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The Impact of a Model Partnership in a Medical Postgraduate Program in North–South and South—South Collaboration on Trainee Retention, Program Sustainability and Regional Collaboration

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Abstract

North-South educational partnerships can potentially alleviate the scarcity of health work force in the South. A model program with the objectives of sustainability, high trainee retention, quality education, and capacity building is the goal of many similar programs. To achieve these goals a program of postgraduate clinical specialty training was implemented, between the University of Bergen, Norway and three Universities in Africa and one medical school in India between 2008 to 2014. This partnership program aimed at educating physicians from the South to specialize in various medical field. The goal was that the trained physicians would be educators in their respective countries. The program participants were 58 medical doctors.

At the end of the program we conducted an evaluation survey involving program participants and coordinators. Twenty-eight physicians (48%) responded to the survey. The average program evaluation score by the physicians was 4.5 (out of a maximum of 5) with a range of 3.2 to 5. Out of the 12 program coordinators 9 (75%) responded to the survey. Their average score was 4.5 with a range of 4 to 4.9. By the time the survey was conducted, 49 of the 58 (84.5%) program participants had completed the program successfully and 47 of the 49 (95.9 %) were working in their own countries.

In conclusion, the partnership program was effective in capacity building in the development of the human health workforce in Africa. We have observed a high retention rate, good quality education, a sustainable program and the model can easily be reproducible.

Keywords: higher education, specialty medical education, north-south, partnership

1. Introduction

Physician education as a cornerstone of health workforce development in Africa is a key strategy. Education is the foremost accepted strategy for alleviating the multifaceted health system problem in Africa (World Bank, 2004). The scarcity of medical schools, lack of candidates going to higher education, poorly developed health and education infrastructure all have negative impact. Producing competent and adequate number of physicians for people in Africa, in face of the exciting multilayered health, economic, social and educational problems is the biggest challenge faced by many countries. There are numerous benefits of African universities in collaborating with Northern institutions in alleviating these health challenges (Olapade-Olaopa, Baird, Kiguli-Malwadde, & Kolars, 2014).

2. Literature Review

2.1 Development of Health Workforce in Africa

Low and Middle Income Countries (LMIC) suffer from multiple health-related problems and have a low capacity to deliver services to their population. Specifically, Sub - Saharan Africa has the greatest proportional shortage of health workforce compared to other regions (Anyangwe & Mtonga, 2007), (WHO, 2006) Investing in developing of the health workforce has a critical role in achieving the MDG (Anand & Bärnighausen, 2004).

Effective, accessible and high-quality health services provided by personnel, in sufficient numbers that are appropriately allocated is key for meeting objectives of health policies (Dussault & Dubois, 2003). The health system in most of African countries are poorly developed and are facing numerous challenges, including the paucity of skilled staff at various levels, weak training capacity, poor economy, poor quality of service and lack of appropriate technology, not to mention a variety of diseases ranging from communicable diseases like malaria and HIV to epidemics of non-communicable diseases such as diabetes, cancer, birth problems and geriatric issues (Nugent, 2008). There are numerous causes of poor provision of effective health care in developing countries, one of the prominent reasons being lack of trained personnel (Donnell, 2007).

The HIV epidemic with the resurgence of other diseases has brought more demand on the health services by increasing chronic disease care in addition to the pandemic. Africa has the highest age adjusted mortality, for all ages, for both communicable and non-communicable diseases across all regions (Tawfik & Kinoti, 2006; WHO, 2005). One of the suggested means of alleviating these and many other interrelated socioeconomic problems in LMIC is through education of its healthcare workforce and improvements in the healthcare system (Health and the Millennium Development Goals, 2015; WHO, 2012). The health workforce development is critical in addressing the complex health care service problems in developing countries. Development of the health work force is a steady long term investment which pays back (Narasimhan et al., 2004).

2.2 North-South Educational Partnership

North-South educational partnerships are considered by many as one of the means to alleviate the scarcity of the health work force in the South. Some of the benefits of building institutions' capacity through equitable partnerships in health are: access to scientific resources for partners, availability of expertise and exchange of ideas, access to financial resources, improved research quality, improved productivity and capacity building for individuals and institutions alike. This kind of educational partnership is crucial for the Sub-Saharan African countries to meet the demand for highly specialized physicians in educational centers and in the tertiary health care delivery services. There are reports of success in partnership programs in capacity building with exhaustive lists of weaknesses and strengths (CHET, 2002). Sending professionals abroad for further training from Sub-Saharan Africa had been reported by some as a failed strategy, as most do not return, resulting in significant brain drain for the region (Arslan et al., 2014; WHO, 2013; Klufio, 2003).

Although no single model can solve the multi-faceted problems in the healthcare scenario, educational partnership programs serve as essential tools in addressing the deep-rooted human resource deficiency in Sub-Saharan Africa (ACU, 2011) To minimize or even prevent the extent of brain drain, one strategy could be the establishment of a variety of high quality specialty education and healthcare programs that are adapted to the local requirements.

Some of the unresolved problems identified in African universities are globalization, internationalization and mass higher education, which have brought immense challenges to the institutions in terms of insufficient instructors, infrastructure and budget (Altbach, Reisberg, & Rumbley, 2009). In addition to this, the existing and long lasting internal struggles, faculty shortage, poor governance, weak leadership and management, lack of quality education, lack of research and innovation capacities, financial austerity and lack of capacity for diversification and inadequate infrastructure are some of the challenges African universities face (ACU, 2011)(NASULGC National, 2008).

2.3 Evaluation of the Partnership Educational Programs

Although North South partnership programs have been developed decades back the literature is deprived of standardized evaluation tools. Most described funding aspects of a program (Tremblay, Lalancette, & Roseveare, 2013; FINLAND, 2009; Dye & Maria Nagorski,, 2004). Reports on North to South partnership evaluation would be beneficial to evaluate the value of the program (Busse et al., 2013). An appropriate evaluation tool is helpful to compare different programs with different stakeholders and between different geographical locations.

3. Aims and the Research Question

Given that many North-South collaborative post graduate education programs are currently being conducted and its high demand in terms of funding time and instructors' efforts, appropriate and valid evaluation methods are mandatory. This report endeavors to provide an evaluation of such a collaborative program by using internal evaluation comparing instructors and the program participants.

The research question for this program was; what is the best approach of training Physicians in specialization program and how best to evaluate the program outcomes?

This study evaluated a model of a North-South and South-South educational partnership program that could

build the capacity of institutions and specialized physicians in Africa. Additionally, it reports on the weaknesses and strengths of the partnership to propose better strategies for future similar projects in the region.

4. Methods

The University of Bergen and three collaborating institutions in Africa, namely: Addis Ababa University in Ethiopia, Muhimbili University of Health and Allied Sciences (MUHAS) in Tanzania, Makerere University in Uganda. The collaboration also involved the Christian Medical College (CMC) in India as a clinical training hub.

This program evaluation study used a combination of qualitative and quantitative methods to assess the graduates and current students' opinion on the training program, on the partnership itself and on the gains made from the collaborating programs. Institutional leaders were also asked about the quality of the training, management and overall value of the partnership program for the South countries. The study has certain limitations. It is a retrospective evaluation with lack of baseline data and lack of responses.

4.1 Participant's Evaluation Survey

Structured survey questions were distributed to participants and responses collected from the respondents' through email. A thirteen-item questionnaire for quality of program assessment was used. Both the process of the program and the outcome of the program were included in the questions. The items were rated from 1 to 5, where 1 was 'strongly disagree', 5 was 'strongly agree', and 3 was a 'neutral' rank.

4.2 Program Instructors' Survey

The second survey was for the program instructors from the North South collaborating institutions including CMC in India. These questions were as those asked to participants with additional questions on their roles as instructor. Their responses were also rated from 1 to 5 where 1 was 'strongly disagree' and 5 'strongly agree' and 3 being a 'neutral' rating.

In addition to the survey questions seven open-ended questions were distributed to the program coordinators and institutional leaders. These questions aimed at gathering expert opinions, perspectives and suggestions of instructors.

4.3 Other Data Sources

Data reviews on collaboration agreement, number of participants with their specialty program were obtained from the project documents, annual program reports, individual programs records and, MOUs and other institutional documents.

4.4 Data Management and Statistical Analysis

Data from the questionnaires were verified and cleaned before being entered a predesigned Microsoft Excel database. All survey results were analysed using Excel Microsoft data analysis. Program participants were described by type of speciality training and country. The survey questions had response categories as described in section 5.2. Result was then ranked on a scale of 1, the smallest, to 5, the largest. The average score was considered to reflect the score for the specific item.

The Mann- Whitney U test was used to compare the instructor and participants group in survey question responses with $p \leq 0.05$ as significance level. These data were analysed by the SPSS program.

4.5 Partnership and Program Methods

The program was initiated in 2007. The partnership involved the University of Bergen as the North collaborating institution and three collaborating South institutions, which were Addis Ababa University in Ethiopia, Muhimbili University of Heath Sciences (MUHAS) in Tanzania and the Makerere University in Uganda; all having medical schools. In addition, there was involvement of one South resource collaborating institution, the Christian Medical Center (CMC) in Vellore, India, which offered chance for hands on practice. Funding for the program ended in 2014. Table 1 provides the specialty programs of physicians enrolled in the medical program offered through the North-South collaborative.

Table 1. Enrollment of candidates (number of candidates and percentage of total)

	Program	Country				
		Tanzania	Ethiopia	Uganda	Total	%
1	Neurosurgery	0	12	0	12	20.7
2	Reconstructive	0	3	0	3	5.2
3	Radiology	12	0	0	12	20.7
4	Cardiology	6	4	1	11	19.0
5	Internal medicine	2	0	0	2	3.4
6	Nephrology	5	1	1	7	12.1
7	Anesthesiology	0	8	0	8	13.8
8	Pediatric surgery	0	2	0	2	3.4
9	Cardiothoracic surgery	0	1	0	1	1.7
	Male	16	22	2	40	69.0
	Female	9	9	0	18	31.0
	Total	25	31	2	58	100

The host institutions in the South identified the relevant medical specialty programs.

These programs were either non-existent in their respective institutions at the beginning of the project or were barely functional.

The host institutions prepared the curriculum and were responsible for the teaching, from admission to graduation of the candidates. Some of the graduate programs were designed to be complementary to the existing institutional program. The institution in the North supported the required program through the expertise of instructors for the transfer of knowledge and skill, or through technology support or through access to facilities and financial support.

The overall management of the partnership program was designed in such a way that all partners had equal say and took part in all major decisions. Programs and decisions were made as transparent as possible. There was at least one annual program participants meeting and an additional once a year program coordinators management meeting.

The University of Bergen took responsibility for the overall external coordination of candidates, administrative reporting and finance management. The training program was financed by NOMA, the Norwegian government international funding for postgraduate educational support

The individual program was conducted per the existing university regulations in each country. The regional committee for ethics in medical research in Western Norway waived ethical clearance for the study as minimal risk and no patient involvement, dated October 15, 2015.

5. Participants Survey Results

There were 58 participants in this program, 18 females and 40 males (Table 1). A total of 49 had graduated successfully by the time the study took place, with the remaining 9 still pursuing their postgraduate specialist education. Five of the candidates were in a three-month program abroad after completing most of the training at the home institution.

Twenty-eight graduates out of a total of 58 responded to the program participants' questionnaire. The range of scores for participants' questionnaire response was between 3.7 to 5, with mean score of 4.5 (SD± 0.24) (Table 3). The current working place of the participants was also collected from the institutions, (Table 2). By the time of this evaluation, 49 graduates (96%) had completed the program and 47 of them were working in their respective countries with 37 of them in the host teaching institutions, and the other 10 in other public or private non-teaching institutions.

Table 2. Current working place of program participants

Country	Same institution	Other public institution	Private institution	Out of country	On training	Unknown	Total
Tanzania	16	5	3	1	2		25
Ethiopia	21			1	9		31
Uganda						2	2
Total	37	5	3	2	9	2	58
Percentage of all participants	63.8%	8.6%	5.2%	3.4%	15.5%	3.4%	

Table 3. Program participants' responses

Item no.	Questions	Average score
1	The program helped me acquire more knowledge in my field of study	4.5
2	The program helped me acquire more skill in my field of study	4.3
3	I was able to attend more skill sessions I might not get otherwise	3.7
4	I got more opportunity to discuss with more experienced instructors	4.5
5	I was able to have more access to more information in my field of study	4.6
6	The program was well organized	4.3
7	I got essential supply such as books and or research fund necessary for the training	4.3
8	The instructors and program coordinators were helpful	4.4
9	I recommend this program for others	4.7
10	All institutions I have been to in the program were supportive	4.4
11	I am satisfied with the program	4.4
12	The program made major contribution to my professional development	4.5
13	The program helped me to be a competent physician in my specialty	4.5
	Over all average	4.4

6. Program Coordinators Survey Results

There were 12 program coordinators in all institutions. Nine out of the 12 coordinators responded to the questionnaire, which included both open and closed-ended questions. The questionnaire had 10 items as shown in (Table 4).

Table 4. Average response scores of the 9 program coordinators

Item no.	Items	Average score
1	I am satisfied in the program planning	4.5
2	The program has built participants knowledge and skills	4.9
3	The program has impact in building human capacity in my institution	4.0
4	I am confident that the quality of the graduates is satisfactory	4.3
5	The program was acceptable on international standards	4.1
6	The program had adequate resources to fulfill its objective	4.1
7	I will be glad to get involved in the future with similar programs	4.9
8	I am motivated to run similar program in the future	4.8
9	The program was not a serious extra burden to m	4.6
10	I recommend this type of partnership for other	5.0
	Overall average	4.7

Table 5. Questions for instructors in the qualitative study

1	How would you describe potential advantage of similar program for institutions in the South?
2	What are the strengths of this partnership?
3	What are the weaknesses of this partnership?
4	Is this a good model partnership for developing health work force for Africa?
5	What would you suggest for program improvement?
6	How would you describe collaboration among all concerned institutions?
7	How would you describe the program integration in your institution, relevant unit or department?
8	Any other comment?

The mean score for the group was 4.5 (SD±0.33). Mann-Whitney U statistical test was performed between the program participants and instructors. The U-value is 57. The critical value of U at $p \leq 0.05$ is 28. Therefore, the result is not significant at $P \leq 0.05$.

Most program coordinators had views that the program was excellent. Some of them commented it to be a perfect partnership program. Some of the positive aspects listed in their responses were local capacity building, both in the institution program delivery and of individual instructors. In this regard, they all agreed that the program had impact in building knowledge and skill to the local staff. They also believed that the program had a high potential of being sustainable.

Some of the weaknesses in partnership program management reported were the South institutions administrative weaknesses and were stated as a reflection of the general status of the countries. Specifically, they were reported as being the administrative and or bureaucratic inertia in most areas, mainly due to the underlying issue of poor institutional management. Language was another main barrier in the non-academic communications, though in all countries, English was the primary or alternative academic language. Some suggested the lack of flexibility in utilization of funds, while others appreciated the flexibility of the project management, which helped them tackle finance and procurement processing time. Accreditation of the offered programs was also mentioned by some in the survey as a problem for short duration programs. These programs were believed to be supplementary to the existing accredited program. The brevity of trainees' exposure to high level training facilities also raised concerns. Lack of established facility in their home institution was and still is a challenge for the practice of the newly acquired skill after they graduated and during their in-country training period. The exchanges of instructors and students should be revised to accommodate more frequent short-term periods for staff and less long-term external rotation for the students.

7. Discussion

As agreed upon by the project leaders, the working definition of success for these programs was whether the programs were relevant in terms of building health work force capacity. Sustainability was defined by continuation of program after the end of the project cycle, and finally success was also measured by whether the programs resulted in the retention of graduates in their own country after graduation.

In participants' satisfaction level the study identified a contrast, in that those who continue to work in their own countries tend to be more satisfied than those who went abroad after graduation. The overall score of 4.5 out of 5 is an excellent rating, showing high satisfaction of participants.

In our observation and from the coordinators' feedback the strengths of the program were good planning, close supervision during implementation, appropriate budget utilization, regular communication and periodic evaluations. Student selection and good program administration has contributed to these positive parameters. The support the program received from the participatory institutions must be emphasized. These are some of the important program components for the success of educational partnership (Wanni, N, Hinz, A & Day, 2010).

There is no well validated assessment tool for programs of this kind, particularly for partnerships in North-South collaboration (The Academy of Medical Sciences, 2012). We believe the described program is an endeavor towards efficient planning and implementing projects with an intention of exploring better methods. There are similar programs for capacity building, published and unpublished, that report success in the same universities included in this report and in other countries (Klufio, 2003; Busse, Aboneh, & Tefera, 2014; Kinnear, Bould, Ismailova, & Measures, 2013). Unfortunately, there are few program evaluation reports with standardized methods for North-South partnerships to compare our results with. Besides scarcity of literature, lack of standardized evaluation methods is a major deterrent to compare results to the current study. There is a need to develop methods that can assess and standardize such programs.

The partnership program in this report has built the capacity of institutions by improving retention of healthcare professionals and by providing access to high quality training through visits to institutions abroad where new technologies and methods are readily available. We believe this approach is one way of tackling the multitude of deep-rooted academic challenges that most African Universities struggle with mainly brain drain and lack of motivation.

Some of the strengths of the program, according to the respondents, are the creation of academic ties among professionals, institutions and among various cultural groups. Most agree that one of the successes of the program is the way the South partner institutions built their local capacity and became self-sufficient in a relatively short period.

The qualitative study was directed towards assessing the overall program management value, sustainability and other strengths. Accordingly, the questionnaires were distributed to program coordinators at each institution. The main results per the respondents are documented below. Some of the essential point mentioned in the responses was categorized based on essential features of program components described in the literature (Wanni, Hinz, & Day, 2010).

7.1 Qualitative Data Analysis

The purpose of the qualitative study in relation to the quantitative study was to collect data that would not have been available otherwise. The specific data gathered in the partnership program were quality, sustainability, management and achievements in the form of model partnership.

Out of 12 instructors and program coordinators a total of 9 were included in this study.

The following is a summary of the 8 questions delivered (Table 5).

Most participants in this study have noted the program has increased exposure of the trainees to a wider and higher level of academic and professional training. In the kind of multiple sites visit trainees obviously will have broader opportunities to attend many expert teaching sessions in the field and were given opportunity to get hands on practice. Besides the actual training the trainees are oriented with the setup of clinical services, technology, standards and management of the service. This kind of program has benefit in networking besides the local capacity building. Some recommended that this program is valid enough to be implemented in other African countries.

Some of the strengths of the program per the respondents are creating ties among professionals, institutions and to different cultural groups. Although this is exaggerated statement the leaders of the project have met all university presidents and Chancellors of the involved schools. Most program participants had the chance to travel to South India and North Europe. This has facilitated smooth relationship in all participants and has created mutual understanding. Participatory nature of the program has helped the south institutions to come up with their real need and the flexibility in the program management helps them to somehow address the existing administrative and procedural issues in institutions. Most agree that one of the successes of the program to make the south partner institutions is to build their local capacity and initiate their own programs. They anticipate developing long-term relationship with professionals in the partner institutions backed up by the leaders. There is also a suggestion for the program to be research based training.

Weaknesses in the south institutions were reflection of the general status of the countries. It was reflected in most areas as slow response to requests procedures related to corruption were always there at the background. Language is the main barrier in non-academic communications, though in all countries English is an alternative academic language. Others have suggested the lack of flexibility in utilizing funds while other appreciates the flexibility of the project management helps to tackle finance and procurement. Accreditation is also mentioned in the survey as a problem in short duration programs. Timing of students' exposure to high level training facilities is raised as a problem. Lack of facility in their home institution is a challenge for the practice after they graduate and during their training period. The exchanges of instructors and students should be revised where by more frequent short term period for staff and less long term exchange for the students.

Most agree on the model of the partnership and few have rated it excellent and others have appreciated it as perfect program. Some of the positive aspects they listed are local capacity building both institution and individual instructors. In this regard, they believe that the program will be sustainable. It is also suggested that the trainees to be encouraged and supported to start their own training programs locally soon as they graduate. One responder thinks this is a low-cost capacity building scheme. Another suggested the program will be more valuable if the weaknesses are addressed well.

For the improvement of similar projects survey participants suggested more time in CMC. Other local issues like

there is more need for staff recruitment in south institutions. All trained graduates are ready for the service but when it comes to teaching they need more support. For more sustainability institutions need funding and training of leaders for a better academic programs management.

The participants agreed that there is good collaboration by all involved centers. The annual meetings should include trainings besides the management meetings and suggested to be more frequent. The North partnership was transparent, and has shown commitments and support for independency and flexibility and equal partnership, though we have observed South-South collaboration not well developed. Others in contrast to this opinion felt that there were several meetings during the year where everyone shared experience from other colleagues and institutions challenges and achievements. Local coordinators need to be passionate and skilled in coordinating. Finance regulation in the south sometimes is one constraint observed which should be improved.

The integration of the program with the existing institutions and other units or department in each institution was very good. Students visiting the unit are also easily included in the training program. Most of the sites for this program are well accustomed to foreigners. Except the language barrier all level integration is observed.

Additional comment by the respondents was that there is a need for a competency-based evaluation for the trainees. Partners in the South proposed more support through similar programs to be able to train all their specialists. Others agree that they have benefited a lot in working in this program and have acquired good experience. Everyone agree that networking with institutions and professionals is established through the program and this has motivated them to take more initiatives.

In summary

i. Quality of training: Trainees acquired wider perspective from the program through visits to several institutions, meetings with instructors and in learning environments that were rich in technology, methodology, standards and procedures. This we also believe is the main strength of the program, which makes such trainings to be of high quality.

ii. Networking: All agreed that the program has created a network that will continue among institutions, trainees from different nations and instructors from all participating programs.

iii. Local capacity building scheme: This project has helped in the establishment of at least five new programs or units and has strengthened other programs in the South institutions.

iv. Flexibility: Usually, local public administration does not find it easy to align with international partnership programs. This issue was tackled through flexibility in finance administration, adaptability to institutional academic and administrative regulations. This was achieved without compromising the transparency, accountability, and the ultimate objectives of the project.

v. Sustainability: Although sustainability is an assessment we plan to make years after completion of the project, most respondents believe that this is a sustainable program.

vi. Program management: We believe that the over-all program management including commitment of the leaders in all institutions, ownership of program, reporting and revising and implementing new ideas was the strongest aspects of the project. This does not undermine the administrative weakness reported.

vii. Early integration: The project is demand driven as it was initiated by the demands of the South institutions. This has helped in early integration and ownership of the program. South partners initially identified the programs as their priority in the postgraduate educational program of their respective institutions. Successful integration became a strength that promoted the success of the partnership. The regular and frequent evaluation of the program since its implementation was one of the strengths for the integration.

8. Conclusion and Recommendations

We report a successful North- South and South-South partnership educational programs that may contribute to alleviate the health workforce scarcity in the study area. Although this report has its own design shortcomings we believe it sheds light on an important collaboration area for future appropriate research and program planning.

Further on in the absence of accepted evaluation tools, knowledge and experience sharing is detrimentally affected. This is one of our recommendations for researchers to develop tool to evaluate programs that involves institutions with differences in culture, socioeconomic status and experience.

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