

## **ORIGINAL ARTICLE**

# Factors for success in collaboration between high- and low-income countries: Developing a physiotherapy education programme in Sudan

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#### Abstract

Background: This study presents an example of collaboration between two higher education institutions: one in Norway, a high-income country, and one in Sudan, a low-income country, in developing an entry-level physiotherapy education programme in Sudan. The institution in Sudan had minimal theoretical and practical knowledge in physiotherapy. The study examined the factors important for the success of the bilateral collaboration. Material and methods: We analysed written documents produced in the project from 2007 to 2012 in a qualitative study by using systematic text condensation. We identified vital factors for partner institutions and participants in ensuring a physiotherapy education programme of high quality. Results: These factors were within seven topics: project arrangements, collaboration relationship, curriculum development, administration of the bachelor programme, capacity building, academic community and infrastructure. Conclusion: We identified several factors that we hope can be valuable for similar projects. Some factors are similar to those shown by other studies. These are probably general factors that are important for such collaboration.

**Key words:** Bachelor study, bilateral collaboration, entry-level physiotherapy education programme, higher education institution, international collaboration, partnerships, systematic text condensation

#### Introduction

The World Health Report 2006 – Working together for health (1) assessed global health. The report revealed that the African Region of the World Health Organization accounts for more than 24% of the global burden of disease but has access to only 3% of the world's health workers. A region with an overwhelming need for health workers such as physiotherapists has few entry-level physiotherapy education programmes, and the quality of those educated varies (2).

Sudan offered no entry-level physiotherapy education programme in the early 2000s (2), and health authorities in the government expressed Sudan's need for qualified physiotherapists. From early 2005, Ahfad University for Women (AUW) took up the challenge of approaching institutions in countries

with strong physiotherapy education programmes, seeking a partnership with Bergen University College (BUC) in Norway to help establish an internationally recognized entry-level physiotherapy education programme at the bachelor level.

The content of physiotherapy education varies according to the national and institutional frameworks and the international standards to which a country's physiotherapy association has committed itself. The World Confederation for Physical Therapy (WCPT) operates with guidelines for international physiotherapy education: the curriculum content, students' outcomes and teachers' qualifications (2,3). Physiotherapy education should embrace three core concepts: body, movement and interaction (4). Furthermore, the curriculum should include content and learning experiences in various academic

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sciences and experiences in clinical education (3). The diverse nature of physiotherapy practice requires a range of complex skills that should be developed longitudinally throughout the curriculum in the skill laboratories and practice (3). Practice is therefore a necessary and important learning arena to obtain knowledge and skills and reflect on clinical cases (3–6). Clinical education courses need to be of a certain length and quality to facilitate this.

UNESCO (7) stresses that good teaching and learning quality requires facilitating external factors such as space and equipment, administrative support, collegial governance and academic freedom. Furthermore, UNESCO says that institutions need a regulated system for providing high quality in all activities.

There are few descriptions of the factors leading to success in partnerships between higher education institutions in high- and low-income countries aiming to establish physiotherapy education programmes in the low-income country (8). Many non-governmental organizations (NGOs) employ physiotherapists in countries where they are needed, but physiotherapy education programmes have not yet been funded to the same degree as those in medicine and nursing (8). In a systematic literature search covering the past 10 years, only one article appears to describe partnerships aiming to develop entrylevel physiotherapy education programmes (8). This article describes the collaboration of two higher education institutions in pioneering education programmes in a country without them.

The purpose of this study was to examine the bilateral collaboration between two higher education institutions, one from Norway and one from Sudan, in building a physiotherapy education programme in Sudan. Our research question was: what factors can contribute to success in a collaboration involving a high-income country and a low-income country?

#### Material and methods

We conducted a qualitative study based on written documents produced in the project between AUW and BUC. Our study lasted from January 2007, when the partnership agreement was signed, until the first class graduated in April 2012. The project period was divided into three phases (Figure 1).

# Project arrangements

The project had defined goals and visions, and was organized with annual partner meetings held alternately at BUC and AUW. The partner meetings consisted of representatives with formal authority and a designated administrator from BUC. The respective institutions employed the participants in the partner meetings. The partner meetings wrote applications before and reports after each phase containing objectives, input, activity, output, outcomes, indicators and impact. The representatives from the two institutions each wrote their institutional part, including finances, and recruited their own participants to the project.

Teachers from both institutions were employed in the project (Figure 2). They also executed the action plans developed at the partner meetings: curriculum development, teaching and mentoring students in the clinical education phase of the curriculum. Although the participants were employed in the project, they had to adhere to their host institution's policies and procedures.

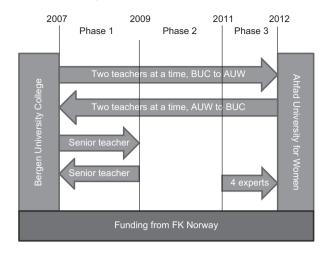
Funding for this collaboration was provided by Fredskorpset (FK) Norway, an agency of the Norwegian Ministry of Foreign Affairs. FK Norway facilitates mutual learning and the development of institutions and local communities in low- and middle-income countries (9).

# Data

The data comprise applications, mid-term and final evaluations from each phase, minutes of partnership meetings, monthly and final reports from every participant in the project and minutes from meetings with the employees from Norway, one from each phase.



Figure 1. The three phases of the project.



**Teachers**: Teachers employed in the project from Ahfad University for Women (AUW) and Bergen University College (BUC). Teachers from AUW worked at BUC and teachers from BUC worked at AUW. Most worked abroad for one study year in pairs of two.

**Senior teachers**: Teachers with curriculum development experience and many years of teaching, one from BUC and one from AUW.

**Experts**: Four teachers from BUC who taught in their specialty at AUW for 1-2 weeks.

Figure 2. Participants in the project.

#### Analysis

We used the principles of systematic text condensation for analysis (10,11). The analysis followed four steps: (i) total impression – from chaos to themes; (ii) identifying and sorting meaning units – from themes to codes; (iii) condensation – from code to meaning; and (iv) synthesizing – from condensation to descriptions and concepts. To ensure that the concepts were in accordance with the context and the total impression of all texts, we reread the data after we identified the concepts and repeated the four steps several times. The results are presented as text, tables and quotes. To answer the research question, we read the texts with the following questions in mind.

- How did each institution contribute to the collaboration?
- Were there changes in the contributions of the institutions during the study?

# Ethical and methodological considerations

All documents we used are public and available at BUC and FK Norway.

We chose to involve researchers from both institutions in this study. Thus we wanted to ensure that institutional and cultural knowledge was taken care of. Because of this decision, we had to avoid the power imbalance between the researcher and the individual being studied in collecting the data. We therefore chose only to use written documents and not interviews as the database.

The fact that three of the researchers were involved in the project might have influenced the selection of themes, but the strength was knowledge of the field. To minimize this selection bias, the fourth researcher was not involved in the project and had a special focus on the data analyses.

#### Results and discussion

The success factors emerged within seven areas: project arrangements, collaboration relationship, curriculum development, administration of the bachelor programme, capacity building, academic community and infrastructure.

# Project arrangements

The aim of the project was to build a 5-year entry-level physiotherapy programme at AUW. The partner meetings decided what was needed from both institutions to reach the aim and the action plans. The administration of the education was AUW's responsibility and the education subject to their policies and procedures.

The regular partner meetings included people with leadership roles, acting on behalf of their own institution. The project was thus institutionally rooted, and both partners had defined roles and authority in the project. This is in line with Casey (12), Stockley & de Wit (13) and the success factors that the African Studies Center at the Michigan State University describes (14).

BUC was the executing partner in the planning process during the first and second phases.

In 2012, there was a change. AUW made a detailed plan with steps to reach the aims, including all work tasks for the education programme, and BUC defined what they could contribute. The change in who was in charge of the planning in phase 3 reveals a development in competence related to the administration of the education programme. By initiating the decision-making process, AUW took responsibility and was accountable for the consequences.

Apart from the planning process, the project structure and administration tasks did not change during the 5-year study period. This suggests either that this way of cooperating worked well and that the roles were clearly defined or that the partnership did not develop.

The partner meetings defined the participants' work tasks, but the project did not coordinate implementation or was responsible for the administration

of the education. This could have been solved differently. BUC or the project could have administered the programme, having the same quality requirements in the areas of teaching, learning and exams that BUC has. Beerkens (15) stresses that, if a collaboration project is to have far-reaching consequences, which follows if an institution has to give up institutional tasks, authority needs to be delegated. This means that AUW had to delegate authority and responsibility to the project/BUC and give up institutional tasks. The problem with this solution is to know when to delegate authority and responsibility back to AUW, when they would have established the leadership competence for this kind of education programme, when they would have meet international quality requirements and who should decide on this.

UNESCO (7) points out that the institution that offers the education programme is responsible for the quality of the programme and overall conditions. Thus, BUC recognizes AUW's competence in starting new programmes and taking responsibility.

#### Collaboration relationship

All parties involved in the project seem to have emphasized two attitudes, and these appear to be consistent throughout the whole study: openness and interest. A teacher from Sudan puts it this way in a report.

We experience a nice and friendly working environment with "open doors" both to colleagues and supervisor. The communication works well, we are pleased with the follow-up so far.

The representatives from the two institutions had their meetings over several days, including weekends. In addition, they had long meeting days and social gatherings afterwards. This was consistent throughout the study.

Beerkens (15) points out that international projects must include interest among the involved. He (15) also states that common goals and visions and a sense of "we-ness" (unity of purpose and cohesion) in projects enables the participants to look beyond short-term gains and be willing to make an extra effort. The partners involved in this study put in considerable work beyond normal hours. This might suggest that the participants had a sense of cohesion within the project that contributed to success.

The representatives from the two institutions, except for the administrator of the Department of Physiotherapy of AUW, were the same throughout the study period. During the period of this study,

AUW's physiotherapy education programme had four different administrators. The same people meeting regularly over 5 years may have created an atmosphere of insight into and knowledge about each other and the respective institutions. Together with the structural stability in the project as well as roles and delegation of work tasks, this may imply that the arrangements worked well and that the participants involved strongly desired to make the project successful. Other researchers (15–17) also emphasize collaboration over time with the same people in international projects as a positive factor in achieving goals.

# Curriculum development

According to WCPT (3), the curriculum of a physiotherapy education programme should have content that enables the students to practice physiotherapy in various settings and be relevant for the health and social needs of the country. A senior physiotherapy participant from BUC took responsibility for developing the curriculum, which ensured focus on the core subjects in physiotherapy and clinical practice as an important learning arena. Involving an Italian physiotherapist working for an NGO in Sudan facilitated discussions and adjustments related to physiotherapy. Involving a senior staff member from AUW, although he was not a physiotherapist, integrated the institutional connection and the social adjustment. Presenting the curriculum to other higher education institutions and partners in a workshop created an opportunity for further adjusting to local needs and ownership for everyone involved (Table I).

In 2010, a new quality assurance system was implemented at AUW that is more in accordance with international requirements for higher education institutions. One curriculum requirement is developing detailed course content, including literature lists. This means that the Department of Physiotherapy had to examine all the course outlines, specify the reading material and ensure that the students had access to it. This was challenging, since little physiotherapy literature was available. Several participants pointed out that implementing this new quality assurance system is important for the curriculum work in their reports. This change in 2010 created the opportunity for systematic revision and further development. The new quality assurance system and more involvement of the Dean of the faculty housing the physiotherapy education program at AUW, led to the curriculum becoming more at par with international requirements and UNESCO's guidelines (7). As the teachers from Norway were involved in the education programme

Table I. Activity by the participants in curriculum development, running the bachelor programme and contributing to capacity building.

Activity category	2007, start of phase 1		2012, start of phase 3	
	BUC	AUW	BUC	AUW
Curriculum development	BUC senior teacher in charge.  Presented the curriculum at a workshop and developed it further afterwards	AUW senior teacher made sure it was in accordance with AUW's requirements and conditions in Sudan; an NGO physiotherapist was involved	Teachers from BUC developed the content of the physiotherapy courses and gave advice about the examination system	AUW saw to that all courses were developed in line with new regulations
Run the bachelor programme	<ul> <li>Two teachers and one senior teacher taught physiotherapy at a time at the bachelor programme at AUW</li> <li>Supervised students in clinical internship at AUW</li> </ul>	None	<ul> <li>Two teachers at a time taught physiotherapy at AUW</li> <li>Supervised students in clinical placements at</li> </ul>	None
Capacity building	Teachers from BUC trained clinical educators in supervision and students' evaluation criteria at the clinical placements Teachers from BUC trained AUW academic in how physiotherapy theory and practice could be taught	Two teachers and one senior teacher visited BUC to get insight into how physiotherapy is taught and practised	AUW Expert from BUC had courses for the clinical educators at AUW in collaboration with the BUC teachers	Two teachers visited BUC to get insight into how physiotherapy is taught and practised

BUC, Bergen University College; AUW, Ahfad University for Women; NGO, non-governmental organization.

for one academic year on average, they had the opportunity to look after aspects other than just the content of the various subjects, such as connection and progression between the subjects and the concurrence of subjects and placement periods in both content and time. The length of their stay did not allow them to evaluate the result of their efforts.

# Administration of the bachelor programme

In addition to teaching, the teachers from Norway took on work tasks not directly connected with the teaching, such as ensuring the supply of water and coolers in the skill laboratories, and what had to be done to complete examinations and clinical placements. In addition, they also decided when the different tasks needed to be completed.

In phase 1, the participants from Norway wrote in their reports that they had to explain what needed to be done, but still nothing was done. One participant expressed it as follows.

We say what should be done, but no one ensures that is it implemented.

In phase 2, a change occurred. One participant wrote the following.

Recently the Dean has involved herself in developing the physiotherapy programme, and

I find this very promising and positive. She initiated process work among the whole staff and followed it up.

A description of the organization of a major examination stated that things were not done according to the planned time frame of the participant from Norway, but the task was still completed.

For a long time I felt frustrated. I was very alone in organizing this examination. But when the examination was only a week away, suddenly we were a huge team working on this. I was very relieved; everyone did a great job.

As the participants from Norway pointed out, when tasks had to be completed, cultural differences may have been a factor, with experience showing that carrying out long-term planning is difficult in rapidly changing environments. Nevertheless, the institution may also not have sorted out which tasks could be planned with a short versus a long time horizon. UNESCO (7) stresses the importance of the working environment for teachers to provide high-quality teaching. The teachers from Norway mentioned a lack of leadership in the first phases of the project. However, a change occurred after the Dean got more involved.

The explanations for a lack of leadership can be multiple. During the study, AUW made extensive

changes in the administration of the education programme, and only one administrator knew the academic field. AUW therefore did not know the consequences of incomplete work. Another explanation could be that the administrator of the education programme assumed that authority to follow up had been delegated to the project. As stated earlier, this suggests that authority should have been more clearly delegated.

An important question is whether AUW's administration of the education programme would have progressed as rapidly if the participants from Norway had been in charge of the education programme in the first phase of the project. Regardless of the answer, the project should have clarified what needed to be in place for the teachers to perform their tasks according to international standards and AUW should have taken leadership.

# Capacity building

Employees in higher education institutions are required to have high formal qualifications. As AUW wants an international standard for their physiotherapy education programme, the teachers need formal qualifications at an international level. This was a challenge, since there were few physiotherapists in Sudan and therefore few who could teach at AUW and supervise the clinical placements.

The staff members from AUW were able to develop professional skills by travelling to Norway to learn about physiotherapy education and practice in Norway, reading international academic literature and attending courses and conferences. The staff members included teachers who taught physiotherapy or minor subjects or administrative personnel at the education programme at AUW. This presented challenges, however. One participant said the following.

We have problems understanding physiotherapy teaching in depth. Most of the material is in Norwegian.

Teachers from AUW faced language barriers in Norway because teaching and information were mainly in Norwegian. The teachers and students at BUC spoke English, which reduced the language barriers, and the participants were able to be part of an academic community and had access to international literature. The optimal solution could have been for the AUW teachers to stay at another university in Africa with an internationally recognized entry-level (bachelor) physiotherapy education programme.

The WCPT (3) states the following.

An integral component of the curriculum for the first professional qualification is direct clinical experience under the supervision of appropriately qualified physical therapists or other relevant professionals. As skills and experience increase, clinical education involves access to increasing levels of responsibility.

At AUW, teachers from BUC also had courses for teachers and clinical educators in evidence-based practice, learning methods and students' evaluation criteria at the clinical placements and examinations. Training clinical educators was important because they were responsible for the students' learning situations in the clinical internship. Sudan had no physiotherapy education programme when this project started, there were few physiotherapists and evaluating the quality of their clinical work was difficult. Linking the clinical educators to the education programme was thus extremely important: for example, by giving them the opportunity for professional development. It also became important to connect physiotherapists working at various NGOs to the education programme, since they had qualifications from recognized higher education institutions.

This project did not solve the challenges of developing formal competence, but AUW was granted four BUC quota scholarships during the project period. However, in 2012, none of the quota students had returned to AUW even though two graduated as physical therapists. Students acquiring a formal degree abroad often do not return: brain drain takes place (8,18,19). Others who were involved in this project have started formal competence building at other institutions in Africa, which might prove to be fruitful.

## Academic community

BUC offered participants from AUW an academic community and gave access to documents and presentations given at the Department of Physiotherapy to the participants from AUW and BUC.

At AUW, an effort was made to implement weekly academic meetings at the education programme from 2007 without success. One participant said the following.

All our colleagues were assigned to responsibilities and workload in other departments at the university, respective to their professions, and thus had no or little time to take part in the new work tasks that arose from our crosscultural and -professional exchange.

In 2010, this changed, and weekly meetings took place. The aims included sharing information,

coordination, problem-solving, academic discussions, etc. In 2010, a participant wrote the following.

Weekly meetings with the staff at the Department of Physiotherapy, which the Dean of the School of Health Sciences also usually attends.

Building a collegial community is an integrated part of establishing an education programme. Harden (20) says that the key to effectively implementing a curriculum is to make teachers exchange information about what is being taught. At AUW, teachers already connected to other education programmes were also linked to the physiotherapy education programme. Unclear department connections and no clear understanding of what physiotherapists are doing and the content of the physiotherapy education programme created difficulty in building a community. Even though having meetings was a problem throughout the study, several participants said that this improved in phase 2 when the Dean started to attend the meetings.

## Infrastructure

Space and equipment. Educational institutions need classrooms, and a physiotherapy education needs rooms with special equipment to assess and treat the core subjects in physiotherapy (3).

BUC was the partner that knows about what rooms and equipment needed to offer high-quality teaching according to international standards, as stressed by UNESCO (7). BUC was therefore responsible for providing the necessary information on basic equipment in skill laboratories, and AUW had to provide the equipment. In 2007, the rooms were located in other departments' areas, but already at that point AUW had started planning to build new facilities. The BUC senior participant and the administrator of the project gave advice to the architect for the new building about which rooms were needed and elaborated on what physiotherapy equipment was necessary. During the study, the education programme moved into new facilities with well-equipped skill laboratories.

During the last project phase, AUW had grown in competence so that the division of labour could be changed. They took over planning and purchasing equipment for the skill laboratories. The teachers from BUC went from decision-making to supervision. AUW was in charge of providing rooms and necessary equipment throughout the study.

Preserving information. AUW had no system for preserving electronic documents or sharing teaching materials in 2007. In 2012, the physiotherapy education programme at AUW developed its own electronic system for document sharing and presentations. Nevertheless, responsibilities were poorly defined. One participant wrote the following.

Someone needs to be in charge of always collecting the updated version of all the documents. All teachers should also have access to teaching material that has been made earlier for all subjects.

Information about what teachers pass on to students and colleagues is important so that others can build on previous work and create mutual understanding about what is needed to reach the goal: qualified physical therapists (15,20). The teachers connected to the education programme were familiar with electronic documents, but AUW did not have a common system for the institution as a whole, leaving it up to the individual and thus making it arbitrary. Being anchored in individuals and not the institution thus made the system vulnerable.

Contracts with clinical partners. AUW had contacts in the management of existing and potential practices, but no written contracts existed. Most of the physical therapists working in clinical practice were connected to AUW as either clinical educators and/or part-time teachers, but none had written contracts. In 2012, providing enough clinical placements and clinical educators was still difficult.

Agreements were a clear example of the collision of oral and written traditions. BUC had written contracts between the institution and the clinical placements, whereas AUW depended more on contacts and networks. The question is whether oral contracts were necessary given the cultural environment. At any rate, there has to be more continuity than contact from one placement period to another because this leads to a need to renegotiate all contracts as well as dependence on the individual. Institutional contracts can facilitate more continuity, but a prerequisite for this to function is that both AUW and the clinical placements want to change and find written agreements acceptable.

There were few physical therapists in the clinic, which made the students in placements more vulnerable to changes in their working conditions. Hopefully, this will change when the graduates start working and can serve as clinical educators.

# Summary of the factors

Project arrangements. The partnership was rooted in the institutions, with shared goals and defined

authority and roles. The institution offering the education programme was responsible for it even though it did not have competence in the core subject.

Collaboration relationship. The participants in the collaboration were open and interested, strongly desired to make the project a success, were willing to work more hours than a normal workday and were involved over a period.

Curriculum development. Participants from both institutions were involved. Discussions and adjustments related to physiotherapy were ensured. The curriculum was regularly revised, but the teachers' evaluation of their own revision needed longer posting than one academic year. With a quality assurance system at AUW in place, ensuring the quality of the curriculum's form and content was easier.

Administration of the bachelor programme. When this study started, AUW did not take responsibility for clarifying what needed to be in place for the teachers to perform their teaching according to international standards. A change took place when they got a person who took responsibility for the education programme.

Capacity building. Capacity building was done at AUW by academic and clinical educators and by sending staff from AUW to Norway. Sending people to Norway presented two problems: language and brain drain.

Academic community. With unclear department connections and no clear understanding of teachers' responsibility at the physiotherapy programme, building a community was difficult.

Infrastructure. When the project started, BUC was the partner that knew what facilities and equipment were needed. During the project, AUW acquired knowledge to make decisions about what they needed. AUW was in charge of providing rooms and necessary equipment throughout the study. AUW had no system for preserving information rooted in the institution. AUW had no long-term contracts with clinical placement institutions and clinical educators.

#### **Conclusions**

Our main research question was: what factors can contribute to success in collaboration involving a high- and a low-income country? Our question has several keywords: success, collaboration between high- and low-income countries and factors. Based on the number of students involved in the education programme, this project was a success. The first 30 physiotherapists graduated in spring 2012, and AUW had about 150 students all females since AUW is a women university. The physiotherapy programme is 5 years with an average annual class of 30 students. AUW still had challenges to solve. They did not have enough qualified teachers or clinical educators. The latter will most probably change when graduates start working. AUW still depended on physiotherapists from abroad to teach. During the project, AUW was much concerned about building academic capacity. The education programme was very vulnerable because of brain drain. Qualified academics are attractive to other institutions and countries that also lack physiotherapy programmes.

In this collaboration, the intention was not to start a branch of BUC's physiotherapy programme in Sudan. AUW came to BUC and asked for help so they could start an education programme. Nevertheless, the BUC way of thinking and experience of what international physiotherapy education means derives from European standards and the WCPT. Even though the WCPT includes many associations from African countries, most come from high- and middle-income countries. There are no common standards for African physiotherapy education, so when AUW wanted an international programme, BUC had to use the standards available and AUW had to ensure that it was adapted to Sudan's context.

In this study, we identified several factors that can hopefully be of value for similar projects. Some correspond with those shown by other studies. These are probably general factors that are important for such collaboration. More studies and/or use of methods that combine this and similar studies can explain more about the connection between the various factors and whether some are more important than the others.

# Conflict of interest

None declared.

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