Research Article

Learning for Effective Teaching: Lessons from Academy of Health Sciences in Sudan

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Abstract

Aim: This qualitative study explored the extent to which the desired results and outcomes of the training programme on learning and teaching were achieved. It focused on the views of course participants, organisers and managers, including funders of the training programme. Success case method was used to identify success cases and document the actual nature of success. **Methods:** Three methods were used to collect qualitative data from the different groups of stakeholders which included a self-administered open-ended questionnaire, group interviews and semi-structured interviews. **Results:** Results indicated that the key driving force for initiating training programme was the realization that there was few core staff teaching in the Academy of Health Sciences across the country that had the required competencies to provide good quality teaching. Similarly, there was a general agreement among respondents that the training programme was relevant for their needs and expressed their satisfaction in the way the training courses addressed the intended learning outcome. **Conclusion:** The importance of partnership between the University of Leeds in UK and Academy of Health Sciences in Sudan has contributed to capacity development, skills transfer, sharing experience and mutual learning. The success of this initiative could be to a large extent linked to the genuine spirit of north-south partnership that was based on a vision of relationships on a more equal footing, with genuine participation of both sides.

Keywords: Learning and teaching, Training programme, Training evaluation, Partnership, Sudan

Abbreviations

AHS: Academy of Health Science, FMoH: Federal Ministry of Health, L&T: Learning and Teaching, NCHID: Nuffield Centre for International Health and Development, WHO: World Health Organization

Background

Sudan is situated in East Central Africa. It is bordered by Egypt to the north, the Red Sea to the northeast, Eritrea and Ethiopia to the east, South Sudan to the south, the Central African Republic to the southwest, Chad to the west and Libya to the northwest. Sudan is the third largest country in Africa. Administratively, the country is divided into 18 states (Figure 1), which are further sub-divided into localities. Decentralisation forms a crucial element of the government, making Sudan a decentralized federal state with a multi-tiered structure: Federal Government at the national level, the States, and the local governments at the locality level [1].
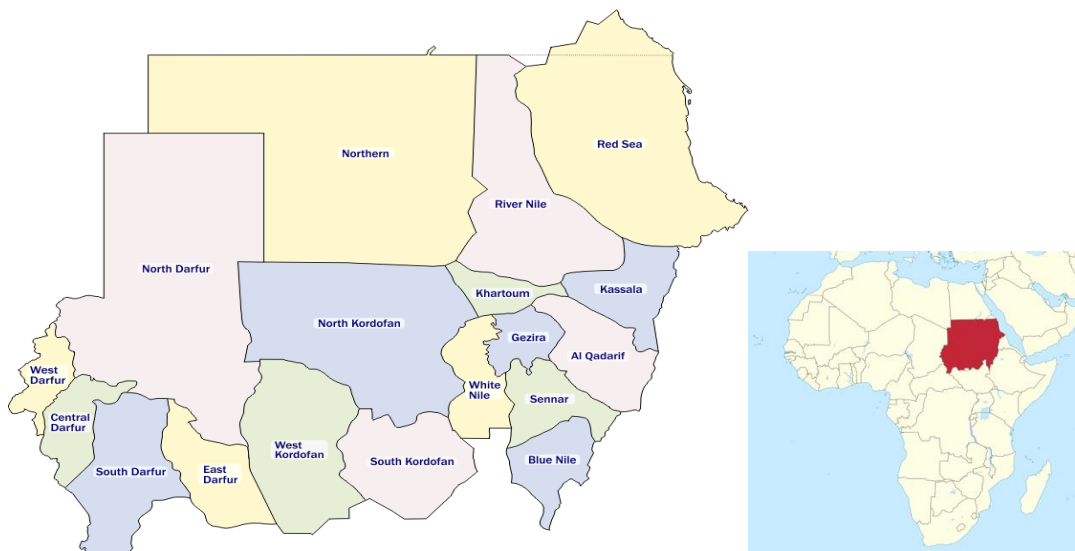

Figure 1: Map of Sudan.

There are considerable imbalances in the quality and production of various categories of health workers in the Sudan. The gap in human resources is huge, especially for nurses and medical assistants, which has severely constrained the coverage of primary health care. For these cadres, not only the attrition rate is high, the production is also low, and there is continuing brain drain [2].

The Academy of Health Sciences (AHS) was established in 2005, as a bridge for the huge shortfall in human resources for health in nursing, midwifery and other allied health cadres, which was estimated to be around (52,943) for nurses, and (16,761) for midwives and health visitors, and (32,000) for medical assistants and other paramedics [3].

Currently, most of the States in Sudan have branches of the AHS. In addition, there is the headquarters of the AHS in Khartoum. On average, each Academy employs about 30 teaching staff, mostly associates, who have other clinical and administrative responsibility in the health system. In order to improve quality of teaching and learning, and thereby produce competent graduates from these academies, it was deemed essential that the capacity of the teaching staff is enhanced by training them on innovative approaches in teaching and learning [4].

Considering the above, with the assistance of World Health Organization (WHO) Sudan, a two-week training programme on learning and teaching (L&T) was designed based on the needs assessment. The first round of training was delivered in June 2011 for teaching staff from the AHS and Public Health Institute in Khartoum. The course was cascaded to cover all AHS teaching staff from different States of the country on a six-monthly basis.

The overall aim of the initiative was to improve the skills of teaching staff of the AHS and other training institutions so that they are capable to:

• Effectively teach in an increased number of courses based on appropriate curricula and updated learning resources.

• Develop and implement relevant educational plans and curricula for different training programmes, based on an assessment of training needs in all the States of the country.

• Conduct training sessions using appropriate learning and teaching strategies, and assess student learning and their own learning and job performance, as part of the process of continuing quality improvement of the educational programmes.

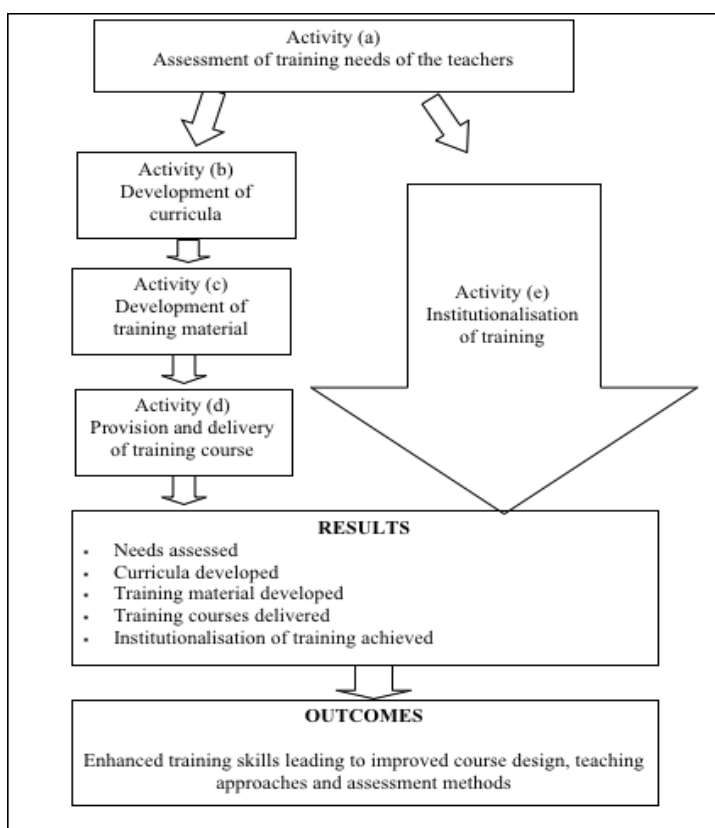The overall framework of the initiative is summarised in Figure 2.

Figure 2: The framework and components of the initiative.

Based on the training needs assessment (activity a), a training curriculum (activity b) and teaching materials (activity c) were developed by academics from the Nuffield Centre of International Health and Development (NCIHD), University of Leeds. A total of 10 training courses (activity d) were delivered in Sudan over a period of 5 years. Around 200 teaching staff attended those short courses, which were delivered jointly by academics from NCIHD and local facilitators from Sudan. The aim of involving the later was to transfer expertise and skills to the local facilitators, who would eventually take over the running of to L&T courses on a regular basis (activity e).

The learning outcomes of the training programme in L&T are illustrated in Table 1.

Table 1: Learning outcomes for Learning and Teaching training.

By the end of the course, the participants are expected to be able to:
1   Write SMART learning outcomes that can be used to structure and support learning, and provide the basis for assessment
2   Describe the essential attributes and abilities of the various groups of health staff in order to develop capacity and achieve health reform in the country
3   Plan and deliver high quality presentations and lectures applicable to different audiences
4   Prepare and facilitate effective small group teaching sessions that incorporate a range of ways of supporting learning
5   Select appropriate teaching methods that take account of the topic, learner and resources available
6   Support learning in a range of appropriate ways; this will include recognising need, planning and designing support
7   Devise appropriate assessments to measure learners' achievements and give constructive feedback
8   Establish an evaluation strategy related to learning outcomes for any training that they plan and implement.
9   Design and manage constructively-aligned courses based on sound design principles
10   Plan coherent teaching sessions and learning opportunities that are relevant to learners
11   Develop approaches to supervision in professional and academic training programmes

Training approaches, as illustrated in Figure 3, involved a mixture of lectures, which is perhaps the most traditional way of teaching in the context of Sudan, working on assignments individually or in pairs, discussion in small groups, as well as personal study outside teaching sessions.
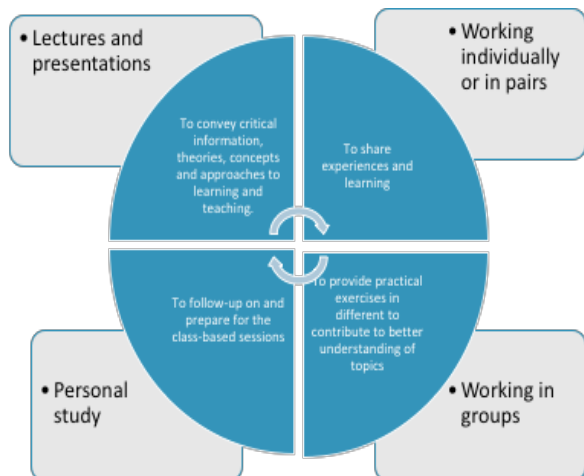

Figure 3: Approaches to learning and teaching used in the training course.

Evaluation of the Training Programme

According to Frye and Hemmer (2012), evaluation of training mostly follow four common models: the experimental/quasi experimental model, the logic model, the context-input-process-product (CIPP) model, and the Kirkpatrick four-level model [5].

Given the fact that the above mentioned models are widely used in numerous evaluation programmes, in this evaluation, we are attempting to use an alternative method, an adapted version of success case method [6], "… intended to produce concrete evidence of the effect of training (or the lack of it) in ways that senior managers and others find highly believable and compelling, relating verifiable incidents of actual trainees who used their learning in specific behaviours that can be convincingly shown to lead to worthwhile results for the organisation." The method draws upon appreciate enquiry methodology [7], which involve a two-part structure:

1. Locating potential and likely success cases—individuals (or teams) who have apparently been most successful in using some new capability or method provided through a training (screening)
2. Interviews to identify success cases and document the actual nature of success

The aim of the evaluation is to appraise the extent to which the desired results and outcomes of the training initiative were achieved.

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Objectives of the Evaluation

- To identify the main drivers and vision behind establishing learning and teaching training courses
- To analyse the relevance and appropriateness of the short course in learning and teaching to teachers of health care professionals in Sudan
- To document the processes and results in the short course on learning and teaching, and the changes in performance of teachers in a work setting.
- To analyse the factors which have contributed to or constrained the changes in training programmes and use of new knowledge and skills by trainees.
- To assess the extent of institutionalisation of the short course and analyse factors which have contributed to or constrained its success.
- To draw lessons learned from this experience for their replicability in other settings.

Evaluation Methods

Design

This study is designed to discover the perceptions and desired results of the training programme, delivered in the form of short courses in L&T of teaching staff from AHS and other associated training institutions in Sudan. Qualitative research is a suitable approach since it is 'concerned with opinions, feelings and experiences' and 'used to help develop

concepts and theories' about participant's lives [8]. In other words, qualitative research will be more effective at eliciting the subjective views of individuals who attended the training course, the organisers of the course and managers of the programme.

Study population

The study population were stakeholders of the AHS which included three groups consisting of those involved either in funding/managing, organising and attending the training programmes, using convenience sampling [9]. Generally, a sample size of 12 is considered adequate in a homogenous population to reach saturation [10], while 15 is the minimum for heterogeneous populations [11]. The study population was relatively heterogeneous; therefore, a sample size of 30 participants was feasible under the given context. Three groups of participants (Figure 4) were drawn from each of the three sub-groups of the stakeholders:

1. 18 individuals who participated the training courses.
2. 12 individuals involved in organising and facilitating the training courses
3. 4 key individuals involved in either funding or providing overall management and directions to the AHS and training programme.
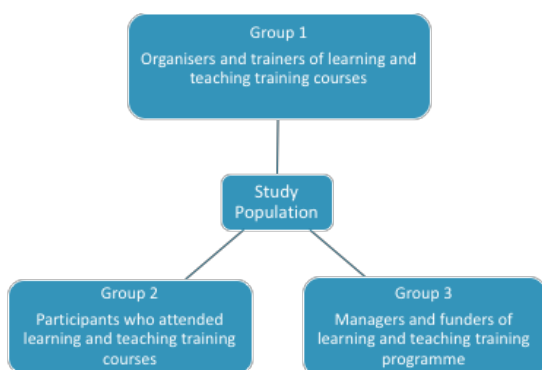

Figure 4: Study population.

Data collection

Three methods were used to collect qualitative data from the different groups of stakeholders in order to answer the objectives of the study. Firstly, a self-administered open-ended questionnaire was given to participants who attended the training courses at least six months before this evaluation. They were asked to reflect on the following five questions:

a) The things they remember as the most important learning outcomes of the training course that they attended.
b) L&T activities they have been involved in following the training course.
c) Changes they have made in their practice as the result of what they learned and what motivated them to make those changes.
d) Barriers they faced to practice what they have learned from the training course.

Secondly, group interviews were used to solicit the views of training course organisers and local facilitators, and semi-structured interviews were used to collect data from key officials. Both group interviews and semi-structured interviews involved 'open-ended questions based on the objectives of the evaluation and allowed 'the researcher to probe the interviewee(s) to elaborate or to follow a new line of inquiry' [9], allowing freedom to explore important topics areas, but also flexibility to explore new topic areas.

The following ethical issues were considered during the evaluation [12].

- Ethical clearance was obtained from the AHS at Federal level.
- Informed consent was obtained from each study participant
- Participation in the study was voluntary and participants were informed of their freedom to withdraw from the study at any time in the data collection process.
- Participants' names were not recorded as part of the questionnaires or interview.
- Privacy of collected data was maintained.

Data analysis

All interviews were transcribed and annotated with the notes taken during data collection and all data was anonymised. Familiarisation with the data was achieved through re-listening of each interview with the transcripts at hand. Thematic analysis was chosen as an analysis methodology which would facilitate the creation of a rich and detailed account of the full range of experiences expressed by the relatively small sample size [13].

The data was coded according to emergent themes drawn from the participants' own responses. Once all of the data had been coded, the emergent themes were reviewed – some were then aggregated into "umbrella" themes which encompassed several related themes. "A priori" or pre-determined codes were used to classify the emergent and aggregated codes into theme categories relevant to the objectives of the evaluation.

Findings

The findings in this report are structured by the themes which emerged and address each objective of the evaluation [14].

Drivers and vision of the initiative

The response on this theme was mainly drawn from the views of key informants from managers of AHS and WHO as the main funder. They mentioned that the key driving force for initiating training programme on L&T was the realisation that there were few core teaching staff in the AHS across the country who had the required competencies to provide good quality teaching. AHS relied on clinicians who were experts in their fields but had limited skills on how to deliver the teaching effectively. The vision for starting this initiative was to improve the quality of the teacher in order that the product of the AHS is of good quality. A senior WHO officer stated that:

"To my belief this course enables and empowers the teachers to design their courses and teaching sessions, to develop these sessions and to evaluate their teaching, and to build the knowledge amongst their audience and students"

The key informants acknowledged that the initiative was not only driven by the FMoH and WHO but also the recipients - the students and teaching staff were also concerned of the way teaching and assessments were conducted as illustrated from the following quote by one of the AHS managers:

"The students were just being given a small sheet and a summary. In some places they said they could not appreciate the lectures very well. In other places even the staff were saying they were finding it difficult controlling classes, and delivering the lectures, so it was actually from the base and the roots up".

Selection of course participants

The selection criteria were set to target the teaching staff of AHS and other FMoH involved in teaching using three selection criteria. Firstly, individuals to be selected for the training courses were to be teachers from various training institutions, not only in Khartoum, but other States. Secondly, they were expected to understand English as it was the media of instruction in the courses, and thirdly, they were required to have some teaching experience.

Organisers of the training courses pointed out that the training was meant to improve teaching and learning skills, therefore it was the priority to target in the first place, teachers in the AHS in all States of Sudan, including Khartoum. However, given that some of the teaching staff were also drawn from clinical settings and other training institutions, consideration was equally given to offer places in the training courses including some people from other training institutions to contribute towards their development in a wider sense.

Relevance of and appropriateness of the training programme

Relevance of the training courses: There was generally an agreement among the respondents that the training courses were extremely relevant for their needs. One of the training organisers stated:

"From my experience as being an organiser and also a participant, it was quite clear to me that the training course was extremely relevant to their needs".

Respondents mentioned some of the topics that were covered in the course, e.g. developing learning objectives and lesson plans, making effective presentations and proper assessment of students, were all new to their teaching practice but quite relevant to all teachers. They acknowledged the fact that despite all efforts to choose people with knowledge in English, there were nevertheless some individuals who felt there was a barrier in the language and some of the terminology used especially in the difference between 'assessing the students' and 'evaluation' as these were quite new to the them.

Course organisers made a comparison between the first and second round of the course and felt that there were some areas and issues with regard to training content that were not relevant to them in the first round. However, they noted that in the second and third rounds things had changed after making required changes to the content in response to the experience gained by local facilitators and participants' feedback from the first round.

One of the organisers stated: *"I have seen course participants come late on the first day, but then from the second day they started to come earlier. They discussed what happened the day before. Participants were engaged throughout the whole process and shared what they have learned. For example, if one of the group members struggles to understand English, the other will help to explain. So that was the kind of environment that was going on".*

Appropriateness of teaching methods

Both organisers and participants observed that the training course adopted a variety of teaching methods that they felt was an excellent illustration of the value of using different teaching approaches to achieve different learning objectives. They felt that the way the courses were delivered, and the opportunity given to the participants to prepare and deliver own session to their colleagues, was appropriate and helpful. One participant said:

"...first were taught how to do, shown how to do and then asked to do ourselves has helped in the learning how to teach".

Local facilitators were very positive on the use of different teaching methods to deliver the course, as illustrated in the following quote from one of the facilitators:

"To me one of the strengths of this course is the way it was delivered using different ways of teaching. I believe that it addressed and considered the needs of various candidates. Some of them due to the language, it wasn't easy to get all the information from the lecture, but from the presentation, role play and group-work they got the whole picture".

- Course facilitator

Achievement of training learning outcomes

The majority of respondents from group discussions and individual reflections expressed their satisfaction in the way the training courses addressed the intended learning outcomes. They have particularly cited the concept of 'Constructive alignment', i.e. how to link learning outcomes with teaching content and student assessment as being particularly helpful in the design and delivery of training programmes. They also emphasised the session on lesson planning as one of the integral aspects that they have learned from the course. The three domains of learning outcomes, i.e. cognitive, affective and psychomotor and how to write SMART learning outcomes was mentioned by almost every-one who also stated

appropriate teaching methods and how to assess learning outcomes using different methods as well as providing constructive feedback to students.

Application of learning in teaching environment

Participants in their reflection identified a number of activities that they have undertaken following the training courses in their respective institutions. These ranged from designing and conducting workshops in learning and teaching, taking on teaching new modules and student supervision as well as evaluating existing modules. A summary of selected statements from course participants are provided below:

"After attending the course, I got more involved in teaching adult students. I take part in different training activities and training workshops related to my work. I also deliver sessions to interns as part of their induction courses"
- Course Participant 5

"I used to teach large group of students in very large classrooms, I now started to divide the students in small groups using tutorials and small group teaching"
- Course Participant 9

"After completing the course, I started to revise my learning outcomes thoroughly to ensure they are consistent with the content and the teaching/delivery method. I also started to involve my students/participants more during the sessions. I introduced 'question asking' to provoke their thinking and make them more interactive. I also learned to accommodate 'effectively' the different inputs from students, and I realised that this gave them more self-confidence and increased their enthusiasm in participation".
- Course Participant 17

Factors facilitating and constraining application of learning

Factors facilitating application of learning: Respondents from different stakeholders have highlighted numerous factors that facilitated conceptualisation of the initiative, the development and delivery of the training programme and application of what was learned from the training course. Table 2 summarises what were considered as facilitating factors from the perspective of different stakeholders.

Table 2: Stakeholders' perspectives of facilitating factors for the training course on learning and teaching.

Managers and funders	Organisers and local facilitators	Course participants
• Organisational factors from WHO and FMoH sides for continuity to support the initiative and the vision which was developed and translated into action. • Initial evaluation from those who attended the courses is that they valued the course and went back to practice it. • Technical factors, i.e. how the course was designed was user friendly and met the needs of the AHS management, teachers and students. • The involvement of local stakeholders in the identification of needs as well as in designing, delivering, evaluating and adapting the course to ensure its relevance to the context of Sudan. • The dedication of the academic staff from University of Leeds, their motivation and willingness to support the country and the MoH and AHS, has been the factor contributing to the continuity. • Accreditation of the AHS as the award bearing body by Ministry of Higher Education was a major recognition, hence contributed to efforts to enhance teaching quality.	• The commitment from the Government to establish AHS in all States to address the staff shortage problem in the country. • The need to develop, update and improve the knowledge and skills of our teachers who are drawn from different disciplines with little teaching experiences. • Feedback received from participants who attended following initial evaluation. • Support from WHO and University of Leeds, both technical and financial, to realise the successful implementation of the course. • Commitments and willingness from course facilitator who acted as a role model in mentoring, advising, supporting and assisting all the time. • Interest and enthusiasm of course participants and the way they promoted the idea and course to other institutions and colleagues.	• *The approach used by the teacher [of the training course] and his teaching methods throughout the course.* • *Teaching approaches using during the course that encouraged active participation rather than dictating, making participants an integral part of the teaching process.* • *The exercises and group work encouraged active participation and interaction in the learning process.* • Valuing and supporting participants to apply learning in the workplace by encouraging and supporting changes on the way academic programmes are delivered and evaluated. • Support from AHS headquarters through regular follow-ups and provision of teaching materials that are needed to apply new learning. • The willingness of AHS managers to strengthen and support infrastructure at State AHS and donor support to avail structures and audio-visual aids.

Course participants equally reflected on a number of changes that they have made following the completion of the training course and what facilitated that. The changes ranged from modifying their roles from being a teacher to a facilitator who encourages active learning by the students and sharing what they have learned among themselves. Other changes included encouraging the participation of students in the educational process, using small groups teaching, involving students in formative assessments and inspiring students to actively search references and books to extend their learning.

Factors constraining application of learning: Respondents have equally identified several factors that acted as constraints in the application of what is learned in teaching settings. One of the important constraints they mentioned involved lack of common ground between colleagues who have attended the training and others who did not. This led to a lack of consistency especially in regard to teaching approaches and assessment methods among the two groups. Respondents mentioned reluctance from their bosses to apply changes as they saw these as a 'luxury' and extra work, which they don't need to bother themselves with.

Language barrier was mentioned by some of the respondents who found it difficult to access good reference material as they are written in English. Similarly, large class sizes and lack of sufficient teaching spaces were considered as major challenges to apply best teaching practices in their contexts. Other technical and logistical issues were also mentioned by some respondents, which include power cuts and lack of teaching aids such as computers, projectors, flip charts and internet access.

Institutionalisation of training course

The ultimate objective of the initiative is that the country takes over the running of the programme for training of teachers using local institutions and facilitators. A Unit for teaching development and quality assurance was set at the AHS in Khartoum to take this forward in order to institutionalise this programme. Managers acknowledged that there were a number of challenges that they had to deal with in the process.

The first challenge they mentioned was how to engage all those who were local facilitators in the previous courses. In doing this, they came out with a core group of 5 facilitators to deliver two training courses using the materials that were already available. The second challenge was to do with cascading the training programme in all states where English language was an issue, which required translating the material into Arabic. In dealing with the issue of language, facilitators mentioned that they opted to use both English and Arabic, for example they kept the slides in English but provided explanation in Arabic. A course organiser stated the following:

"We also went back to Arabic references to get the correct terminologies. It was all about terminologies, which we did not want to use them incorrectly in translation. We found that this was not that easy to have all terms in Arabic. We therefore decided to continue presenting the slides in English language and explain the material in Arabic during the lectures".

The Carter Center under the umbrella of the Sudan Public Health Training Initiative (SPHTI) provided AHS in eight States of the country with skills labs and reference materials, as well as funding regular capacity development of teachers. According to one of the managers, the support has contributed to institutionalisation of teacher training programmes by enabling local health training institutions to adopt innovative learning approaches. This enabled the AHS

to further deliver fourteen short courses on "learning and teaching" and train 310 teachers for all eight States [15].

Lessons learned from the initiative

This evaluation has tried to draw lessons from the initiative which could help to improve and sustain the training efforts to develop the skills of teaching staff from the AHS and beyond. The views of different stakeholders on lessons learned are presented under several sub-themes

Selection of participants

Course organisers realised the fact that because the training courses were delivered in English, they had to accommodate individuals who fit language requirement criteria but whose primary roles included less teaching. These individuals were less enthusiastic to attend the full course as they were still engaged with their work. One of the organisers mentioned:

"I noticed that those who are really teachers, they attended the course from beginning to end, they will be there earlier and at the lecture hall before us".

The importance of proper selection was equally echoed by course participants who pointed out that that participants who were not only part-time teachers but had other roles elsewhere were not fully involved in learning from the course. They suggested revising the selection criteria to exclude people who have no teaching roles.

Usefulness of the programme

All the stakeholders involved in the programme unanimously agreed that the training course on learning and teaching is very important and needs to be maintained. Managers and course organisers felt that one of the important lessons drawn from the experience is the level of standardisation of the training course in teaching and learning that could be delivered to a wide audience of people involved in health profession education. A manager further stated:

"......this specific issue provoked my idea to work with Universities in Sudan towards a degree programme related to health professions education, not in a traditional way, but in a phased approach so that you can ensure that people are trained in the proper way and they can go and practice and then come back and reflect".

Structure of the course and mode of delivery

One of the interesting points raised by course organisers and local facilitators is the duration of the course. Some respondents thought 10 days is too long, but still agreed that 10 days is a minimum for a basic course to acquire the essential skills in L&T. On the other hand, some participants mentioned that they could be released for 10 days to attend a training course and that was one of the reasons why they had

to leave in the middle and return to their workplace for 2 – 3 hours to complete their tasks.

Course organisers are of the opinion that it could be better if the course could run in two separate rounds as stated below:

- Round 1: five days to cover topics such as how to write learning outcomes and teaching methods. Participants would then return to their workplace for 4 – 6 weeks where they are required to work on a project that involves applying what they have learned, by reviewing their sessions or course learning outcomes and design appropriate teaching methods for their courses, and report back in round 2.

- Round 2: Participants will share their experiences with the rest of the class about their project. This will be followed by another five days of training to cover topics such as presentation skills, small group teaching and student assessment, and then return to their work on the project.

It is assumed that restructuring the course to be delivered in two rounds would give participants more time to develop, practice, reflect and review.

A third point is that this course raised the need for a sort of continuum and proposed of doing it as phased manner, which would allow participants to attend a course for two weeks, then get them back to practice what they have learned, and then bring back to the course with some useful feedback to share. This is thought to be useful in terms of enriching the skills and provide training on continuous basis instead of one off course.

Replication and cascading the training course

Both course organisers and participants strongly feel that the training courses will reach more people if they are delivered in different States and suggested local facilitators could take the course to different regions to avail to the teaching staff working in State branches of the AHS. The scheme is seen to have numerous benefits in addition to access, such as reduction of financial and logistic costs of bringing people from States to Khartoum, teaching in real environments which helps in adapting the training material content, as well as delivering the course in Arabic language. One of the course organisers acknowledged the fact that these arrangements would require extra efforts as illustrated from the following quote from course organiser:

"If we are to run the courses in the States, we would have to revisit the teaching materials again, translate them and adapt to the teaching contexts, using real life examples".

A programme manager reflected on the roles of AHS at central (headquarters) level, which deals with issues concerning staff development. This presents a more realistic prospect for focus on this area in the future, which is key to sustainability of the programme by setting long term plans and general resources for their implementation.

Examples of good practices

Respondents provided a number of examples of the changes that they have made in their practice following the training course in learning and teaching. The changes mentioned by the majority of respondents included the following:

• Using different teaching methods (group discussions, role play, interactive learning);
• Planning appropriate assessments to measure achievements and give constructive feedback;
• Taking evaluation of the courses as far as the level of impact.
• Using student feedback to improve the quality of teaching.

The following statements illustrate examples of good practices that were mentioned by some of the participants:

"I worked on diversifying the ways of learning, increase students' engagement in content preparation, small number of students 30 allows dividing to small groups, and to increase communication between students (the lab was small)"
- Course participant 1

"I believe the changes I made in my teaching or presenting strategies made the event more enjoyable for both me and the attendees. The participation and good interaction ensured high attention throughout the sessions. My presentation skills have developed as well as my ability in taking in and accommodating the students/participants inputs."
- Course participant 3

" I am about to start undergraduate teaching. I have used the knowledge that I gained from the course in designing my module, starting from constructive alignment which showed me how to effectively relate between the planned learning activities and the learning outcomes all the way to assessment and evaluation."
- Course participant 15

Discussion

Teachers are understandably the most important input to the learning process in health professional training as they can undoubtedly make a substantial difference to the performance of health care professionals to provide high quality care to the population [16]. Although little is known about the specific attributes of effective teachers, student learning performance has been proven to be correlated with teachers' subject and pedagogical content knowledge [17]. In Sudan, like many other lower-income countries teaching in health professional training institutions, such as the Academies of Health Sciences, is delivered by a mix of full and part time instructors. The latter are drawn from service delivery outlets including health facilities and management organisations. Both groups of instructors have little training and capacity in learning and teaching which impact on the quality and product of their teaching. Moreover, barriers to education and research imposed by limited resources, political and economic instability additionally aggravate the situation. The vision of establishing a standardised training programme to all involved in teaching at the AHS was basically to develop and improve their pedagogic skills in order to be able to effectively design and delivery of quality teaching and student assessment.

The usefulness of the training programme to a large extent rests on the commitments shown by all key holders including funding agency, the Federal Ministry of Health, managers of the AHS, course organisers, facilitators and participants alike. The training programme was appropriate and successful due to the fact that it evolved around the needs and was developed to address the identified gaps in teaching and learning [18]. The training programme was tailored to prepare teaching staff of AHS and other allied health training institutions by developing their skills leading to effective teaching using available resources more efficiently [19].

Like in any change, adopting and applying new practices for teaching often face a number of challenges. People often see changes as involving extra resources and extra effort, which they are unwilling to put in place. The findings of this evaluation concur with findings from similar studies where numerous barriers are mentioned. These include key structural markers, such as dedicated knowledge and skills on one hand, and human, financial, technological resources and relevant assessment tools on the other hand [20]. Similarly, in most of low and middle-income countries, the English language is widely used as method of instruction especially in higher education which is not the mother tongue for the majority of learners [21]. In Sudan, availability of English language literature is a barrier because of a long-tanding embargo which has constrained availability of foreign exchange and ability to buy textbooks from international market. This has definitely created a gap in terms of actual classroom practices and the implementation of desired changes in learning and teaching. This may pose several challenges to both teachers and students [22].

Adequate capacity building is a corner stone for successful institutionalisation of the training programme [23]. This requires provision of adequate and sustainable resources in terms of human, material, technical and skills to design the training programmes, carryout translation of course contents, develop a course brochure and a schedule of running these courses on a regular basis as well as training reference materials. Most important is the aspect of developing the teaching staff to conduct these courses [24]. The challenge of high staff turnover and brain drain will have to be addressed using all possible options to ensure that training continues to take place, including using competent teaching associates working in different organisations [2].

Peter Drucker, a famous management trainer, wrote that "We now accept the fact that learning is a lifelong process of keeping abreast of change" [25]. In this evaluation it was agreed that the best teachers are the ones who are constantly pushing themselves to learn about new approaches to deliver their teaching and assess their students. As such, this course on learning and teaching raised the need for a sort of continuum which supports the idea of doing it as phased training in health professions. This would involve providing training for one or two weeks, getting back to practice what they have learned, and then back to training to share what has worked and what has not. This could lead to working with Universities in Sudan towards a degree programme in 'learning and teaching' that is delivered in a phased approach involving learning, practice and reflection [26]. This process will enhance the process of institutionalization of the programme that could lead to cascading it to all the States in the country.

Conclusions

One of the key lessons drawn from the initiative is the importance of developing key fundamental skills of teaching staff to design training programmes and courses as well as to align their teaching and assessment with the objectives of the programme and teaching sessions [27]. Therefore, it was important to create a learning environment consisting of a broad range of learning resources and activities which were structured and sequenced during the 10 days of the training course.

This type of training course is considered very important and needs to be promoted, maintained and cascaded to the whole country. This can be achieved by means of institutionalisation of the programme and to ensure that it becomes a requirement for all teaching staff to go through as part of their staff development. Such continuous learning from the part of teachers would encourage them to be constantly seeking more effective ways to help students learn and looking for more creative and engaged ways to assess their learning.

There have been challenges such as staff turnover, other related issues, selection criteria, ability of people with the English language. In any type of training there could be some sort of loss but, overall, people have benefited from the training programmes and made efforts to make changes in the way they design courses, deliver teaching and assessing students. There is recognition that even in terms of turnover of people who are trained, they could nevertheless contribute to other Institutions and Universities which would still be a gain for Sudan and the sector of health professions education.

The importance of partnership between the University of Leeds in UK and Academy of Health Sciences in Sudan has worked quite well in this initiative which involved joint design and delivery of training in learning and teaching. This has contributed to capacity development, skills transfer, sharing experience and mutual learning [28]. The success of this initiative could be to a large extent linked to the genuine spirit of north-south partnership that was based on a vision of relationships on a more equal footing, with genuine participation of both sides [29].

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