtual meeting places effectively ameliorated the geographic and time differences and features such as screen sharing greatly enhanced our virtual conferences, thus creating a more productive face-to-face experience.

Our use of ICT was not without limitations, however. Although difficulties with ICT, such as incompatibility between different text and data processing systems and between network protocols, are common (Institute of Medicine and National Research Council 1989), such challenges were not profound in our case. Of importance were network limitations of the various ICT tools. When one network was down, unavailable, limited or unreliable, the alternatives were employed to facilitate research communication, allowing our work or scheduled plans to continue unhindered.

The improvements brought about by introducing ICT into research network environments are not without potential problems, such as those related to cost – the price of electricity and the cost of the internet are

forever rising in Ghana. In addition, for ICT to be used optimally, a steady and regular power supply is necessary, as well as a workable and stable infrastructure, and the provision of more ICT tools and centres. While working towards the four milestones outlined earlier, there was erratic power supply in Ghana. That meant rescheduling meetings and relying on other forms of ICT than initially planned.

Conclusion

This article shared the experience of a research network by defining collaboration in general and our collaboration in particular; sharing the main stimuli of collaboration, with a focus on our own; looking at the benefits and costs of collaboration; and exploring the role of ICT in our collaboration. Research collaborations are variegated and endowed with a multiplicity of meanings. We suggest that for any collaboration to be successful, it has to be well defined. Therefore, understanding both the idiosyncrasies of a collaboration and its diverse steps is essential to a favourable outcome.

We distinguish between our research network and collaboration. Our collaboration is an individual-level collaboration which has the blessing of our institutions. Organisationally, we adopted a participatory collaboration model with an egalitarian structure. The major collaboration stimuli for us include: collaborators' expectations that this network and collaboration will contribute to knowledge in the area of our research goals, and will have remarkable output and impact; seed funding received from CODESRIA; the use of ICT; and perceptive and astute network partners and collaborators.

This collaboration has both benefits and costs. We anticipate that, as with many research collaborations, diverse knowledge, skills and competencies will be brought to bear on our research goals. Additionally, through bonding, bridging and linking social networks, the collaboration will expand and so will the network. With an egalitarian organisational structure and its consensus-building feature, our major cost is time. However, it is a necessary sacrifice to ensure that the collaboration does not collapse.

The use of ICT helped the collaborators and research network partnership in several ways. We demonstrated how social media (WhatsApp), Skype, a computer communication network (Google Hangouts), phone calls and SMS text messages helped in achieving four major milestones of our collaboration: planning, revising and submitting a research proposal to CODESRIA; preparing for a methodology workshop organised by CODESRIA in Nairobi,

Kenya, and incorporating suggested revisions prior to the workshop; running a post-Nairobi methodology workshop until the network project launch in Accra, Ghana; and events after project kick-off.

On the whole, it can be said with confidence that ICT led to improvements in the work of this research collaboration and network. It is evident from this experience that new ways for research collaboration and scientific exploration have opened up. Now the possibility of including additional researchers, collaborators and network members has become a reality. With the range of research expertise, interests and experiences among the network members and collaborators, and the potential for network growth, there are possibilities for these overlapping interests to lead to more interdisciplinary projects.

Finally, prime components of our collaboration include a clear sense of the nature of the collaboration and the type of organisational structure best suited for sustaining the collaboration; a firm idea of the vision, hence keeping focus on the benefits and minimising the impact of the costs; and intensive use of ICT to keep the process of achieving our goals afloat.

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